



**Harper Adams
University**

A Thesis Submitted for the Degree of Doctor of Philosophy at
Harper Adams University

Copyright and moral rights for this thesis and, where applicable, any accompanying data are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis and the accompanying data cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content of the thesis and accompanying research data (where applicable) must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holder/s.

When referring to this thesis and any accompanying data, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.



Harper Adams University

Behavioural Science and Farm Crime Prevention Decision Making: understanding the behavioural culture of farmers in England and Wales

Kreseda Smith
BSc. (Hons.)

*A thesis submitted in partial fulfilment of the requirements for
the degree of Doctor of Philosophy (PhD)*

Published Works

There is one paper produced by the author based on this research, and referred to in this thesis.

1. Smith, K. & Byrne, R. 2017. Farm Crime in England and Wales: A Preliminary Scoping Study Examining Farmer Attitudes. *International Journal of Rural Criminology*, 3(2): 191-223. DOI: 10.18061/1811/81047.

Chapters 1, 2, 6.8, 8 and 9 reflect the content of this publication.

There are two papers accepted that do not form part of this research, but rather provide background reading to fill an academic gap in the literature to enable an exploration of ideas relating to the historic picture of rural crime in England and Wales, and future threats to be considered.

1. Smith, K. and Byrne, R. 2018a. Re-imagining Rural Crime in England: A Historical Perspective. *International Journal of Rural Criminology*, 4(1), pp. 66-85.
2. Smith, K. and Byrne, R. 2018b [accepted]. Horizon Scanning Rural Crime in England. *Crime Prevention and Community Safety*, tbc.

Other Published Work

1. Mawby RI & Smith K (2017) Civilian oversight of the police in England and Wales: The election of Police and Crime Commissioners in 2012 and 2016. *International Journal of Police Science and Management* 19(1), pp. 23-30. DOI: 10.1177/1461355716677875.
2. Byrne, R & Smith, K (2016) Modern Slavery in Agriculture. In J. Donnermeyer (Ed.) *The Routledge International Handbook of Rural Criminology*. London: Routledge. pp. 157-166.
3. Mawby, RI and Smith, K (2013) Accounting for the Police: The New Police and Crime Commissioners in England and Wales. *The Police Journal: June 2013* 86(2), pp. 143-157. DOI: 10.1350/pojo.2013.86.2.610.

Abstract

Farms in England and Wales continue to have low levels of crime prevention measures in use despite the increasing threat, and what is used is often ineffective. As such, there is a clear need to employ different decision-making models in crime prevention advice for farmers.

The principal aim of this research was to explore and better understand the thoughts, feelings, and attitudes of farmers towards crime, crime prevention, the police, and insurers. Moreover, an attempt to understand how farmers make decisions about crime prevention, what factors influence those decisions, and how this compares to approaches the police are taking to tackle farm crime.

A mixed methods sequential explanatory model was used so that both quantitative and qualitative data could be fully examined separately, before being brought together to provide appropriate conclusions based on the combined results.

Results show an impasse between how the police are tackling farm crime and prevention, and the needs of the farmers. This results in farmers believing the police treat them as second-class citizens, and so they do not engage with crime prevention despite knowing they should. Further, farmers do not report crimes to the police as they feel they will not get a response, and it is a waste of their time.

This research concludes that there is much the police, insurers, and the media can do to better respond to farm crime. Moreover, this research is the first to identify key factors affecting farmer attitudes and beliefs towards farm crime, farm crime prevention, the police, and their insurers. It is argued that the findings of this research support the use of behavioural science to improve the uptake of appropriate and effective crime prevention on-farm in light of the relative failure of traditional policy.

Acknowledgements

This thesis is dedicated to my dad, who supported me throughout, but sadly died before he could see the final outcome.

To my amazing family who have seen me through the ups and downs of the entirety of my research, and will see me into the forthcoming challenges and adventures: my mom, my brother Karl and his fiancée Amy, my nephews Leighton and Riley, my Aunty Liz and Uncle Craig – you all made me smile even when I did not feel like smiling.

To my supervisors, Dr Richard Byrne and Professor Rob Mawby, without whose expert guidance and perseverance I would never have made it through the troughs of the PhD rollercoaster. Your advice aided me in shaping the research into what, I hope, you see as the beginning of much more to come.

I also wish to show my appreciation to the numerous members of staff at Harper Adams University who provided me with guidance on various aspects that were essential to my knowledge building during this research, including statistical advice, survey design, and the conducting of various qualitative methodologies. In addition, I wish to thank my line manager, Professor Peter Kettlewell. Despite carrying out this research alongside a full-time job, Peter has been immensely flexible enabling me to attend meetings and conferences, and to conduct interviews and focus groups where they were held within my normal working hours.

I wish to thank my fellow rural crime researchers I have met during this process, and the encouraging words they have given me. Their feedback has been invaluable.

My thanks go to the organisations that provided funding for this research – the Rural Services Network, and the former West Mercia Police and Crime Commissioner. This funding has allowed me to attend conferences and rural crime meetings nationally and internationally. More importantly, it enabled me to meet the farmers and the police who were so important to this research.

Finally, I wish to thank all the farmers, police officers, PCCs, and police staff who took time to meet me and talk at length about farm crime. When I started this research I hoped to be able to talk to them, but I have been overwhelmed by their generosity and willingness to talk to me about their thoughts, actions, and feelings about farm crime. Without them, this research would not have been possible.

Contents

Published Works.....	ii
Abstract.....	iii
Acknowledgements	iv
List of Acronyms	x
Chapter 1: Introduction	1
1.1 Overview	1
1.2 Research Context.....	2
1.3 Analytical Framework.....	4
1.4 Outline of Thesis.....	6
Chapter 2: Farm Crime	7
2.1 Farms as Businesses.....	9
2.2 Farm Crime Prevention.....	11
2.3 Top-Down vs Bottom-Up Policies	12
2.4 Potential Predictors of Victimisation	13
2.5 Attitudes towards the Police.....	15
2.6 Fear of Crime	16
2.6.1 Fear of Crime among Farmers.....	18
2.6.2 Repeat Victimisation and Fear of Crime	19
2.6.3 Media Influence and Farmer Fear of Crime	21
2.7 Excitement as a Criminal Motivator	23
2.8 Rural Masculinities and Farm Crime	24
2.8.1 Hegemonic Rural Masculinity.....	25
2.8.2 Risk Taking Behaviour.....	25
2.8.3 Challenges to Hegemonic Rural Masculinity	26
2.8.4 Gender Roles in Farming	26
2.8.5 Psychological Impact of Hegemonic Rural Masculinity	27
2.9 Summary.....	28
Chapter 3: Theoretical Models relating to Farm Crime Prevention	29
3.1: Crime Prevention Theories	29
3.1.1 Routine Activity Theory.....	29
3.1.2 Crime Opportunity Theory.....	31
3.1.3 CPTED & Defensible Space.....	33
3.1.4 Broken Windows Theory	36
3.2: Decision-Making Theories.....	38
3.2.1 Behavioural Science	38
3.3: Theories affecting Crime Prevention and Decision-Making.....	39
3.3.1a Rational Choice Theory.....	39
3.3.1b Rational Choice Theory & Criminal Decision-Making.....	40
3.3.2 Situational Crime Prevention Theory	41

3.4 Summary	44
Chapter 4: Behavioural Science	45
4.1 What is Behavioural Science?	45
4.2 Behavioural Science: Behavioural Economics and Nudge Theory	45
4.3 Behavioural Factors Affecting Decision-Making	48
4.4 Criticisms of Behavioural Science.....	51
4.5 Farmer Decision-Making	53
4.5.1 Policy vs. Farmer Behaviour.....	54
4.5.2 Social Norms and Farmer Decision-Making.....	55
4.5.3 Decision-Making Barriers	55
4.5.4 Risk Aversion and Hyperbolic Discounting	57
4.5.5 Diffusion of Innovation in Farming	58
4.5.6 Models of Farmer Decision-Making.....	59
4.6 Criminal Decision-Making.....	62
4.6.1 Deterrence Theory	62
4.6.2 Sanction Severity	64
4.6.3 Sanction Certainty.....	65
Chapter 5: Research Purpose and Research Questions	70
Chapter 6: Methodology	73
6.1 Research Ethics Statement	74
6.2 Funding Arrangements	76
6.3 Behavioural Economics or Behavioural Science?	76
6.4 Research Design	77
6.5 Farmer Survey	81
6.5.1 Reliability	81
6.5.2 Validity.....	83
6.6 Police Interviews.....	85
6.6.1 Reliability	85
6.6.2 Validity.....	85
6.7 Case Studies	86
6.7.1 Reliability	86
6.7.2 Validity.....	87
6.8 Farmer Survey Methodology.....	92
6.9 Police Interviews Methodology	95
6.10 Case Studies Methodology	98
6.10.1 Overview.....	98
6.10.2 Data Collection	101
6.10.2a Focus Groups	102
6.10.2b Focus Group Procedure.....	104
6.10.2c Interviews	106

6.10.2d Coding and analysis of interviews and Focus Groups	108
6.10.2e Likert Attitudinal Statements	110
6.10.2f Content Analysis	113
Chapter 7: Qualitative Police Interviews	115
7.1 Police Strategy and Rural Crime Definition	115
7.2 Policing Practice	120
7.3 Why are the Police Addressing Rural Crime?	122
7.3.1 Understanding the Effect on Farmers	122
7.3.2 The Need for Better Liaison	123
7.3.3 Providing Individualised Crime Prevention Advice	125
7.3.4 Improve Partnership Working	127
7.3.5. Addressing Farmer Crime Prevention Behaviour	128
7.3.6. Better Understanding of Rural Criminals	130
7.4 How are the Police Measuring Effectiveness of their Strategies?	130
7.4.1. Training Opportunities	131
7.4.2. Police Response to Rural Crime	132
7.4.3. The Recording of Rural Crime	136
7.4.4. Improvement in Confidence Levels	137
7.5 Summary	140
Chapter 8: Farmer Survey Results, Analysis, and Discussion	141
8.1 Farm Crime Prevention	142
8.2 Potential Predictors of Victimisation	144
8.3 Attitudes towards the Police	149
8.4 Summary	154
Chapter 9: Qualitative Analysis and Discussion – Case Study	155
9.1 Visual comparison of media reports and farmer discussions	155
9.1.1 Farm Crime and its Impact	158
9.1.2 Farm Crime Prevention Responses	160
9.1.3 Farm Crime Prevention Decision-Making	161
9.1.4 Role of Police and Insurers	162
9.2 Analysis of Likert Attitudinal Statements	165
9.2.1 Descriptive Analysis - Frequency Distribution Analysis	167
9.2.1a Farm Crime and its Impact	167
9.2.1b Farm Crime Prevention	169
9.2.1c Farm Crime Prevention Decision-Making	169
9.2.1d Role of Police and Insurers	171
9.2.2 Descriptive Analysis - Central Tendency Analysis	172
9.2.2a Farm Crime and its Impact	173
9.2.2b Farm Crime Prevention	174
9.2.2c Farm Crime Prevention Decision-Making	174

9.2.2d Role of Police and Insurers	176
9.2.3 Inferential Analysis	179
9.3 Farmer Focus Groups and Interviews	188
9.3.1 Crime Prevention Theory Discussion	190
9.3.1a Routine Activity Theory and Capable Guardianship	190
9.3.1b Rational Choice Theory	191
9.3.1c Crime Prevention Through Environmental Design	192
9.3.1d Broken Windows Theory	193
9.3.1e Deterrence Theory	193
9.3.2 Farm Crime Experiences and Business Impact	195
9.3.2a Experiences and Impact	195
9.3.2b Trust	200
9.3.2c Offenders	202
9.3.3 Reporting to, and Response from, Police and Insurers	208
9.3.3a Crime Prevention Advice	208
9.3.3b Experiences with Police and Insurers	215
9.3.4 Farm Crime as a Challenge to Rural Masculinity	226
9.3.4a Psychological Health Impact	226
9.3.4b Physical Health Impact	241
9.3.5 Attitudes towards Farm Crime Prevention	242
9.3.5a Current Position of Farm Crime Prevention Use	242
9.3.5b Improving Effective Crime Prevention	253
9.3.6 Farm Crime Prevention Decision-Making	259
9.3.6a Are Farmers Hyperbolic Discounters in Crime Prevention	259
9.3.6b Are Farmers Lone Decision-Makers	263
9.3.6c Crime Prevention Decision-Making and Barriers	264
9.4 Summary	267
Chapter 10: Discussion	269
10.1 Overview of the Research	269
10.2 Key Findings Addressing the Research Questions	269
10.3 Green Criminology	280
11: Conclusions and Recommendations	282
11.1 Conclusions and Implications of the Research on Policy, Practice, and Theory ..	282
11.1.1 Conclusions and Implications relating to Farm Crime Policy	282
11.1.2 Conclusions and Implications relating to Farm Crime Practice	284
11.1.3 Conclusions and Implications relating to Farm Crime Theory	286
11.2 Limitations of the Research	287
11.3 Recommendations for Future Research	288
References	291
Appendices	338

Appendix 1: Consent Forms for Police Interviews, Farmer Interviews, and Farmer Focus Groups	339
Appendix 2: Questions for Police and Crime Commissioners, and Crime Prevention Advisors.....	343
Appendix 3: Farmer Survey Questions	346
Appendix 4: Farmer Interview Questions	359
Appendix 5: Focus Group Questions	361
Appendix 6: Leaflet on Research Purpose given to Farmers	362
Appendix 7: List of Codes for Interviews and Focus Groups with Farmers	364
Appendix 8: Likert Scale Statements.....	366
Appendix 9: Key characteristics and crime experiences of the farmer participants who took part in the focus groups and one-to-one interviews for this research .	368
Appendix 10: Overview of key points raised in each focus group to illustrate consensus and differences in farmer responses	370

List of Acronyms

BS	Behavioural Science
BWT	Broken Windows Theory
COT	Crime Opportunity Theory
CPA	Crime Prevention Advisor
CPTED	Crime Prevention Through Environmental Design
DT	Deterrence Theory
E&W	England and Wales
FCP	Farm Crime Prevention
PCC	Police and Crime Commissioner
RAT	Routine Activity Theory
RCT	Rational Choice Theory
RM	Rural Masculinity
RV	Repeat Victimisation
SCP	Situational Crime Prevention

Chapter 1: Introduction

1.1 Overview

Ever increasing urbanisation means scarce police resources focus on crime hot spots. This inevitably means urban policing takes priority over the issues faced in rural communities. In addition, academic research in the field of rural criminology, not only in England and Wales (E&W) but internationally, pales in comparison to its urban counterpart. Despite a relative surge in rural crime research in the last decade or so, it still requires much more attention to address the ongoing perception of rural E&W as crime free.

More research is needed to address specific aspects that affect rural crime, and particularly farm crime. This research is the first to identify key factors affecting the attitudes, feelings, and beliefs of farmers regarding various aspects of farm crime and crime prevention, and how these factors influence their crime prevention decision-making. This research supports the potential use of Behavioural Science (BS) to establish a crime prevention choice architecture to enable appropriate and effective Farm Crime Prevention (FCP) decision-making for farmers in E&W.

There are three key objectives of this research. Firstly, an understanding of levels of farm victimisation across E&W, along with an insight into farmers' attitudes towards, and confidence in, the police and insurers, how this affects levels of crime reporting, and how this compares to the approaches taken by the police towards farm crime. Secondly, an exploration of the attitudes, feelings, and beliefs surrounding crime and crime prevention use among farmers of E&W. And thirdly, to establish the factors that influence the crime prevention decision-making process of farmers.

What this research does not do is to recommend that one form of crime prevention is any better or worse than another, neither does it suggest that farmers who do not use crime prevention measures, or indeed do not use the latest technology, are in any way culpable for their own victimisation. In addition, this research does not suggest that the police need to provide extensive resources to rural communities that may not be beneficial in the long term. Rather, it suggests the potential of farmers, with appropriate guidance from police, insurers, and other rural stakeholders, to make their own, informed, effective decisions about crime prevention for their own individual farms.

This introduction will provide an overview of the context in which this research sits, highlighting the research gap it addresses. It will provide a description of the methodology used in this research, concluding with an outline of the content of the thesis.

1.2 Research Context

Farming is the backbone of the countryside and influences the success of the rural economy (CPRE 2015). In E&W, the number of agricultural holdings tops 143,000, covering in excess of 10.6 million hectares (about 262 million acres) (Defra 2014a), with the total income from farming rising from £3.8 billion in 2012 to £4.3 billion in 2013 (Defra 2014b).

With the increasing reliance of the UK on farming, it is concerning that one of the main factors negatively impacting farm business continuity is not being adequately addressed by policy makers and academic researchers. However, this is the case with farm crime. Despite the recent efforts of police forces across E&W to address the issues faced by rural communities, the continuing reality is that crime numbers in urban areas are much higher than in rural areas (Defra 2012), and as such, this is where police resources tend to focus.

Farms continue to experience profoundly depressing levels of crime (Relf, 2018), and the impact of farm crime reverberates far beyond the immediate rural community, affecting employment, food prices and food traceability (Chalfin *et al.*, 2007). However, despite this, there continues to be a lack of interest in farm crime as a research topic, and a lack of consistency in the recording and tackling of farm crime in E&W, despite the inexorable increase in criminals seeing farms as easy targets (Crompton 2011).

The reporting of the cost of rural crime in the UK is currently carried out by annual reports of NFU Mutual insurance claims data, rather than police crime data, simply because the latter does not exist on a national basis. The latest NFU Mutual Rural Crime Survey puts the cost of rural crime in 2016 at an estimated £39.2m (NFU Mutual 2017), and the National Rural Crime Survey (NRCN 2015) reports rural crime costing the UK an estimated £800m. Despite this, rural crime, and in particular farm crime, remains a relatively neglected area of academic research in the criminological literature (Jones and Phipps 2012).

In an attempt to deter criminals from targeting their property, farmers across the UK are increasingly turning towards various crime prevention methods to protect their farms (Mears *et al.*, 2007). However, not all farmers are adopting crime prevention (Yarwood & Edwards, 1995), and where they are using these methods, it is often the case that these measures are inadequate and ineffective for the individual farms (McCall & Homel, 2003).

Current crime prevention advice provided by police and insurers in the main is generalised, with the aim of providing information that could be of use to any farmer at varying levels (Nottinghamshire Police, undated; Northumbria Police, undated; West Mercia Police, undated). This approach may be due to years of austerity within the UK, leading to reduced

resources being available to the police, a closure of rural police stations and a reduction in rural specialist police officers (Broadhurst *et al.*, 2012; Smith & Somerville, 2013). However, the current approach to farm crime prevention advice may not be meeting the needs of the target audience.

It is suggested that a different approach may be available to farmers thinking about how they can best protect their farm. By enabling farmers to think differently about their farm and the crime prevention options available to them, farms may become a less attractive target to criminals. The key approach suggested by this research is the potential application of concepts from BS as an alternative to traditional policy tackling farm crime, and to enable farmers to be in a position to make effective and appropriate FCP decisions.

Nobel Prize winner Richard Thaler, and American legal scholar Cass Sunstein, presented Nudge Theory to the world in 2008. They suggested that positive reinforcement and the way choices are presented to the chooser are key to enabling beneficial and effective decision-making without the influence or coercion of the person presenting the choices. This approach has been used successfully across the western world to improve financial choices, organ donation, and use of energy efficient appliances (Behavioural Insights Team, 2013a, 2013b; Bull, 2012). It has also been used to enable farmers to make better decisions relating to fertiliser use (Duflo *et al.*, 2009), climate change (de Jalón *et al.*, 2014), biosecurity (Toma *et al.*, 2013), and sustainable agricultural management (OECD, 2012).

BS has also been used to address issues in the criminal justice system. Most notably, the influence of BS is seen within the field of criminal deterrence (Dhami & al-Nowaihi, 2010; Jolls *et al.*, 1998; Chiba & Leong, 2016). However, as far as can be seen, no academic research exists raising the potential of BS within a farm crime prevention decision-making arena. Several benefits could be realised for farmers by enabling the choice of the most effective crime prevention measure(s) for their own individual farms. The possibility of using these approaches within this field could provide a step change in how farmers protect their property, and therefore, in the longer term, potentially improve the profitability of the farm.

To establish whether BS can be recommended in FCP decision-making, one first has to establish the underlying thoughts, feelings, and attitudes of the farmers. This enables an understanding of the behavioural culture of farmers and subsequent responses to crime, prevention, the police, and insurers (de Jalón *et al.*, 2014). This thesis explores the factors that influence the attitudes and beliefs of farmers around crime prevention measures on farms, levels of victimisation and repeat victimisation among the farming community, and attitudes towards the police in E&W. Such understanding enables a discussion around the

role of BS in FCP decision-making in light of the relative failure of other methods aimed at improving the uptake of crime prevention.

1.3 Analytical Framework

The aim of this research is three-fold:

1. Firstly, to ascertain levels of farm crime across E&W, along with an insight into farmers' attitudes towards, and confidence in, the police and insurers, how this affects levels of crime reporting, and how this compares to the approaches taken by the police towards farm crime;
2. Secondly, to explore the attitudes, feelings, and beliefs surrounding crime and crime prevention use among farmers of E&W; and
3. To establish the factors that influence the crime prevention decision-making process of farmers.

By addressing these issues, a better understanding of the behavioural culture of farmers in E&W relating to these wider aspects of victimisation can be gleaned, to establish whether BS concepts can be used to aid the effective and appropriate crime prevention decision-making process.

To address these aims, five research questions were formulated:

1. What are the levels of farm crime in E&W, and what is the impact of farm crime on farmers?
2. Does the level of confidence farmers have in the police affect the likelihood of farmers reporting these crimes to the police?
3. If farmers are using crime prevention measures, what measures are being used?
4. What are the factors influencing farmer crime prevention decision-making?
5. Can the findings be used to improve the appropriate, effective crime prevention decision-making of farmers in E&W?

To answer these five questions, a pragmatic research philosophy was adopted, and the methodology used was driven by the need to answer these questions with the best method available. To address the issues raised, a sequential explanatory mixed methods approach was used. Andrew & Halcomb (2006) stated the purpose of mixed methods research is not to replace either qualitative or quantitative research, but rather to extract the strengths and diminish the weaknesses in both approaches within a single study.

This research was conducted via an initial quantitative survey used as a scoping study to establish an indication of the levels of farm crime, confidence in the police and likelihood of reporting crimes, the types of crime prevention used and the reasons for using crime prevention. This was followed by one-to-one interviews with Police and Crime Commissioners and Crime Prevention Advisors across four police forces in England. The final part of the research were qualitative case studies aimed at addressing some of the findings of the survey and providing a further detailed explanation to address the research questions.

The case studies comprised of a several methodologies. The main aspect of the case studies was the analysis of the transcripts of discussions obtained from six interviews and four focus groups conducted with farmers. This analysis enabled the attitudes, thoughts, and feelings of the farmers to be explored in response to a number of questions aimed at addressing the five research questions.

Secondly, a content analysis was used based on media reports of farm crime over a three-year period, this was compared to key words mentioned by the farmer participants during both the interviews and the focus groups. This provided a visual representation of the key concepts discussed by each source using Wordles, allowing an analysis to take place.

The third part of the case studies were Likert attitudinal scale statements that were completed by each of the farmer interviewees. Both a descriptive and an inferential analysis was undertaken of these data to assess farmer attitudes towards the themes addressed.

The analysis of the media reports, and the Likert attitudinal scale statements analysis led to four key themes being identified that enabled the full discussion of the responses, while addressing the research questions fully. These themes were:

1. Farm Crime and its Impact;
2. Farm Crime Prevention;
3. Farm Crime Prevention Decision-Making; and
4. The Role of the Police and Insurers.

In relation to the transcripts, the responses obtained by the farmers were grouped into six key areas to address the five research questions:

1. Crime Prevention Theories;
2. Farm Crime Experiences and Business Impact;
3. Reporting to, and Response from, Police and Insurers;

4. Farm Crime as a Challenge to Rural Masculinities;
5. Attitudes towards Farm Crime Prevention; and
6. Farm Crime Prevention Decision-Making.

Full details of the methodology adopted can be found in Chapter 7.

1.4 Outline of Thesis

This chapter has introduced the general issues surrounding farm crime research in E&W and provided an overview of the specific aspects this piece of research examines in a bid to enable the uptake of appropriate, effective crime prevention measures by farmers to better protect their property. It has provided a brief background to the context in which this research exists, the gap it aims to address, and the methodology used to meet this need.

Section one provides a more detailed examination of the literature surrounding the key aspects involved in this research. Chapter 2 focuses on farm crime in E&W; Chapter 3 introduces the key theoretical models that play a role in crime and crime prevention decision-making in the rural setting. Chapter 4 introduces and examines BS and the role it has played with farmers and the criminal justice system to date. A summary of the literature, the purpose of the research, and the questions to be addressed are detailed in Chapter 5.

Section two addresses the research undertaken. Chapter 6 provides a detailed review of the methodology employed. Chapter 7 provides an analysis of the interviews carried out with the Police and Crime Commissioners and Crime Prevention Advisors. Chapters 8 and 9 provide details of, and discussion around the results of the farmer survey scoping study carried out with farmers across E&W. Chapter 10 provides an extensive analysis and discussion of the conversations carried out with farmers during the research.

Chapter 11 discusses how the farmers' experiences of crime, and the attitudes and beliefs towards crime prevention, the police and other key aspects that affect their decision-making compares to police approaches and understanding of the impact of farm crime, and how the findings address the identified research questions. Finally some conclusions based on the findings, and recommendations for future research and policy questions are addressed.

Chapter 2: Farm Crime

E&W have been plagued by rural crime for centuries and will seemingly continue for many years to come as discussed by the author elsewhere (Smith & Byrne, 2018a [accepted]; Smith & Byrne, 2018b [accepted]). In particular, farms continue to experience profoundly depressing levels of crime (Relf, 2018) as indicated in Figure 2.1. This is despite a range of strategies aimed at reducing these problems. The impact of farm crime reverberates far beyond the immediate rural community, affecting employment, food prices, and food traceability (Chalfin *et al.*, 2007).

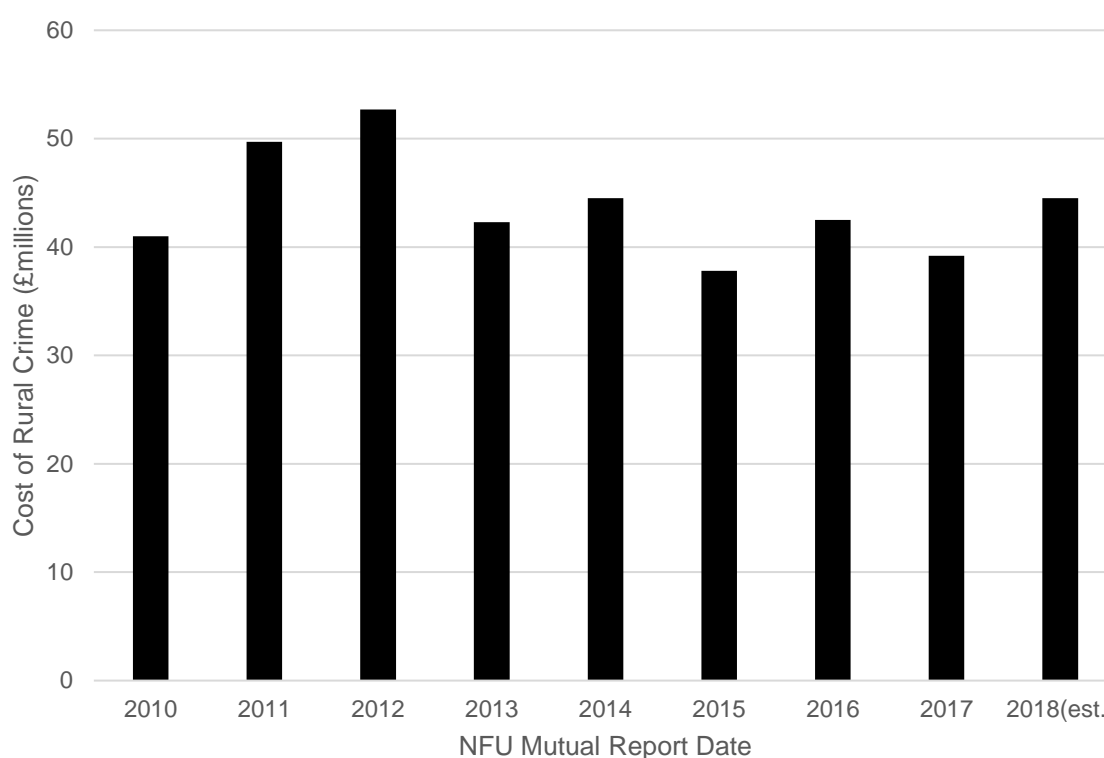


Figure 2.1: Cost of Rural Crime in the UK as Reported by NFU Mutual, 2010-2018(estimate) (Source: NFU Mutual)

Tucker (2015) argues that ineffective National Crime Recording Standards, combined with a lack of specialist rural knowledge among responding officers and call handlers, means that rural crime is not recorded accurately, and as such many crimes end up being subsumed into the much larger volume of urban crime figures. Coupled with this is the lack of consistency in defining rural crime. As noted by Marshall & Johnson (2005), the Crime Survey for E&W (CSEW) and the police record rural crime differently, thus making data incomparable, making such data ineffective in accurately representing the level of rural/farm crime, and therefore does not meet the needs of rural crime research. This has led to a situation where it remains difficult to assess the levels of rural crime and farm crime using

police recorded crime data, and thus Home Office statistics, resulting in the continued reliance on data from insurers and other non-governmental sources. Indeed, Richard Garside has noted that the CSEW is neither a survey of crime, a survey of victims, nor a survey of victimisation (Garside, 2015), thus suggesting its use in crime research is, in itself, problematic.

Furthermore, within academia this inconsistency persists, with Weisheit *et al.* (2006: 3) noting that problems in providing a definitive definition of rural crime have arisen in part because of the challenge of defining what rural actually is. As a result, many within academia define rural crime in different ways. This means that, even among rural crime researchers, there is no universally accepted definition of rural crime (Barclay, 2007; Carcach, 2000; Yarwood, 2001). Some researchers using geography to define rural crime, and some using the crime type to define the same concept, again leading to an inconsistency in research findings.

Definitions of rural crime in the US refer to this issue as crime that occurs in small towns, farming communities and the open countryside (Donnermeyer, 1995). Similarly, this pattern continues when reviewing the way rural crime is defined for strategic purposes in E&W. Each police force tends to work with a different definition of rural crime, and while many are similar in nature, it is not always clear that the crimes are being recorded in the same way. Sussex Police (undated), for example, define rural crime as ‘any crime of an agricultural, equine, wildlife or heritage nature’, whereas Humberside Police (undated) define it as ‘a crime that takes place in a rural location’. These two definitions would therefore include much different crime types, with the latter possibly including speeding in villages within its definition of rural crime.

As the two key sources of rural crime information, the way the NRCN and the NFU Mutual define rural crime is interesting. As a rural insurer, NFU Mutual simply analyse claims of theft from their rural clients for their annual report. The NRCN takes a rather broad-brush approach stating that they feel a definition would be counterproductive, instead opting for an approach that includes all crime and anti-social behaviour occurring within rural areas.

While these varying definitions reflect the academic approach, with some using a geographical definition, and some using a crime type definition – and some not really defining rural crime at all – it was decided that for this research, two specific definitions would be used to establish a framework for analysis. Firstly, rural crime would be defined as a crime taking place in a rural area that is specific to rural areas, such as poaching, wildlife crime, and farm crime. Drilling down, the second definition is that for farm crime which refers to any property crime that occurs specifically within a farming environment.

This includes livestock theft, agricultural machinery theft, and stack arson, but excludes farmhouse burglary.

Despite a lack of official statistics, some evidence is emerging that farm crime is rising once again. NFU Mutual report that levels of farm crime claims have risen in the first half of 2017 (Tasker, 2017), with the NFU noting that early indications seems to suggest that 2017 claims figures will far exceed those of 2016 (NFU Online, 2017).

The National Rural Crime Survey provided data in 2015 indicating rural crime costs the UK £800m. It is being repeated in 2018, after the National Rural Crime Network (NRCN) commissioned researchers to conduct the survey, possibly anticipating a rise in figures. However, it must be borne in mind that insurance claims figures only show part of the wider picture. Moreover, until there is a concerted effort to establish a coordinated approach to recording farm crime across all police forces in E&W, and there is some impetus for evaluation of the data by central government and/or academia, it is unlikely there will be any other data on which to rely.

Despite the latest NFU Mutual Rural Crime Survey (NFU Mutual 2017) putting the cost of rural crime in 2016 at an estimated £39.2 million, farm crime remains a relatively neglected area of research in criminological literature (Jones and Phipps 2012). Rural crime research in the UK being carried out by a very small selection of criminological, geographical and sociological researchers. Not only are farmers affected financially when victimised, the crime can have physical and, indeed, psychological repercussions upon the farmer. The latter is clearly illustrated by research carried out by Booth *et al.* (2000) who stated that farmers are one of the professional groups at highest risk of suicide in E&W, accounting for approximately 1% of all suicides, with crime arguably being one of several stressors.

Farm crime may be precipitated by a number of influencing factors. These include extrinsic motivations such as farms being seen as businesses, low levels of crime prevention, government policies, and geographic and physical features of farms. In addition, there may be a number of intrinsic motivators seen in both the victims and the offenders. These may include farmer attitudes towards the police, fear of crime, criminal excitement, and adherence to a traditional rural masculinity. Each of these is briefly discussed in the following sections.

2.1 Farms as Businesses

Much of the research on business crime relates to urban-based businesses, although some researchers have made efforts to examine the implication of crime on farms and rural

businesses (Barclay & Donnermeyer, 2011; Ladikos & Krueger, 2006). It is imperative that more research is aimed towards the consideration of farms in particular, as they are a rural business that differs greatly from those businesses found in the urban setting. This being the case, it is important to have an understanding of how farmers can best protect their business premises, as it is arguable that security measures offered to an urban-based business would not be effective in a farm environment.

Tilley (1993) noted that available datasets show businesses experience higher levels of victimisations than domestic premises (1993: 2). In addition, a report by the British Chambers of Commerce (2002) noted that the cost of crime to businesses can include disruption to trading, loss of custom, lower staff morale, and enforced moving of premises. When translated to farms, victimisation is likely to be higher than rural domestic dwellings, and there will certainly be implications relating to business continuity. However, one substantial difference that emerges between urban businesses and farms is the issue of relocation. While crime may force some urban businesses to relocate to safer premises, farms do not have that luxury. Therefore, it seems to be incumbent upon the farmer to ensure the property is adequately protected to deter potential criminals, and by not doing so, it is suggested the farmer may potentially face the prospect of their farm failing. Rural businesses, including farms, should be considering crime as a potential threat to business continuity, ensuring the farm has a clear business continuity strategy that deals with the effects of crime (Smith, 2014).

Mawby (2014) notes that businesses are facing an increasing need for crime prevention measures, stating that the use of target hardening measures are increasingly being used (2014: 294-295). However, this type of target hardening is not necessarily applicable, effective, or practical in a farming scenario due to the differences between farm businesses and other commercial business properties, even those within the rural setting, such as equine liverys or bed and breakfasts.

Several studies carried out in various US states (Cleland, 1990; Donnermeyer, 1987; Farmer & Voth, 1989) have concluded that burglary on farms is most likely to take place in outbuildings and barns, rather than the farmhouse. This, they argue, is because such outbuildings and barns are often located some distance from the farmhouse, and therefore not the subject of high levels of guardianship despite often being the location where high value vehicles, machinery, and tools are stored. It is suggested that other non-farming businesses do not tend to have this problem, as the buildings are located, generally, within a confined compound where target hardening as well as increased guardianship are easier to employ.

In contrast to the target hardening suggestion that Mawby (2014) makes, other research has concluded that commercial burglars are less likely to be put off by conventional alarms, door or window locks (Walsh, 1986), rather more likely to be deterred by a physical presence such as security staff (Butler, 1994). Therefore, criminals targeting farms may be deterred by the same things, and in the same way. One should question whether those criminals who target farms do so because they are businesses, or because they generally have lower levels of security and guardianship. Moreover, one could question how specialist those criminals are that target farms. Commercial burglars who target urban-based businesses may not consider targeting a farm; or, as Hearnden & McGill (2004) conclude, burglars identify their targets based on the potential “yield” they can obtain from their crime.

2.2 Farm Crime Prevention

There seems to be a lack of academic rigour underpinning crime prevention advice provided to farming communities. This is confounded by the historic low levels of farm crime research, leaving some farmers continuing to perceive crime as an urban problem, and as a result, communities surround themselves with a false sense of security (Yarwood and Edwards 1995). Such perceptions tend to result in lower levels of crime prevention activities, thus creating an attractive target for criminals. Skogan (1984) states that crimes such as machinery theft were likely to be subject of an insurance claim dependent upon prompt reporting to the police. However, farming communities have traditionally shied away from using crime prevention to protect their property and livestock, with Deeds *et al.* (1992) reporting that, in the US, 80% of farmers surveyed had spent nothing on either insurance or security in the past year.

Moreover, such a lack of preparedness may illustrate a sense of fatalism towards farm crime, and FCP. Farmers may feel those who target farms are greedy, and jealous of what they perceive farmers to have, and so see farm crime resulting from such negative aspects of human nature. It is argued, therefore, that if crime is a part of human nature, there is little a farmer can do to protect their property and prevent becoming the target of criminals (Frameworks Institute, 2015).

In contrast, it is argued that the slow uptake of crime prevention measures on-farm may be as a result of illegal entrepreneurship among a small proportion of farmers or farm workers committing crimes, or at the least abetting them (Smith *et al.*, 2013; Somerville *et al.*, 2015).

McCall and Homel (2003) in Australia report that, as with many things, if crime prevention is easy to set up and run, and is effective, then it is more likely to be adopted. They note that 64% of farmers locked their farmhouse, but did not take the same care securing other

parts of the farm, rarely using alarm systems, signage, or security lighting. When addressing FarmWatch schemes, Barclay *et al.* (2001) found that only 14% of participants reported being actively involved in a crime prevention programme in Australia.

Barclay *et al.* (2001) noted from their research that 94% of those who reported awareness of crimes in the local area had also been a victim of crime (Australia). However, it is argued that simply adopting crime prevention measures may not be enough to prevent victimisation, but also requiring a change in culture, routine, thought processes and decision-making. This is illustrated by the reported increase in programmes aimed at making farms less attractive to criminals – “target hardening” (Mears *et al.* 2007), including a focus on improving levels of guardianship on farms (Clarke and Felson 1993; Bunei *et al.* 2014). However, there is a need to consider farm heterogeneity, especially the size of the operation, terrain, and vegetation, among other factors noted in the US (Eck 2002).

Research undertaken in Australia for the National Farm Crime Survey (Anderson and McCall 2005), found the most commonly used crime prevention measures were traditional in nature, rather than new programmes or techniques: locks on the farm residence (67%), locks on barns/sheds (41%), and guard dogs or geese (39%). Furthermore, the use of traditional crime prevention methods was seen as instrumental in research undertaken in Scotland (George Street Research Limited 1999). They found that 76% of Scottish farmers were more security conscious than five years previously, and the preferred crime prevention methods were traditional; the use of farm dogs was seen as more effective than expensive security systems. Despite this, levels of property identification, including machinery and livestock, have been criticised by the police in the US as too low (Donnermeyer and Barclay 2005; Chalfin *et al.* 2007).

In summary, it is clear there are a number of issues that need to be considered when looking at farm crime prevention. However, as it currently stands, much of the evidence comes from research undertaken by US and Australian researchers. As such, it is not currently clear how these findings might be reflected in E&W.

2.3 Top-Down vs Bottom-Up Policies

Policies addressing FCP need to take account of such issues as thrill-seeking behaviour, as well as the many others faced by farmers. To do so, it is suggested that any policies or guidance aimed at addressing farm crime in E&W need to be driven by the farming community in a bottom-up fashion, rather than be led by those within the “Westminster Bubble” (Grant & Warhurst, 2014) with top-down driven policies and guidance.

Top-down policies tend to be focussed on factors that can be changed at the central level (Matland, 1995), aiming to develop general policy advice that provides for similar patterns of behaviour across different policy areas (Matland, *op cit*). However, as a result of this centralised approach, and reliance on statutory instruments as a starting point, it is argued that such top-down policies do not consider local areas (Cerna, 2013), and as such cannot address the heterogeneity of farming communities in E&W.

In contrast, bottom-up policy is developed around the needs of target populations, and is developed at the local level (Matland, 1995; Hanf *et al.*, 1978). This approach asks local actors about their goals, strategies, activities, and contacts, using this information to identify the local, regional, and national network and forge links from the local up to the national policy-makers (Sabatier, 2005; Cerna, 2013). Bottom-up approaches do not develop specific advice and policy, but examine the factors that have made it difficult for particular goals to be reached (Matland, 1995). This therefore allows an element of flexibility to allow adaptation to local situations. While Cerna (2013) argues policy should be controlled by those who have direct responsibility to the electorate, this should be balanced against the needs of the target population to ensure effective uptake of the desired behaviours.

2.4 Potential Predictors of Victimisation

The increase in farm crime has prompted discussion of the role of environmental criminology in the context of farm crime (Bottoms and Wiles 1997), especially discussions of Crime Opportunity Theory (Cohen *et al.*, 1981), Routine Activity Theory (Cohen and Felson 1979) and Rational Choice Theory (Cornish and Clarke 1986). These theories are described in detail in Chapter 3.

As part of this, the idea of informal guardianship has become more recognised within FCP discussions, with Cohen and Felson (1979) arguing that the daily routine of farming life can facilitate increased levels of victimisation. However, one thing that should be considered carefully is that guardianship will likely be more difficult on-farm due to the size of the property to protect (Weisheit and Donnermeyer 2000), and the location of expensive items and livestock over large areas makes them harder to surveil (Saltiel *et al.*, 1992).

Key physical predictors of victimisation for farmers include the size of the farm, and the distance of the farm from a main road and urban areas. Researchers from Australia, the US, and Kenya have found that larger farms, those farms located near a main road, and those located closer to towns and cities were more likely to experience crime, particularly theft (Barclay and Donnermeyer 2007; Mears *et al.*, 2007; Bunei *et al.*, 2014). Weisheit and Donnermeyer (2000) in the US reinforce the effect of distance of the farm from a main road

by identifying that improved road systems combined with more efficient vehicles make rural areas increasingly more accessible for potential criminals. However, research undertaken in Australia by Anderson and McCall (2005) did contradict the findings relating to distance to towns by stating that those farms situated in remote areas had higher overall rates of victimisation.

Another feature research shows may be a potential predictor of victimisation on farms is the time of year. It has been reported that farms and farm equipment are more vulnerable to crime at peak seasons of activity during the year. Donnermeyer *et al.* (2010) noted in their review of existing farm crime literature that such peaks would include harvest, where expensive machinery is out in the fields for long hours during the day, and often left in the field overnight to allow for an early start the next day. The agricultural cycle is known to criminals who establish the best times to target farms and equipment when they are least likely to be securely stored. Related to this, research findings in both the US and Kenya have shown that crimes are more likely to take place overnight, as thieves take the opportunity of the cover of darkness to conceal their activities (Hanson 2001; Bunei *et al.*, 2013).

Extant research considering the impact weather has on crime date as far back as 1842 [1969], with work carried out by Adolphe Quetelet, who concluded that crime increased in summer and decreased in winter. However, it may be there are extraneous variables affecting these findings, such as longer daylight hours, or more people being active in the summer. Research in the UK found that temperature was positively related to many types of property and violent crime (Field, 1992). This follows on from the findings of Cohn (1990) in a review of research relating to the impact of weather on crime. Her conclusions seem to suggest that violent crime increases as temperatures increase, although no clear conclusions were drawn relating to cold temperatures, sunlight, rain, and wind, and their effect on crime. However, in later research, Horrocks & Menclova (2011) suggest crime rates reduce in bad weather as a result of less motivated offenders, and higher levels of home occupancy. Notwithstanding this evidence, it is suggested that bad weather may have quite different effects when considering farm crime. This may be due to higher value items being poorly secured offering attractive targets, coupled with lower levels of guardianship for farm outbuildings. Alternatively, an offender may be more motivated to make use of the cover of bad weather, thus making farm victimisation in bad weather more likely in accordance with routine activity theory (Cohen & Felson, 1979).

A final key factor in establishing the likelihood of farms becoming victims, concerns the surrounding geography of the farm. However, research addressing this issue seems to be contradictory. Some research concludes those farms with high levels of vegetation and a

hilly terrain were more likely to be victims of crime (Australia) (Barclay and Donnermeyer 2002). Whereas, other research in the US has shown those farms with a largely flat terrain adopted higher levels of guardianship as a result of higher rates of victimisation (Mears *et al.*, 2007).

In summary, it is anticipated that the differences and contradictory results are a product of where their research, and the research of others they cite, has taken place, which is mostly in Australia, the United States and a few African countries. It is argued that it is difficult to apply these findings within E&W due to the differences in agricultural production systems seen in these countries and that seen in E&W. In addition, there are clear geographic and topographic differences between these countries and E&W. All of this supports the need for more research to be undertaken to assess potential predictors of victimisation in E&W.

2.5 Attitudes towards the Police

In recent years, levels of confidence in the police among farming communities have diminished, partly as a result of the ongoing restructuring of the police forces in E&W and a focus on reactive policing meaning increasingly target driven policing focusing on crime hotspots (Gilling 2011). This move away from local policing to an urban-centric focus inevitably led to the closure of rural police stations, further driven by austerity measures and the need to reduce budgets (Mawby 2004; Smith & Somerville, 2013), heralding a change in the relationship between the police and the farming community.

Although the closure of rural police stations seems to result in a challenge to the idea of the rural idyll (Mingay, 1989), there is a more serious implication that should be considered. It is possible that farming communities feel less safe as a result of the demise of the rural “bobby” (Smith, 2010), combined with the fact that the police are often located some distance away, leaves rural residents and farmers feeling isolated and abandoned by the police. It is suggested this feeling of abandonment led to rural communities having little option but to police themselves, leading to an increased responsibilisation (Garland, 1996, 2001) of rural communities in crime control.

The closure of rural police stations has led to a reduced police presence in rural areas, increased targeting of these areas by criminals, in particular by organised crime gangs (Smith *et al.*, 2013), coupled with decreased conviction rates due to inability to identify both offenders and owners of property (Barclay *et al.*, 2001). Therefore, rural communities are coming to terms with the loss of their rural “bobby”, but also facing a possible rise in victimisation. Moreover, this situation is likely to do little to quell the fear of crime among farmers.

Key issues in understanding farm crime statistics are the confidence levels of the farming community in the police, and the lack of reporting of farm crimes. It is arguable that these two issues combined are key in establishing why it is almost impossible to ascertain a real perspective on the levels of farm crime across E&W. Low confidence in the police leads farmers to believe they are on their own in the battle against criminals, and there is little they can do to protect their farm (Barclay *et al.*, 2001), adding further to farmers' feeling of fatalism.

It is noted that any police response would take longer due to the relative isolation of many farms (Aust and Simmons, 2002). However, simple acts like regular news from the police about what they are doing and what has happened in the area may be enough to make farmers think more about securing their property. In addition, this may act to reassure farmers that the police are actually doing something about the problems (Barclay *et al.*, 2001).

Despite attempts to quantify farm crime, such as the annual NFU Mutual Rural Crime Survey, non-reporting of crimes means that any calculations of losses produces an underestimate of the real problem (Swanson 1981). In addition, inherent problems and inconsistencies in the recording of farm crimes by the police exacerbates the issue and makes regional comparisons near impossible (Jones 2010).

Donnermeyer and Barclay (2005) found that farmers are discouraged from reporting farm crimes, or even helping the police, due to the leniency of the courts, and prosecutions being too rare. The police seem to expect communities to defend themselves more, which may have been driven by the Crime and Disorder Act 1998 (HMSO, 1998) in E&W, meaning that the community and the individual are seeing an increasing shift of responsabilisation with regards to crime prevention (Garland, 1996, 2001).

The non-reporting of farm crime means figures are often far higher in reality than those quoted by official statistics (Mawby and Jones 2004). Farmers may not be reporting crimes as they feel they are too trivial, or they do not realise it has happened in the first place (Barclay *et al.*, 2001; Barclay, 2003).

2.6 Fear of Crime

Fear of crime has been an area of research for at least forty years (Garofalo & Laub, 1978). As a result, the amount of research available in this field is extensive. This section will

provide a brief overview of fear of crime research, potential predictors, and consequences of fear of crime.

Part of the reason this area of research is so extensive, is that it is problematic to accurately define fear of crime. This has led to a variety of approaches being taken to address similar aspects, with Ferraro (1995) researching fear of crime, Hough (1995) researching anxieties about crime, and Girling *et al.* (2000) researching public sensibilities about crime. However, something that seems to be consistent across most researchers, is that fear of crime does not always correlate with the risk of becoming a victim (Prieto Curiel & Bishop, 2017).

Some identified predictors of fear of crime include sex, age, previous victimisation, and levels of social cohesion. Despite being less likely to become a victim, women are more likely to have higher levels of fear of crime, while the opposite is true of men (Franklin & Franklin, 2009; Rader, 2008). Older people and young children are more likely to be more worried about crime (LaGrange & Ferraro, 1989; Melde *et al.*, 2009). Schafer *et al.* (2006) noted that the role of previous victimisation provided mixed results. Ferguson & Mindel (2007) noted that victimisation increased fear of crime. Mesch (2000) found that victimisation reduced fear of crime. In contrast, research by Ferraro (1995) found that victimisation had no effect on levels of fear of crime. Furthermore, indirect victimisation can have a negative effect on the perception of becoming a repeat victim, and therefore increasing levels of fear of crime (Tseloni & Zarafonitou, 2007). Social cohesion in the form of collective efficacy (Sampson *et al.*, 1997) can reduce fear of crime, by socially cohesive communities exerting social control over members thus reducing level of crime and disorder, and therefore fear.

Consequences of increased and prolonged fear of crime can be psychological and social in nature. Psychologically, fear of crime affects mental health (Cossman *et al.*, 2016), with fear of crime and anxiety having strong links (Whitley & Prince, 2005). In addition, work by Stafford *et al.* (2007) found that those with existing mental health issues experienced higher levels of fear of crime. This interestingly suggests a possible link between fear of crime being both the cause and consequence of mental health issues. It is likely that this may specifically apply to the farming community, as farmers are already under increasing pressure from the daily running of the farm, with fear of crime and victimisation simply adding to these worries.

Social consequences of fear of crime may leave people looking to protect themselves in any way possible, by using weapons (Janoff-Bulman, 1985), or other methods such as guard dogs or extra security (Liska *et al.*, 1988; Vilalta, 2012). People may also tend to avoid certain places or activities that they associate with previous or potential victimisation

(May *et al.*, 2010; Pantazis, 2000). However, with farmers, neither are likely to be possible. With their home and place of work being one and the same, it is probably the case that they would be unable to avoid places or activities.

This brief overview of fear of crime, factors affecting fear, and some of the consequences is only a snapshot of this large field of research. It is anticipated that the information detailed here will particularly resonate with the farming community as detailed in the remainder of this section, and the findings of this research. It may be the case that a variety of factors influence fear of crime among farming communities in a different way to those in urban areas as a result of social and geographic isolation, lower policing levels, ageing population, and large areas of land to protect.

2.6.1 Fear of Crime among Farmers

Fear of crime is a socially relevant issue (Vanderveen, 2006), and in light of police recorded crime increasing by 13% in the year ending June 2017 compared to the previous year (ONS, 2017), increased fear is likely to be a natural response to crime (Wynne, 2008). Higher levels of reported crime in urban areas, means that historically fear of crime is seen particularly as an urban problem (Skogan & Maxfield, 1981), with research carried out by Yarwood & Gardner (2000) concluding that almost all residents of a Worcestershire village felt less fearful as a result of having less to fear. This is supported by figures obtained from the Crime Survey of E&W 2013/2014 (ONS, 2015) as shown in Figure 2.2.

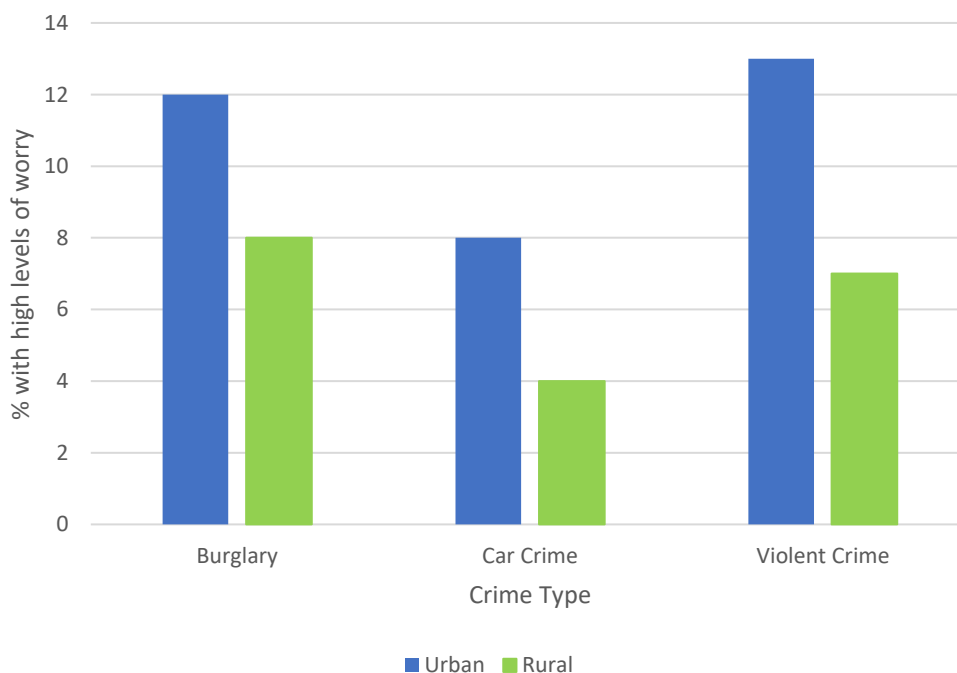


Figure 2.2: High levels of worry about crime in urban vs rural areas across three recordable crime types (Source: ONS, 2015)

Fear of crime among farmers potentially has additional negative effects when trying to improve the uptake of appropriate FCP. It has been noted that heightened anxiety and fear can lead to an increase in negative choices (Hartley & Phelps, 2012), meaning that fear of crime will have a detrimental effect on crime prevention decision-making among farmers unless it is adequately addressed.

Hale (1996) stated that higher levels of fear of crime in urban areas may be partly because of reduced social ties resulting from higher density and increased heterogeneity of the population, leading to isolation and loneliness.

However, this does not consider the fact that farms are often further hampered by geographic isolation in addition to social isolation, which may in itself act to increase levels of fear among farmers. Neither does it reflect the impact fear of crime has on the trust of farmers, not just towards visitors to the farm (Gilchrist *et al.*, 1998; Jackson, 2008), but possibly also towards people they know. Factors such as repeat victimisation and the media, it is suggested, may impact on fear of crime within the farming community.

2.6.2 Repeat Victimisation and Fear of Crime

With higher levels of crime and fear of crime being reported in urban areas, one would expect to see higher levels of Repeat Victimisation (RV) also being reported in urban areas. The British Commercial Victimisation Survey (Home Office, 2014) reported higher levels of RV in urban areas, but it is notable that farms located close to urban areas were often repeat victims (George Street Research Ltd, 1999). The 2013 National Crime Victim Survey in Sweden found that, while RV was more prevalent in urban areas for those who are victimised up to three times, when looking at those who have been a victim four or more times, the difference between urban and rural RV is negligible (Ceccato, 2016). In contrast, the 2000 British Crime Survey reported that, across household crime and vehicle-related crime, rural residents were significantly less likely to become a repeat victim, however violent RV showed no statistically significant difference between rural and urban (Aust & Simmons, 2002).

Despite these inconsistencies, and possibly because of the historic view that levels of crime in rural areas are lower than urban, the systematic review of farm RV and the impact on farmer fear of crime does not seem to be a priority. While it is noted there may be extraneous variables that affect fear of crime, such as geographic isolation (Bankston *et al.*, 1987), as Ceccato (2016) has suggested, prior victimisation, whether direct or indirect, often influences a person's fear.

While RV has been researched over several decades (Johnson *et al.*, 1973; Gottfredson, 1984; Farrell & Pease, 1993; Tseloni *et al.*, 2010), little research considers how such RV research might translate to the rural, and in particular, farm victimisation. Trickett *et al.* (1992) noted that those who live in high-crime areas experienced higher levels of RV. This conclusion seems to imply, therefore, that higher levels of RV should be experienced within an urban environment. However, research carried out by Farrell *et al.* (1994) suggested a link between RV and the key factors of Routine Activity Theory (RAT) (Cohen & Felson, 1979). They suggest high rates of RV may be enabled by a motivated offender, a suitable victim, and the absence of a capable guardian. If these aspects are key in the prediction of RV, it is possible that high levels of RV could logically be visited upon farms. Low levels of security and isolation creates suitable victims, and the physical layout of a farmyard often leads to low levels of guardianship. In addition, it is safe to assume those who target farms have a reasonable motivation to commit these crimes. High levels of RV on farms are relative to the level of primary victimisation, and so it is unlikely that levels of RV on farms would match that in urban areas, however the RAT approach to RV is equally applicable in the rural environment as it is in the urban.

Pease (1998), in his review of RV, noted it is possible to attribute much RV to a single offender based on reports from the victim and data from detected crimes. However, it is far from clear how this is reflected in farm crime, as a result of low levels of the reporting of farm crime to the police, combined with low levels of farm crime detection that continues in E&W. Pease (*ibid.*) further suggested that much RV occurs because offenders take advantage of vulnerabilities on properties already targeted. With farm crime, farmers, once victimised, tend to require a rapid insurance pay-out to replace the items stolen as quickly as possible to ensure business continuity. As a result, criminals who target farms are aware this is the case, and so will likely return to the same farm six to eight weeks after the original theft.

It may be possible to argue that insurers are enabling RV as a result of quick claim settlements, but without providing adequate crime prevention advice for the farmer in a bid to prevent the replaced item being stolen again. As noted by Litton & Pease (1984), insurance companies tend to do very well at remaining “aloof from controversy” (*ibid.*, 1984: 201) despite the important role they play in the everyday lives of farmers, and more so the business viability of farms. Furthermore, they point out the impasse between the insistence of insurers that burglar alarms be fitted, and the effectiveness of those alarms when there is a reliance on an overstretched police service. This situation is potentially magnified when translated into an isolated farm environment.

These factors, including geographic isolation, prior victimisation, and the role of a single offender in RV, seem to suggest that RV may be more of a problem in rural areas, and particularly on farms, than research and datasets seem to suggest. If, as Ceccato (2016) noted, RV affects fear, it is possible that fear of crime among the farmers of E&W extends much further than previously reported.

2.6.3 Media Influence and Farmer Fear of Crime

While it is widely accepted that fear of crime exceeds the likelihood of being victimised (Zedner, 1997), the effect of the mass media means people have more access to news on a 24 hour a day basis, which can potentially have a detrimental effect on levels of fear. A variety of factors may determine the level of influence the media can have on a person's fear of crime.

Noted by Winkel & Vrij (1990), stimulus similarity reflects how much the reader identifies with the victim in the report, how similar the reported area is to that of the reader, and how much the crime reflects what the reader is afraid of. Linked to this is source credibility, and how that impacts on whether the reader can envisage themselves in the same position as that reported. As Hale (1996) noted, media is a major source of information about the world, and it is probable that, for farmers, a key source of trusted information will likely be the farming press. It could be assumed that stimulus similarity with farm crime reported in the farming press would be high. Therefore it would not be unreasonable to assume that reports of farm crime among the farming press may have some influence on farmer perceptions and fear of crime.

Empirical evidence on the impact of the media on fear of crime, however, is mixed. O'Keefe & Reid-Nash (1987) found that crime reports on the television news led to an increase in fear; however, there was no such similar impact found for crime reported in newspapers. What one should consider is whether, if this research was repeated there would be an additional impact from news reports via the online press, something that would not have had a place in the 1987 research project.

It is likely that reports of crimes in the local area have a greater impact on levels of fear than media reports, as a person is likely to hear about such crimes in greater detail, be more aware of the area in question, and be more able to imagine such crimes happening to them (Public Policy Forum, 2001: 3).

Research carried out by Liska & Baccaglini (1990) aimed to understand how crime rates affect the coverage of crime in the media, and to assess the extent to which media

influences people's attitudes, beliefs and fears about crime. They have argued that high levels of fear can become part of culture, and as such can alter patterns of social life. This conclusion could be applicable to rural areas, or is it the case that farmers pay little heed to media reports, and as such these reports have little influence on levels of fear among farmers.

One thing noted by Liska & Baccaglini, was the psychological impact of fear that exists in urban areas. The anxiety, worry, and nervousness they report is entitled "urban unease", and is argued to be the culmination of the disorganisation of urban life. However, it is possible that this "urban unease" could be translated to 'farmer unease', as fear, anxiety, and worry among farming communities escalates, particularly with the ever-increasing ingress of organised criminals into these communities.

Liska & Baccaglini conclude their research on fear of homicide, by stating rural residents see reports of homicides located outside their local communities, and they therefore feel safer in comparison, and thus exhibit a lower fear of crime, not because crime in rural areas is lower, but because it seems lower than urban areas. However, one has to question how this translates to farm crime. While many crimes reported may be non-local, it is possible that, because a farmer can envisage themselves as being a victim of farm crime, unlike being a victim of homicide, the impact on fear of crime is greater.

This relates closely to the second aspect of how media reports of crime can influence fear: that of victimisation, either direct victimisation, or indirect through talking to friends or family who have been victims. Tamborini *et al.* (1984) noted that if a reader of a crime report can see similarities in the victim to themselves, this creates increased apprehension about possible victimisation. Similar to the findings of Winkel & Vrij (1990), this research would lead to the conclusion that farmers will relate to the plight of other farmers, and this would greatly increase anxiety and fear. However, while Yin (1985) notes that those who experience victimisation, whether directly or indirectly, report higher levels of fear than those who have not, these relationships are weak.

Sacco (1995) noted that farmers understand the sensationalistic nature of the media (1995: 153). This tends to imply that readers and viewers will know a report may not reflect reality. However, it is possible this view assumes the reader or viewer is a rational decision-maker and will think this way. Moreover, if a reader or viewer has been a victim of crime, either directly or vicariously, they are potentially less likely to consider a news report reflecting their situation or fear in a rational manner, and therefore the content is more likely to feed their existing anxiety and fear.

Cultivation theory (Gerbner & Gross, 1976; Gerbner *et al.*, 1994) asserts that violence in the media cultivates an overestimate of the likelihood of becoming a victim of crime. However, an alternative explanation may be that, where a person is fearful, the more likely they are to read or watch more crime related news or programmes.

Further research carried out by McLeod (1995) provides additional evidence that the media does not influence fear among readers and viewers. The research concluded that fear of violent crime is still high, despite press articles at the time detailing a decreasing crime rate, indicating that readers and viewers, particularly those who have been a victim of crime, may be more likely to remember the bad news over the good news as it is more salient to that person.

In conclusion, as mixed as the reported findings are, it is hard to see any definitive pattern as to the influence media can have on fear of crime, particularly among farming communities. Having been a victim, or the reported crime taking place in the local area may have some role to play, but it is by no means clear-cut. Zillmann & Wakshlag (1985) concluded that media exposure and fear of crime will always be stronger when fear in urban areas rather than rural areas is measured. However, with the advent of online journalism, increasing numbers of farmers are receiving online press reports about farm crime, and as such the role of this medium should be considered. Furthermore, Vanderveen (2003) as cited by Emanuelsson & Mele (2004) stated that the media effect in minor and just one source of information, and McQuivey (1997) concluded that facts and figures have no influence on people's perception of crime. It is what they learn from friends and family that must also be accounted for.

2.7 Excitement as a Criminal Motivator

Intrinsic motivators also affect the criminal and drives their likelihood to commit crimes on farms as opposed to other potential targets. This further impacts upon the levels of fear experienced by farmers, as well as their feelings of fatalism felt in the face of potential victimisation.

Burt & Simons (2013) argue that some criminals exhibit high levels of thrill-seeking behaviour, not tempered by the potentially negative consequences of being caught; the crime itself is pleasurable, and thus outweighs the risks. Zuckerman (2007) further argues that some crimes may be motivated by sensation seeking (2007: 169). It is possible that at least some of those who target farms will fall into this category of thrill-seeking offenders. For them, it is arguable, the crime becomes a sport for them, to the point where it may no longer be about the actual theft, but more about the thrill of beating the security measures

the farmer has put in place, or stealing something so close to the farmhouse without being caught.

2.8 Rural Masculinities and Farm Crime

Research has found differing masculinities in a variety of rural occupations, none more so than farming. Research by Brandth & Haugen (2005) has suggested that changes taking place in agriculture have led to fundamental changes in the social identity of the rural man, with a shift away from the traditional view of the sturdy, hardened, manual worker to the professional, boardroom dwelling farmer. One conclusion of note from this work was that as technology changes and improves, this may actually be seen as a challenge to the traditional RM, with tractors becoming computerised and more comfortable this implies that even women could use them.

This reflects the earlier findings of Brandth (1995), who found that tractors represent the traditional idea of farming and reinforces RM. However, as they become easier to use, this offers an opportunity for women to become actively involved in agriculture as these technological advances make farming less physical.

Saugeres (2002a) concluded that, traditionally, women in farming would only undertake secondary, menial tasks. Where men have an imagined automatic right to farm, women do not get the chance to be a farmer, and so get little chance to find out if they would make a good or a bad farmers. However, in contrast to Brandth (1995) and Brandth & Haugen (2005), this research argued that the development of mechanisation has pushed women further out of farming as the new technology was claimed by men.

Furthermore, Saugeres (2002b) concluded that while technology, particularly the tractor, was key to reinforcing the traditional RM, it also served as the location for the contestation of the traditional RM. The views of the farming community interviewed suggested that physical strength and a natural aptitude for technology are essential for being a good farmer, and as such this is why men run the farm, and women find low-paid employment off-farm.

Traditional Rural Masculinities (RM) can affect daily life widely, particularly when considering the role of RM in farm crime and FCP. The above research all reinforces the persistence of the traditional RM that continues to be seen in some farmers. However, Brandth & Haugen (2005) tend to suggest that challenges to the hegemonic RM are possible, although any meaningful changes may take a long time. The fact that farmers in E&W have been dealing with increasing level of crime for many years may already be leading to a change in the prevailing RM. This would likely be indicated by farmers who are

starting to break their strong and silent standpoint to talk openly about the social, economics, and psychological impact crime is having on farmers.

2.8.1 Hegemonic Rural Masculinity

Hegemonic masculinity is the version of masculinity that is considered to be natural in a given situation; in farming, this defines men as strong, rugged, dirty, and in control (Connell, 1995). Many farmers are men, and they have the responsibility of running the farm, which aligns with the traditional masculine ideology as the work tends to be heavy, long hours, and involves machinery (Lie, 1991). Bull (2009) argued that hegemonic masculinities emphasise the situations where men behave in a way they think is expected of a male (2009: 446). However, as Brandth & Haugen (2016) have argued, this way of thinking seems to exclude those situations when strength and power are less important, and certainly does not consider situations where these traditional masculine roles are being challenged, thus leading to traditional masculinities being restructured, or even replaced (Brandth, 1995).

2.8.2 Risk Taking Behaviour

Risk has a big part to play, particularly in men identifying with the hegemonic RM that persists (Meier-Pesti & Penz, 2008). This is reflected by research conducted by Campbell *et al.* (2006), concluding that rural men seem to take more risks than urban men, and put this down to the persistence of the idea of rural men being tough (2006: 7). An example they cite as being indicative of this, is that rural men put themselves at risk by refusing to wear sunscreen when working outdoors in the sun for long hours, despite being aware of the risks this poses to their health and wellbeing. This idea that rural men should be physically tough is reflected by work carried out by Will Courtenay (2000, 2002, 2003), who concluded that rural men are less likely to display healthy behaviours, and as such have greater health risks than those men not affected by hegemonic RM.

This position was extended by work undertaken by Iaccone (2005), who found that men in the construction industry comply with the hegemonic masculinity within that field, displaying risk-seeking behaviour, and ignoring personal safety issues for fear of being seen as weak. It is likely this bears some resemblance to the rural tradition. It may be the case that by not adopting farm crime prevention measures to either prevent crime, or to deter repeat victimisation, a farmer is still conforming with the hegemonic masculinity, and participating in what could be deemed as risky behaviour.

2.8.3 Challenges to Hegemonic Rural Masculinity

Despite the persistence of the hegemonic RM, there is evidence that a shift away from this position is possible. Research carried out by Brandth (1995) and Wilson (2014) supported this potential shift. In both cases, the researchers concluded that the traditional idea of farming being manual, dirty, heavy work (Brandth, 1995: 132) is being overtaken by a new RM that values a more business-like approach to farming. If this is the case, then it is possible this new RM would allow for wider adoption of crime prevention to deter criminals and ensure business continuity through reduced victimisation. However, offenders will not care about the prevailing masculinity construct that can be found on an individual farm, rather whether they can get in, and get out with the target items, without getting caught. It is therefore down to the new rural man to ensure the right crime prevention measures are used for the farm, without fear of being seen as weak.

However, as Christensen & Jensen (2014) argue, changing masculinity constructs may not always lead to a better outcome, and any changes may play out differently in varying locations. As such, for beneficial changes to be realised, masculinities research must aim to fully understand the complex nature of the prevailing masculinity, and the challenges to this (2014: 71) to ensure any such changes are beneficial to the target societal group.

2.8.4 Gender Roles in Farming

Anxieties of farmers are often dealt with by projecting the feelings of worry on to someone else; a process known as “defence othering” (Stough-Hunter, 2015). This suggests that members of a subordinate group may deflect to other people a situation or feeling that does not align with their idea of the prevailing masculinity. This is likely to be the case with farm crime, and any fears, anxieties, or worries that a farmer may have are likely to be projected on to family members. For example, it may be the case that, despite a farmer being worried about victimisation, they may say they are concerned about how their wife is feeling.

Victimisation itself, or the fear of victimisation, may undermine a farmers’ idea of masculinity, and as such may trigger hyper-masculine behaviour that the farmer then presents to the outside world, such as talk of violent retribution. Challenging the traditional RM may also lead to the need for alternative ways to support these traditional RM identities. If the role of strength and power is no longer seen as mandatory among rural men, how would those men who do not want to let go of this ideal reinforce this position? It is possible that, as crime and victimisation challenge the hegemonic RM, farmers will find another mechanism of reinforcing the traditional RM, possibly through domestic violence, drugs, or alcohol abuse.

A further point to consider, is the role of female farmers, and how the hegemonic RM impacts upon them. As noted by Tyler & Fairbrother (2013), any discussion around the construct of masculinity must also consider its impact on women, and the discussion of masculinity does not exist autonomously. Campbell *et al.* (2006) explain this aspect further, stating that RM is not just about the men, but also the effect that the prevailing RM has on rural women and how they live their lives, as one cannot be considered in isolation from the other (2006: 2).

It is interesting to consider how female farmers fit in to the discussion of a traditional RM, maybe by acting and behaving in a more masculine way to be accepted, and how a female farmer would deal with victimisation. It may be possible that the female farmer will bottle things up and carry on just as the rural man would, so as not to show weakness and to be seen as equal to their male counterparts. Alternatively, is there a complimentary rural feminine that could be applied to female farmers, and how would this differ from the stay at home mother perception of traditional farmers' wives.

2.8.5 Psychological Impact of Hegemonic Rural Masculinity

The existence of a hegemonic RM undoubtedly raises issues in relation to male response to crises, the psychological health of rural men, and their reluctance to seek help when faced with issues. It is asserted that this situation is particularly likely among rural men who adhere to the traditional RM in relation to victimisation (Brandth & Haugen, 2016).

Men's health is often overlooked in light of the persistent RM, which leads to rural men tending to work too much, ignoring stress, and suppressing emotions, which would be considered signs of weakness (Brandth & Haugen, 2016). Despite the negative effect this has on the psychological wellbeing of rural men, they seem to revert to this presumed ideal whenever faced with problems. However, it is possible that a farmer aligning with the hegemonic RM may find it a psychological challenge to come to terms with the fact that this is changing, and how this might affect them. In addition, farmers have little separation between the workplace and home meaning no escape elsewhere at the end of the working day, thus providing additional stress for the farmer who is trying to come to terms with the fact that their way of life may be changing. Moreover, if a farmer is trying to come to terms with a changing hegemonic RM, it may be further complicated if the prevailing social norm is the traditional RM, thus giving opportunity for a negative response from fellow farmers and possibly branding the farmer who is trying to change as weak.

The existence of the hegemonic RM also has an impact on farmers as they age. In many jobs, as they age people would normally look forward to a relaxing retirement. However, farmers across E&W continue to work in at least some capacity on the farm beyond retirement, despite the UK having an ageing farming population. This arises because of the belief that farmers should be active and physical. When illness or retirement forces a farmer to stop working, the farmer may feel as if they have been stripped of their identity (Gergen & Gergen, 2000), thus leading to negative psychological impact, with an increased risk of depression, and reducing life satisfaction (Herzog & Markus, 1999).

According to Carrington *et al.* (2013), while many farmers adapt to changing situations some do struggle with any transition. They reported that older farmers believed they were too old to change, and so experienced more difficulties with the changes required. This situation would then add to the psychological impact by increasing levels of stress, depression, and illness, thus explaining why some farmers do not use crime prevention on-farm even if they have been a victim. This situation may apply to younger farmers too, if they have been taught to run the farm by older relatives.

2.9 Summary

This review of the literature indicates several factors that may have an effect on a farmers' likelihood of becoming a victim of crime, as well as key considerations that should be taken into account that may have an impact on FCP decision-making.

By undertaking an analysis, it is possible to make initial steps towards understanding the behavioural culture of the farming community in E&W in relation to farm crime and FCP. Key factors considered are levels of crime prevention use among the farming community in E&W, the reason for the use or otherwise of FCP, potential predictors of farm victimisation, as well as farmers attitudes towards the police. Thus, by understanding the attitudes and beliefs that the farming community hold, it may be possible to address the decision-making and behaviour of this community and “nudge” (Thaler and Sunstein 2008) them towards more appropriate and effective decisions regarding the protection of their property.

Chapter 3: Theoretical Models relating to Farm Crime Prevention

Even though the fields of criminology and economics at first glance seem to have little in common, there is an overlap between the two when considering crime prevention. While not an exhaustive list, some of the key theories addressing aspects of crime prevention and decision-making, and their interaction, is illustrated by Figure 3.1.

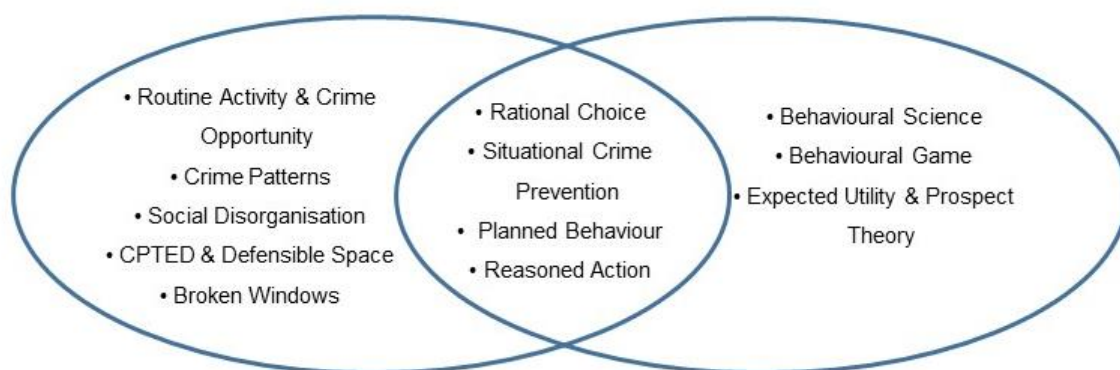


Figure 3.1: Venn diagram showing the overlap in some key theories in crime prevention and decision-making.

This research identifies that several of these theories are particularly relevant vis-à-vis FCP decision-making, specifically:

- Routine Activity Theory
- Crime Opportunity Theory
- CPTED and Defensible Space
- Broken Windows Theory
- Behavioural Science
- Rational Choice Theory
- Situational Crime Prevention

This chapter will provide a brief critical analysis of some of the key aspects and ideas for each of these theories in turn. The field of BS will then be expanded upon in Chapter 4, where more detail surrounding how BS has been used as an alternative to traditional policy to aid decision-making in farming and the criminal justice system will be examined.

3.1: Crime Prevention Theories

3.1.1 Routine Activity Theory

In 1979, Cohen & Felson introduced Routine Activity Theory (RAT). It was proposed that, for a crime to take place, three key elements must converge in time and space. These elements are the presence of a motivated offender, a suitable target and the absence of a

capable guardian. They took the standpoint that crime is inevitable, and instead explored the ways in which the influence of space and time on social activities thus impacting on the likelihood of criminalisation. The likelihood of a crime taking place rises with the increased combination of these elements (Akers & Sellers, 2004). The interaction is illustrated by Figure 3.2.



Figure 3.2: Illustration of Routine Activities Theory (*Based on Cohen & Felson, 1979*)

This theory explains how changes in patterns of life and social interactions affect the likelihood of victimisation. Such indicators include employment, recreation, education and leisure activities. RAT considers crimes as events that occur at a particular point in time and space, affecting a person, a group of people, or property (Boetig, 2006).

However, Miethe *et al.* (1987) have argued that the weighting and importance of the three key elements illustrated in Figure 3.2 needs to be reviewed, suggesting that the weighting of the three elements should not automatically be assumed to be equal, and that one or more of the elements may be more likely to determine victimisation than another. For example, Miethe *et al.* (*op cit.*) argued that more suitable targets with a lack of guardianship are not necessarily those who are more likely to be victimised. In addition to this, it could further be argued that any one of these three elements may play a larger part in determining the likelihood of victimisation than the other two, and so crime prevention decision-making models should aim to reflect this.

Jeffery (1993) further criticises RAT for being too simplistic in its approach. It is argued that its very simplicity may be the reason for the theory being often overlooked by academic researchers over the last four decades (Cohen & Felson, 1979). In addition, Felson (2011) argued that RAT should not be referred to as a theory, but rather an approach; therefore, the fact that RAT has been overlooked may be due to academic snobbery.

RAT was developed when most criminological theory and research focused on the motivation of offenders (Hollis-Peel *et al.*, 2011), and challenged this position by shifting the focus on to the victim, and thus became seen by some researchers as one of the leading theories of victimisation (Schreck, 1999). It has been noted by researchers such as Henson *et al.* (2010), that this status has been achieved by RAT placing the emphasis on how crime and victimisation can be influenced by daily routines surrounding the work and leisure activities of the potential victim.

Despite this focus on the victim, it seems that RAT still has an element of focus upon the offender and so is not completely victim-centric. As noted by Hopkins Burke (2014), RAT assumes that a motivated offender exhibits a level of rationality when choosing a target, undertaking some kind of cost-benefit analysis, and thus opting for targets based on the absence of a guardian, and suitability. However, Miethe *et al.* (1987) argued that, while this may be the case with offences against property, it is less likely to explain violent victimisation, because of the general spontaneity of such offences. Furthermore, Akers (1997) concluded that while RAT may explain the reasons some people engage in illegal activities, it does not attempt to explain the motivations of those who do commit crimes, and therefore how the motivations differ.

RAT is particularly relevant to the farm environment, with farms working to daily routines thus creating opportunities for criminals (Cohen & Felson, 1979). Therefore, the need for careful consideration of the key factors surrounding RAT, and their impact on FCP, is essential. Farms are full of suitable targets, in the form of high value vehicles, machinery, and tools, as well as livestock and chemicals. In addition, on-farm guardianship is particularly low at certain times of the day, or days of the week. With criminals who target farms becoming increasingly more organised (Smith & Byrne, 2018b (accepted)), the levels of motivation among these offenders is likely to increase in the future, thus putting farms at higher risk of victimisation should the first two factors not be adequately addressed.

Despite criticisms, RAT has remained relevant within criminology, and sociology, because it provides a clear explanation for the link between the legal activities of victims and the illegal activities of the offender. In addition, it also explains the link between what society might term positive social changes, such as women's employment levels, and increases in crime levels (Meier & Miethe, 1993).

3.1.2 Crime Opportunity Theory

Crime Opportunity Theory (COT) builds upon RAT, and examines the characteristics of both the offenders and the victims, along with the space in which offenders and victims are likely

to interact (Hannon, 2002). In support of this theory, Felson & Clarke (1998) argued that opportunity is a “root cause” of crime.

In contrast to RAT however, COT argues that the rationality of the offender is bounded, and decisions made by offenders are driven by cost-benefit analyses and are affected by hyperbolic discounting (Van Dijk, 1994). In specific regard to farm crime, this point is particularly pertinent. Offenders tend to often target the high value items (Donnermeyer *et al.*, 2010), even though they know it may have a Tracker, Smartwater, or other deterrent present. Despite a higher possibility of being caught, these offenders are also aware of the rewards that will come to them if they manage to get away with the target item. The cost-benefit analysis that criminals perhaps undertake means that the payment they may get for a tractor or a quad bike stolen to order for a gang may often outweigh the fear of being caught at some point in the future.

As an extension to RAT, COT focuses on five key elements and their interaction with each other: exposure, guardianship, proximity to potential offenders, attractiveness of potential targets, and definitional properties of specific crimes themselves (Cohen *et al.*, 1981 pp. 507-508). In addition, the authors addressed the relationship of these five elements with certain socio-economic characteristics of the potential victims. This includes age, race, income, household consumption, labour force participation, and residence in different areas of the city. Their findings show that income, race and age, and the risk of predatory crime is a particularly complex relationship. With all things being equal, those usually thought to be most economically and socially vulnerable, i.e. the poor, non-whites, and the old, are *not* the most likely to be a victim of crime (p. 505).

Many of the key elements identified by Cohen *et al.* (1981) have relevancy to farms. However, it seems likely that the levels of relevance of these key elements, and the interaction between them, may differ from patterns seen in urban-based crime due to the difference in crimes and the property targeted. In particular, the element of proximity to potential offenders may initially be seen as irrelevant in the farm crime discussion. Improved road networks to address the increase in rural tourism and commuting, the influence of Organised Crime Groups, and the potential high returns from the theft of farm items, mean that offenders are more motivated and thus their travel-to-crime distance is greater than their urban counterpart.

In conclusion, it is arguable that RAT and COT clearly do have a place in rural criminological and sociological research despite criticisms. In particular, further research around RAT and its application to various specific crime types may address some of these criticisms. The fact that RAT focuses on the actions of the potential victim rather than the potential offender

would seem reason enough for continued exploration and improvement to this approach to explain reasons for victimisation.

3.1.3 CPTED & Defensible Space

Crime Prevention Through Environmental Design, or CPTED, took shape following the publication of Jane Jacob's "The Death and Life of Great American Cities" in 1961. It was this publication that led to a different way of thinking about offender behaviour. Criminologist CJR Jeffery recognised the importance of the things that Jacob was talking about, and thus developed a significant contribution to the field of criminology. He suggested that a shift in focus on causes of crime should be made to consider the effect the environment in which an offender lives, works and travels has on their behaviour. This alternative way of thinking was published in Jeffery's book entitled "Crime Prevention Through Environmental Design" in 1971.

Despite its very urban-centric beginnings, CPTED is often seen by researchers, policy makers, and practitioners, as the most relevant to rural and farm crime (DeKeseredy & Donnermeyer, 2013; DeKeseredy *et al.*, 2009; Fraser, 2011). This theory fit in well with RAT, and Rational Choice Theory (RCT), stating that the reduction of crime must focus on the reduction of opportunities for crimes to occur (Armitage & Pascoe, 2016).

While Jeffery developed CPTED, architect and researcher Oscar Newman developed the theory of Defensible Space separately but concurrently, with his theory being published in 1972. CPTED and Defensible Space, while separately developed, worked in conjunction with each other, and were purported to herald a change in the way crime prevention was approached (Draper & Cadzow, 2004).

In his work, Newman extended the discussion of Jacob to suggest that residents should take responsibility of their immediate environment and the deterrence of crime. This can be done using territorial boundaries, such as fences, gates, and signs that the residents care for the area, as well as the improvement of natural surveillance of the area so that observation of crime is easier, for example the installation of windows and the elimination of blind spots. Newman (1972) argued that the built environment affects the behaviour of potential criminals indirectly due to changes in the behaviour of residents to encourage increased vigilance of their community.

Defensible Space may have a role within a farm scenario, as farms tend to have predictable layouts, albeit often chaotic. By enabling the farmyard to be better laid out to encourage improved boundary control, natural surveillance, as well as keeping the area tidy, may allow

for improved deterrence of potential offenders. However, there are limitations with this approach and farms. Many farmyards consist of old buildings that do not lend themselves to a reduction in blind spots, nor would it be practical to add windows to many such buildings. This is due to the likely presence of animals or heavy machinery on the farm. Moreover, it may actually prove counterproductive to insert windows in farm outbuildings with these buildings being the location where many farm items, chemicals, and tools are stored. Therefore, some concepts within Defensible Space could easily be adapted to farmyards, whereas some may prove difficult to implement.

While Defensible Space addresses the physical and architectural aspects that influence offender behaviour, CPTED looks at this issue from a wider point of view by also considering the socio-economic policies and psychological interventions that play a part in influencing offender behaviour. Jeffery was heavily influenced by the work on operant conditioning by behavioural psychologist Burrhus Frederic Skinner in 1953, and surmised that behaviour can be influenced using four key strategies: natural surveillance and territorial reinforcement as identified by Newman, but also access control, and maintenance of the space (Cozens, 2002). The latter concepts provided the basis for establishing a sense of ownership among residents for the immediate space surrounding their home rather than simply fortifying the area to prevent criminal ingress.

The work of Newman and Jeffery was extended further a decade later into what is widely recognised and practiced in the UK. Moffat (1983) added to the concepts identified within Defensible Space and CPTED by establishing a model where Defensible Space is the central aim, with seven related areas that would contribute to this (p. 23). Figure 3.3 illustrates the new areas of target hardening and activity support considered when practising CPTED. Table 3.2 provides brief information as to what each of the concepts relates to.

It is noted however, that in many cases, despite CPTED being widely used in town planning, it is much more likely that the narrow concepts of the architectural and physical approach that Newman discussed in his Defensible Space theory that tend to persist. However, despite the widening to include social policies, it was not until the early part of the 21st century that the focus on the physical environment in this 'first generation' of CPTED was to expand to include socio-economic, demographic, community culture, cohesion, and connectivity in a 'second generation' of CPTED (Saville & Cleveland, 2003a; 2003b).

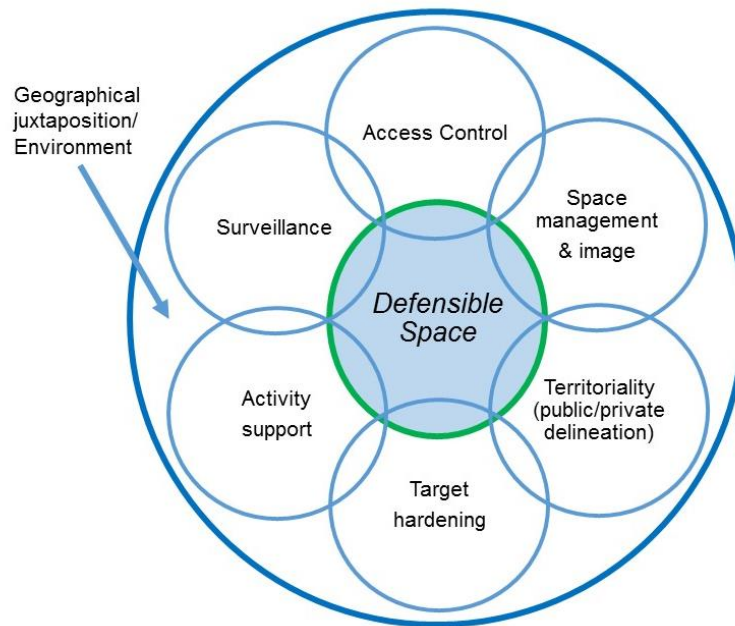


Figure 3.3: Key concepts of CPTED (Adapted from Moffat, 1983)

Table 3.2: Overview of the seven CPTED concepts (Adapted from Cozens, 2008)

Concept	Overview
Defensible Space	The use of design to enhance territoriality and promote a sense of ownership and delineating between public and private space using real and symbolic barriers
Natural Surveillance	Opportunities for residents' self-surveillance facilitated by formal surveillance, e.g. security patrols, design, e.g. windows, and mechanical surveillance, e.g. street lighting, CCTV
Territorial Reinforcement	Design concept to promote sense of ownership in legitimate users of space thus reducing opportunities for offending by discouraging illegitimate users
Access Control	Using security patrols, locks and bolts, to deny access to potential targets and creating a heightened perception of risk in offenders
Maintenance	Promoting a positive image and routinely maintaining the built environment
Target Hardening	Denying or limiting access to a crime target through the use of physical barriers such as fences, gates, locks, electronic alarms and security patrols
Activity Support	Use of design and signage to encourage intended patterns of usage of public space and discouraging unwanted behaviour

Unlike other crime prevention measures, CPTED has garnered support internationally across a number of developed countries including the UK, North America, Australia, New Zealand, and parts of Asia (Cozens & Melenhorst, 2014). However, Cozens & Melenhorst (2014) noted that CPTED is only recognised as a Western construct. While some aspects

can be seen in communities in developing countries, it is by no means an organised approach to crime prevention, and does not seem to translate into non-Western communities in its recognised format.

Another potential criticism of the use of CPTED revolves around the potential for physical crime prevention aspects of the theory, including target hardening and territorial reinforcement, to dominate the implementation of crime prevention in communities. It is arguable that, if this fortification of communities takes place rather than integrating sufficient resident participation, there is a likelihood that residents may withdraw from society into the perceived safety of their own home, thus acting counter to the concepts of CPTED aimed at crime prevention through social interaction (Cozens *et al.*, 2005).

Finally, the implementation of CPTED in E&W creates its own problems. As a result of the global financial crisis and the subsequent Comprehensive Spending Review in 2010 (HM Treasury, 2010), police forces across E&W have had budget cuts. CPTED advisors were employed by police forces to review planning applications and provide advice on crime prevention under numerous titles – Architectural Liaison Officers, Crime Prevention Development Advisors, or Designing Out Crime Officers. However, the number of CPTED advisors have dropped from 347 in January 2007, to just 125 in November 2014 (Armitage & Pascoe, 2016).

This reduction in CPTED advisors leads to a decreasing service available to communities and individuals, particularly rural residents and farmers. While some ideas may come naturally to farmers, such as signs, blocking unused access points, or electronic entry gates, it is only with the expert advice of the CPTED advisors that a farmer may be confident they are aware of the available options, and what is most appropriate and effective in relation to their own farm. Moreover, a farm visit by a CPTED advisor may indeed identify gaps in security that the farmer had not been aware of prior to such a visit.

3.1.4 Broken Windows Theory

Although key components can be found across earlier works by researchers such as Glazer (1979) and Jacobs (1961), Broken Windows Theory (BWT) in its current form was first proposed by James Q Wilson and George Kelling in 1982. A particularly influential CPTED driven theory, BWT proposed a link between disorder and incivility within a community, and later occurrences of serious crime (Hinkle & Weisburd, 2008), and as such, became one of the key policing strategies during the 1990's (Bratton & Knobler, 1998; Giuliani & Kurson, 2002).

The key concept within BWT purports that unchecked signs of disorder signals a lack of social control within that community. However, it is not clear from the research whether there is consistent guidance for communities as to what these signs of disorder may be, and how they can be addressed. Any messages, and indeed the way they are delivered, should be designed to meet the individual needs of the target community, whether that message is conveyed physically, verbally, through the police, or via another source. What should be consistent, regardless of the method of delivery, is information about signs of disorder, and further guidance and advice for communities on how to alleviate these.

Whereas law abiding residents retreat from public areas to the safety of their own home when signs of disorder are present, predatory criminals make inroads into those communities bringing serious crime with them (Wilson & Kelling, 1982). Skogan (1990) acknowledged this idea by stating that, as a result, any indicators of disorder, the broken windows, should be addressed and repaired at the earliest opportunity (p. 75). In light of this, Kelling & Coles (1996) argue that Skogan's work empirically confirmed the link between disorder and serious crime, thus verifying BWT.

However, upon replication of Skogan's study, Harcourt (2001) found that Skogan's data does not support the claim that reducing disorder deters more serious crime. He went on to state that crimes such as rape, physical assault and burglary are not significantly related to disorder when all other factors are held constant. In addition, Gau & Pratt (2010) argued that there is a concern that disorder and crime are not generally distinguished by the public, upholding concerns raised by Sampson & Raudenbush (2004). Moreover, Harcourt & Ludwig (2006) concluded that there is little or no support for a disorder-crime relationship hypothesised by Wilson & Kelling, nor for the proposition that Broken Windows policing is the optimal use of scarce law enforcement resources (p. 271).

This seems to imply that the theory on which many aspects of policing have been based may well not be as robust as originally purported by proponents of the theory. This conclusion is supported by research carried out by Gau & Pratt (2010, p.763). They concluded that BWT seems to have divided the research community. Supporters cited studies that support the validity of the research (Kelling & Coles, 1996; Kelling & Sousa, 2001; Skogan, 1990), whilst critics of the theory point to studies that seem to show the opposite (Gau & Pratt, 2008; Harcourt, 1998; Taylor, 2001).

Another unintended consequence of the prevalence of Broken Windows policing, and the focus on disorder, was that disorder – whether perceived or observed physical disorder – led to significantly higher levels of fear of crime in communities (Hinkle & Weisburd, 2008), thus exacerbating the problem further.

Sousa & Kelling (2006) have argued that, despite varying attacks from criminological, legal, and academic quarters (Gau & Pratt, 2010; Harcourt, 1998; Sheldon, 2004), BWT provides a robust policy option within criminal justice practice and crime prevention (p.2). While this may be the case, this statement was questioned by Gau *et al.* (2014). While they argued that BWT has established itself as one of the most influential criminological theories addressing crime prevention and crime control, they also stated that problems surrounding the theory have arisen as a result of the theory being translated from paper to policy too quickly (p. 579). BWT may have been put into practice without detailed academic reviewing, thus leading to a situation where there is a lack of agreement among researchers about the validity of the theory, which persists despite a growing collection of empirical research addressing this issue (Harcourt & Ludwig, 2006; Kelling & Coles, 1996; Skogan, 1990).

It is arguable that BWT simplifies the deterrence of crime, by suggesting the reduction of crime results from the removal of superficial indicators of disorder in an area, fixing the broken windows, and keeping the contra-indicators of a pleasant location hidden from sight. Such a simplification may prove problematic with some farms, as they are often chaotic areas, with a plethora of old buildings with low security levels. Such situations are unlikely to be easily resolvable on a working farm, and while not indicators of criminal disorder, to a potential offender, they may be considered signs of general disorder in the running of the farm business, thus making the farm seem a more attractive target.

In conclusion, it can be seen that BWT certainly is an important driver of crime prevention policy, which has staked its claim on crime prevention and deterrence across a variety of situations. However, while there clearly is a place for this theory within the criminal justice system, there continues to be a lack of agreement as to how BWT really fits in to the wider spectrum of crime prevention theory and policy and its efficacy in practice.

3.2: Decision-Making Theories

3.2.1 Behavioural Science

While Behavioural Science (BS), particularly behavioural economics and nudge theory, are dealt with in detail in chapter 4, a brief overview is provided here for guidance.

BS has a long history, with precursors to the theory being seen as far back as the late 18th century. Despite this, it was 1913 before the psychology of decision-making was seriously considered by economists, and 1958 when the term 'behavioural economics' was first used (Johnson, 1958). BS has brought together concepts from a variety of fields to try and better

explain the departures that human decision-makers often make from the traditional economic view of rational decision-making. It enables a better understanding of the way in which people make decisions based on imperfect information, and the influence that biases, society, and social groups have on decisions.

Nudge theory was developed by Nobel Prize winning economist Richard H Thaler, and lawyer Cass R Sunstein in 2008. It uses key concepts of BS to address the ways in which humans are influenced in their decision-making, and how, by framing choices in a particular way, without limiting the freedom of choice, decisions can be influenced to make the decision-maker better off as judged by themselves (Thaler & Sunstein, 2008). Nudge theory allows preferences to be given priority over actual choices, as choices may not truly reflect a person's real preference (Dhami, 2016). Opponents of nudge theory have argued that the whole concept is coercive and paternalistic in nature. Thaler and Sunstein (2008) argued that nudge is in fact a form of libertarian paternalism. As the theory is aimed at decision-makers with bounded rationality, the choice architect aims to present choices in such a way as to influence the choices of individuals and make them better off – which is, in itself, paternalistic. However, Thaler and Sunstein (2008) go on to argue that the choice architecture does not reduce the choice available to the individual, nor does it infringe on the individual's liberty in choice, thus making the choice architecture and the nudges liberal in nature. Nudge theory essentially enables the choice architect to use knowledge of decision-making biases and heuristics of the target audience to understand how to frame choices, without limiting the available choices, to present the most beneficial options in such a way as to nudge the decision-maker towards the decision that would make them better off.

3.3: Theories affecting Crime Prevention and Decision-Making

3.3.1a Rational Choice Theory

In traditional economics, Herbert Simon (1955) described rational choice as being the domain of the economic man, who, by definition, is rational and makes informed decisions based on complete knowledge, or at least knowledge that is extensive (Simon, *op cit*, p.99). These rational decision-makers have well defined preferences and are able to calculate which of the available options will provide the best outcome for them. This allows them to weigh up the means and ends, and the costs and benefits to make the rational choice (Steele, 2016). In the field of economics, RCT differs from other similar theories, in that it does not accept any type of action other than the purely rational and calculative action (Scott, 2000).

The introduction of RCT into the field of criminology began with an unproven, flippanant comment supposedly made by notorious bank robber Willie Sutton. When asked why he robbed banks, his reply was "Because that's where the money is" (Bradford, 2007). This alleged comment developed into Sutton's Law, a rule of thumb for medical staff when making diagnoses, which roughly translates to opt for the obvious explanation. While there was no such rule in criminology, by simply shifting the focus from that surrounding the motivation for particular actions to a response that highlights criminal decision-making, it is arguable that this led to the introduction of RCT to the criminological arena (Cornish & Clarke, 2014).

3.3.1b Rational Choice Theory & Criminal Decision-Making

It was in the late 1970's and early 1980's when RCT was spoken of in relation to criminal decision-making. This came about as a result of a shift among researchers away from trying to prevent and treat criminality using medico-psychological methods, towards a more sociological and cognitive psychological approach to understanding criminality (Clarke & Cornish, 1983; Cornish & Clarke, 1986; Simon, 1975).

RCT in criminology addresses the preferences and decision-making of offenders and shows that criminals seek to obtain the most benefits from their criminal behaviour. As in the economic tradition, RCT in criminology focuses on choice and decision-making, with the focus revolving around the action – the crime – being central to decision-making. As Cornish & Clarke (2014) noted, success in criminal decision-making will result in continuation, and thus the development of a criminal lifestyle; while failure in criminal decision-making will lead to a reduction or even desistance.

Marcus Felson (2014) noted there is a fundamental difference between RAT and RCT applied to crime. He argues that RCT addresses the content of the decisions. In contrast, RAT addresses the environment that creates the options available from which the choices can be made. However, Scott (2000) highlighted criticisms of RCT surrounding the representativeness of Rational Choice to social decision-making in light of issues such as collective action or altruistic decision-making.

Cornish & Clarke (1986, 1987) noted that by using RCT, the environment that influences such decisions can be altered or controlled, therefore affecting the context in which a crime occurs, thus reducing crime or even eliminating it altogether. However, in contrast, the approach taken by Becker (1968) contends that changes to the environmental context may reduce or eliminate crime, but this will only be short-lived, as the rational criminal will find a way to rationalise their actions, and therefore continue, on either the same path or an

alternative crime path. This essential difference means that RCT, while useful, may not be the predictive tool first thought. This is supported by work from Hirschi (2014), who commented that RCT in criminology is concerned mainly with explaining crimes. Therefore, it is possible to conclude that, while RCT has a place in criminology, it maybe should be seen as an explanatory tool rather than a predictive theory.

In addition, it could be argued that RCT acts in opposition to BS, vis-à-vis its reliance on the rational criminal decision-maker. Whereas BS acknowledges the imperfection of humans in decision-making, RCT in criminal decision-making explains the benefits of the crime as the driving factor. However, this being the case, it seems that RCT may be more relevant when considering victim decision-making than offender decision-making. Moreover, when looking at FCP decision-making, RCT may provide additional insights into decision-making complimentary to insights obtained through concepts of BS.

3.3.2 Situational Crime Prevention Theory

Situational Crime Prevention (SCP) was first noted in the late 1940s by Edwin Sutherland (1947) who found that crime can either be influenced by past experiences or by situational and environmental factors. While researchers of the time acknowledged this was a feasible alternative to explain offender actions, SCP was not considered further until the late 1970s, and indeed it was not until the work of Ronald Clarke in 1983 that SCP was brought to the forefront of research aiming to address offender actions and prevent crime. In doing so, Ronald Clarke shifted the focus of criminological research towards considering the crime event rather than the offender.

Building on this, Clarke (1992) went on to identify twelve techniques of SCP aimed at increasing the effort, increasing the risk, and reducing the reward of the crime. Clarke & Homel (1997) extended this list to sixteen, and Cornish & Clarke (2003) further extended the list to twenty-five techniques. Table 3.3 illustrates the twenty-five identified SCP techniques.

Ronald Clarke in 1997 defined SCP as comprising “opportunity-reducing measures that: (1) are directed at highly specific forms of crime, (2) involve the management, design or manipulation of the immediate environment in as systematic and permanent way as possible, (3) make crime more difficult and risky, or less rewarding and excusable as judged by a wide range of offenders” (p. 4).

Based on RCT and RAT, SCP defines crime prevention strategies that are primarily aimed at reducing the criminal opportunities that occur because of the routine behaviour and

activities of everyday life. SCP makes use of various strategies, including target hardening, improving surveillance, and denying criminal's access to particular settings where crime takes place, to reduce opportunities for specific types of crime by increasing the associated risks and by reducing the rewards of that crime. Crime pattern research seems to support this approach, showing that crime levels are affected by opportunities for crime as well as where the criminal lives. This is reflected by crime pattern research addressing "hot spots and hot products" (Santos, 2017).

By underpinning SCP with elements of RCT, RAT, crime pattern theory, and social psychology, means that it counters criticisms from some quarters that SCP is atheoretical. Continued development of the theory has shown that, despite critics stating that target hardening is the only working aspect of the theory, in fact target hardening is only one of the twenty-five key aspects of SCP (Table 3.3) which views the issue of crime prevention from a variety of standpoints. Moreover, it shows there is a clear need to undertake a detailed analysis of the crime problem to identify the most appropriate course of action (Wortley, 2010).

Using RCT as the basis for SCP has also drawn criticism from other quarters. Some argue that, while SCP may have proved beneficial in reducing high volume acquisitive crimes such as theft and shoplifting, it does not stand up to scrutiny when considering crimes against the person, such as gang-related violence or rape (Trasler, 1986; Morrison, 1995; de Haan & Vos, 2003). However, it is argued that, as the theoretical model has developed, such crime situations could be revisited to establish whether the 2003 model would be fit for purpose in addressing the situational prevention of violent crimes. Indeed, an alternative model may be required aimed directly at violent crime rather than acquisitive crime, which could be developed based on what Cornish & Clarke (2003) have already done.

Finally, it is arguable that, with all the consideration of how SCP does not meet the needs of potential victims of crime based on RCT, it is easy to overlook what benefits SCP can provide to a community beyond the direct application to prevent crime. Many discussions in criminology and crime prevention address the issue of crime displacement (Repetto, 1976; Eck, 1993; Johnson *et al.*, 2014). However, SCP measures may not necessarily lead to crime displacement (Clarke *et al.*, 1994; Hesseling, 1994). Moreover, such discussions surrounding crime displacement may in fact conceal the possible positive outcomes such as the possibility of a diffusion of benefits of SCP actions as discussed by Clarke & Weisburd (1994), Forrester *et al.* (1988), and Guerette (2009).

Table 3.3: Twenty-five techniques of Situational Crime Prevention (Adapted from Cornish & Clarke, 2003: 90)

Increase the Effort	Increase the Risks	Reduce the Rewards	Reduce Provocations	Remove Excuses
<p>1. <i>Target harden:</i></p> <ul style="list-style-type: none"> Steering column locks and immobilisers Anti-robbery screens Tamper-proof packaging 	<p>6. <i>Extend guardianship</i></p> <ul style="list-style-type: none"> Take routine precautions: go out in groups at night, leave signs of occupancy, carry phone "Cocoon" neighbourhood watch 	<p>11. <i>Conceal targets:</i></p> <ul style="list-style-type: none"> Off-street parking Gender-neutral phone directories Unmarked bullion trucks 	<p>16. <i>Reduce frustrations & stress</i></p> <ul style="list-style-type: none"> Efficient queues and polite service Expanded seating Soothing music/muted lights 	<p>21. <i>Set rules:</i></p> <ul style="list-style-type: none"> Rental agreements Harassment codes Hotel registration
<p>2. <i>Control access to facilities:</i></p> <ul style="list-style-type: none"> Entry phones Electronic card access Baggage screening 	<p>7. <i>Assist natural surveillance:</i></p> <ul style="list-style-type: none"> Improved street lighting Defensible space design Support whistleblowers 	<p>12. <i>Remove targets:</i></p> <ul style="list-style-type: none"> Removable car radio Women's refuges Pre-paid cards for pay phones 	<p>17. <i>Avoid disputes:</i></p> <ul style="list-style-type: none"> Separate enclosures for rival soccer fans Reduce crowding in pubs Fixed cab fares 	<p>22. <i>Post instructions:</i></p> <ul style="list-style-type: none"> "No Parking" "Private Property" "Extinguish camp fires"
<p>3. <i>Screen exits:</i></p> <ul style="list-style-type: none"> Ticket needed for exit Export documents Electronic merchandise tags 	<p>8. <i>Reduce anonymity:</i></p> <ul style="list-style-type: none"> Taxi driver IDs "How's my driving?" decals School uniforms 	<p>13. <i>Identify property:</i></p> <ul style="list-style-type: none"> Property marking Vehicle licensing and parts marking Cattle branding 	<p>18. <i>Reduce emotional arousal:</i></p> <ul style="list-style-type: none"> Controls on violent pornography Enforce good behaviour on soccer fields Prohibit racial slurs 	<p>23. <i>Alert conscience:</i></p> <ul style="list-style-type: none"> Roadside speed display boards Signatures for customs declarations "Shoplifting is stealing"
<p>4. <i>Deflect offenders:</i></p> <ul style="list-style-type: none"> Street closures Separate bathrooms for women Disperse pubs 	<p>9. <i>Utilize place managers:</i></p> <ul style="list-style-type: none"> CCTV for double-deck buses Two clerks for convenience stores Reward vigilance 	<p>14. <i>Disrupt markets:</i></p> <ul style="list-style-type: none"> Monitor pawn shops Controls on classified ads License street vendors 	<p>19. <i>Neutralize peer pressure:</i></p> <ul style="list-style-type: none"> "Idiots drink and drive" "It's OK to say No" Disperse troublemakers at school 	<p>24. <i>Assist compliance:</i></p> <ul style="list-style-type: none"> Easy library checkout Public lavatories Litter bins
<p>5. <i>Control tools/weapons:</i></p> <ul style="list-style-type: none"> "Smart" guns Disabling stolen cell phones Restrict spray paint sales to juveniles 	<p>10. <i>Strengthen formal surveillance:</i></p> <ul style="list-style-type: none"> Red light cameras Burglar alarms Security guards 	<p>15. <i>Deny benefits:</i></p> <ul style="list-style-type: none"> Ink merchandise tags Graffiti cleaning Speed humps 	<p>20. <i>Discourage imitation:</i></p> <ul style="list-style-type: none"> Rapid repair of vandalism V-chips on TVs Censor details of modus operandi 	<p>25. <i>Control drugs & alcohol:</i></p> <ul style="list-style-type: none"> Breathalyzers in pubs Server intervention Alcohol-free events

3.4 Summary

In summary, there are numerous theories surrounding crime prevention and decision-making, and certainly more than those covered in this work. In relation to farm crime and FCP, this chapter has reviewed some of those theories particularly relevant within the rural perspective. However, as far as the author can see, there is no evidence of BS and, in particular, nudge theory, being used within crime prevention decision-making on the part of potential and actual victims as an alternative to existing FCP policies that seem to have had little effect on the uptake of appropriate, effective FCP.

Chapter 4: Behavioural Science

4.1 What is Behavioural Science?

Conventional economics has presented the idea of humans as completely rational and predictable in decision-making with unbounded knowledge and exceptional calculation skills (Herrnstein, 1990). This concept came to be referred to as *Homo Economicus* (Persky, 1995).

BS is an umbrella term amalgamating a variety of disciplines from a wide range of academic fields. These include cognitive psychology, social theory, and behavioural economics, as well as relatively new disciplines such as social neuroscience, anthropology, and genetics (Gordon, 2011).

The introduction and development of BS led to the understanding that such a concept as *Homo Economicus* truly could not exist, and led researchers to understand that humans are only predictable in their unpredictability (Ariely, 2008). BS is being widely adopted as it puts human behaviour at the centre of the theory rather than external, rational economic influences. This has led to BS providing alternatives to many assumptions conventional economics relied upon, some of which include:

- Preferences are not always stable and consistent (Soane & Chmiel, 2005);
- Decision-making is influenced by friends, community, social norms, the media etc. (Kogut & Beyth-Marom, 2008);
- Understanding how preferences are determined can lead to an appreciation of what drives preferences and changes in preferences (Druckman & Lupia, 2000);
- People do not have the capacity to maximise. Instead, they make decisions within psychological and environmental constraints (Schwartz *et al.*, 2002);
- People make educated guesses based on imperfect information (Simon, 1972).

4.2 Behavioural Science: Behavioural Economics and Nudge Theory

This section provides a brief overview of how BS is employed in decision-making as an alternative to traditional economics. This includes some behavioural factors that affect decision-making, and some of the criticisms laid at the door of this methodology.

Thaler and Sunstein (2008) have popularised BS, bringing the theory to the attention of various political parties and policy makers. In their book, "*Nudge - Improving Decisions About Health, Wealth and Happiness*" the authors refer to BS driven decision-making as

Nudging. According to the authors, a nudge is the presentation of choices to change the way people behave in a predictable way, without restricting that choice in any way (page 6).

Whenever people make decisions, they do so against the influence of choice architecture, not always being the result of intentional design, but also due to spontaneity or “invisible hand mechanisms” (Ullmann-Margalit, 1997); the choice of food one makes in a cafeteria is driven by choice architecture (Thaler & Sunstein, 2008). Regardless of the design of choice architecture, researchers have noted that there are many situations where choice architecture could be usefully employed that have seemingly not yet been considered (Sunstein, 2015).

Amir & Lobel (2009) have argued that to promote collective welfare, nudges should aim at positively influencing “*other-regarding*” decisions rather than improving an individual’s “*self-regarding*” actions. By using nudges rather than policy, individuals may be more likely to consider wider society as part of their decision-making process because they are allowed to make their own decisions and may look to their neighbours for some kind of guidance. Despite this concept, Amir & Lobel (*op. cit*) concluded that nudges in the policy arena are simply a first stage of a change in policy, and that such approaches are still subject to more strong-arm tactics further down the line. If such an argument is accepted, it is concerning that BS is used so widely in policy-making, purportedly to allow for people to make decisions themselves with carefully placed nudges, when in actuality such decisions would be rendered redundant when more coercive actions are taken further down the line. This action would negate the benefits of nudges, and may even lead to increased dissatisfaction with the governing party. The public may start to see policies being made that are less beneficial to them, both individually and as a group, despite the initial promising signs of seeming decision-making autonomy.

It is noted that nudges are meant to be used to positively influence choices so that the choosers judge themselves to be better off (Thaler & Sunstein, 2008: 5). Such a guiding principle should be followed, to enable a fully informed decision-making environment for the chooser (Loewenstein *et al.*, 2014).

Two papers published in 2003 proposed the use of BS in the creation of public policy (Camerer *et al.*, 2003; Thaler & Sunstein, 2003). Since then, the rise of BS within academic research, but also within business and government, has been remarkable, thus illustrating the variation from the traditional concept of *Homo Economicus*. It is indicative of the impact that BS has had on policy making when one considers the vast array of arenas in which it is now being employed in a bid to improve decision-making.

Since 2010 the UK government has rejected the belief that only rules, regulation, and policy imposed by governments can change the behaviour of the public (HM Government, 2011). Both academics and policy makers have argued that traditional economics does not explain the poor decision-making within areas such as finance, energy, health and lifestyle, and foreign policy. By applying the concepts of BS, one can address issues such as overconsumption, non-use of energy efficient appliances, low levels of charitable giving, and organ donation (Ilanole & Cornescu, 2013; Bull, 2012; Behavioural Insights Team, 2013a, 2013b).

The use of BS in policy-making is key to reduce the impact of heuristics and the resulting cognitive biases. Three successful examples are detailed below.

The endowment effect, also known as status quo bias (Kahneman *et al.*, 1991) is often seen by policy makers when trying to improve energy efficiency. Endowment effect dictates that simply owning an item makes it more difficult for them to dispose of it, even if the ownership of such items may be detrimental or inefficient and the rational decision would be to replace the item with something better (Sullivan *et al.*, 2012). Policy makers face this issue when designing any programme aimed at encouraging people to replace their old, inefficient appliances with newer, more efficient and lower energy usage appliances.

Related to this bias, is loss aversion. In this case, people prefer to avoid losses more than they prefer to acquire gains (Kahneman & Tversky, 1979). In the case of organ donation, loss aversion plays a key role in the decision to register as an organ donor. The Behavioural Insights Team (2013a) carried out research to establish ways the message about organ donation can be best conveyed to the public in a bid to boost registrations. It was noted that by framing the message as a loss, in this case by highlighting the negative consequences of not registering as an organ donor, created a significantly higher level of registrations than the same message framed as a gain, the positive impact of registering.

Research addressing policies aimed at smoking cessation highlight the influence of attributional biases and cognitive dissonance. These cognitive biases indicate the irrational actions of people even when they know something is not in their best interests. The Behavioural Insights Team define attributional bias as instances where people think good things are more likely to happen to them, and that bad things are less likely to happen (Behavioural Insights Team, 2010). For example, Stirling *et al.* (1992) noted that smokers are much less likely to attribute lung cancer as a cause of death in other smokers because they know that by admitting this, they acknowledge this is likely to happen to them too. In addition, Virgili *et al.* (1991) found that smokers perceived lower risks to themselves related to the perceived benefits.

Cognitive dissonance occurs when one's behaviour and beliefs are in conflict and in many cases it is one's beliefs that change rather than behaviour (Behavioural Insights Team, 2010). Fotuhi *et al.* (2013) found that smokers are more likely to rationalise their behaviour by promoting positive aspects of smoking, which can then change if the smoker then quits smoking. To address cognitive dissonance, McMaster & Lee (1991) concluded that smoking cessation might be easier to achieve by targeting the rationalisations for smoking that a smoker tends to use.

4.3 Behavioural Factors Affecting Decision-Making

Rather than being the "rational economic man" (Morse, 1997) that conventional economics portrays, in reality decision-makers tend to make use of heuristics, or decision-making shortcuts. This reliance on shortcuts based on experience means the chooser is prone to cognitive biases and other influences that create a decision-making minefield. Cognitive biases are thought processes based on what a chooser observes, recalls, and general patterns that may lead to memory errors, inaccurate judgements, and therefore faulty reasoning (Evans *et al.*, 1983; West *et al.*, 2008). While they may lead to beneficial decisions reflecting the choosers true preferences, they may equally lead to decisions that may be poor, or even disastrous, for the chooser.

Bounded rationality (Kahneman, 2003), where rational decision-making is constrained by factors including imperfect knowledge, limited time, and cognitive limitations, can be seen across a variety of policy arenas as wherever decisions need to be made, bounded rationality is likely to exist. Ianole & Cornescu (2013) concluded that bounded rationality contributes to evolving challenges to traditional economics when considering consumption and overconsumption. Regarding decision-making in energy use, Sansted & Howarth (1994) noted that researchers have created models to identify, assess, and predict bounded rationality within the energy use context (Friedman & Hausker, 1988). Due to the effects of bounded rationality, the ability to maximise is reduced – that is the ability of *Homo Economicus* to use his unbounded knowledge, time, and calculating power to make the best and most rational decision. As a result the consumer opts for the best value outcome, and chooses the cheapest alternative to the maximising product (Mohaidin, 2012). This suggests that people in this situation tend to be aware of what the maximising option is, but due to bounded rationality, they are unable to choose that option and therefore aim towards the best alternative within their grasp.

People tend to make irrational choices, which lead to mistakes in their understanding of the situation, and therefore their decision-making. In many cases, irrational decisions can be

made as a result of the chooser focusing solely on the immediate costs and benefits, and too little on those benefits that are delayed, a phenomenon known as present bias (O'Donoghue & Robin, 2000) or Hyperbolic Discounting (Ainslie, 1991). However, while this may be a particular issue in some decision-making scenarios, present bias could actually be useful in some cases (Loewenstein *et al.*, 2007). Key examples in the field of health improvement show that, where there are repeated, small, frequent rewards or incentives, this reinforces beneficial behaviours: smoking cessation (Volpp *et al.*, 2009); taking of medication (Volpp *et al.*, 2008a); and weight loss (Volpp *et al.*, 2008b). However, present bias is an issue in relation to the uptake of pensions. The Association of British Insurers (ABI) identified the need to draw attention away from the present monthly contributions, and focus on the end product, what they want to get out of their retirement, including a higher pension so they can enjoy their retirement rather than worrying about money (ABI, 2017). In the case of farmers, the influence of present bias or hyperbolic discounting may mean crime prevention adoption is postponed until a later date due to the lack of immediate benefits, and the likelihood of immediate costs.

A key cognitive bias often affecting decision-making is stress. Mani *et al.* (2013) noted that various factors create distress, which in turn reduces the ability to make meaningful, long-term, and beneficial decisions, meaning it is important to avoid making key decisions at times of high levels of stress. This is particularly pertinent for victims of crime, as the decisions they make after being victimised may well be fundamentally different and less beneficial in the long-term than a decision made without the influences of heightened stress levels.

Personalised messages can be used to reinforce the relevance of a particular choice available to the decision-maker. However, caution must be taken when using this to avoid negative responses. The Behavioural Insights Team (2013b) uncovered some surprising findings relating to the field of improving organ donor registrations. A social norm framed message – “Every day thousands of people who see this page decide to register” - had a positive impact on the number of registrations to the organ donor register. However if the same social norm framed message was paired with a picture of a group of people, it actually resulted in a negative effect, which seems to be contrary to the idea of social norm confirmation. However, it could be argued that while the message seems quite personal and relevant to individuals, the use of a general stock photograph may make an individual feel as if this message does not apply to them, or make them think they do not need to do anything because someone else will. Moreover, if pictures are chosen to be included in a message such as this, they should be specific to the decision-maker. However, care would have to be taken if employing this framing technique, as it is arguable this may interfere with the individuals' free choice and therefore become too paternalistic, and no longer nudging.

Darby (2006), who noted that consumers generally find it difficult to envisage carbon emissions and environmental costs, highlights another example of personalised messages to assist the decision-making process. As such, it is important to provide regular feedback on the energy consumption levels of the individual. Such feedback would reinforce the fact that those small behaviour changes are making a difference to their energy consumption. This is being reflected in the layout of energy bills being generated by energy providers within the UK (Behavioural Insights Team, 2011). This research highlighted the need for relevant information to be provided to the decision-maker in a timely manner, to provide clear indicators that any behavioural changes are contributing to a more beneficial, long-term situation. It could be argued that this is directly attributable to crime prevention on farms too. Infrequent contact with the police, and potentially even less with a Crime Prevention Advisor (CPA), could mean the farmer does not understand what behaviours make them more likely to be a victim, and the easiest ways to change this with crime prevention and behavioural changes.

Social norms are a key behavioural concept, and “significant others” play a large role in behaviour of individuals (Avineri, 2012). Such significant others may include those with whom an individual has either social or geographical closeness. An understanding of the role of social norms among the target audience is a useful tool in the choice architects’ toolbox, but this must be carefully constructed to help people make the most beneficial choices for their situation. This is supported by research carried out by Gneezy & Rustchini (2000) who found that, if parents were penalised for being late to pick up their children from school, the occurrence of late collections actually increased, indicating a change in the social norm being driven by penalties. Such actions are reminiscent of Cialdini’s “Big Mistake” (Cialdini, 2003), which shows that care should be taken when employing social norms as part of the choice architecture because they have the potential to have the opposite effect of that intended.

Hand in hand with social norms comes an understanding of the culture of the target audience of the choice architecture, that must be fully considered. For example, collective behaviours, i.e. the prevailing social norms, can be understood as widespread trust or indeed widespread distrust (Cook, 2001). This belief can become entrenched in society, and therefore becomes part of that society’s culture. An example may be seen with farm crime. It is feasible that farmers may know who is committing crime, or indeed it may be the case that they are committing these crimes themselves, and this is simply accepted within the rural community because this is the way it has always been. Therefore, to change decision-making behaviour, the choice architect needs to address the culture, i.e. the way the target community thinks, as well as the social norms (Bourdieu, 1977; Kleinman, 2006).

4.4 Criticisms of Behavioural Science

Despite the intention of practitioners of BS to enable beneficial decision-making as judged by the chooser (Thaler & Sunstein, 2008), there have been a number of criticisms laid at the door of BS.

Firstly, despite its intention, it has been argued by Leonard (2008) that choice architecture, and in particular nudging, is actually a new way of manipulating free choice under the guise of popular economics (*op cit.*: 356). Despite this point of view, Thaler and Sunstein (2008) and others have argued that nudging is in fact a form of “libertarian paternalism”. However, this description in itself is problematic, and triggered a debate as to whether this term is an oxymoron, and not valid as a concept (Sunstein & Thaler, 2003; Mitchell, 2005; Sunstein & Thaler, 2006; Veetil, 2011). This debate arose from the conflicting definitions of libertarianism and paternalism seen in Table 4.1.

Table 4.1: Definitions of libertarianism and paternalism.

Concept	Definition
Libertarianism	the upholding of liberty, autonomy and freedom of choice
Paternalism	behaviour which limits liberty or autonomy or decision-making for one's own good

It seems that nudges should not be labelled as paternalistic as they are intended to avoid the ethical issues that arise with paternalism - namely the issue of coercion and attempting to change people's decisions (Sunstein, 2014).

Following on from this discussion, the second criticism of nudging is that nudges impinge upon a person's autonomy. If nudging were paternalistic in nature, then such a point of view may be supported. However, Lowenstein *et al.* (2014) argued that nudging might increase autonomy in decision-making, as autonomy is driven by informed choices. Indeed, nudges can assist choosers where inaccurate or incomplete information may be the basis of a possible decision, thus providing the chooser with the information they need to make an informed choice. Where this may be brought into question, is in relation to the use of default rules. While useful in some cases, defaults can impinge on autonomy in some cases by reducing active informed choices, and thus creating the possibility of an unwanted outcome, as people tend to accept default rules even if they may be harmful (Rebonato, 2012).

Sunstein (2014) has further argued that autonomy may be reduced where people choose

not to choose, and yet are effectively forced to make a choice that they do not want to make. While autonomy may be jeopardised by some aspects of nudging, a more critical consideration relates to the possible effects of manipulation or coercion arising when nudging is undertaken covertly, subconsciously, or the nudging lacks transparency. Conly (2012) argued that nudges are indeed manipulative, stating that:

"Rather than regarding people as generally capable of making good choices, we outmanoeuvre them by appealing to their irrationality, just in more fruitful ways. We concede that people can't generally make good decisions when left to their own devices, and this runs against the basic premise of liberalism" (2012: 30).

In other words, it is possible for choice architects to manipulate the chooser into thinking they are not capable of making a good decision themselves without the intervention of the more knowledgeable, highly rational choice architects.

While this may be true in certain situations, it is by no means applicable across the board. The use of BS acknowledges that bounded rationality affects humans, but this does not mean that choice architects think people are irrational or unable to make good decisions without the guidance of others. However, Ariely (2008) argued that, such "predicted irrationality" of people should form the basis of behavioural interventions.

Despite this, Conly's arguments relating to manipulation and coercion of the chooser may hold some water. The use of graphic health warnings, such as those on cigarette packets, framing effects including loss aversion (Tversky & Kahneman, 1991), the presenting of social norms in the most beneficial way, or ordering options to influence choices, could all be considered manipulative.

Therefore, by nudging, do choice architects manipulate people by limiting their freedom to choose? Wilkinson (2013) argues that manipulation does not always infringe upon a person's independent decision-making. He argues that manipulation, if presented in the right way and consented to, could actually support decision-making autonomy, and possibly offer improvements to the decision-making process.

Despite these criticisms, it seems that nudges, when employed ethically and openly without any hidden agenda, can be beneficial in ensuring that a chooser is able to make decisions independently, based upon accurate information, which will be in their own best interests as judged by themselves. Indeed, nudges can be seen in many aspects of modern daily life.

BS has been widely adopted by governments and businesses, often with successful

outcomes. However, some researchers have questioned the efficacy of BS. For example, Marteau *et al.* (2011) have argued that, while nudging works, the use of nudges can create harm as well as benefit due to a nudge response that is opposite to that expected.

In some cases, where organisations employ nudges it is claimed they are to direct the choices of individuals to the greatest benefit of the chooser. However, it may be the case that these nudges benefit the organisation. Supermarkets locate sweets at checkouts at children's eye level to encourage 'pester power', but such choices can actually have a detrimental effect on health (Blytham, 2010).

The Behavioural Insights Team (2010) argue the most important aspect to be borne in mind is that BS can only suggest ways to nudge beneficial decisions, rather than force people to choose in a particular way, as this would simply put BS on a par with paternal legal regulation. In respect of the current research, the intended outcome is to understand the factors influencing FCP decision-making to enable more effective decision-making. But, at the end of it all, if farmers do not want to protect their property, there is nothing, not even BS, which will make any difference to their behaviour.

While there are numerous researchers that have identified how to evaluate successful and unsuccessful message framing, there is an element of trial and error involved. But the author would argue, as a point of fact, such trial and error should not only be used to establish the most suitable message format, but also as a way of establishing the best person or organisation to deliver that message so as to elicit the most positive response.

4.5 Farmer Decision-Making

BS is increasingly being applied to farming related policy, including areas of climate change (de Jalón *et al.*, 2014), biosecurity (Toma *et al.*, 2013), and sustainable agricultural management (OECD, 2012). In many cases however, the uptake or adoption of preferred behaviours remains elusive among the farming community possibly because policy makers do not have a full understanding of the motives, values, and attitudes that determine the decision-making of farmers (Morris & Potter, 1995).

Traditionally, farmers have been assumed to be rational actors, as utility and profit maximisers, and having a perfect knowledge of their work and the sector (Garforth & Rehman, 2006), with some studies conducted suggesting that profit maximisation takes priority over environmental stewardship even when the farmer knows about relevant issues (Newman *et al.*, 1990; Carr & Tait, 1991). However, by the turn of the century, studies were showing that, in fact, as well as the economic, it is also a complex combination of

psychological, social and agricultural factors that tends to drive farmer decision-making (McGregor *et al.*, 1996; Willock *et al.*, 1999).

It is arguable that policy can elicit behaviour change where there is an essential requirement for farmers, such as farm data returns. However, where the behaviour change involves a more personal choice, such as those relating to climate change, reliance upon policy may make it more difficult to bring about the required change in behaviour. In these situations, farmers need to be free to make their own decisions without the constraints laid down by policies. This is where the use of BS can assist and support the key policies.

4.5.1 Policy vs. Farmer Behaviour

While there have been numerous studies addressing farmer decision-making behaviour, historically this has focused predominantly on the economic aspects of decision-making (Lynne & Rola, 1988; Robison *et al.*, 1987). One of the first pieces of research to address farmer behaviour, attitudes, and goals from a wider perspective than the economic, was work carried out by Willock *et al.* (1999). Indeed, this was probably the first attempt at modelling farmer behaviour, objectives and attitudes in a single study. While providing some interesting insights into the behaviour of farmers, the model potentially requires further investigation. Firstly, the sample was drawn from Scottish farmers, and so may not be widely representative, with likely differences in the farming environment between, for example, the north of Scotland and the South East of England. Secondly, while the sample was initially split evenly between arable/cropping farmers and LFA livestock farmers, there is no indication of the numbers from each farming sector who finally agreed to take part in the study, and so it is not clear whether this influenced any difference in responses.

While attention towards understanding farmer attitudes may be increasing within academic circles (Austin *et al.*, 2005; Carr & Tait, 1991; Willock *et al.*, 1999), it seems that policymakers may not be translating this academic research into practice, or may not understand the implications of guidance coming out of such academic research. This is despite Burton (2004) highlighting the importance of motives, values and attitudes in individual decision-making. As de Jalon *et al.* (2014) noted, some policies may succeed in changing behaviours, but they do not enjoy the same success in changing underlying attitudes of the target audience. As such, a new policy may initially change a behaviour, but if that policy is withdrawn there is a high likelihood that such behaviour change will not be sustained. Therefore, to achieve such sustainable behaviour change, policymakers should first establish an understanding of the attitudes and cultures of target audiences.

Wilson (1996) found that farmer attitudes towards environmental sustainability were an important indicator of likelihood of participation in environmental schemes. Garforth & Rehman (2006) supported the influence of non-financial incentives on behaviour and reported that farmers are more likely to make decisions based on their own past experiences than other social influences, or financial incentives. This individualised influence on farmer behaviour tends to reinforce the need to localise any policy aimed at influencing farmer behaviour, rather than relying on regional, national or international policy, which is less likely to have the desired effect.

4.5.2 Social Norms and Farmer Decision-Making

Importantly, the farming community is made up of businesses where decisions may be made and carried out by an individual, i.e. the farmer (Groenwald, 1987), which in turn means that economic and policy driven pressures may be more evident in the decision-making of farmers (Errington, 1991; Napier, 1987). As a result, there is a particular need to have an understanding of the attitudes and beliefs of the farming community, even if generalised, to provide a robust decision-making framework creating a less pressured decision-making environment for farmers.

While Groenewald (1987) might be right that farmers are lone decision-makers, it is more likely that any such decision will have been influenced by what is going on in their immediate community, the wider farming sector, and the opinions of leaders within these social networks. Furthermore, researchers such as Fischbacher & Gaechter (2008) have noted that social factors such as social norms or heuristics – decision-making mental shortcuts – encourage people to make decisions with positive outcomes.

When it comes to influencing and changing behaviours among the farming community, social groups and social norms have another key part to play. When considering the adoption of new policies and technologies, it is the experiences of their neighbours that influence their own decisions whether or not to adopt a new way of working (Knowler & Bradshaw, 2007).

4.5.3 Decision-Making Barriers

Numerous barriers to farmer behaviour change exist, most notably – and most researched – are the influence of socio-economic factors. Toma *et al.* (2013) concluded that the costs of implementing more stringent on-farm biosecurity measures were seen as overly constraining, whether as a result of increased labour costs (Gunn *et al.*, 2008), or building

improvements and boundary maintenance (Bewsell & Monaghan, 2007; Brennan *et al.*, 2008).

Numerous research studies have identified several other demographic and socio-economic factors that often create barriers to behaviour change. These include gender (Deressa *et al.*, 2009); age (de Jalon *et al.*, 2014); education (Bryan *et al.*, 2013); and farm size and farm income (de Jalon *et al.*, 2014). The research carried out by de Jalon *et al.* (2014) hypothesised that the presence of certain socio-demographic characteristics can have a great influence on the behavioural barriers evident in particular farming communities. Such behavioural barriers may include scepticism, fatalism, and displaying a reactive response rather than a proactive response to the issue at hand, all of which can create a reluctance to change – “if it isn’t broken don’t fix it” (Wandel & Smithers, 2000).

When trying to influence the attitudes of farmers, financial incentives alone where not effective in achieving the desired outcome (Poe *et al.*, 2001; Wandel & Smithers, 2000). From this conclusion, it is arguable that a combination of considerations should be made to address farmer behaviour; such aspects include risk aversion and loss aversion.

Another barrier to decision-making for farmers is stress. All farmers are different and so it follows that all farmers will deal with stress in diverse ways. As such, it is likely there will be a sizeable proportion of farmers who do not have the psychological capability to make important decisions under stressful circumstances.

Traditionally, the public tend to view farmers as having a relatively high quality of life and higher levels of job satisfaction than other area of work (Ackerman *et al.*, 1991; Schroeder *et al.*, 1985; Willock *et al.*, 1999). In truth, farming involves much hard work, planning, and long hours throughout the entire year, rain or shine. While farmers accept this as part of their lot, the overall quality of life and job satisfaction may be affected by ever increasing legislation and bureaucracy farmers in the UK experience. This combined with the uncertainty following the 2016 vote for the UK to leave the European Union can only add to the worries, stress and pessimism regarding the future of farming (AHDB, 2017; Deary *et al.*, 1997).

These stressors can affect the psychological well-being of farmers and can indeed affect their decision-making abilities. The environment in which farmers are making decisions about new machinery, crop harvesting, general finances and market trends, may contribute to prolonged periods of stress, and may be a significant contributory factor in more severe psychological issues such as alcohol dependency and suicide among farmers (Farkas, 2014; Malmberg *et al.*, 1997; Stark *et al.*, 2006). McGregor *et al.* (1995), who noted that

dealing with new legislation is as stressful as dealing with the weather, further illustrates the specific impact of legislation on stress levels among farmers, and Jones *et al.* (1994) went further by saying that legislation-related stress was a major contributory factor in higher rates of depression and suicide among farmers.

These stark details about the effects of stress on the psychological wellbeing of farmers, and the potential impact this may have on decision-making capabilities, indicate the role BS may have in making policy and legislation less stressful, and enable behaviour change and decision-making in the least invasive and problematic way possible.

4.5.4 Risk Aversion and Hyperbolic Discounting

The farming community have been identified as being particularly risk averse, and as a result are less likely to accept new, unproven or innovative ideas or methods (Pile, 1991; Fearn, 1989; Guerin & Guerin, 1994). When faced with new ideas or technologies, farmers will often make an all or nothing decision (Willock *et al.*, 1999), and adopt the innovation either in its entirety, or not at all. This suggests the possibility that information about an innovation is incomplete, as it is unlikely innovations in many areas of farming will be an all or nothing option, and more could be done to allay farmers' fears surrounding the risks associated with innovation. Tarleton & Ramsey (2008) further noted that farmers adapt behaviour based on an evaluation of the success, or otherwise, of responses from external stimuli as part of a wider risk assessment.

Another factor that effects decision-making among the farming community is the inability to plan for the long-term future: hyperbolic discounting. This concept of hyperbolic discounting is closely linked to risk aversion, as neither facilitate the making of decisions that affect the long-term rather than the short-term. Binswanger (1980) noted that humans should be motivated and goal-oriented as we have the ability to think about and make plans for the future. However, possessing the ability to think about the future does not necessarily mean a person will plan for the future, even when trying to run a business, consider innovation, and make other key decisions. In traditional economics, the rational economic farmer is believed to make decisions regarding innovation adoption because he understands the importance of such decisions in bolstering the economic viability of the farm (Linder, 1987; Reid *et al.*, 1993). Moreover, agricultural economists argue that to innovate, farmers must consider both the long-term, strategic plans as well as the short term, everyday plans (Ziggers & Bots, 1989; Siardos, 1992). In contrast, and more in line with the concept of hyperbolic discounting, Janssens & Kirkke (1990) found that farmers tend not to make any long-term, strategic decisions. Repetto (2008), who stated that humans are myopic decision-makers who prioritise decisions where the effect is felt immediately over those

decisions where the effects are anticipated to occur in the future, supports this. He highlighted how hyperbolic discounting of the effects of climate change is particularly common making this a low priority for farmers. As decision-makers, farmers tend to show high levels of 'anchoring' to what has always been done, the 'status quo', and changes tend to be small changes away from the status quo, where the effects can be quickly seen. Moreover, any information that is in opposition to the beliefs of the farmers will be disregarded (Kahneman *et al.*, 1991; Repetto, 2008).

BS in farmer decision-making may prove to be useful to address both loss aversion and the issue of hyperbolic discounting in decision-making and long-term planning. Key information could be provided showing the benefits of such strategic decisions as a positive trade-off against potential losses, and the beneficial ways the farm could change beyond the near future. In addition, the use of commitment mechanisms (Hepburn *et al.*, 2010), may reduce levels of procrastination in decision-making, and improve the potential for change to happen (Ariely and Wertenbroch, 2002; Gine *et al.*, 2010), by ensuring the decision-maker makes a public social commitment to make changes and thus providing social impetus to follow through on that commitment.

4.5.5 Diffusion of Innovation in Farming

Diffusion of innovation (Rogers, 1962), is where innovative ideas are communicated among members of a social group to create social change despite the uncertainty and risk involved with such innovative ideas or technology (Rogers, 1983). Some studies have shown that levels of diffusion within the farming sector have historically been relatively low, unless the innovation does not vary drastically from the established norms (Knowler & Bradshaw, 2007; Padel, 2001; Mohamend, 1982). It is arguable that the non-financial aspects of new innovations are more likely to prevent uptake of innovation and the diffusion within the farming sector. This may be imperfect knowledge about the innovation meaning the farmer is less confident in promoting it to peers, or it may be status quo bias or endowment effect that prevents a change in a behaviour, even if that change may be beneficial in the longer term.

Improved knowledge of an innovation may increase the likelihood of farmers adopting new ideas or technologies, and thus move towards more beneficial behaviours. Moreover, the way information is delivered, and by whom, impacts upon behaviour; if someone trusted presents an innovation as being an important improvement for the farmer, there is a higher likelihood of a behaviour change (Toma *et al.*, 2013). Despite these findings, it is hard to see how this process could be applied across varying farming communities to ensure

information about new innovations is delivered in the right way by the right person to elicit a behaviour change among farmers in a consistent way.

This is reflected by research carried out by Edwards-Jones *et al.* (1998), who concluded that land-use policies aimed at farmers at a national level are unlikely to benefit from BS, unless the focus is more localised behaviour. This indicates that BS may be more effective on a smaller geographic scale. By focussing policy-making on smaller groups of people, in a bottom-up approach, rather than creating policy at a national or supranational scale, in a top-down approach (Matland, 1995), may enable adaptation to suit local attitudes and objectives, address barriers to behaviour change and enable beneficial decision-making. It is possible that, by involving farmers in the creation of key policy, and making use of knowledge exchange rather than knowledge transfer, farmers may be more likely to have a sense of ownership in the work, and so positive attitudes and positive actions may be more likely. As farming communities are heterogeneous, there is the need to develop an adaptable choice architecture framework that can be applied based on various factors such as socio-demography, agricultural sector, education, topography: in essence a micro scale choice architecture.

As with innovation, BS can be used in policy communications to help prevent information failure if used well (Collier *et al.*, 2010). Different groups of people respond to different stimuli, and so advice or guidance should reflect these stimuli to directly address the needs of the target population. Such action, undertaken carefully and using suitable language could build trust between the farmers and the messenger, and so make behaviour change more likely (Collier *et al.*, 2010). Although policy cannot be individualised, decision-making tools and choice architecture can be. The policy message might be the perfect one, but if someone delivers it whom the farmers do not trust, or the information presented is not relevant or understandable to the individual or group, then it is going to fail. Furthermore, Blackstock *et al.* (2010) argued that, in addition to the trusted messenger, and relevant and coherent information, it is essential that any messages delivered to a group of farmers are consistent and include all key details, ensuring that all recipients are given the same information.

4.5.6 Models of Farmer Decision-Making

Edwards-Jones (2006) argued that many decisions farmers make regarding the adoption of specific policies tend to be simple in nature in comparison to decisions surrounding, for example, the adoption of farm enterprise strategy. However, despite this, both behaviours and the factors that influence behaviours are complex. However, such complexities should

not be a barrier to behaviour change, rather a way to establish which factors affecting behaviour change work for which particular type of policy.

Defra also made this conclusion in the first decade of the twenty first century. As a result, they commissioned numerous reports aimed at identifying farmer behaviour. This resulted in the Farmer Segmentation Model (Pike, 2008) identifying five broad types of farmer based on their attitudes and motivations for behaviour change as illustrated in Figure 4.1. Pike argues that the custodians and the lifestyle choice farmers are more likely to respond to emotive issues and are likely to take part in partnership working to obtain mutual benefits. The modern family businesses and the challenged enterprises are more economically rational with a focus on the financial implications of any decision or behaviour change. The pragmatists tend to be the traditional, family farmers who exhibit characteristics of both the other groups. Understanding these farming types enables policymakers to direct communications and policy or procedure guidance to these farming types to include those triggers most likely to elicit a positive response among as many as possible.

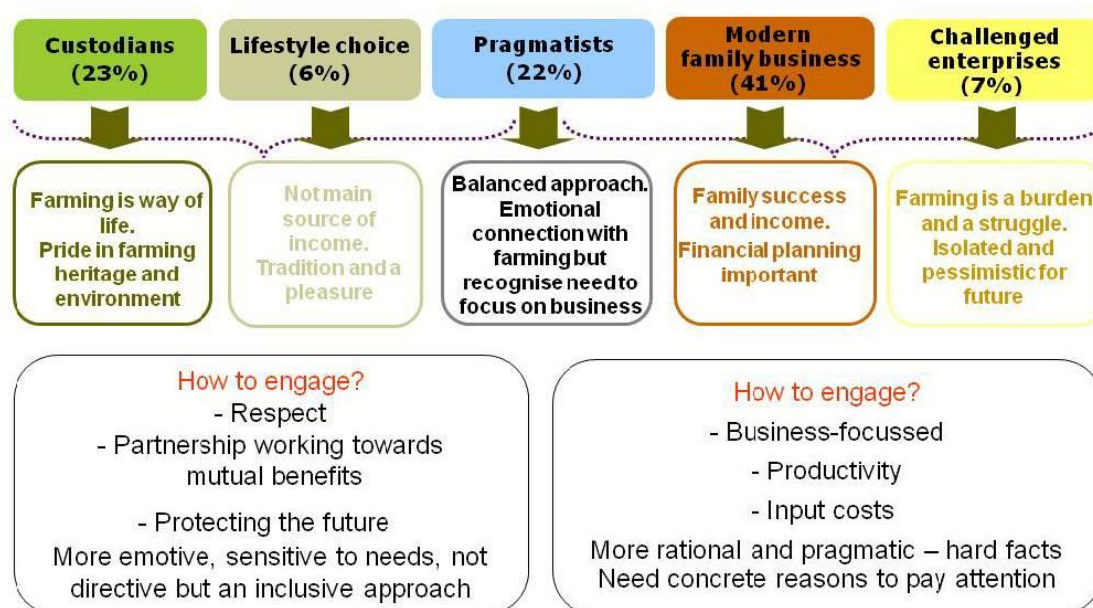


Figure 4.1: Defra Farmer Segmentation Model (Source: Pike, 2008)

In an attempt to identify and describe farmer behaviour and the key factors influencing farmer behaviour, research carried out by the Social Market Foundation (Prendergrast *et al.* 2008) developed a further key model (Figure 4.2). A clear example of the impact behavioural biases, including bounded rationality, status quo bias, and hyperbolic discounting, have on farmer decision-making is highlighted in this report. Factors affecting decision-making and behavioural change can be categorised under three overarching headings as illustrated in Figure 4.2. The authors state that government needs to accept that the public are not “rational economic actor[s]” and must learn from BS when considering

polycymaking. Moreover, when making decisions, “people are guided by impulse, habit and social norms as much as by the availability of information and a desire to minimise costs” (2008, p.6). This, it is argued, should be a standpoint that is extended beyond polycymaking to formal and informal advice given, not only by government, but also by the police and rural insurers, to better address farmer behaviour towards crime and crime prevention.

Prendergrast *et al.*, (2008) argued that external factors, such as financial incentives and disincentives, are used extensively in policy creation, whereas those internal and social factors affecting behaviour change do not seem to have been fully explored by policy-makers. While this seems to have altered somewhat following the introduction of the Behavioural Insights Team in the UK in 2010, there may be some way to go before policy makers are considering such drivers within policy creation.

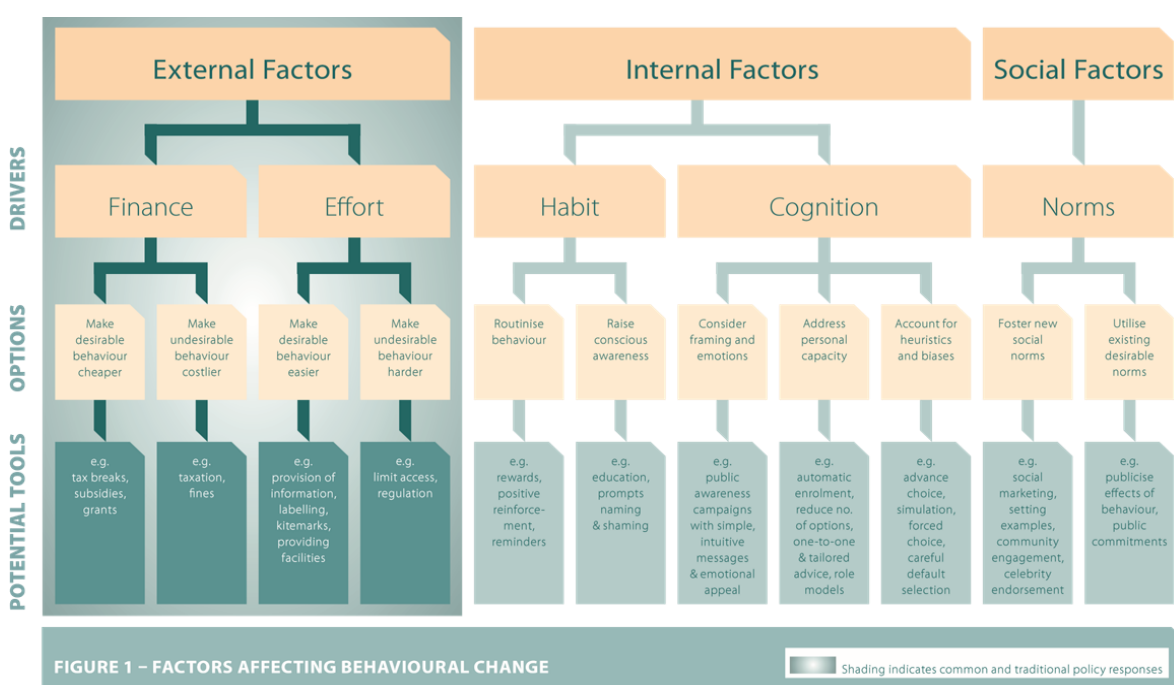


Figure 4.2: Factors affecting behavioural change (Source: adapted from Prendergrast *et al.*, 2008)

In conclusion, and because of many considerations surrounding farmer attitudes and behaviour change, Pike (2008) concluded that policy makers should consider the following seven factors when creating policy that directly affects farmers in the UK:

- Recognise diversity – no two farmers are the same
- Identify internal factors before policy interventions
 - It is not always just about profits
- The why's and the why not's – a rationale for decisions

- No farmer is an island
 - Engage
- Monitor and Evaluate

(Pike, 2008: 21)

It is arguable that by understanding farmer attitudes and motivations, and by recognising the idea of farmer segmentation, the successful uptake of policy and behaviour changes could be much more widespread.

4.6 Criminal Decision-Making

The use of BS within the criminal justice system can be seen in various areas, including plea bargaining (Covey, 2007, 2016; Birke, 1999), jury decision-making (Devine, 2012; Simon, 2012), and judicial decision-making (Baum, 2007; Guthrie *et al.*, 2002; Teichman & Zamir, 2014). An area of the criminal justice system that could benefit from more BS input is arguably that of victimology. As far as can be seen, there only seems to be a small number of papers written around victimology from a BS standpoint (Dillenburg, 2007; Almeida *et al.*, 2016). As McAdams & Ulen (2008) state, there is little research that has provided detailed exploration of behavioural biases and their impact on victims of crime. They go on to very briefly provide a rather superficial consideration of the impact of behavioural biases on the level of precaution taken by potential victims only as a very small part of a larger paper. By far, the area most researched by behavioural scientists has been that of criminal deterrence.

4.6.1 Deterrence Theory

Economics-based Deterrence Theory (DT) evolved from the work of Hobbes (1651[1968]), Beccaria (1764 [1963]), and Bentham (1780 [1948]). Proponents of DT argued that potential offenders carry out a rational costs-benefits analysis before making a decision to abide by the law or break the law (Pauwels *et al.*, 2011). This work relies on three concepts that drive punishment, and therefore deterrence; severity, certainty, and celerity. To be an effective deterrent to the rational decision-maker, any sanction should be severe; the harsher the punishment the more likely the rational decision-maker is to reject that course of action. The sanction must also be certain; the probability of being detected and therefore punished should be high. And finally, the sanction should be swiftly delivered; the shorter the time lag between the commission of a crime and the delivery of the sanction should deter the potential offender.

Gary Becker established his economics-based DT in 1968 in an article titled “Crime and Punishment: An Economic Approach”. This theory extended the idea of RCT into the realm of criminal decision-making and was seen as a standalone theory that did not rely on existing sociological or psychological theoretical input (*op cit*, p. 170). Becker argued that criminals, as with other members of the public, base their decisions on the expected utility of crime; certainty and severity of sanction, compared to the gains anticipated from criminal activity in comparison to non-criminal activity. Decision-makers are not influenced by social or psychological factors (Loewenstein & Lerner, 2003), and as such the potential offender was seen as the rational *Homo Economicus* in the eyes of Becker.

The key aspect of Becker’s seminal article revolved around the optimisation of deterrence based on the cost to society of its component parts. It is noted that the criminal justice system should be able to determine the “expected sanction”, that is the optimum size of the sanction and the probability of detection and conviction, but that the total of these two aspects should not exceed what is necessary for deterrence. As a result, it followed that the harsher a sanction is, a lower probability of detection should be applied, and vice versa (Harel, 2014). Becker argued this should be done by comparing the costs of increasing the size of the sanction on one hand and increasing the probability of detection on the other. He further stated that if increasing the certainty of sanction is far costlier to society than increasing the severity of the sanction, then harsher punishments should be imposed for all offences (Becker, *op cit*, 183-184).

However, research carried out by Dhami & al-Nowaihi (2010) identified that not all crime is deterred in accordance with Becker’s theory. Indeed, they used driving while talking on a mobile phone as an example of what they term a “Becker Paradox”, where a severe sanction with a low probability of detection is not a deterrent. The UK government in March 2017 announced the penalty for people caught using a mobile phone while driving would be increased. When the penalty was introduced in 2003, it was a £30 fine and three penalty points. The fine was increased in 2007 to £60, and again in 2013 to £100 (Department of Transport, 2017). The latest increase saw the fine double to £200 plus 6 penalty points; meaning that drivers who had passed their test within the last two years would lose their licence if caught. Despite this increase in penalties, the reduction in police budgets has meant that policing is more targeted, and as such, those driving while using a mobile phone are less likely to be caught. If this example followed Becker’s theory, the severity of the sanction would have increased the deterrent effect, even with the lower chance of being caught. In reality, it is commonplace to see drivers flouting this law on a regular basis on the roads of E&W (Wilkinson, 2018).

In addition, it is possible that harsher punishments may not succeed in deterring a potential offender, rather it may make criminals more careful to avoid detection. Moreover, the idea that the harshest possible sentence should be enforced for all crimes, even trivial offences, contradicts the concept of marginal deterrence (Shavell, 1992). This concept revolves around the idea that there should be a 'sliding scale' of punishment for increasing seriousness of offence. As Posner (2007, p.221) argued, imposing harsh sanctions for all crimes will not deter someone who has committed a parking offence for which they are liable to be executed from committing more serious crimes such as murder.

There is an increasing body of evidence that humans are not rational decision-makers being produced by behavioural scientists. This has allowed actors in the criminal justice system to see that, although criminals are not necessarily irrational decision-makers, they may be affected by 'limited' rationality (Garoupa, 2003). BS analysis of crime allows consideration of the possible gap between the RCT approach purported by Becker, and the way criminals actually behave. Researchers in the field of BS have been keen to emphasise that the behavioural analysis of criminal law is not meant to be an alternative to Becker's theory, but rather as a complementary source of guidance to provide an awareness of the fallibility of human decision-making (Jolls, 1998).

4.6.2 Sanction Severity

When considering severity alone, a number of studies have found that harsher sentences do not deter criminals (Dhami & Al-Nowaihi, 2010; Paternoster & Piquero, 1995; Piquero & Paternoster, 1998; Piquero & Pogarsky, 2002). Indeed, research carried out by Myers (1983) found there was a positive correlation between the length of a sentence and the probability of future crime.

Researchers have questioned why sanction severity is not a deterrent. Daniel Kahneman and colleagues discussed the remembering of negative experiences which may explain why harsher sanctions do not deter. Fredrickson & Kahneman (1993) hypothesised that the duration of the negative experience was not recalled as a key factor when remembering the negative experience; this was termed "duration neglect". What they instead proposed, was that the individual will remember a "snapshot model" of the event. These snapshots would be based on the most extreme moment during the event (Peak), and the affect experienced at the end of the event (End). This concept was labelled the Peak-End Rule, and was successfully used to explain variance of 94, 86 and 98% in experiments carried out by Varey & Kahneman (1992), Schreiber & Kahneman (2000) and Ariely (1998) respectively. The Peak-End rule shows that where the end experience is less aversive than the peak point in

the event, the overall memory of the event is less negative than if the end experience is more aversive than the peak point in the event, even if the period is longer.

When considering this rule with respect to the decision-making of criminals, it is arguable that the duration of the sentence, therefore the severity, is not a key factor in the decision-making process. This seems to be the case as the peak discomfort of any criminal sanction is likely to occur early in the sentence, i.e. the initial days of incarceration. An individual can adapt to surroundings and situations, and even become desensitised to possible negative experiences (Robinson & Darley, 2004). If this argument follows, the possibility of an offender in prison adapting to their surroundings is relatively high. As such, the remainder of the incarceration period, no matter how long, will have a reducing negative affect on the criminal, and thus a lower end-point intensity (Robinson & Darley *op cit*, p.190). In accordance with the Peak-End rule, this would result in reduced deterrence levels of longer sanctions, which seems to be in opposition to Becker's theory.

However, the Peak-End rule may be insufficient to deter first time criminals. While the Peak-End rule suggests the imposition of shorter sentences to maximise the remembered aversion of the peak and the end of the event, to deter first time criminals, an approach more akin to that of Becker might be more appropriate. Research with animals carried out by Azrin *et al.* (1963) suggested a phenomenon called "adaptation to intensity". They reported that, in experiments where the punishment started low and gradually increased in intensity there was little in the way of deterrence, and the animal continued despite increasing punishment. However, if the punishment began at a level only slightly higher than the initial punishment in the first experiment, this produced an immediate deterrent effect. If applied to criminal law, it is arguable that first time offenders should receive a Foucauldian sentence, with even minor infractions of the law being punished with the utmost severity (Foucault, 1977: 294). This implies that a higher sanction than is currently the case is required to provide a short, sharp shock and reduce the likelihood of adaptation to intensity that may occur if the first time offender continues to offend and receives increasing sanctions for each successive offence.

4.6.3 Sanction Certainty

Becker noted that a lower probability of sanction coupled with a harsh sanction would be enough to deter. As indicated above, harsher sanctions will not always deter criminals, and if Becker's theory were to follow, then a higher probability of sanction should be enough to deter potential criminals.

A review by Landes (1983) found that as the probability of sanctions decreased, so did the level of deterrence observed. Harel (2014) also noted that this effect of probability of sanction can be seen in both non-monetary and monetary sanctions, and whereas the doubling of the financial sanction has little deterrent effect, the doubling of the probability of sanction has a greater effect on deterrence.

One way of increasing the certainty of sanction, it could be argued, would be to increase the number of visible police officers patrolling communities. A study by Levitt (1998) found that increased arrest rates through the reallocation of police resources could influence crime deterrence. However, as Cameron (1998) argued, an increase in police activity may have little effect on criminals because they do not know this has happened. While it is the case that there are often temporary operations targeting particular crimes by police (Dorset Police, 2014; Environment Agency, 2016; Oxford Times, 2017), these are often short lived and policing quickly returns to its pre-special operation level.

Key concepts within the role of certainty of sanction that should be considered are risk-aversion, risk-seeking and the Prospect Theory developed by Kahneman & Tversky (1979). Prospect Theory, proposed as an alternative to the rational Expected Utility Theory (Bernoulli, 1738 [1954]), is key to understanding decision-making under uncertainty by addressing the concept of “framing” of uncertain prospects. When making decisions under uncertainty, the perception of how the outcome of a decision varies from a particular reference point is key. This is notable, as it shows the way people react to uncertain gains is different to how they react to uncertain losses. Those people who perceive a decision as a gain from a reference point are risk-averse, and those who perceive a decision as a loss from a reference point are risk-seeking (McAdams & Ulen, 2008). Potential criminals are therefore risk-seeking because, despite the chance of a loss due to detection and sanction, they choose to commit the crime anyway as the probability of such sanction is low. As a result, Harel & Segal (1999) argued that, to counter this risk-seeking behaviour, the certainty of sanctions should be increased and made as predictable as possible. However, how this would be achieved is questionable, as police forces do not have the budget to increase officer numbers, therefore leaving the possibility of increasing the certainty of detection unanswered.

Availability bias and bounded rationality will likely influence the decision-making process of criminals. Decision-makers may be able to easily recall something relating to a particular crime or sanction as it has been well publicised or talked about within their own criminal circles (Tversky & Kahneman, 1982). However, something might be memorable simply because of the publicity it may have received, and not because of its accuracy or relevance to the current decision. This can be illustrated by an example from Jolls (2005) who states

that the perceived probability of sanction will depend on how frequently offences are detected, but also on how salient the detection method is; for example, the use of large, bright orange tickets for illegal parking.

Related to this, is the influence of bounded rationality upon criminal decision-making. Robinson & Darley (2004) noted that detailed rules of law are unlikely to be known by the criminal, and even if they are known, they are less likely to be recalled in an emergency or a situation with heightened emotions. Further to this is the idea that, if a criminal is not aware of the sanction, how can it possibly act as a deterrent? Studies addressing this issue have shown criminals often have limited knowledge of sanctions for crimes, even if those sanctions have been formulated to elicit a behaviour change (MacCoun *et al.*, 2008; Kleck *et al.*, 2005). However, despite these findings, it could be argued that, in many cases, either the threat of a certain sanction or even the perception of a certain sanction could be enough to deter a potential criminal, although such threat or perception may be limited to low level offences.

Several studies regarding the effect of optimism bias on criminal decision-making have been conducted showing the deterrent effect of a sanction is reduced as a result of over-optimism. Potential criminals underestimate the probability of being detected and the sanction imposed (Garoupa, 2003; Jolls, 2005). In addition, McAdams & Ulen (2008) have noted that the over-optimistic criminal may also overestimate the benefits from a crime. This combination may lead the over-optimistic criminal to be less careful in avoiding detection. Unfortunately, if they are not detected, this will simply reinforce their over optimism.

The certainty of sanction is also affected by the “resetting” effect. Although specific deterrence states that punishing an individual will discourage recidivism, Pogarsky and Piquero (2003) found that with some offenders, their perception of certainty of punishment was reduced immediately after being caught. This concept is based on a decision-making bias called the “gambler’s fallacy” (Tversky & Kahneman, 1971). In decision-making, a gambler may lose several games of cards and yet still increase their bets on the next game. Similarly, offenders may believe that by being punished, they are protected somehow from being caught again unless they were extremely unlucky. Their sanction-certainty estimate is reset back to the level it was at prior to their detection (Pogarsky & Piquero, 2003: 96). The implication is that future certainty of sanction will be low, and so the deterrence will be imperceptible.

The final aspect for consideration relating to the certainty of sanction is that of hyperbolic discounting. This aspect can have implications in both severity and certainty. In terms of the effect on severity of sanction, criminals who discount the future are less likely to be deterred

by a sentence that has been doubled from one year to two years because of the discounting effect the criminal allocates to such future losses (Harel, 2014). Therefore, a longer sentence will be no more of a deterrent than a shorter sentence.

When considering the effect that hyperbolic discounting has on the certainty of a sanction, criminals will make the decision to commit an offence because they are discounting the future and the likelihood of detection. Moreover, discounting places the loss from any sanction so far in the future as to not be of consequence in the current decision-making process. Harel (2014) does argue that a potential sanction of a fine would not produce any discounting effects. However, it could be argued that the time lag between the commission of the crime, detection, and subsequent sanction would be enough for the criminal to discount the losses attributed to a fine at the point of decision-making.

This last point raises one final issue surrounding the reliance upon severity and certainty to establish deterrence. Most of the criminological and behavioural research has focussed upon whether severity or certainty is the most important in creating deterrence. It is arguable the issue of celerity of sanction is possibly just as important as severity and certainty in creating deterrence and reducing the effects of hyperbolic discounting, and maybe should receive more consideration in academic research. If, as has been noted, increasing the severity of a sanction does not double the deterrent effect, but doubling the certainty of that sanction does have a greater deterrent effect, if the celerity of the sanction is improved, then this may add to the overall deterrent effect of a sanction. While this seems possible in theory, would it be possible in practice as the wheels of justice historically turn slowly.

In summary, there may be a need for economists, criminologists, psychologists, and behavioural scientists to work together to formulate an interdisciplinary approach to address the gaps in various aspects of criminal law. This might provide a better understanding of the behavioural decision-making process and the cognitive biases that influence the decisions made by criminals, judges, juries, victims, and those faced with plea bargains. Posner (1997) stated that the input of BS is still being established as a research area in its own right (p. 1552). However, it is argued that the role of BS within criminal law is still a young area of research, and as such, its analysis of criminal law will clearly not compare to that of traditional economics. However, the interest in the field of BS seems to be spreading beyond helping people make the right choice about their fuel consumption into ever more diverse areas, and criminal law may be one of these areas. Caution should be taken however, as although BS may be well placed to enrich traditional economics in criminal law, making use of its concepts to alter policy or rule of law may be problematic, as BS will not provide a one-size-fits-all policy, but only guides practitioners towards a behavioural understanding of decision-making, which may likely be different for each person.

While BS in victimology has been discussed, it is anticipated that key concepts that drive understanding of offender decision-making can also be used to help gain a better understanding of enculturation of victims (Dillenburg, 2007) both before and after victimisation and whether they identify as “victims” or “survivors”, the behaviour of potential victims, and their adoption of crime prevention measures. As such, it is posited that police and CPAs cannot be impartial, but rather should be choice architects. They should understand the behavioural influences upon decision-making, and carefully consider how crime prevention advice should be framed to allow the decision-maker to make such decisions that make them better off, as judged by themselves (Thaler & Sunstein, 2008). Finally, van Winden and Ash (2012) state that an enlightened criminal law which takes account of the behavioural aspects of decision-makers may deter social harms more effectively and with lower costs to society. Such a position may be possible with increased interdisciplinary research addressing the issues discussed.

Chapter 5: Research Purpose and Research Questions

This research aims to gain an understanding of the attitudes, thoughts, experiences, and feelings of farmers in E&W towards crime, crime prevention, the police, and insurers. It also aims to identify some of the factors that may influence FCP decision-making.

A sequential explanatory mixed methods design was used. A quantitative scoping study was followed by qualitative data gathering to explain or follow up on the quantitative data in more depth. The follow-up qualitative stage of the research was conducted in two separate phases to obtain qualitative data from both farmers and the police, as two key actor groups in the issues surrounding farm crime, and therefore this research.

1. Quantitative Stage:

- a. online survey was conducted with farmers across E&W as a scoping study to establish the current situation regarding farm crime victimisation levels, crime prevention measures being used, the reasons for using crime prevention, and levels of crime reporting to and confidence levels in the police.
- b. data gathered allows for a comparison of the situation in E&W to international research findings.

2. Qualitative Stage:

- a. Semi-structured one-to-one interviews with the Police and Crime Commissioners (PCC) and a CPA from four police forces across England.
- b. Embedded multiple-case studies were used. These included semi-structured one-to-one interviews with farmers, focus groups with farmers, Likert attitudinal scale statements, and a content analysis comparison of media reports and the content of the farmer interview and focus group discussions.

The first qualitative phase enabled an exploration of both the strategic approach various forces are taking to address farm crime, and the approach forces are taking regarding crime prevention advice for farmers. This phase also allowed for an analysis of where gaps exist in the approach taken by police, as well as any differences that exist between the strategists and the CPAs.

The second qualitative phase was then conducted to further explore crime prevention use and the decision-making processes of farmers when deciding whether or not to use crime prevention, and if so what kind. This second phase also enabled further, in-depth analysis of the use of and attitudes towards crime prevention, the police, and insurers. It also enabled an examination of the factors that affect how farmers make decisions about crime

prevention. This allows for a better understanding of the quantitative results from the first phase of the research, and a more in-depth explanation of how farmers think and feel about crime prevention and the police, and how these attitudes, along with other key factors, influence the farmers' decision-making when considering the use, or otherwise, of appropriate, effective crime prevention measures on-farm.

This research poses five key research questions to be addressed:

1. What are the levels of farm crime in E&W, and what is the impact of these crimes?
2. Does the level of confidence farmers have in the police affect the likelihood of farmers reporting these crimes?
3. If farmers are using crime prevention measures, what measures are being used?
4. What are the factors influencing farmer crime prevention decision-making?
5. Can the findings be used to improve the appropriate, effective crime prevention decision-making of farmers?

To address these questions, this research focuses on the potential role that BS may have within the FCP arena, and whether BS can provide an alternative to traditional policy aimed at tackling farm crime. While criminology can provide some input into the way farmers are protecting their farms, it is argued that BS can provide the insight into the way farmers are making decisions and what factors influence these decisions, rather than simply considering what they use – the how and the why, rather than just the what.

BS was chosen as it has been widely used within a variety of subject areas as has been seen in Chapter 4. In E&W, these vary from pension advice to organ donation among the general public, but also such things as sustainable farming and energy reduction among the farming community. In addition, BS has also been used within the criminal justice system itself, although in isolated cases, such as offender deterrence.

This research will still be making use of, and acknowledging the input of criminological theory and other decision-making theories because of their essential nature in decision-making and the complexity of both crime prevention approaches and various decision-making practices and influences as discussed in Chapter 4. However, the aim of this research was not to understand what farmers are doing to protect their property, but moreover to understand why they are doing it, and what factors may be influencing those decisions.

This research arose from the idea of influencing behavioural change in farmers as addressed by Pike (2008) and the 2008 publication of *Nudge: Improving Decisions about*

Health, Wealth and Happiness by Thaler and Sunstein. This raised the question of whether the concepts of BS could be applied to farmer crime prevention decision-making.

Despite continued policy and strategic interventions aimed at addressing farm crime, the issues faced by farmers across E&W continue to be a problem as discussed in Chapters 2 and 3, which leaves an opportunity for the use of BS. While it is arguable that the figures in the NFU Mutual Rural Crime Report 2017 are only the tip of the iceberg, it seems to be the only real data available to policy makers and strategists. Therefore, as a result, it is arguable that existing approaches to encourage better crime prevention on farms have not had the desired effect.

While Chapter 4 of the literature review shows a large amount of research in BS in general, and its' use in the criminal justice system in particular, there is, as far as can be seen, no research that has looked at the role of BS in FCP. Additionally, while there is a slowly increasing volume of research addressing farm crime in the UK, little addresses FCP directly.

To address the research questions that have been identified, an inductive approach (Figure 5.1) to the research has been adopted rather than a grounded approach. While there are both crime prevention and decision-making theories in existence, as seen in Chapter 3, neither branches seem to have converged sufficiently to state conclusively that this research is based on a specific crime prevention decision-making theory. Therefore, this research takes an inductive approach by beginning with observations in the real world, identifying patterns and relationships, and making attempts to find an explanation for those patterns (Bernard, 2011).

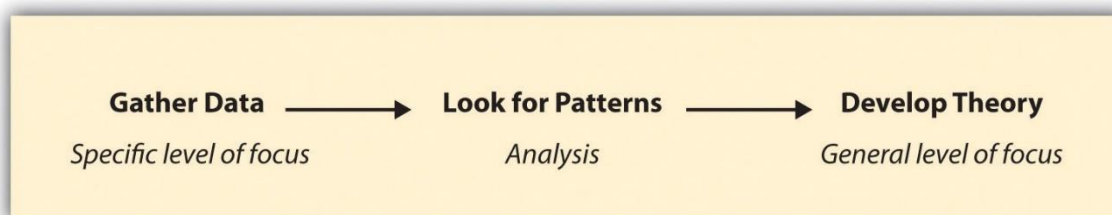


Figure 5.1: Inductive Research Approach (Source: Blackstone, 2012)

Chapter 6: Methodology

This methodology outlines the data gathering for this piece of research. This research, and the methodology chosen, aims to push the boundaries of critical understanding of policy makers regarding FCP use with a specific focus on farm property crime, and to create new understanding of the factors influencing farmers' attitudes towards crime prevention measures on farms. In addition, the data gathered by this research aims to inform the role that BS has to play within the FCP arena to improve the uptake of appropriate crime prevention measures by farmers.

This methodology will cover all aspects of the research design, presented in the following sections:

- 6.1 Research Ethics Statement;
- 6.2 Funding Arrangements;
- 6.3 Behavioural Economics or Behavioural Science?
- 6.4 Research Design;
- 6.5 Farmer Survey:
 - 6.5.1 Reliability;
 - 6.5.2 Validity;
- 6.6 Police Interviews:
 - 6.6.1 Reliability;
 - 6.6.2 Validity;
- 6.7 Case Studies:
 - 6.7.1 Reliability;
 - 6.7.2 Validity;
- 6.8 Farmer Survey Methodology;
- 6.9 Police Interviews Methodology;
- 6.10 Case Studies Methodology:
 - 6.10.1 Overview;
 - 6.10.2 Data Collection:
 - 6.10.2a Focus Groups;
 - 6.10.2b Focus Groups Procedures;
 - 6.10.2c Interviews;
 - 6.10.2d Coding and Analysis of Interviews and Focus Groups;
 - 6.10.2e Likert Attitudinal Scale Statements;
 - 6.10.2f Content Analysis.

6.1 Research Ethics Statement

Research ethics for this project were considered in line with the guidance for ESRC funded projects provided via the Research Ethics Guidebook: A Resource for Social Scientists (Boddy *et al.*, 2010). The following statement is provided to address the project ethical considerations.

The research undertaken in this project was conducted in accordance with standard research ethics norms, in particular the codes and practices promoted by the Market Research Society Code of Conduct (MRS, 2014) and the research ethics policy of Harper Adams University. This research was conducted using human participants in the entire data gathering process, and approval of the 'Harper Adams University Research Ethics Committee' was obtained for each stage of the data gathering prior to commencement. The first aspect of this research involved an online survey with farmers across E&W. This survey was carried out anonymously, with information gathered restricted to county level location, along with non-identifying demographic information. The survey contained a protocol advising the participant of the reason for the survey, information and contact details of the researcher, and confirmation of anonymity and how the data would be used. The primary data of the survey were collated in password protected computer files, accessible only by the researcher. All primary data that were exported into a spreadsheet for coding were completely unidentifiable, but were also stored in password protected computer files, again only accessible by the researcher.

The second tranche of data gathering took the form of interviews with Crime Prevention Advisors (CPAs) and Police and Crime Commissioners (PCCs) of four police forces across England. These interviews were either carried out in person or via telephone, and were audio recorded for later analysis. All police forces across E&W were approached to request their involvement in the research, with the requirements of an interview with both the PCC, and also a CPA. Out of the 41 forces (excluding London Metropolitan and Greater Manchester) of E&W that were approached, only four forces provided access to both parties, and thus were included in this research. Each participant was then sent a leaflet about the research, including the contact details of the researcher, and a consent form that was to be completed and returned prior to the interview. These forms were then stored in locked cabinets within the office of the researcher. Prior to the start of the interview, the participants were reminded of the reason for the interview, the wider research, and what would happen to the recording of the interview. The voluntary status of the participant was also made clear, and that withdrawal could take place at any time, without reason. It was confirmed that the audio recordings would be retained on an encrypted, password protected

computer, and that all data gathered as part of the interview would be retained for a period of three years beyond the end of the research, and then destroyed securely.

The third part of the research were the embedded multiple-case studies. For this part of the research, the main data gathering took the form of semi-structured, one-to-one interviews with farmers that were audio recorded for later transcription, Likert attitudinal statements for each interviewee, and focus groups with farmers, which were video recorded for later transcription. In addition, media report content analyses were compared to content of farmer interviews and focus groups using Wordles, for which no additional approval was required. For both the interviews and the focus groups, information about the research and what the researcher was looking to do was sent out widely using social media and key contacts. This information included the contact details of the researcher so that those who wanted to be involved could make contact directly. In addition, the researcher made use of key contacts in the police and local councils across the target areas to identify potential participants. This was done by their use of their own network, and the researcher was not privy to participant details until the focus groups and interviews took place.

Each participant was sent an information leaflet ahead of the arranged meeting so that they were clear on what the research was about, what it involved, and what would be expected from the participant in each case. Prior to the start of each interview and focus group, the researcher ensured that each participant provided their informed consent to taking part in the research by completing the form seen in Appendix 1. As with the police interviews, these forms were then stored in locked cabinets within the office of the researcher. In addition, before the focus group and interviews began, the researcher verbally reviewed the aim of the research, what the participant could expect, and what would happen with the information obtained in each case. The participants were also advised that their participation was entirely voluntary, and they could leave or stop the interview at any time without reason if they wished. Confirmation of what would happen to the recordings, both audio and video, to advance the research was detailed. In addition, the researcher confirmed that the recordings of the interviews and focus groups would be stored on a password protected encrypted computer accessible only by the researcher. It was confirmed that the information gathered from the participants, both recorded and physical, would be retained for a period of three years after the end of the research. At the end of this period, all electronic files and physical documents relating to the participants would be securely destroyed. At all times, the researcher ensured that all participants understood, and they were happy to continue.

This research was necessary to establish the underlying behavioural culture of farmers across E&W towards crime, crime prevention, the police and their insurers. Policy and

strategy does not seem to have made an improvement in the situation faced by these farmers, therefore an alternative approach should be considered to address this constant problem. By conducting this research, an understanding of farmer attitudes, thoughts and feelings towards these issues have been explored, as well as the potential factors that influence FCP decision-making. This would therefore aim to enable steps to be taken towards a bottom-up approach to FCP policy driven by the farmers as the victims of these impactful crimes, rather than the extant top-down policy driven by the government and police strategists. This research advocates the implementation of a crime prevention choice architecture for farmers that would encompass key concepts of BS to address the factors that currently influence their decisions. This research is required, and is particularly timely, as little liaison with farmers seems to have been undertaken to establish an understanding of farmer thoughts and feelings to mitigate poor or ineffective decision-making by farmers in relation to crime prevention.

The research methodology was established to firstly obtain an understanding of the current situation regarding the police strategic approach to rural/farm crime, and how this compares to crime as reported by the farmers themselves. Moreover, to establish farmers' attitudes towards crime, crime prevention, crime prevention decision-making, the police and their insurers. Once this information was established, key aspects were then further explored using the various qualitative methods encompassed within the case studies. Further in-depth discussions relating directly to crime prevention and decision-making were undertaken to address the research questions posed.

6.2 Funding Arrangements

Two key funders supported this research. Firstly, the Rural Services Network, a network that brings together several organisations to promote key issues that affect rural communities. Secondly, the West Mercia PCC. While both organisations provided funding to support this research, neither party had any influence over the specific area of research, the methodology, choice of participants, nor the way this thesis was written and any publications that arose from the research. The acceptance of funding from these parties in no way purports any kind of ongoing relationship with either funder, and the researcher confirms no ongoing commitments to either funder beyond this research.

6.3 Behavioural Economics or Behavioural Science?

As this research refers to the key concepts of various models that relate to decision-making rather than isolating just one approach, the term BS was used when discussing these aspects. Concepts from behavioural economics, Nudge Theory, and other decision-making

theories could be addressed. Therefore, the separate concepts would be referred to under the umbrella title. It was felt the term behavioural economics would be somewhat misleading to the reader due to the research not aiming specifically at understanding the economic influences of decision-making. Moreover, the purpose of this research is to understand the psychology and emotion that lies behind the way farmers are making decisions about their crime prevention on farm.

This decision reflects current strategic practice in the US and the UK, as illustrated by the creation of the Behavioural Insights Team in 2010 by the then UK Prime Minister, David Cameron, and the Social and Behavioral Sciences Team (SBST) established by former US President Obama in 2015. The approach adopted by this research is further supported by the use of the term BS in a number of UK Government departments, most notably the Defence Science and Technology Laboratory (DSTL) who notably lead the applied use of technology. On the DSTL website concerning skills required for counter terrorism and security, they highlight Human BS as key (DSTL, undated). In addition, a number of documents produced by the DSTL make direct reference to BS rather than behavioural economics, and indeed recommend the use of BS in their specific operational remit (Dhami, 2011; DSTL, 2018). Furthermore, in 1959 leading economist Herbert A. Simon made reference for the need for economists to increasingly interact with psychology and the social sciences: "As economics finds it more and more necessary to understand and explain disequilibrium as well as equilibrium, it will find an increasing use for...communication with its sister sciences of psychology and sociology" (1959: 280).

6.4 Research Design

It was identified at an early stage that the data gathering aspect of this research would be undertaken in three distinct stages, followed by the systematic feedback of the results to those who took part in the research. Approaching this research from a pragmatic philosophical standpoint, it was essential that the methodology used was the best to answer the research questions at hand. The aim of this research was to provide new insight to very real issues faced by farmers across E&W, and as such, the method chosen was seen as the best to address the issues. As a result, the use of a mixed methodology within one study ensured the theoretical value of the research is maximised as it allows varying aspects of attitudes towards FCP to be brought to the fore that may have been missed with the use of one methodology alone.

The use of mixed methods allows the strengths and weaknesses of differing methods to be balanced (Denzin, 1970). Furthermore, the validity of the data gathering can be improved by avoiding such problems as researcher bias; the likelihood of other alternative

explanations for the data gathered (internal validity), and also to ensure the controls imposed by the researcher do not influence the data thus leaving it impossible to generalise the results to the wider population (external validity) (Jupp, 1996).

After taking all this into account, the research methodology identified as best placed to obtain the information required to establish this narrative was a mixed methods sequential explanatory model. The general data gathering process is reflected in Figure 6.1.



Figure 6.1: Sequential explanatory model for farm crime prevention decision-making research

The complementarity of case study research and statistical analysis was noted by George & Bennett (2004). They identified that statistics can test the correlation between the independent variables and the dependent variable, but case studies are helpful in examining the processes that might explain such a correlation.

As a result, the following methodologies were identified for each stage of the data gathering process:

- An in-depth survey, used as a scoping study, distributed to farmers across E&W, comprising a pilot study and a live survey to obtain an attitudinal baseline.
- One-to-one semi-structured interviews with CPAs across four police forces, along with the corresponding PCC.
- An embedded multiple-case design case study (Figure 6.2) which comprised four distinct qualitative research methodologies:
 - Focus groups with a variety of farmers across the counties of Shropshire, Herefordshire, Worcestershire, and Cheshire to examine the thought processes of farmers when considering crime prevention by using questions based on key concepts of BS.
 - In-depth interviews with farmers from across the counties of Shropshire, Herefordshire, Worcestershire, and Cheshire who had been a victim of farm crime in the recent past. Questions for the interviews aimed to gain an

understanding of the attitudes of farmers towards crime prevention, victimisation, the police and insurers. These questions were based around key factors that affect attitudes, and a unique model was created to map these factors and drive the question design as discussed and illustrated by Figure 6.7 (page 103).

- A content analysis of media reports of rural and farm crime over a period of 3 years to establish what kind of information farmers are obtaining from press reports, which may have an impact on the attitudes of the farmers. This was then compared to what farmers were actually talking about during the focus groups and interviews. This part of the case studies was carried out at the end of the data gathering period to ensure all datasets were complete.
- Each of the six interviewees completed Likert attitudinal statements. While such scales are normally used as part of larger quantitative surveys, it is argued that this is a useful tool to provide additional information on attitudes that can supplement the qualitative case studies.

The justification of the use of this multistage approach as identified above is several fold. Firstly, the mixed methods approach was ordered in this way so that the researcher could obtain quantitative baseline information from a large, widespread sample. This data is relating to the attitudes of farmers towards crime, crime prevention, the police and rural insurers, as well as key potential predictors of victimisation in order to draw comparison with international research.

This would then be followed by the police interviews and the qualitative case studies. The police interviews enabled primary data to be obtained that illustrated the strategic approach and the practical policing that allowed for an understanding of how the police think about rural crime, and more specifically farm crime. Moreover, this allowed a comparison to be made between police approaches to farm crime, and the way farmers experience farm crime. These interviews were followed by the qualitative case studies, extending the quantitative findings of the farmer survey. While focused directly on farmer attitudes, these case studies were undertaken on a smaller scale than the scoping study to allow the researcher to achieve granularity in the research. This enabled a focus on identifying the main behavioural aspects underlying the behavioural culture of the farming community towards crime prevention based on the key paradigms of BS, and then to further investigate the individual perspective towards crime and crime prevention by addressing the attitudes of farmers. The content analysis of the media reports in comparison to what farmers are actually saying was used to compare and contrast the similarities and differences occurring

in the way these two sources were talking about the same issues. The attitudinal Likert scale was used to establish how positive or negative the opinions of farmers were about crime prevention.

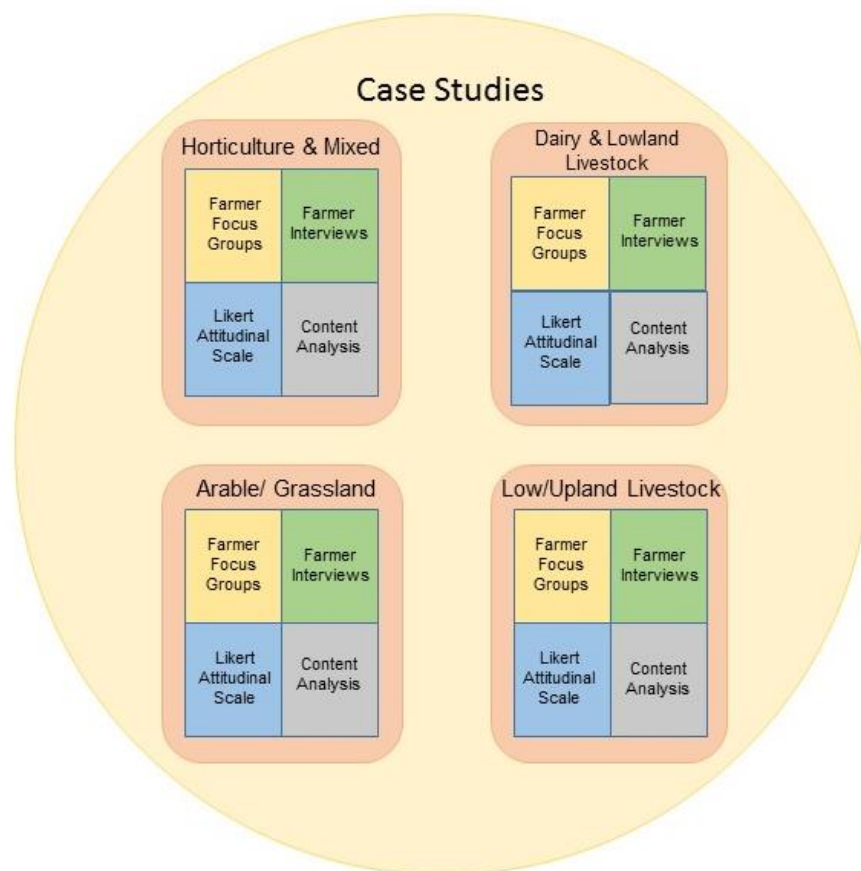


Figure 6.2: Embedded multiple-case study design for farm crime prevention decision-making research

The data obtained from both the farmer survey and the case studies enabled a new narrative to be created which sheds light on the way farmers think about, and make decisions about, crime prevention, and identify the attitudinal barriers to the use of crime prevention. The timings of the survey, the focus groups and the one-to-one interviews were identified to fit around the agricultural calendar. This meant that the online survey was made available longer than anticipated, November to March, to ensure that as wide a range of farmers as possible could take part. Moreover, this ensured that there would be equal opportunity for farmers in all agricultural sectors to complete the survey.

The same approach was taken with the arrangements for the focus groups and interviews. The researcher remained flexible in the approach to arranging these meetings, and allowed the farmers to dictate the most convenient time for them. This enabled a good number of farmers to take part in each focus group, all of which took part in the evening at a venue that was easily accessible to all participants. Organisation of the interviews was again completely driven by the availability of the farmer to ensure that the meeting did not interfere

with the daily business of running their farms. As a result, four interviews took place in the evening, and two took place during the day, in an afternoon, but all were at convenient times for the farmers. Once again, this enabled the widest possible range of farmers to take part in this section of the research, as timings were flexible to fit around the running of the farm, e.g. harvest, lambing, shearing.

The organisation of the police interviews were carried out differently. For the PCC interviews, the date and time of the interview was driven entirely by their diary commitments, and liaison with the Commissioners' office was paramount to organise these meetings, whether by telephone or in person. For the interviews with the CPAs, the arrangements were done directly, either by email or by telephone, to arrange a meeting that suited their availability. All interviews took place within normal working hours – Monday to Friday, 9am to 5pm – regardless of whether the interview was in person or over the telephone.

6.5 Farmer Survey

6.5.1 Reliability

Due to the nature of the survey being exploratory and with the need to make it relatively cost neutral, it was decided that the survey be carried out online, and so the participants were a self-selecting convenience sample. The target population was identified as a stratum of the general population, specifically farmers across E&W. The general demographic information of the survey participants can be seen in Table 6.1.

As this part of the research was exploratory in nature, this non-probability sampling method was considered to be the best way of obtaining an approximation of the current position of farm crime experiences. This was drawn from a sample of the farming population of E&W without incurring the monetary and time costs that would be involved in obtaining a random sample of the target population. Moreover, this method enables the possibility for the development of hypotheses, and the identifying of key issues within the field of research (Fricker, 2008).

This means it is difficult to establish a definitive response rate for the survey, as it is not clear how many people within the target population saw the survey information. While the survey participants were generally representative of the target population as described below, it is inevitable that, by using an online only survey, some level of bias was present in the sampling methodology.

Table 6.1: Selected Participant Characteristics Compared to UK-Wide Farming Population (UK Data Source: Defra, 2017)

Characteristics	United Kingdom (%)	Survey Participants (%)
Gender		
Male	87.7	73.8
Female	12.3	26.2
Age Range (UK/Survey)		
<35 / <30	3	14
35-44 / 31-40	10	22
45-54 / 41-50	25	24
55-64 / 51-60	28	26
65+ / 61+	34	14
Employment Status		
Farmer & Family	61.9	82.5
Manager	2.3	2.4
Other Full-time/Permanent	13.5	11.1
Other Part-time/Temporary	8.4	2.4
Seasonal	13.9	1.6
Farm Size		
<20 hectares	44.8	5.6
20-49 hectares	19.3	11.1
50-99 hectares	15.6	23.8
100 + hectares	20.3	59.5
Agricultural Sector		
Arable	28.1	28.6
Upland Livestock	25.4	14.3
Lowland Livestock	28.3	24.5
Horticultural	2.7	3.2
Mixed	15.5	29.4

For example, those farmers who do not use, or are uncomfortable in using, computers would have been excluded from the sample. In addition, there may be issues with internet service provision in parts of E&W. This meant that, even if someone wanted to take part in the survey, their internet connection was not stable enough to allow them to take part. If repeated, these issues could be overcome by providing the survey in various formats; telephone survey, face to face, optimised for mobile telephones. However, it is noted that, while providing such alternative options for the completion of the survey would address the sampling bias, it would also increase the workload of the researcher meaning that this exploratory survey could end up being quite costly.

The design of the survey ensured that the questions asked would enable the same kind of information to be obtained across all participants. To ensure that the survey was subject to clear and systematic procedures, a survey methodology was created, as seen in section

6.8, which laid out clearly the purpose of the survey and the questions that were to be asked. By undertaking an exploratory, quantitative survey, the baseline attitudes and behaviours of the target population could be better understood, and the responses would allow for the direction of the qualitative data collection to be established. As such, as an initial scoping study, the survey was an invaluable piece of work within this research project, to understand the current position regarding the interactions between the target population and the police, their insurers, and crime prevention.

6.5.2 Validity

To ensure the questions posed in the survey obtained the information required, several basic considerations were made. Firstly, it was intended that each question asked would provide useful data that would help establish the current position of farmers' experiences. In reality, while most of the questions did fulfil this requirement, there were a small number of questions that, in hindsight, were extraneous to the purpose of the survey. In particular, the questions relating to the layout of the farm did not seem to serve a purpose. However, in the main, the questions asked were directly relevant to the research. The questions asked were, by and large, based on extant international research and farm crime surveys carried out in other countries as detailed in the survey methodology (Chapter 6.8).

The questions were identified and grouped into several themes as shown in the methodology, ensuring the questions asked would provide the information to enable direct comparison to international research. These questions were worded carefully to ensure they were simple and precise. This would ensure there could be no possibility of confusion or misinterpretation of the meaning.

The pilot study was key in ensuring this was the case. All questions were reviewed by academics skilled in survey design to ensure they were not leading in any way. All response options were fully considered and included, along with an 'other' option in many cases to ensure anything the researcher had not considered could be captured. The questions asked were based on a temporal frame of reference, which again was driven by the results of the pilot study to make it easier for the participant to recall relevant details. This ensured a complete picture of the participants' experiences was obtained and the information given provided a starting point in the understanding of farmer victimisation, attitudes towards the police and insurers, and use of crime prevention measures, which would be explored in more detail with the qualitative case studies.

Despite the sampling method not being random, with 126 participants, it is argued the results can nonetheless be generalised to the target population the survey is representing

based upon the demography of the participants as shown in Table 6.1. This suggests the participants are generally representative of the wider population of farmers across E&W (West,1999). In addition, the participants were widely cast throughout E&W as shown in Figure 6.3, showing that results seem to be representative of farmers across various regions and farming systems within E&W.

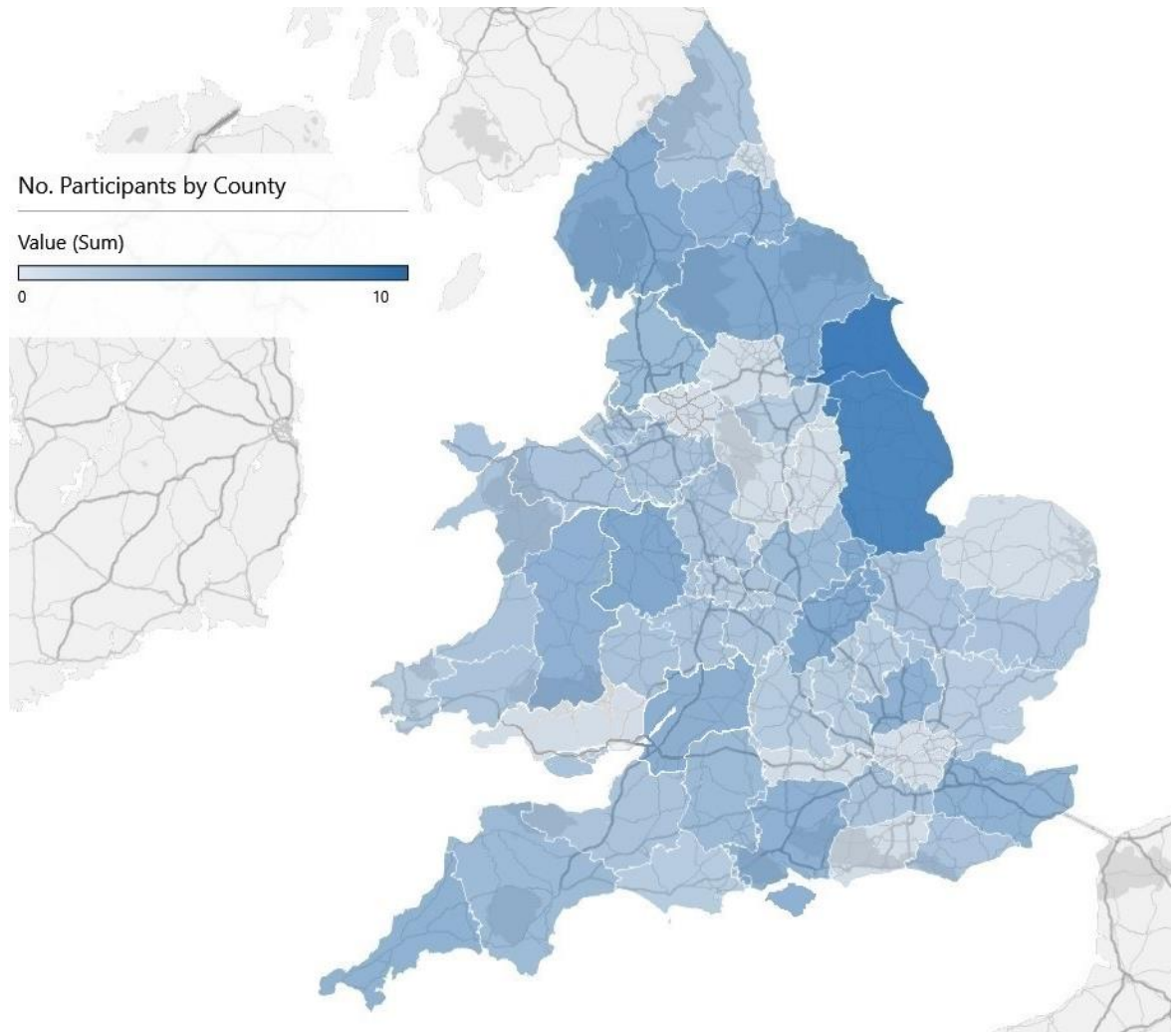


Figure 6.3: Map showing the location of participants taking part in the survey

It is noted that, while the participant demographics are generally representative of the national picture, there are two noticeable differences; that of employment status, and farm size. It is noted that a larger proportion of the participants were identifying as the farmer or a family member, and a much smaller proportion reporting to be seasonal workers. It is asserted that this aspect is a preferable imbalance, as a seasonal worker is much less likely than the farmer or family member to know about the day to day running of the farm, let alone the incidence of crime on the farm. Therefore, having a higher level of farmers/family members completing the survey is beneficial to the knowledge gleaned in this initial understanding phase of the research. With regards to farm size, the fact that more farmers running larger farms took the time to respond to the survey, and much lower numbers of

smallholders may suggest that larger farmers may be more prone to victimisation than smallholders. This may be because of the kind of machinery and equipment they are likely to have on site, or possibly the sheer size of the farm itself makes it hard to protect. It is noted that large arable farmers, particularly those in the East of England, tend to use contractors, thus reducing the level of high value equipment on site. However, there is likely to be a number of large farms that have a primary focus other than arable, that still require various items of machinery and vehicles to be kept on the farm, for example larger livestock production systems.

6.6 Police Interviews

6.6.1 Reliability

The participants for these interviews were identified using Quota sampling. All 41 police forces (excluding London Metropolitan and Greater Manchester Police) were contacted to request an interview with the PCC and a CPA for each force area. Out of the six forces that responded positively, four forces provided interviews with the key people requested. The forces that took part in this part of the research were West Mercia, Cheshire, Lincolnshire, and Thames Valley Police. These forces have large areas of rurality within their remit. This meant that the PCCs had involvement in developing Rural Crime Strategies, and the CPAs had first-hand experience of FCP advice. This ensured that the information provided by each participant was based in truth, and was credible. Moreover, this sample allowed for the gathering of data that would be representative of the wider policing population that have dealings with rural communities.

To ensure reliability, and potential repeatability of the interviews, key questions were formulated that would be asked of each participant. A set of questions were designed specifically to address the strategic approach the participant forces were taking to tackle rural/farm crime, with a separate set of questions aimed at understanding what kind of crime prevention advice is being provided to farmers by the police. These question sets can be found in Appendix 2. Having two sets of questions ensured key concepts could be explored with each participant, with the aim of examining what was being done, why it was being done, and how effective the participants believe the approach is in addressing farm crime.

6.6.2 Validity

The focus on validity in qualitative research ensured a determination of whether the accounts given by participants are accurate, trustworthy, and credible (Lincoln & Guba, 1985). Using semi-structured interviews allows participants to talk about the subject area in

detail and depth with minimal direction from the interviewer, thus enabling a story to be told by the narrative. Moreover, by asking questions that are related to their specific area of work allows for a truthful and accurate response to the questions asked.

The questions used in the interviews were identified as best able to establish the police strategic response to farm crime when questioning the PCCs, and the crime prevention advice provided to farmers when questioning the CPAs. By structuring the questions in this way ensured the interviews indeed measured the characteristics they were intended to measure.

Potential biases for the interviews are shared with those of the interviews, focus groups, and Likert Attitudinal scales of the case studies, and can be found in Table 6.2 (pp. 91-92).

6.7 Case Studies

6.7.1 Reliability

The participants for the mini-focus groups were identified using Quota sampling. The researcher first identified that each mini-focus group would represent a particular section of agriculture in E&W, and then used various methods to identify the participants for the groups. This was done using social media platforms, police contacts, local Rural Crime Coordinators employed by the PCC for West Mercia constabulary, and word of mouth. This enabled the identification of between four and seven farmers for each focus group.

The participants for the in-depth interviews were identified using Convenience sampling, by asking for volunteers from each focus group to take part in a one-to-one interview to explore the issues surrounding crime prevention. In the main, one or two people from each group were identified with the aim of providing a cross section of demographics representative of the wider target population. In addition, one farmer who underwent the interview did not take part in a focus group, rather contacted the researcher directly to talk about their farm crime issues, and subsequently volunteered to take part in the interview.

The media reports that were analysed as part of the case studies were identified using Google News RSS feeds for 'rural crime' and 'farm crime', and represent reports over a three-year period to allow for any possible changes over time to be identified and examined. Details of the way the case studies were conducted are provided in the Case Studies Methodology as detailed in section 6.10, ensuring systematic procedures were followed in the data collection phase of the research.

A case study approach was identified in favour of other qualitative methodologies looking at attitudes and behaviour such as randomised controlled trials, as they can address things that such other methodologies cannot. For example, randomised controlled trials can look at the effectiveness of a particular course of action, but they cannot provide an explanation of the 'how' or 'why' that course of action might or might not work. Case studies, however, can provide that comparative ability (Shavelson & Towne, 2002: pp. 99-106).

6.7.2 Validity

Each of the questions for the focus groups were carefully worded to reflect a specific aspect of decision-making, driven by key concepts of BS. The interview questions and Likert statements were driven by key factors affecting the formation of attitudes as identified by extant research. It was essential that the question format follow these theoretical frames. This enabled the research to address and make first steps in the understanding of factors affecting the attitudes of farmers and the decision-making processes relating to their use or otherwise of crime prevention measures on their farms. These questions and their rationale are detailed in the Case Studies Methodology (Chapter 6.10).

Questions in the focus groups, the interviews, and the attitudinal scales were kept concise and relevant to ensure the participants understood what was being asked. Where needed, the researcher did provide additional guidance or explanation, but this was not something that was often required as the questions were reviewed by expert researchers in advance. This review ensured the questions in each case were not leading, to ensure responses reflected the thoughts, feelings, and attitudes of the participants.

The content analysis aspect of the case studies allowed for the comparing and contrasting of media reports of rural and farm crime, with what farmers were talking about in the interviews and focus groups. It was decided to treat the interviews and focus groups as separate data sources to ensure there could be a separate review of these data. This allowed for any potential group biases from other farmers being in the room during focus groups and potentially influencing other farmers and the flow of the discussion. By running a separate analysis of the interviews and focus groups provides a representation of all discussions, whether group or one-to-one, to be accurately recorded.

The use of multiple sources of evidence within the case studies provides high levels of construct validity by using multiple measures of the same phenomenon. This allows for the validation of quantitative data by using the qualitative case studies ensuring high levels of sequential validity (Johnson, 2014). Figure 6.4 represents this for this particular research.

The methodology used in the case studies enables direct focus on the key topics of the research – attitude formation and BS concepts in decision-making – and it can provide an in-depth understanding of the important perceptions, attitudes, and thought processes involved in decision-making. In addition, the analysis of news reports, and how these compare to farmer discussions, adds to the richness of the data surrounding the issues in question. These news reports can be accessed multiple times, allowing later review and scrutiny, and may often provide information relating to specific examples of crimes or operations to tackle crimes that are relevant to the wider discussion.

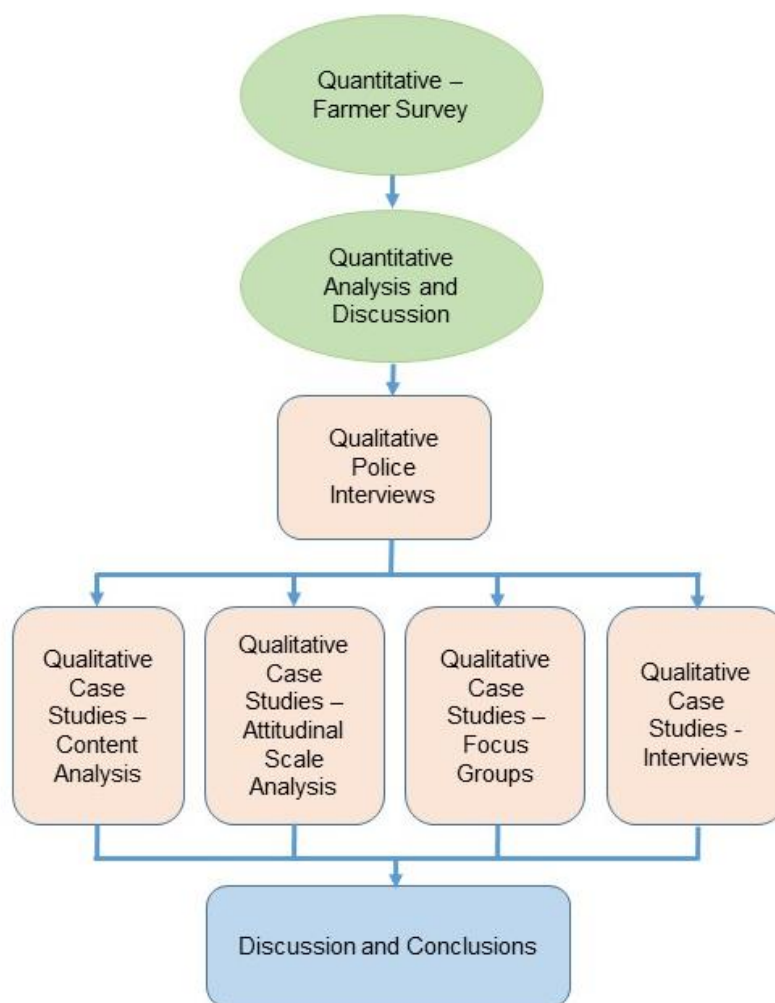


Figure 6.4: Sequential lines of enquiry for farmer crime prevention decision-making research

The news reports of farm crime allow for a snapshot of the media reporting of many events over a large area and a long time period to support the research. By then comparing and contrasting the discussion undertaken via these media reports to the things that farmers talk about in the focus groups and interviews, allows for an analysis of where there are similarities and differences between the three sources.

The focus groups, interviews, and attitudinal scale statements were carried out within the counties of Shropshire, Worcestershire, and Cheshire in England. This area covers part of the area known as the Welsh Marches, which represents the border region between E&W. There are also topographic similarities between the Marches and Cheshire, and the rest of E&W as illustrated in Figure 6.5. This area also covers all the main agricultural sectors seen within E&W: Upland grazing (LFA), lowland grazing, arable, horticultural, and mixed farming (Figure 6.6).

In addition, to ensure rigorous construct validity, potential biases have been fully considered for the four aspects of the case study. Table 6.2 provides an overview of such potential biases, and how these have been overcome. The aim of using an embedded multi-case methodology was to ensure that potential biases were reduced to allow the methodology as a whole to measure what it was intended to measure. By making farmers central to all aspects of the case studies, and basing all questions around key concepts of crime prevention, decision-making, and BS, ensured that the case studies measured these key factors.

This methodology therefore allows some level of generalisation of the outcomes of the case studies across the wider farming community of E&W. The case studies approach allows for the in-depth exploration, explanation and analytic generalisation of the theoretical propositions of this research, providing what Lipset *et al.* (1956: 419-420) described as a “generalizing” rather than a “particularizing” analysis of the data obtained.

Using various methodologies in the case studies allows for inferences to be drawn relating to the attitudes of farmers and their behavioural decision-making in relation to farm crime prevention. However, it also allows for exploration of potential rival explanations that might become apparent during the research within the scope of the research discussion.

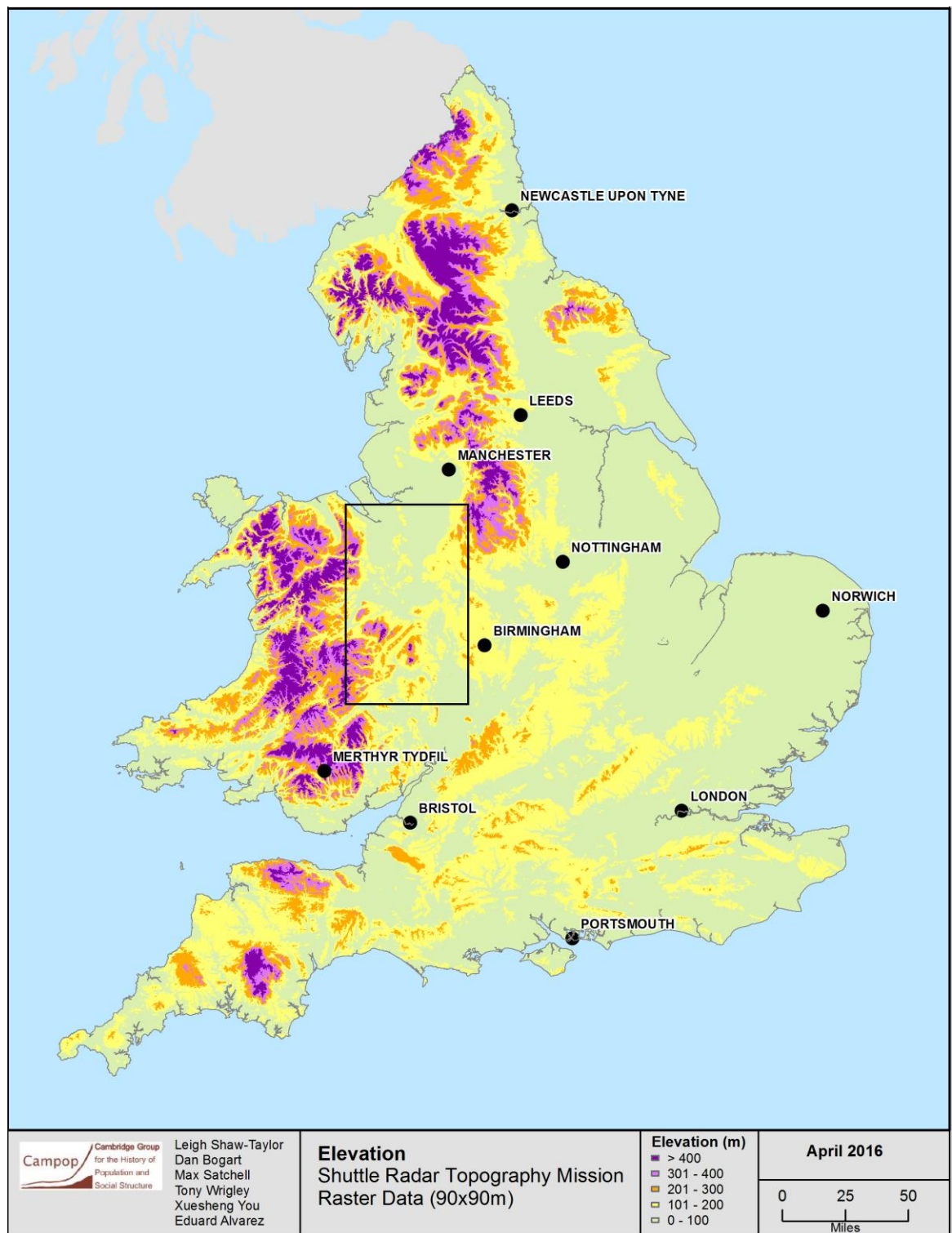


Figure 6.5: Topographic map of England and Wales, identifying the area of the study shown by the black rectangle indicating the approximate area of Cheshire, Shropshire, and Worcestershire (*Adapted from Shaw-Taylor et al., 2016*)

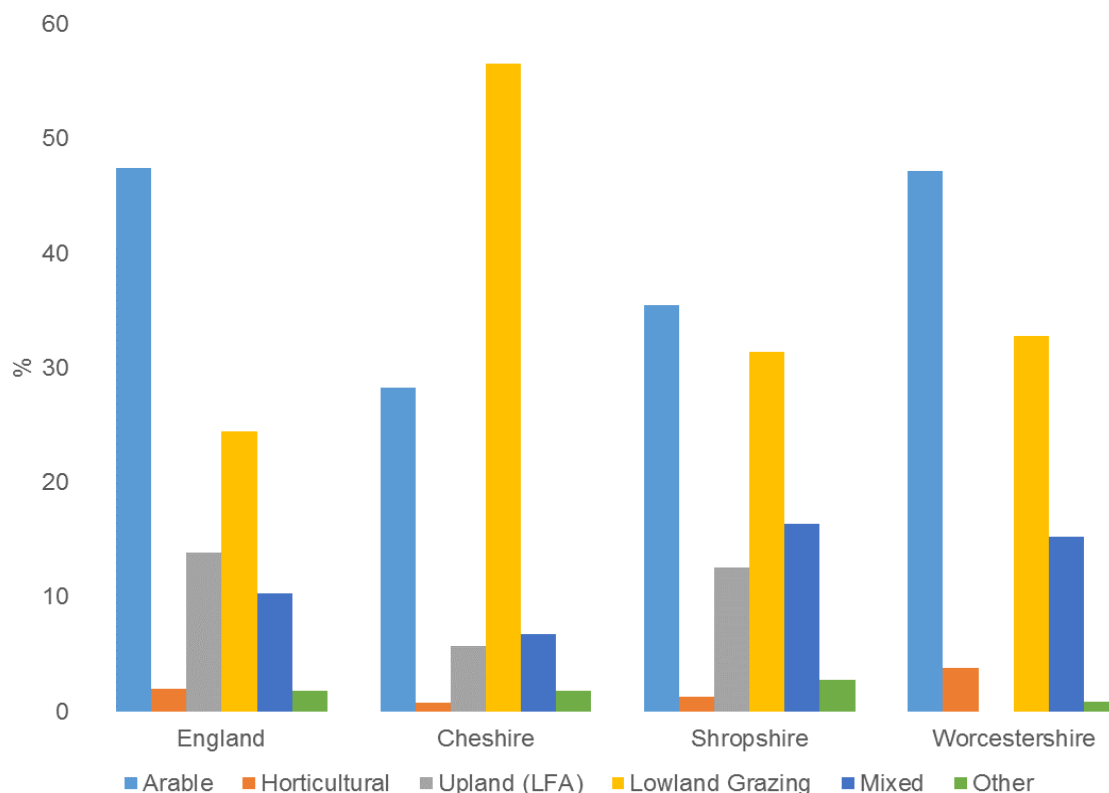


Figure 6.6: Comparison of the Agricultural Sectors in England and the Focus Counties (Source: Defra, 2016)

Table 6.2: Potential research biases and resolutions

	Potential Bias	Resolution
Focus Groups, Interviews & Attitudinal Likert scales	Conspiratorial collaboration	<p>Interviews & Scales: ensure that participants are not known to each other to reduce the influence of other participants on individual responses to the questions asked.</p> <p>Police Interviews: ensure that each participant is interviewed separately, and make arrangements directly to ensure there is no influence directed towards the interviewee.</p> <p>Focus Groups: provide for corroborating information.</p>

Focus Groups, Interviews & Attitudinal Likert scales	Reflexivity	<p>Researcher to keep corroborating actions to a minimum, e.g. nodding/shaking head – keep to the script.</p> <p>Ensure questions not biased towards a particular response.</p> <p>Ensure in focus groups that each participant is given equal opportunity to express views.</p>
	Response bias	<p>Ensure questions are well constructed to avoid potential bias in the response.</p> <p>Ensure clarification is provided where needed to avoid misunderstanding among the participants.</p>
	Poor recall	Researcher to be cognisant of potential inaccuracies due to poor recall.
News Articles for Content Analysis	Retrievability of the article (Researcher bias)	Ensure that the content of the online news report is retrievable or available offline for later review.
	Selectivity bias if collection incomplete (Researcher bias)	Ensure that all articles retrieved via the Google News RSS feed relating to rural or farm crime in England and Wales are included in the analysis.
	Reporting bias of the author of the document	The analysis will relate to the content relevant to the story, and not to particular opinions of the article author.

6.8 Farmer Survey Methodology

This survey represents the first tranche of data collection with the aim of obtaining quantitative data to identify baseline attitudes of farmers towards crime prevention and the police, along with an indication of levels of victimisation, repeat victimisation, and potential predictors of victimisation. The questions were partly based upon those used in the Australian Farm Crime Survey (McCall 2003), along with key questions needed to obtain the required information for this piece of research. The Australian Farm Crime Survey was identified as a source for a number of questions due to the robust methodology used by the researchers, and the useful data that was obtained from the survey. Furthermore, using part of an existing survey allows for direct comparison between that research and the current

project. Once the questions were identified, they were grouped into thematic areas that reflected the requirements of the research questions:

- 1a. General demographic information
- 1b. About the farm
2. Attitudes to on-farm security and farm crime
3. Victimisation
4. Police involvement with the crime
5. Insurers involvement with the crime
6. If you have not been a victim of crime

To ensure the combination of questions worked, and the validity of the answers obtained, a pilot study was carried out. As the survey was likely to be seen by farmers with varying educational levels, it was essential to ensure that the questions were understandable without being simple to the point of being patronising.

This research is addressing issues that have not been raised before in E&W, and so there is a need to collect original data and to ensure the survey is capable of collecting the information required to progress the research. The pilot study also allowed the researcher to identify any required revisions to the questions that were needed prior to the survey being sent out to the target population.

The pilot study was completed by twenty people in total; sixteen completed the survey online who have knowledge of, or a background in, farming, but were not farmers by trade; a further four people completed the survey in a paper form who have a farming background. This allowed the researcher to obtain feedback from the target audience, and to ensure that all questions were clear to the participant.

Once all issues raised during the pilot study had been addressed, the survey was finalised as seen in Appendix 3, launched via an online survey tool, Bristol Online Surveys (www.survey.bris.ac.uk), and the details distributed to the farming community across E&W. To reach as many farmers as possible who would be representative of the victim demographics of farmers across E&W, but also representative of the wider farming community, the survey was conducted online, and a stratified self-selecting convenience sampling methodology was employed. The survey was promoted using social media including Facebook, Twitter and LinkedIn, regional NFU newsletters, Rural Services Network newsletters, and the farming press. In addition, Farmers' Club, the Organic Farmers and Growers Organisation, British Institute of Agricultural Consultants, Association of Independent Crop Consultants, Crimestoppers via their rural crime campaign, and

professional network including rural policing teams and Harper Adams University staff were employed.

The survey was kept open for responses for 3 months. This allowed the survey to be promoted in a number of rural crime social media discussions to maximise the number of responses. In total, 126 participants took part in the survey; 71 fully completed the survey, with a further 55 completing around two thirds of the survey providing enough useful information that they were included in the analysis.

Responses were coded in Microsoft Excel, and imported into SPSS so that appropriate statistical analysis could be carried out. Four key statistical tests were identified, driven by the type of data obtained by the survey, and the analyses that were identified. These tests were established using guidance from Pallant (2013). According to West (1999), with 126 participants, the results of this survey offer a 90% confidence level with a +/- 7.5% margin of error. It is recognised that a larger sample size would have reduced the level of statistical error, thus increasing the confidence level and reducing the margin of error. This would enable a higher level of confidence that the results were representative of the wider population. However, given the time and cost restraints imposed on this research, such a high level of statistical accuracy would have been difficult to obtain. Therefore, from a pragmatic point of view, it was felt that some meaningful data could be obtained with the reported level of accuracy from this sample size.

To examine the key variables of crime prevention addressed in the extant literature from a UK standpoint, a variety of statistical tests were employed as discussed in detail in Chapter 8. A significant chi-square (χ^2) analysis was used to test for statistical independence. Chi-square is appropriate when one or both of the variables are at the nominal level. A significant chi-square indicates that the two variables are not statistically independent, and therefore, are likely associated to some degree. However, chi-square cannot indicate the strength of the relationship, so other non-parametric measures must be employed. Both the Cramer's V and the Phi coefficients are non-parametric statistics that indicate the strength of the association between two variables. The Cramer's V statistic is useful when any one or both of the variables have more than two categories. The Phi statistic is used in cases whereby both variables contain only two categories (i.e., a 2X2 table). The Phi coefficient is equivalent to a Pearson's correlation coefficient under the conditions of a 2X2 analysis.

Also used were three other statistics. One was the Kruskal-Wallis test. This is the test statistic for a one-way analysis of variance when the independent variable is nominal and the dependent variable is at least ordinal. Second, the Mann-Whitney is a non-parametric test of difference between two groups (i.e., victim or not a victim) that does not require the

assumption of normality. Finally, Spearman-Rho is a measure of an association based on the distributions of two variables where their categories can be ranked. Neither variable needs to be at the interval-level, hence, Spearman's Rho is appropriate for nominal and ordinal level data.

6.9 Police Interviews Methodology

Interviews were requested with all 41 police forces that have an elected PCC. London Metropolitan and Greater Manchester Police Forces do not have elected Commissioners, and so were not included in the list. In addition the areas of rurality within these force areas are limited and as such it was unlikely that these forces would have, or considered the need of, a rural crime strategy. For each of the 41 force included, initial emails were sent to both the PCC and the named force CPA. Contact details for the PCCs were found at <http://www.apccs.police.uk/find-your-pcc/>, and the contact details of the CPAs were found at <http://www.securedbydesign.com/contact-directory-of-cpdas-and-alos/>. Responses were received from six forces in total, as shown in Table 6.3.

Table 6.3: Responses received to requests for interviews with police forces

	PCC	Crime Prevention Advisor
Lincolnshire	✓	✓
West Mercia	✓	✓
Thames Valley Police	✓	✓
Cheshire	✓	✓
Kent	X	✓
North Wales	X	✓

Although responses were received from six forces, as participation from both the PCC and the CPA was obtained in four forces, the additional interviews from Kent and North Wales were not included in the analysis, as it did not allow for a direct comparison of the approach to rural crime within forces as well as between forces.

Once agreement to be interviewed had been obtained from all participants, the researcher contacted the relevant people to organise convenient meetings. Meetings with the PCCs were organised through their personal assistants, and the CPAs were contacted directly to arrange the meetings. Both sets of interviews were organised either by email or telephone. Whether the meeting itself was carried out in person or by telephone was dictated entirely by the participant diary and availability. The interview format is indicated in Table 6.4.

Where interviews took place in person, the location was agreed as that which was most suitable for the interviewee. In most cases, this meant the researcher travelling to their office, however the West Mercia PCC attended the researchers' office as they were in the

Table 6.4: Interview arrangements for PCCs and crime prevention advisors

	PCC	Crime Prevention Advisor
Lincolnshire	Telephone	Telephone
West Mercia	Person	Person
Thames Valley Police	Telephone	Telephone
Cheshire	Person	Telephone

local area. Those interviews taking place via telephone meant that the interviewer had to be in a quiet environment to allow for the discussion to be audio recorded using a conference telephone.

The questions were compiled to allow focus on specific key areas for each participant type. The interview questions for each participant can be found in Appendix 2. For the PCCs, the questions followed eight key lead topics:

1. Rural Crime Definition
2. Rural Crime Strategy
3. Actions since November 2012
4. Policies
5. Taking the Lead
6. Specialist Training
7. Rural Crime Important
8. Priority

These key topics were identified as being best placed to enable an exploration of the strategic response of the force in tackling rural crime.

The corresponding question list for the force CPAs were organised into eight similar key topics to those used for the PCC interviews:

1. Rural Crime Definition
2. Rural Crime Strategy

3. Crime Prevention Advice
4. Farm Crime Prevention
5. Differing Crime Prevention Advice
6. Specialist Training
7. Rural Crime Important
8. Priority

The questions identified within these eight key topic areas allowed for partial direct comparisons with the responses provided by both PCCs and CPAs; the comparative questions were questions 1 and 8. Questions 3, 4, and 5 were specific to the interviewee with the aim to establish key details relating to farm crime and prevention. Finally, questions 2, 6, and 7 were similar between participant type with the same topic. However, varying emphasis was placed on the topics, dependent upon the interviewee. For example, topic 6 for PCCs focussed on what training had been provided for others, whereas the same topic for the CPAs focussed on what training they had received. Again, these questions allowed for a comparison of any differences or similarities between the strategist and the front line officer.

Some questions were naturally closed questions, and were used to establish fact, e.g. Does your force have a published rural crime strategy? For these closed questions, further probing questions were identified dependent upon what the response was. This enabled a level of consistency in questioning across all participants as follow up questions would be consistent between each participant. This meant the interview schedule included probing questions that would follow on from a 'yes' response and also a 'no' response.

Prior to the start of the interview, and the turning on of the audio recorder, the research ethics for the interviews were confirmed. This ensured that all participants were aware that taking part in the interview was voluntary, the right to withdraw, and the anonymity of the participant if requested. This ensured that informed consent was obtained from each participant, and the required consent form was completed, which was then retained by the researcher in accordance with the Research Ethics Statement. The researcher confirmed that the interview would be audio recorded, and some of the discussion would be reported in the final thesis. The participant was asked to confirm their agreement to proceed on the basis of the information provided before the audio recorder was turned on.

The actual recorded period of each interview lasted between 24 and 50 minutes, depending upon how much each interviewee had to say in response to the questions asked. At the end of each interview, the audio recorder was turned off and the participant was thanked, and asked if they had any other questions for the researcher. After the interviews, the audio

recordings were downloaded from the recorder and saved in an encrypted file on a password protected computer. The recordings were then listened to in order to identify suitable quotes that would illustrate the individual participant responses to the key themes identified:

1. Police Strategy and Rural Crime Definition
2. Policing Practice
3. Why are the Police Addressing Rural/Farm Crime?
4. How are the Police Measuring Effectiveness of their Strategies?

This therefore enables a discussion to be had around the police response to rural crime, and a comparison of key similarities and differences both within and between force areas. This police response would then provide a wider comparative to the farmer-centric datasets obtained by the quantitative survey, and the larger farmer multi-level embedded case studies.

6.10 Case Studies Methodology

6.10.1 Overview

The use of an embedded multi-case studies approach was necessary and justified as it encompasses a variety of different analytic tools to examine the data gathered from the farmer participants, allowing a deep and rich analysis to take place in response to the research questions. It is noted by Strauss & Corbin (1994) that qualitative research focuses on understanding the nature of the problem rather than the quantity of observed characteristics. As such, this approach using multiple cases provides a more persuasive evidence base, and therefore is considered as being more robust than a single case study (Herriott & Firestone, 1983). Multiple case studies may have their downside, in that they are ill-equipped to deal with any unusual or extreme cases that may arise as part of the research process. In this research, it was felt that multiple case studies were appropriate, as it was unlikely there would be any such extreme cases as all participants volunteered to take part in the research as they had either been a victim of crime, or had worries about victimisation in the future. While Gustafsson (2017) argues that multiple case studies are more expensive to run than single case studies, for this research project, this disadvantage was far outweighed by the depth of discussion that could be obtained and analysed.

As identified by Scholz & Tietje (2002) and Yin (2012), embedded case studies allow for the integration of both quantitative and qualitative methodologies into one study. While this research has a stand-alone quantitative aspect to it, this approach to the case study allowed

the inclusion of the Likert statements. This enabled a brief quantitative dataset to be obtained and examined, and as such providing further statistical support, for the wider qualitative data that forms the large part of the case studies. The use of embedded multi-case studies allows for depth of description (Kidder, 1982) and the development of theory relating to several themes (Eisenhardt & Graebner, 2007; Solberg Søilen & Huber 2006). Both of these were key to this research to explore farmer responses and to relate these to existing theories, strategies, and policy surrounding farm crime and crime prevention. Moreover, as Gustafsson (2017) notes, qualitative case study methodologies are formed by study design, epitome and selection of methods (p. 3), which means that each case study is different, and driven by the research project aims and the target population.

The aim of the embedded multi-case studies was to explore the attitudes, thoughts, and feelings of farmers in relation to FCP to extend the data obtained from the quantitative farmer survey, as well as the guidance and information that farmers receive in respect of this issue. This information aims to develop novel understanding of the attitudes, and the factors affecting those attitudes, to make recommendations as to the use of BS in the creation of a FCP choice architecture.

The case studies illustrate the attitudes and behavioural culture of farmers, and provide an indication of the factors that act as a barrier to the use of appropriate crime prevention measures on farm. They also show why simply being a victim of crime is not always enough to influence the use of appropriate crime prevention measures on farm.

Four key themes were identified to organise the data obtained to address the research questions through the content analysis and the Likert statements:

- Farm Crime and its Impact;
- Farm Crime Prevention;
- Farm Crime Prevention Decision-Making; and
- The Role of the Police and Insurers

While the discussion and analysis of the focus group and interview transcripts also provide feedback addressing these four themes, this section of the analysis was organised according to key identifiable research areas that may have an impact on crime prevention decision-making. These research areas were:

- Crime Prevention Theory Discussion
- Farm Crime Experiences and Business Impact
- Reporting to, and Response from, Police and Insurers

- Farm Crime as a Challenge to Rural Masculinity
- Attitudes towards Farm Crime Prevention
- Farm Crime Prevention Decision-Making

The case studies were made up of four key elements. The first was a content analysis of online news reports of farm crime and rural crime identified through a Google News RSS feed for 'farm crime' or 'rural crime' in the United Kingdom. The reports included were obtained over a three-year period from 2014 to 2017. These reports were then compared to the discussions of farmers from the focus groups and the interviews. This was done by creating a visual representation of the discussions using Wordle word cloud creator. While word clouds are not seen as robust analysis tools, McNaught & Lam (2010) argue that, if used in conjunction with other methods, word clouds can prove to be a useful supplementary tool for preliminary analysis.

The second were mini focus groups (Krueger, 1994; Litosseliti, 2003) that were carried out with farmers across the Marches and the Cheshire area. Each mini focus group contained between 4 and 7 participants, and the questions related to the decision-making processes surrounding FCP based upon key BS concepts detailed further in Chapter 3.

The third element were the in-depth one to one semi-structured interviews. Five interviewees were participants from the focus groups, with one interviewee who was a direct volunteer. Each participant volunteered to talk in detail with the researcher about farm crime.

The final part of the case studies were Likert statements that each of the interviewees were asked to complete prior to the start of the interview. The interview questions and the attitudinal statements were based around important factors that influence attitudes as identified from prior attitude research described here.

Attitudes have been widely researched by psychologists since the early twentieth century, and are still widely researched today (Han *et al.*, 2006; Kaiser & Byrka, 2015; Katz & Stotland, 1959; Murphy & Likert, 1938; Petty *et al.*, 2009; Thurstone, 1928). Despite this, but perhaps as a result, there are a wide range of definitions that abound. Two such definitions include that of Eagly & Chaiken (1998), who describe an attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor". Carl Jung (1921 [1971]: para 687) defines attitude as the "readiness of the psyche to act or react in a certain way". Despite the differences, both definitions point to attitudes leading directly to behaviour. However, due to the complex nature of attitudes and attitude formation, psychologists note that humans do not always behave as predicted.

Attitudes are formed of three key components, known as the ABC Model of Attitudes (Katz & Stotland, 1959; Rosenberg & Hovland, 1960): Affective – feelings and emotions about an attitude; Behavioural – how an attitude influences how we behave; and Cognitive – belief and knowledge about an attitude. On this basis, the principle of consistency would tend to suggest that a person's behaviour would reflect the attitudes they hold, suggesting a level of rationality among people.

However, there is strong evidence to suggest that behaviour is not always consistent with feelings and knowledge (LaPiere, 1934; Schwartz & Bohner, 2001). Ajzen & Fishbein (2005) argued that, rather than attitudes being generally indicative of specific behaviours, there is more likely to be some level of hypocrisy with individuals displaying a particular attitude towards an aspect, but then failing to show the corresponding behaviours. Regardless of this, other research has shown little difference between individuals whose attitudes are not reflected in their behaviour and those individuals whose attitudes and behaviours are consistent (Ajzen *et al.*, 2004; Kaiser & Byrka, 2015; Sheeran, 2002). Therefore, to gain an understanding of farmer behaviour, it is essential to first understand their attitudes and the factors that affect them. Behaviour change cannot be considered as a separate process from the factors that contribute to the formation, maintenance and reformation of attitudes (Underwood, 2002).

In order to do this, a hierarchy of factors affecting attitudes was established as seen in Figure 6.7. This was partly based on the diagram of BS established by the Social Market Foundation (Prendergrast *et al.*, 2008) which is detailed more in Chapter 4.5.6. Details surrounding the factors that influence attitudes were identified via several publications providing varying amounts of information on such factors (Fabrigar *et al.*, 2005; Fishbein & Ajzen, 1975; Tesser *et al.*, 1998) as well as the impact that attitudes have on behaviour (Krosnick & Petty, 1995; LaPiere, 1934; Lord *et al.*, 1979). However, it should be noted that this research is not looking to extend research on attitudes, rather to use the existing research to inform the case studies methodology. This hierarchy was then used as the basis for the questions that were asked as part of the in-depth interviews (Appendix 4). The model clearly shows how complex the development of attitudes is, but also shows how important it is to understand these factors before any attempt can be made to influence the behaviour of farmers. While the model is designed specifically for this piece of research, it could easily be adapted to suit other studies of attitudinal influences.

6.10.2 Data Collection

The researcher carried out all fieldwork as part of the case studies, and conducted all arrangements relating to focus groups, interviews, and the collating of news reports. This

involved the arrangement of a suitable location for the focus groups to enable video recording of the discussion and food to be provided. Obtaining agreement of the participants who took part in the interviews that were audio recorded. In addition, the collation of the media reports to create written and graphical representations.

All participants were farmers across the main agricultural sectors seen in E&W whose primary activity was farming, and all came from across the Shropshire, Herefordshire, Worcestershire, and Cheshire area. They were identified by making use of the police messaging system in the Cheshire area, contacting the Rural, Business and Cyber Crime Coordinators for Worcestershire, Herefordshire, and Shropshire, making use of contacts within Harper Adams University, the NFU, and other farming organisations. The researcher also attended a number of rural crime events across the Marches and Cheshire area to make key contacts within the farming communities and enlist volunteers. In addition, the researcher posted flyers calling for volunteers on social media platforms, and details were posted in the NFU weekly regional newsletters.

All interviews and focus groups were carried out in person. At the start of both the focus groups and the interviews, the researcher advised the participants about the research, how the information obtained would be used and stored, and their rights as volunteers in the research. This was in line with the ethical procedures provided by the Market Research Society Code of Conduct (MRS, 2014) and detailed further in Chapter 6.1. Participants completed a consent form to agree to their taking part in the research. All completed consent forms were securely stored in a locked cabinet in the researchers' office. In the course of the research, only two participants refused to take part in the research once the procedures had been clarified as per the Code of Conduct. These participants left the room before the discussion started.

6.10.2a Focus Groups

In preparation for the focus groups, the questions were drafted to address the key concepts of BS while remaining on topic regarding FCP. These concepts are explored in depth in Chapter 4, and the questions asked, along with the BS concept they represent, can be found in Appendix 5. These questions went through a number of iterations, and reviews by several seasoned criminological and geographic academics before reaching the final version. This ensured the wording was acceptable, and that they would elicit the response expected based on the concept considered for each question.

Four focus groups were held at various locations across the Marches and Cheshire area. The participants were identified, and the meeting venues were arranged with the assistance

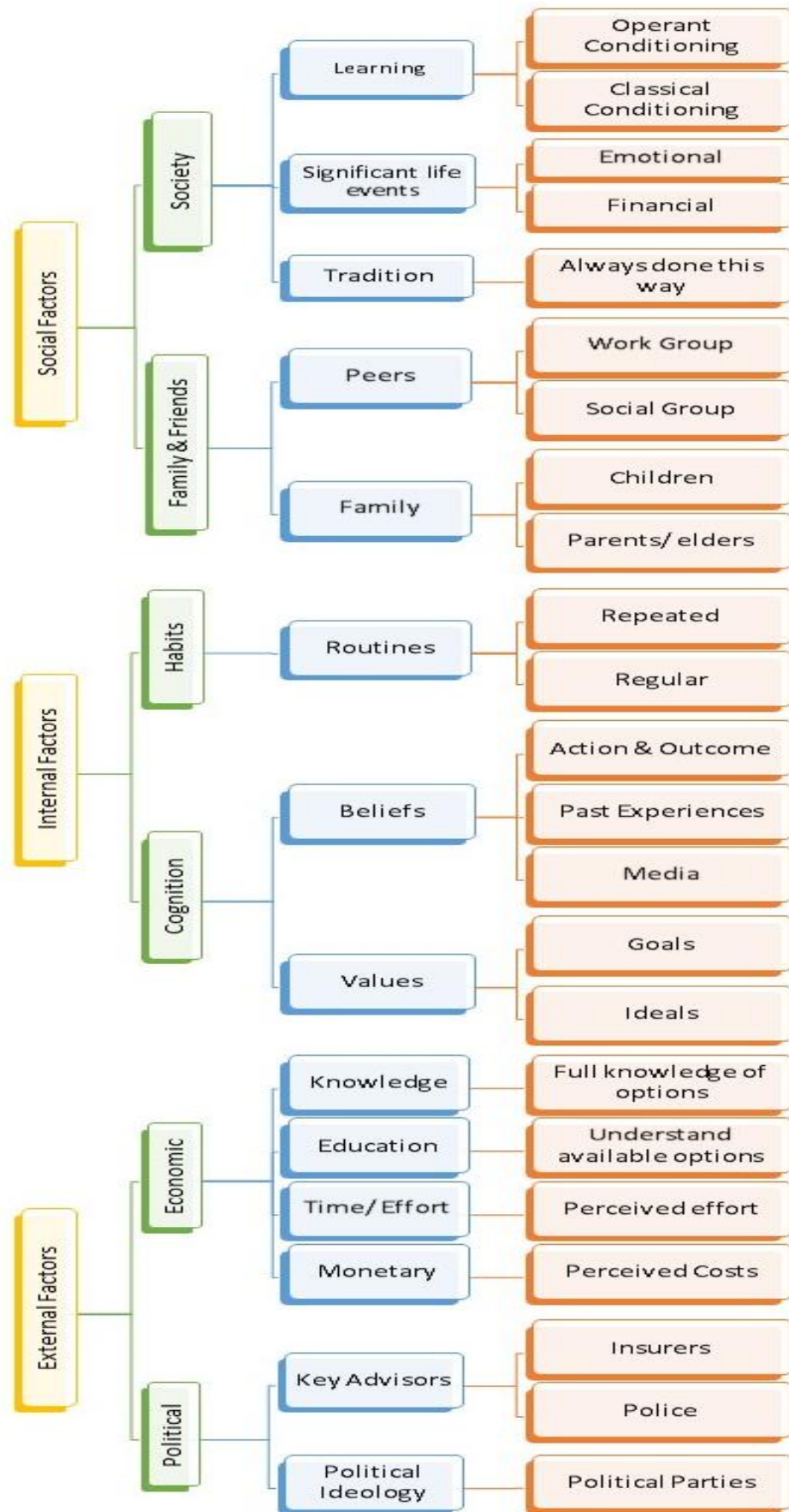


Figure 6.7: Hierarchy of factors influencing attitudes created for this research based upon the work conducted by Prendergrast et al. (2008), with blue level based upon factors affecting attitudes identified by past research, and the orange level illustrating influencing factors that are specific to farm crime prevention

of local contacts who had regular communications with the farming community. The details of the four focus groups can be found in Table 6.5. Food and drink was made available for participants at each venue. This was considered appropriate recompense for the participants, as all the groups were held in the evening to best suit the availability of the farmers.

All focus groups were video recorded to allow easy transcription of the discussion among several people. This was made clear to the participants prior to the focus group, but was also reiterated once the participants were in the room to ensure that they were fully aware of the method by which the discussion would be recorded. After each focus group was completed, the video was downloaded from the video camera to an encrypted folder that was stored on a password protected computer in the researchers' office.

Table 6.5: Details of the key information for each of the four focus groups carried out

Location	Agricultural Sector	Contact	Venue
Cheshire	Dairy/Lowland Livestock	Member of Cheshire Police Service	Local Parish Club
North Shropshire	Arable/Grassland	Shropshire Business, Rural, Cyber Crime Coordinator for West Mercia Police and Harper Adams contacts	Harper Adams University
Worcestershire	Horticulture & Mixed	Former Worcestershire Business, Rural, Cyber Crime Coordinator for West Mercia Police	Pershore Civic Offices
South Shropshire	Upland and Lowland Livestock	Member of Harper Adams staff who was a member of a sheep farming group	Pub where the group regularly meet

6.10.2b Focus Group Procedure

At the beginning of each focus group, the researcher first introduced herself and provided a brief overview of the research project. This was followed by an explanation of what the focus group was aiming to achieve, and what part this information would play in the research, along with details of how the recording of the discussion would be handled.

The researcher then provided a verbal explanation of the ethics surrounding the research, along with confirmation surrounding consent, the voluntary status of the participants, their right to withdraw, and how their anonymity would be protected, to ensure informed consent was gained from each participant. Once this had been explained, and any questions answered, the participants were asked to fill in the paper consent forms that were then collected by the researcher as soon as completed. The consent form used for both the focus groups and the interviews for this research can be found at Appendix 1. A leaflet about the research, along with the contact details of the researcher, and confirmation of the research funders was provided to each participant, which they were encouraged to keep. This leaflet can be found in Appendix 6.

Once the instructions were made clear, and the ethics forms were complete, but before the video was turned on, the participants were asked to take part in a short engagement exercise. The researcher prepared a table on a flip chart that listed the main crime prevention measures available, and each participant was provided with some sticky dots to identify which of the crime prevention measures were being used at that time on their farm. This information was then retained on file for analysis, which can be seen in Chapter 10. For this exercise, the list of crime prevention measures on the flip chart reflected those listed in the farmer survey (Q. 19, Appendix 3). If the participants used any crime prevention measures that were not listed on the flip chart, they were asked to write them under the 'Other' option that was provided.

Once this exercise was completed, and the participants had confirmed they were happy to begin the main discussion, the researcher turned the video on. Once the video camera had been turned on, the researcher firstly asked each participant to introduce themselves, provide a brief description of the layout of their farm, what crime prevention measures they use on their farm, and their experiences of victimisation. The first question asked related directly to the 'sticky dot' engagement exercise, and asked the farmers whether they would be more likely to use 'traditional' crime prevention methods, or 'hi-tech' crime prevention measures. This allowed the farmers to expand further on what they had indicated on the flip chart, ensuring that the exercise had a clear purpose within the research.

Each question was then asked in order where possible. In some cases, the farmer discussion would spontaneously address later questions. The researcher noted this so that those questions were not repeated. The researcher allowed the discussion to evolve naturally to ensure the true thoughts, feelings and experiences of the farmers were captured. However, the researcher did ensure that the discussion did not go too far off topic, to enable full responses to be obtained in relation to the questions posed.

Once all questions had been asked, the researcher asked each of the focus group participants if there were any other issues they wished to raise that had not already been talked about to allow for the raising of any other areas of concern. Each of the focus groups ran for between eighty minutes and one hundred and five minutes. These timings refer specifically to the length of the video recorded discussion. Once complete, the video was turned off and the participants were thanked and asked if they had any questions for the researcher.

The day after each of the focus groups, the videos were downloaded. Once the videos were confirmed to contain the complete discussion, and audible in their entirety, they were forwarded securely to a transcription service for transcription to take place. The researcher ensured there was an appropriate Non-Disclosure Agreement in place prior to the sending of the videos. This ensured the anonymity of the participants would be adhered to.

The use of an external transcription service rather than the researcher transcribing the discussions can be justified because of acute time pressures that arose towards the end of the data gathering period. As it took longer than anticipated to arrange these focus groups, the time available to transcribe and undertake the analysis was vastly reduced from that which was planned. On the basis that it may take eight hours to transcribe one hour of discussion (Gill *et al.*, 2008), the decision was taken to get this done by an expert service provider. The transcription company chosen was one the university had used previously, with good results and high recommendations.

All transcripts were returned within seven business days as a Word document for each focus group. Upon receipt, the researcher reviewed the transcripts against the relevant video to ensure that all errors were corrected prior to the coding and analysis process. For each part of the discussion, the researcher also added each farmers' initials against the words they spoke to ensure the accurate reporting of the discussion. The subsequent coding and analysis methodology for the focus groups transcripts was the same as that for the interviews and is described in Chapter 6.10.2d.

6.10.2c Interviews

The interview questions were split into four distinct sections. The first section started by identifying some information about the farm itself, followed by some information about how the participant viewed levels of crime and their fear of crime, and also information about their victimisation and repeat victimisation levels. The questions in this first section were based on those used in the original farmer survey to ensure compatibility. The second section addressed questions relating to external factors that influence attitudes, including

political and economic factors. The third section addressed questions relating to internal factors affecting attitudes covering cognition and habits. The final section addressed social factors that influence attitudes, and looked at the way family and friends, and the wider society influence their attitudes.

The questions asked as part of the interviews in sections 2 to 4 were based on the factors identified as key in influencing attitude formation as shown in Figure 6.7. The initial list of questions proved to be particularly long, and would have led to interviews that were excessively long without any value added. Therefore, in consultation with other experienced academics, the list of questions was reduced to one question per influencing factor listed in Figure 6.7, enabling a full exploration of the key factors identified, without the interviews becoming too cumbersome. Each question was reviewed carefully to ensure it was worded in such a way as to remain open, and so elicit a descriptive response from the participant.

The follow up questions in sections 2, 3, and 4 enabled further probing of the participant to understand their attitude based on affective responses and cognitions, and where possible behaviour and behavioural intentions (Zimbardo & Leippe, 1991). This approach therefore enabled a better understanding of the factors underlying farmer attitudes that then influence the individual behaviour.

Five of the participants who took part in the one-to-one interviews were farmers who attended the focus groups, and who subsequently volunteered to take part in the interviews. The sixth interview participant was a farmer who had contacted the researcher directly prior to the interviews being arranged, and whom the researcher contacted to enquire if they would be happy to take part. This ensured that all participants for the interviews were recruited on a voluntary basis, with no coercion on the part of the researcher.

Each interview participant was contacted individually, either by email or telephone to arrange a convenient date and time for their interview. This ensured the interview took place at a time that would fit in with their working schedule and the timings of their individual farm needs. For example, farmer JP, a sheep farmer, requested that the interview took place after shearing of the sheep had been completed. This interview therefore took place in mid-June.

All interviews took place at the home of the farmers to ensure they were comfortable in their environment, meaning they were at ease, and potentially more likely to be willing to provide their honest opinions rather than simply what they believed the researcher wanted to hear. Upon arrival at the farm, the researcher began by confirming the ethical details surrounding the interviews. As with the focus groups, this covered consent, voluntary status, their right

to withdraw, and anonymity. Each participant then completed the required consent form that was retained by the researcher and handled as detailed in the Research Ethics Statement.

Prior to the start of the interviews, each participant completed the Likert attitudinal statements. Once this had been completed, and the participant was happy with the responses given, the researcher filed the Likert statements away with the consent form and prepared to begin the interview. The researcher first explained again that the interview would be audio recorded and the discussion transcribed for analysis as part of the research. The participant was then asked to confirm that they were happy to proceed on that basis before the audio recorder was turned on.

Each interview lasted between sixty minutes and one hundred and fifty minutes, wholly dependent upon the responses they gave to the questions asked. These timings refer specifically to the length of the audio recorded discussion. Each participant answered all the questions and provided further information with prompting from the researcher where required.

At the end of the interview, the audio recorder was turned off and the participants were thanked and asked if they had any other questions for the researcher. The day after each interview, the audio recordings were downloaded from the recorder, and saved in an encrypted file on a password protected computer. The recordings were then sent to the same transcription service as used with the focus groups for transcription. When the transcripts were returned, the Word documents were reviewed for any errors that may have occurred and were then prepared for the coding and analysis process as described below.

6.10.2d Coding and analysis of interviews and Focus Groups

Once the interviews and focus groups had been transcribed into Word documents, each individual transcript was printed out on A4 paper, single sided, and collated into two documents, one for each dataset, with each transcript being separated by a section divider. Once collated, the two documents were spiral bound to allow for easy reading of the documents.

Each transcript was read in full initially. At this first read, no annotation was made on the transcript, however key themes were noted down during the reading. Although there were some differences seen based on what individual farmers said, most of these notes were consistent because of the use of the same question plan for each focus group and interview. After the first read, the notes were reviewed to try to identify some emerging themes for both datasets. The original lists identified 20 themes for focus groups, and 23 for interviews.

Some of these themes were merged at this stage due to their similarity. This left a total of 14 themes for focus groups and 11 themes for interviews, which became the final list of codes. Appendix 7 shows the original list of codes for both the focus groups and the interviews, along with the final coding used for analysis showing how some original codes were merged.

Once the coding structure was established, a further read of the transcripts was undertaken and key relevant quotes were highlighted, and the relevant code was noted for each quote. While this was a laborious process, it enabled an in-depth review of the transcripts. This allowed the researcher to have a clear understanding of what was said, by whom, and under what circumstances, all of which was ultimately useful in the qualitative analysis and discussion of the interviews and focus groups.

Once all key quotes had been identified and highlighted throughout all transcripts, the quotes were collated for each code. To do this, two spreadsheets were set up, one for the focus group quotes and one for the interview quotes. On each spreadsheet, an individual worksheet was created for each code; therefore 14 worksheets for the focus groups, and 11 worksheets for the interviews. On each worksheet a table was created made up of four columns which provided all the relevant information required for the subsequent analysis:

- Who – the initials of the speaker;
- What – the quote, one per row;
- Where – on what page of the transcript the quote could be found; and
- Notes – thoughts on the quotes that may be relevant for the subsequent analysis.

Where several quotes were related to a specific topic, the relevant cells in the notes column were merged to create one box for that individual topic of discussion. Not all quotes had notes attached to them, but many did; some in the form of questions, some in the form of an overview of the discussion.

The rows for each individual interview and focus group were colour coded on each worksheet for ease of reference. For example, on one worksheet for the focus groups, the South Shropshire group were blue, the North Shropshire group were green, the Cheshire group were yellow, and the Worcestershire group were pink. This simply allowed for quicker identification or locating of key discussions.

Once the spreadsheets were complete, a further review was then undertaken to identify the most appropriate key quotes that would be used in the qualitative analysis and discussion

to best illustrate the relevant points raised, and to ensure that the varying viewpoints of the farmers were appropriately presented in the discussion.

6.10.2e Likert Attitudinal Statements

The preparation for the Likert attitudinal statements involved the identification of statements that both worked in a Likert scale format and addressed many of the themes that form part of this research.

For each attitudinal factor, a preference statement was used with Likert scale response options from Strongly Agree to Strongly Disagree, plus a 'No Opinion' option. This enabled an understanding of the stated preference of the participant (Ortúzar & Willumsen, 2011), and also allowed for an assessment of reliability using Cronbach's (1951) alpha coefficient to ensure that all questions asked addressed the issue of factors affecting attitudes.

Each farmer participant who took part in the one-to-one semi-structured interviews was asked to complete the attitudinal statements once the required consent form had been completed, but prior to the start of the interview. The aim, and how they should complete the tick boxes was explained to the participant. The researcher provided clarification on any of the statements that raised questions from the participants but was careful to ensure that no indication was given that might suggest a 'right' or 'wrong' answer. This ensured that researcher biases did not influence the responses in any way. The number of statements was chosen to ensure that this activity did not take any longer than five minutes to complete.

As with the interviews, the main driver for the statements on the Likert attitudinal scale were the factors that influence attitudes as described in Figure 6.7. For each factor identified, one statement was prepared in an appropriate format to ensure a suitable response could be provided on the Likert scale used. In addition to the attitudinal factors, some additional statements were included in an attempt to identify potential risk-taking behaviour, and also to establish whether the participants identified as a survivor or a victim (Dillenburg, 2007), or an enabler of crime.

These statements went through several iterations before arriving at the list as seen in Appendix 8. The first draft of these statements extended to three pages, with many attitudinal influences having two statements each. This was seen as too long, and may potentially have led to the participant simply ticking the boxes to complete the task as quickly as possible, rather than ticking the boxes that best reflected their feelings on each statement. Therefore, the list was reduced to one statement per influencing factor. With the additional risk taking and response to victimisation statements, this left 29 statements,

which enabled them to be produced on a single piece of double-sided A4 paper, with the statements taking up one and a half sides.

To avoid acquiescence bias, a total of ten of the final statements were then reworded into a negative connotation so that it reduced the likelihood of the participants simply ticking the most positive response as they may have to consider their answers a little more carefully.

Firstly, a descriptive analysis was undertaken which reviewed and analysed the responses. This allowed for an analysis of individual farmer responses to the statements, but also a between-participant analysis addressing the similarities and differences seen between the farmers.

The descriptive analysis of the results obtained from the Likert statements consisted of a Frequency Distribution analysis, and an analysis of Central Tendency. The Frequency Distribution analysis enabled the identification of any attitudinal responses that did not follow the overall positive attitude towards crime prevention that was noted by the statement responses in general. This analysis was undertaken by recording the total responses to each scale point for each statement in a spreadsheet, calculating the percentage response to each scale point for each statement, and creating a bar chart as a way to clearly illustrate the response rates for each statement. This enabled analysis and discussion of these responses in relation to the wider research literature, or indeed the possibility of other factors interacting with the identified influences on attitude. Several statements identified were later revisited in the analysis and discussion of the focus group and interview transcripts.

The second layer of the descriptive analysis allowed for the identification of statements where the participants' responses varied substantially from the modal response for the individual statement. To do this analysis, the modal response for each statement was initially identified using the Descriptive Statistics facility in SPSS. The data obtained from this analysis was then presented in a table showing the Likert responses for each statement from the individual participants, along with the mode for each statement.

Each response option on the Likert scale was coded to undertake this analysis. For those statements that were positively worded, Strongly Agree was given a scale point of 5, and Strongly Disagree was given a scale point of 1. For those negatively worded statements, the opposite was true. This coding was adopted, as the aim was to identify to what extent the farmer attitudes towards crime prevention are positive, and therefore open to innovative ideas. The higher the overall score, and the subsequent modal score for a participant, suggests a more positive attitude towards crime prevention.

Any individual response that differed from the mode by more than one scale point were highlighted and examined in more detail, in the context of FCP. For example, where the modal response to a statement was 4, any participant who responded with a 2 or a 1 would be highlighted for discussion.

This part of the analysis also drew upon the data obtained through the flip chart engagement exercises undertaken at each focus group to provide further insight into crime prevention use, understanding, and decision-making.

As part of the central tendency analysis, based on those responses that varied more than one scale point from the mode, an attempt was made to highlight these attitudes and beliefs for each participant as an indicator of how individual farmers can think differently about the same subject, thus highlighting the heterogeneity of farmers (Table 10.3).

An inferential analysis was then undertaken of the responses obtained. All statistical tests were carried out using SPSS, following guidance provided by Pallant (2013). Although that analysis was undertaken on a small cohort, this approach is justified as this kind of analysis has not been undertaken before, and so enables a new baseline to be obtained that will then underpin future longitudinal research. This analysis also enables a contextualisation of the additional data in case studies, and provides an analysis that is representative of the sentiment of farmers, rather than being representative of the wider population.

The data was coded on the same basis as described above so that each response had a number attached to it, i.e. Strongly Agree = 5, and so on. This was carried out in a spreadsheet, with each response provided by each participant being detailed. Once all responses were coded and entered into the spreadsheet, this data was then imported into SPSS for the analysis to take place.

The data was then categorised, and the individual coding variables identified so the analyses could be carried out. Once this had been completed, it was necessary to ensure that all statements that were negatively worded were treated appropriately in SPSS. As a result, the coding for these statements underwent a process of transforming the data into reverse coding in accordance with the guidance provided by Pallant (2013). This ensured that all results reported the same information based on the identification of these variables.

In addition to the importing of the Likert data, key demographic data for each participant was entered into SPSS. This data was obtained via the consent form which included a set of questions aimed at gathering information that reflected what was provided by farmers

taking part in the online survey. This included gender, age range, topography of the farm, and distances from the nearest town, main road, police station, and neighbouring farm. As with the analysis of the farmer survey data, these characteristics acted as the independent variables for the subsequent analyses that took place.

The first analysis to be carried out was a Cronbach's Alpha analysis to establish the reliability level of the statistical analyses that would follow. In this analysis, all items are being used as one single measure, rather than including sub-scales. The procedure for this analysis and the interpretation of the output was conducted following guidance from Laerd Statistics (2013) available online. Once reliability had been assessed via this method, the key statistical tests were employed for the main part of this analysis. The statistical tests chosen were based upon the data types being compared, and as with the farmer survey data, the tests were identified using the table in Pallant (2013: 123-124). In this case, normal distribution was not identified for the data gathered, and so non-parametric tests were employed; Mann Whitney U Test and Spearman's Rho were the tests identified as appropriate in this case. The outputs were printed and reviewed for each test undertaken, to identify those correlations and comparisons that had reached statistical significance which provided for the further discussion of these results in light of the wider research.

While the overwhelming part of this aspect of the research was qualitative in nature, the choice to undertake a Likert scale analysis was justified by its subsequent results and the input these had on the wider discussion. Moreover, this analysis facilitated the discussion of whether the characteristics that were identified in the farmer survey as potential predictors of victimisation may also impact on the attitudes and beliefs of farmers regarding crime prevention. This may have a key role in the future development of this research and shaping any future FCP choice architecture.

6.10.2f Content Analysis

Although a key part of this research, and informative within the case studies, little advance preparation was required for this section of the analysis, as it was a desk-based task, rather than interactive research.

Wordles (www.wordle.net) were used to provide a visual representation of the three sources of data: the online media reports, the focus groups, and the interviews. This allowed for a simple initial analysis to be undertaken to review the similarities and differences found in the way farm crime was talked about from each source.

To gather the media reports, Google RSS feeds were set up using an appropriate RSS feed reader. Two feeds were set up, one using the words “rural crime” and one using “farm crime”, both with the UK as the target location. These media reports were recorded for a period of three years from May 2014 to May 2017. Each report was downloaded as a pdf, and then converted to a Word document for the analysis to take place. At the end of the three-year period, all media reports obtained, a total of 274 reports, were merged into one Word document for analysis.

For the interviews and focus groups, once the conversations were transcribed, all transcripts were merged into one document for the focus groups and one document for the interviews. Initial data handling involved the removal of researcher comments and questions, along with all names and details that could have been used to identify a participant.

Each of the three Word documents were analysed through Wordle to obtain an initial word cloud to establish the parameters that would work for this research. Based on the size of some resulting words in the word clouds, it was decided to use the top 150 words from each data set for analysis. This could have been set at more or less, however 150 words seemed to provide enough useful information to illustrate the key topics within each discussion. This level was chosen to enable direct comparison between the media reports and the farmer discussions. This was driven by the inclusion of the most mentioned words on the farmer word clouds: ‘Think’ and ‘Know’. In order to have these words visible on the media reports word cloud, the standard number of words automatically assigned by Wordle – 100 most mentioned words – had to be increased to 150. Once the word level was established, each first version Wordle was then reviewed in detail for any common, extraneous words, such as ‘yes’, ‘the’, ‘but’, and ‘also’. These words were then removed from the Word documents accordingly using the find and replace facility. This allowed the top 150 words relating directly to the research to be illustrated in each of the word clouds.

The three master Word documents were then run through Wordle again to create the word clouds illustrating the key concepts presented in each dataset to enable the analysis. Once these final three word clouds had been generated, they were saved in an encrypted file on a password-protected computer as JPEG files for inclusion in the analysis.

Chapter 7: Qualitative Police Interviews

To fully evaluate the issue of farm crime, it was important to gain an understanding of the way the police are addressing rural and farm crime, and what approaches are being used to improve the situation for farmers. To assess these aspects, this analysis reviews the interviews carried out with the PCC and CPA drawn from four different forces considering four key questions:

1. Police Strategy and Rural Crime Definition
2. Policing Practice
3. Why are the Police Addressing Rural Crime?
4. How are the Police Measuring Effectiveness of their Strategies?

Exploring the content of these interviews enabled an understanding of police strategy and how this translates to the CPA position when providing appropriate crime prevention advice to farmers. Moreover, this analysis can provide a comparison between the police position in relation to tackling rural crime, and farm crime in particular, and how farmers feel about their position as victims of farm crime, and how they feel about the response they received from the police; something explored further in Chapter 10.

7.1 Police Strategy and Rural Crime Definition

The PCC and CPA of four forces were interviewed; Cheshire, West Mercia, Lincolnshire, and Thames Valley¹. From reviewing the data, each force had taken a different approach in developing a rural crime strategy and definition. While these varying approaches may reflect the different agricultural communities in each force area, it does not allow for a standardised measurement of effectiveness to be established to allow consistent tracking of the success or otherwise of policies aimed at tackling farm crime. It was noted that the only forces that possessed a strategic document were West Mercia:

“We’ve got to make rural crime a priority...so we introduced the rural crime strategy...to do with lots of engagement with communities...so you’ve got that visibility. A focus on crime prevention” West Mercia PCC

And Cheshire:

“Maybe strategy is too strong a term for it, but it’s certainly the approach we’ve adopted. And what that sets out is our approach to rural, heritage, and wildlife crime” Cheshire PCC

¹ The identification and selection of the four forces is discussed in detail in the Methodology.

Despite this, the definitions of rural crime the two forces have adopted vary greatly. West Mercia define rural crime in their strategy document as:

“Any crime or anti-social behaviour that takes place in a rural location or is identified as such by the victim”

However, this definition does face criticism from the West Mercia CPA:

“Rural crime as a definition is quite vague and quite open” West Mercia CPA

This seems to reflect the discussion in academia regarding the defining of rural crime, with a lack of a universally accepted definition among rural crime researchers being perpetuated by a lack of clarity on the definition of what is rural (Barclay, 2007; Carcach, 2000; Weisheit *et al.*, 2006). It may be that those who work on the ‘front line’ of policing, dealing with victims daily, would find a more specific definition and strategic guidance more useful in their day-to-day work. Furthermore, the West Mercia CPA felt that the overall strategy for the force could have provided more guidance on what farmers should expect from the police when, or before, they have become a victim of crime:

“The strategy is deliberately quite open...and yes it could be more specific. It could be more detailed in terms of its response to rural areas” West Mercia CPA

In contrast, Cheshire police defined rural crime in their strategy document as:

“Any Crime and Disorder that takes place in a non-urban location as defined by the rural definition (Output areas)”

However, when discussed with the Cheshire CPA, the definition of rural crime from the strategic leads had not been clearly conveyed:

*“Crime across the equine communities, farming communities, the more rural villages across Cheshire...I don’t think I’ve actually read a definitive description from our side”
Cheshire CPA*

Thames Valley Police have established a detailed strategic definition of rural crime, which can be seen in Figure 7.1:

“We do have a fairly detailed description of rural crime which you’ll find on our website...but it was a difficult one defining what exactly is rural crime” Thames Valley PCC



Figure 7.1: Thames Valley Rural Crime Definition Infographic

This infographic features on the force webpage addressing rural crime (www.thamesvalley.police.uk/advice/protecting-your-business/rural-crime), however it is there as a link, rather than being prominently featured on the webpage, and so requires an additional click to access the infographic. However, it is noted that the force does have a definition of rural crime, regardless of where it is located.

While this may be the strategic definition of rural crime for the force, it is interesting that the CPA and their team work with a slightly less structured definition, which may encompass incidents that may not fit the strategic definition:

“Definition we use is anything with the word farm in it, hare coursing, poaching” Thames Valley CPA

Despite the effort taken to define rural crime, Thames Valley have not established a rural crime strategy enabling farmers to understand how the force was going to tackle the issues. However, despite the absence of a strategy, at the time of interview (January 2016), the force CPA had recently submitted an Action Plan to senior officers, however it was not clear what was included in this Action Plan, and therefore whether it would achieve anything:

“We don’t have a strategy, but I have just last week submitted an action plan to an ACC-led partnership” Thames Valley CPA

Despite this course of action, however, the CPA felt it was unlikely a published rural crime strategy would improve force performance in this area:

*“I’ve got strategies from other forces; how far does that take a force? I don’t know. Are they more inclined to do something because they’ve got a strategy? I suspect not”
Thames Valley CPA*

While it is possible a rural crime strategy may have little added value at a strategic level, and indeed operationally, such a document may be a useful tool in increasing the confidence levels among the farming communities. This would enable farmers to be able to clearly see what their local force plan to do to address farm crime issues. Indeed, such a document may form a small part of the BS approach to addressing farmer crime prevention decision-making. Providing a rural crime strategy to the farmers setting out what the force intends to do, creates a commitment contract. BS researchers have shown that the existence of commitment contracts encourages people or organisations to follow through with beneficial behaviours or actions (Bryan *et al.*, 2010; Halpern *et al.*, 2012; Hepburn *et al.*, 2010).

Lincolnshire police did not have a rural crime strategic document and made clear that all crime was treated in the same way across the force area. It is likely other forces across E&W may approach rural crime in the same way, despite some forces attempting to define rural crime for operational purposes regardless of their vagueness. This may be driven by budgetary constraints. However, this approach seems to pay scant regard to the impact

that rural crime, and particularly farm crime, has on victims. In addition, it is questioned how crimes can be policed in the same way when there is an acknowledgement from the police that there are differences:

“Although rural areas have problems that are different to those of urban areas in general, they’re both policed in exactly the same thorough way” Lincolnshire PCC

This approach may be providing mixed messages, not only to farmers, but to operational police officers too. The strategists acknowledge the issues surrounding geographically isolated, and often socially disadvantaged, communities and increased response times. This seems to underline the simple fact that proactive, intelligence-led policing cannot be undertaken in the same way in rural areas as in urban areas due to their differences. Moreover, by the PCC stating that all crimes are the same regardless of where they take place, negates the impact of such crimes on farmer victims directly because of the fact that they are often isolated and therefore vulnerable:

“Burglary and other types of crime are the same whether they’re in an urban area or a remote rural area” Lincolnshire PCC

Furthermore, it is noted that there may be an impasse between those forces whose strategic definition treats all crimes that are committed in rural areas as rural crime:

“We took a pragmatic approach in that if a crime takes place in a rural area, it’s a rural crime” West Mercia PCC

“Why would you want to define a particular type of crime as rural crime? I think for me it’s the actual area, the geographic area not the crime itself that defines it” Cheshire PCC

and the need for a differentiation to be made between those crimes that are truly rural crimes, and those crimes that may occur anywhere for operational purposes:

“There does need to be a differentiation between crimes that are purely rural crimes and crimes such as speeding that span the rural and urban areas” Cheshire CPA

“Personally, I had a problem with that because I wasn’t prepared to think of domestic abuse or anti-social behaviour that goes on in rural areas as rural crime” Thames Valley CPA

Such a situation may suggest the need for input from those who are involved in policing rural crime directly to ensure strategic and operational alignment; a situation which can only be beneficial for increasing the confidence of farming communities these forces serve.

In summary, this section has shown that, of the four police forces interviewed, only two had strategies, but all four forces were approaching rural/farm crime differently. In addition, each force was defining rural/farm crime differently, even with differences within forces on definition. It may be possible that, if forces could work together to tackle rural/farm crime, a strategy document could be used as a commitment mechanism for farming communities to hold the police to account over. Currently, it is unlikely that this could be possible due to mixed messages coming from the police, illustrated by the comment from the Lincolnshire PCC stating that he recognises rural crimes are different, but that all crimes will be policed in the same way.

7.2 Policing Practice

Despite the differing approaches to a rural crime strategy and definitions, as discussed above, there does seem to have been a concerted effort on the part of both the PCCs and the CPAs across the four forces. However, it seems to be the case that, when asked what has been done to tackle farm crime, the PCCs tended to focus on the things that have been done at a more general level, and talked about events, networks, and operations, including joint patrols with police and farmers:

“The permanent marking of vehicles using CESAR...we’ve got the rural and wildlife officers...recruit the potentially thousands of people in this county who ride horses to become HorseWatch volunteers” Cheshire PCC

“We have a rural crime network...which is made up of the police, the NFU, and members of the rural community” Lincolnshire PCC

“We have joint patrols being done now which were never done in the past. And in the past, people used to just get a crime number for their rural crime. Now the police will attend and will take it seriously” Thames Valley PCC

“Each operational policing area will be getting a public contact centre...liveried up with Rural Matters...we want it out in the community on a daily basis and get out to those hard to reach places” West Mercia PCC

Whereas the CPAs across the four forces all talked about what they are doing on a more personal level with individual farmers, things that are of immediate benefit:

“Key points are being accessible and being visible, appreciating their needs and the fact that the impact of crime is often greater for them, and giving them the appropriate support and reassurance” Cheshire CPA

“Contact victims of crime...when they need some more specific advice about crime reduction and prevention...concerning the problems they’ve had with rural crime, and the fact that they are often very vulnerable due to their isolated locations” Lincolnshire CPA

“Developed a farm security assessment...they could print it off and have a walk round themselves. I had a prompt to what have you got, what haven’t you got, and some suggestions how they might want to resolve issues they identify” Thames Valley CPA

“I think it’s the engagement with the rural communities that’s key because it could be argued that for a while we lost that engagement” West Mercia CPA

Although such a difference is expected between the strategists and the CPAs, it is interesting that, despite their inevitable involvement in many things talked about by the PCCs, not one of the CPAs mentioned any of them. It is hypothesised that this is indicative of problems arising from policies and strategies that are solely top-down approaches to issues. Such policies and strategies are more likely to be based on what the strategists and policymakers think is best for the target population, and less likely to come from a consultative process to understand what the target population want and need in a bottom-up approach (Matland, 1995).

One thing that was interesting to note, was that only one CPA out of the eight interviewees mentioned cybercrime, despite this being a growing issue for farmers, as discussed further in Chapter 10:

“Cybercrime is very relevant, and again we are aware of farms being targeted...this is a massive area we need to get involved in, but we’re playing catch up” West Mercia CPA

In summary, this section clearly shows the difference in approaches that are seen within forces. PCCs are talking about high level generalised actions such as vehicle marking and joint patrols, whereas the CPAs are focussing on personal practice, being accessible, visible, and contactable to provide specific advice. This is perhaps indicative of the approach to FCP policy that might be used in contrast to that which is being used.

7.3 Why are the Police Addressing Rural Crime?

When discussing the reasons for addressing rural crime, each force identified a number of key factors, which will be explored under six key themes. It is contended that all of these themes discussed, can be incorporated into the reason given particularly succinctly by the West Mercia CPA:

“Whilst our main populations may not be in rural communities, the rural communities in the counties that we’re talking about are strategically important, financially important, and cover the majority of our policing areas. If we ignore those areas, then we could be in the situation where we create backlashes, we create areas where criminals can act with impunity, they know they’re not going to get challenged, and that has an overall dramatic effect in all those areas” West Mercia CPA

7.3.1 Understanding the Effect on Farmers

For CPAs it was particularly important that the police have a much better understanding of how crime impacts upon farmers, and their frustrations in relation to the police response to rural crime:

*“More understanding of how it does affect the rural communities, and just because they perhaps don’t have the same volume of problems, its showing that it is still a problem”
Cheshire CPA*

Feedback such as this may call into question the assertion that some PCCs have that all crimes regardless of where they occur, are being dealt with in the same way, and there is a distinct lack of visible, proactive policing in these areas.

Indicative of the fact that CPAs are often meeting with farmers as part of their job, there was an understanding for the need to have some knowledge of the agricultural calendar, and allowances to be made accordingly:

“Awareness of the agricultural year is particularly relevant, so we don’t turn up on the farm expecting the farmer to be on ‘bright form’ [sic] because they may have been in the middle of lambing” West Mercia CPA

Interestingly, the Thames Valley CPA recognised the need for a much wider understanding of rural crime within the force, not just for those who are going out to rural communities, but for those who are receiving calls from farmers about incidents. As such, training in rural

crime issues was provided to call handlers to enable an understanding of the problems faced by farmers:

"I did some specific training...to our police enquiry centre and control room operators...we wanted to raise their awareness because it was quite clear that the rural communities were not getting a service because our staff didn't understand what it was all about"

Thames Valley CPA

It is possible that something as simple as this will have long-term benefits if done regularly. It will encourage farmers who have been a victim of crime to report the incidents as the whole process of reporting them will be much easier and instil a feeling of confidence in the farmer that the person on the telephone understands the information being provided and will act on it accordingly.

One interesting point of discussion with the Lincolnshire PCC that took place, was the recognition of the influence not only the time of year, but also the weather can have on incidences of farm crime:

"Levels of rural crime change depending on the season, they change depending on the weather, which I don't think there are many crime types that change depending on the weather" Lincolnshire PCC

This knowledge reflects the academic research (Cohn, 1990; Field, 1992; Horrocks & Menclova, 2011), but it is not clear whether this is something responding officers and CPAs are aware of, as this was not mentioned at any other point with the other interviewees. However, this may be because of the questions asked, rather than a lack of knowledge.

In summary, it can be seen that many actions that may be beneficial to farmers are being driven by the CPAs. They recognise the need to understand the impact of crime on farmers, and the influence of the farming calendar on farmer availability but also victimisation. While call handler training was seen as beneficial, this was mainly promoted and carried out by the CPAs to address the long-term benefits that would arise from farmers feeling reassured that the call handler understands the information being provided.

7.3.2 The Need for Better Liaison

It was clear from the discussions, that all the interviewees hold farmers in high regard, as illustrated by something said by the Lincolnshire PCC:

"I have nothing but admiration for them, and I've told them this" Lincolnshire PCC

However, if this admiration is seen in many, if not all PCCs who have farming communities within their remit, it is not clear to what extent the force approach to tackling rural crime has been driven by the real needs of those whom it is meant to help the most. This returns the conversation back to the success, or otherwise, of the top-down approach to tackling rural crime.

What was noted by more than one PCC, is the need to address rural crime to improve the engagement between the police and farmers:

"We've got these half a dozen or so officers with these specialist skills to go and talk to farmers to ensure the links are there" Cheshire PCC

"It's engaging with the communities, and the police have got to engender the confidence of the communities. They'd be foolish to walk away from it now" West Mercia PCC

As these interviews were carried out over three years into the then PCCs' tenure, it is difficult to discern whether this train of thought reflects the approach taken at the beginning of their tenure regarding the best way forward in tackling rural crime. However, the real need on the part of the CPAs to continue and improve this liaison between police and farmers was clear. Without these two-way interactions, it will continue to prove difficult to obtain the information from farmers that can create the intelligence required to support the need for ongoing, and improved, rural policing:

"It's people not having that acceptance that they have lost small tools but it's alright because it's several years old, and I might have mislaid it. But once we find that information out, we know there has been problems at other farms and other places losing a few small things and putting it down to that. And then you can start identifying that actually there is a bit of a problem" Cheshire CPA

In summary, it can be seen from the comments in this section that, despite PCCs holding farmers in high regard, the response to rural/farm crime seems to not be meeting the needs of farmers. However, it is reassuring that PCCs as well as CPAs recognise the need to improve police engagement with farmers.

7.3.3 Providing Individualised Crime Prevention Advice

“It would be good to think we could stamp out rural crime, but that’s never going to happen unfortunately” Lincolnshire PCC

The Lincolnshire PCC’s pragmatic approach reflects that, as with any crime, there is little hope of eradicating rural crime entirely from E&W. As a result, it is important that the opportunity for crime is reduced wherever possible, as discussed by the Cheshire PCC:

“The criminal mind is looking for easy pickings...we need to target harden our rural communities” Cheshire PCC

To do this, it is important for farmers to recognise that if things are left lying around, they are likely to be targeted:

“If there’s anything lying about, it will get taken” West Mercia PCC

Moreover, by keeping a tidy farmyard, they would be less likely to be considered a potential target, in line with the research surrounding BWT (Wilson & Kelling, 1982), Defensible Space (Newman, 1972), and RCT (Cornish & Clarke, 1986):

“Need to ensure that farmers in particular know what they’re doing...you’ll find stuff just left around...encourage them to actually think about what they’re doing to get them to think about where they’re leaving their gear, to be more sensible about it” Cheshire PCC

To establish the most appropriate crime prevention methods for farms, CPAs recognise the balance needed between providing advice to as many people as possible, and the time constraints placed on them. As such, CPAs seem to be approaching FCP by providing general advice over the telephone, but arranging a farm visit to provide the specific, individualised crime prevention advice needed:

“How we give the best advice to the most amount of people” Lincolnshire CPA

“Whilst you can give general advice over the phone, it’s hard to give specific advice for a farm without going to visit” Lincolnshire CPA

In many cases, providing farmers with ideas for things they can easily and cheaply do to protect their property, and to make their farm a less appealing target was key:

“Looking out for quick wins on the farm that farmers can do that isn’t going to cost them anything” West Mercia CPA

“The ‘Unappeal’ method. So we talk to farmers to make sure that any individuals who are coming onto their property know from the earliest opportunity that they’re potentially entering an area that may be alarmed, it may have CCTV” West Mercia CPA

It is interesting to note that aspects of CPTED (Jacobs, 1961; Jeffery, 1971) and Defensible Space (Newman, 1972) are being used within the rural arena, although it is hypothesised that these crime prevention concepts could be used on a much greater scale:

“Talking to Joe Smith about his perimeter security, that CCTV necessarily isn’t the answer for where he is, but perhaps changing the build of one of his barns or adding a door to a barn that’s always been open will make a difference” Cheshire CPA

What was clear from the discussions with the CPAs, is that their experience of working with farmers is what guides the advice they are providing. It is suggested that such experience should be disseminated widely throughout the force. By doing so, it is possible that farmers may place more trust in the advice they are being given, thus increasing levels of confidence in the police, and as a result, making the uptake of appropriate, effective FCP individualised for heterogeneous farms more likely in the future:

“It’s not one size fits all” Lincolnshire CPA

“There’s no point telling farmers to lock all their gates...they’re coming through them all the time. So there has to be that point where the advice given to a rural business is going to be subtly different to that given to an urban one” West Mercia CPA

To summarise, it is noted that while PCCs identify the need to target harden farms and to ensure farms are kept tidy to reduce their chance of victimisation, CPAs also recognise the need to provide specific advice in person, but they are constrained by time pressures. Being on the front line of crime prevention, CPAs experience with farmers and their needs is invaluable, and should be the driving force in changing the way the police address farm crime in a bid to increase confidence levels.

7.3.4 Improve Partnership Working

One aspect highlighted during discussions, particularly with the PCCs, was the fact that in some areas there has been a historically low level of partnership working to tackle certain issues. The PCCs discussed the need to develop partnership working to address farm crime in a new way:

“I think it should be a partnership approach, and everyone should become responsible for delivering whatever is needed around crime prevention” West Mercia PCC

“People are working in silos. They’re all doing their own thing in silos. So let’s join it up and we can share our knowledge, share our information, share resources so we can start being more effective in how we engage with the local communities” West Mercia PCC

This illustrates the recognition that, in some forces, different departments tend not to be aware of what each other are doing. As a result, there was a clear need for internal partnership working within police forces, as well as extending the partnerships already established with a variety of rural stakeholders, such as those involved in the National Rural Crime Network (NRCN):

“We’ve launched the National Rural Crime Network, I was a founding member of that...raise the profile nationally of rural crime” Lincolnshire PCC

It is suggested that by extending, and shoring up, existing partnerships, the fight against farm crime can be fought on a united front, with improvements to the current approach being quickly identified and disseminated among the partners, thus making the response more agile and proactive:

“I know that the police, and insurers, and the farmers work together. And I’m equally sure that manufacturers of these expensive pieces of machinery can do with regards to security...I was talking to a retired farmer who said that thirty years ago there was better security on tractors than there is now” Lincolnshire PCC

In summary, this section indicates a lack of partnership working in the past, but it is reassuring that the need is seen in this approach to tackling farm crime. However, this type of partnership approach to working needs to start within forces to ensure a reduction in silo working and to ensure that there is a joined up approach to addressing the concerns of farmers in the future.

7.3.5. Addressing Farmer Crime Prevention Behaviour

Despite the PCCs and CPAs that were interviewed acknowledging they had a role to play in tackling farm crime, some PCCs made it clear the responsibility for protecting the farm comes down to the farmer:

*“Farmers have a huge responsibility to make it more difficult to have things taken off them”
Thames Valley PCC*

“It’s all about harnessing the strength of the rural communities to really mobilise themselves to look after themselves as well, because the police clearly can’t be there 24 hours a day” Cheshire PCC

While these statements may seem counterintuitive, this section clearly shows why the police can only do so much to help protect farms.

In many cases, farmers tend to be stuck in their ways, afflicted by status quo bias (Kahneman *et al.*, 1991). This means that farmers tend to do things the way they have always been done, and as such, getting them to change their way of doing things may prove problematic:

“They become quite resentful because they say they’ve done this for 30 years and they’ve never been a target in the past” Cheshire CPA

Such feelings towards change may influence the type of advice given to farmers, thus limiting the variety of options available to them, and therefore influencing the FCP choice architecture:

“A lot of the advice is back to basics stuff because a lot of the farming community aren’t big users of technology, they’ve done things because it’s the way they’ve always been done” Cheshire CPA

The effect experienced once the farmer realises change is needed and how they need to go about acting on that change, could be immense, and not only in relation to the potential impact on the business, but also the psychological impact:

“It affects their livelihood and their way of life. Farmers for example generally have worked the same way for a number of years and don’t want to change...and it can affect them

when they slowly start to think okay, even if I'm going milking I've got to lock the barn, I've got to make sure I've locked the house" Cheshire CPA

Any advice given to the farmer may or may not be acted upon, dependent upon the way farmers feel about change. This frustration is captured by something that the Lincolnshire CPA said:

"We only go and give advice. It's up to the farmer if he then acts upon that advice or whether he wants to leave things as they are" Lincolnshire CPA

This, coupled with another comment from the same CPA, tends to suggest, possibly from experience, that farmers can underestimate their risk of victimisation, and so seem to be hyperbolic discounters when it comes to adopting crime prevention:

"It's never happened, so it's never going to happen" Lincolnshire CPA

While it is not unheard of for farmers to be completely proactive about crime prevention, and request a visit from a CPA before they have been victimised:

"It's always nice when I get invited to go before they've actually had incidents rather than after the horse has bolted...that makes me smile" Lincolnshire CPA

it is more likely that the CPA visits a farm after they have already been a victim:

"People are more bought in to crime prevention activity when they've been a victim of crime" Thames Valley CPA

In summary, it is suggested that farmers should be looking after themselves. This seems reasonable, however they need expert guidance to be able to do this as they seem very much affected by status quo bias – this is how it has always been done – and so need help to make the right changes. The advice given needs to be appropriate and effective for their farm, otherwise farmers will be unlikely to act on it. By improving liaison between the police and farmers, it is possible more farmers will eventually take a proactive approach to FCP and get advice before they have been targeted. However, it may take a lot of time and effort on the part of the police to establish the confidence and trust among the farmers to make that a reality.

7.3.6. Better Understanding of Rural Criminals

The PCCs of Lincolnshire and Thames Valley both talked about the idea of the rural criminal. While it is probably agreed across the board that criminals who commit crimes in rural areas are sometimes travelling to the target areas from beyond police force, county, or national borders, thus requiring a policing response to match:

“Criminals know no boundaries” Lincolnshire PCC

understanding who these people are, and what they do, does not seem to be as clear cut:

“The people that do much of the rural crime are often the same people that are doing the crime in our towns and cities...Very often a lot of our major crimes in towns is done by people who live in the countryside...A lot of the more serious ones come from outside our area” Thames Valley PCC

Despite this, there does seem to be the recognition that rural criminals are often involved in other criminal activities, both organised and professional criminals, but also very often the opportunist criminal is likely to have other criminal proclivities beyond the rural:

“A lot of people who commit rural crime, there’s a lot of intimidation involved, the same people are very often involved in slavery, people trafficking, and all those sorts of offences” Thames Valley PCC

In summary, PCCs recognise that criminals often travel to crimes, and take part in other criminal activities. However the knowledge of who these people actually are seems to be limited. Moreover, these six themes clearly indicate the need for the police to tackle rural/farm crime within their force area, and beyond. It is arguable that no one theme is of a higher priority than another, and that only by addressing all six will the police, both the strategists and the operational officers and advisors, be able to fully understand farm crime, and its impact on farmers. Moreover, until a clear understanding is established, it is hard to see how well the police are addressing farm crime.

7.4 How are the Police Measuring Effectiveness of their Strategies?

The police forces seem to quantify the effectiveness, or otherwise, of their strategies to tackle rural crime based on the approaches they have taken. From the discussions had with the four forces, the notable points have been organised under four key themes, which

address training opportunities, the police response, the recording of rural crime, and improving confidence and reporting among farmers.

7.4.1. Training Opportunities

There seems to be a general agreement among the CPAs from the forces that specific training relating to attending farms and identifying key equipment and livestock would be beneficial in their day-to-day working:

“Additional training is always of benefit...I’d be foolish to say we don’t need it” West Mercia CPA

However, a shortage of available funding may be preventing some of these advisors from undertaking such training, and indeed learning their trade as they go along:

“Can’t afford to send some to all these. And it’s really annoying because you think that’d be really interesting, but they want 350 quid a pop off you” Thames Valley CPA

“Obviously we’re provided with all the relevant kit for us to go out, but only the general crime prevention training is the way we’ve gone” Lincolnshire CPA

“There’s always new things to learn...a lot of that is self-led learning. From my point of view, going out on the farm...has been better than any training” Cheshire CPA

In contrast, PCCs seemed to feel that specific training may not be a necessary value-added activity, or an effective use of scant resources:

“It probably is...if there is specific stuff for rural crime. But I have to say that a great deal of it is normal policing, it shouldn’t be exceptional” Thames Valley PCC

“All officers have a training programme...there’ll be a whole section around a whole range of crime prevention initiatives, but in relation to this particular role, I don’t know to be honest” West Mercia PCC

In summary, it is noted that while CPAs recognise the benefit of on-farm training, their budget does not allow for this, and the PCCs do not seem to consider this activity to be beneficial in the long-term. However, it is questionable whether someone without specialist knowledge, not just of crime prevention, but of working farms, should be visiting such sites, given the potential health and safety issues that may be evident on a farmyard. In addition,

if specific training on vehicle identification, livestock marking and handling, or farming tools had not been undertaken, one must question how a CPA can adequately advise on the best crime prevention options for that property.

7.4.2. Police Response to Rural Crime

As with many operations in an age of austerity, police budgets have faced reductions, and some may argue unfair funding for rural police forces (Asthana & Gibson, 2016). The issue of police budgets, and how this affects their response to farm crime, is highlighted by the PCCs of West Mercia and Lincolnshire, and illustrated by Figure 7.2:

“We’ve got reducing budgets, we’ve got increasing demand, this is something I sometimes think the government don’t quite get” West Mercia PCC

“I just wish the government would give us fairer funding so we could be even more efficient and effective” Lincolnshire PCC

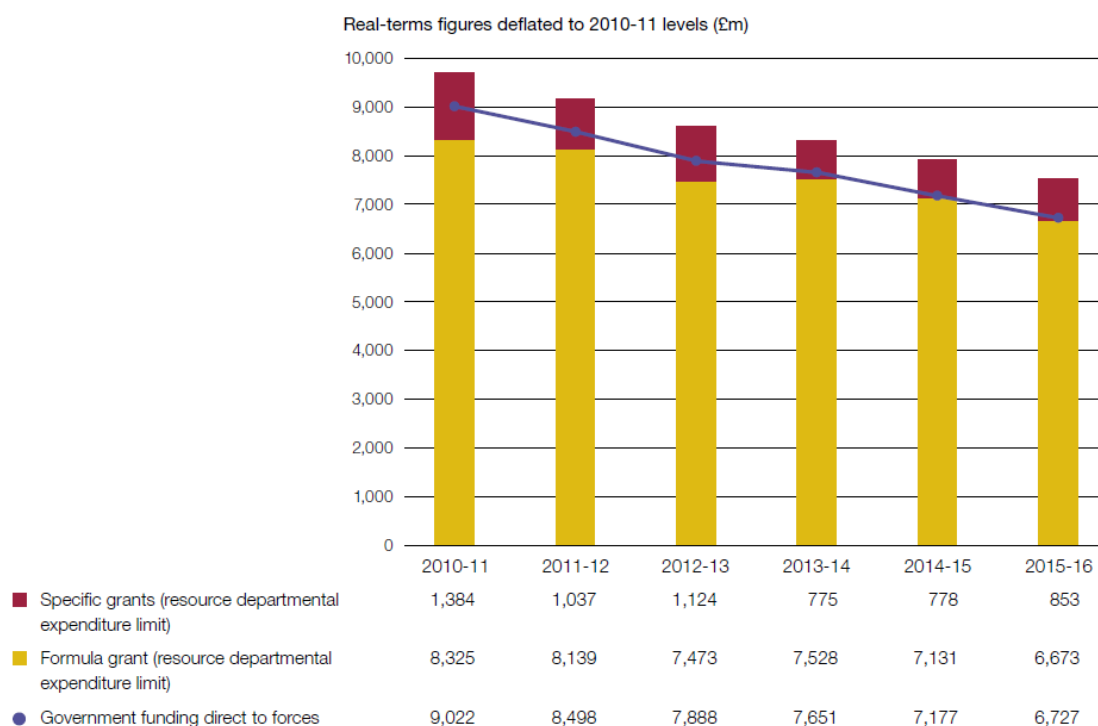


Figure 7.2: Reductions in police budgets, financial years 2010/11-2015/16 (Source: National Audit Office, 2015)

Perhaps as a direct result of this, PCCs are having to become more creative in their approach to tackling farm crime. The PCC of Cheshire highlighted two such approaches using volunteers: rural specials and HorseWatch volunteers. However, when one considers

the average age of farmers in E&W is 59 (Defra, 2017), it is not conducive to this approach being taken up by those directly affected by farm crime in particular:

“Encouraging them to join the Special Constabulary...not to replace regular police officers, but to compliment them” Cheshire PCC

“Now getting intelligence fed back from them (HorseWatch), and we’ve now got around 800 volunteers across the county which I am very pleased about” Cheshire PCC

An alternative approach adopted in West Mercia was that of FarmWatch schemes, however it was noted two-way communication is key to ensure longevity of these schemes:

“Get strong Watch schemes in place because that’s where you get people linking together...get good communications on...what’s being stolen, who’s being arrested. I mean the police aren’t very good at that. They get a lot of success, but they don’t communicate it back to the people, so the people think the police are doing nothing, but they are” West Mercia PCC

While the use of volunteers may well be an expedient solution to the issue of reduced police budgets coupled with a commitment to tackle rural crime, one has to wonder whether volunteering is the best approach within the rural environment. It is suggested that, while the use of specials and Watch schemes such as Neighbourhood Watch within an urban environment may be successful, the deployment of similar approaches within a rural environment may face very different reactions from communities as many rural police understand the unique nature of rural areas (Barclay, 2016; Donnermeyer & Barclay, 2005). It is possible that, if this is the case, those who volunteer may be seen as informers and create an air of distrust among other rural residents, even where there is nothing to hide. This may further develop into a distrust of the police in general, as it may be considered a get-out clause on their commitment to improve rural policing.

In addition, Watch schemes are only as good as their coordinator. It is unlikely a farmer would take on this role due to the workload involved in running the farm. A coordinator needs to be a prominent member of the community, or it needs police coordination. It is possible that, because of inevitable staff turnover, such coordination by the police would lack consistency. Furthermore, it is imperative to strike the right balance of notifications for all involved in the Watch scheme. Without consistent coordination, and with either too many or too few notifications, a Watch scheme is unlikely to enjoy longevity and proactive participation as reported by Barclay (2015) and Jones (2008).

In relation to the strategic operations approach, the interviewees made several comments on what they believe is working within their force area. The Cheshire PCC highlighted an issue stemming from the force approach to the definition of rural crime:

“It would be quite a useful ploy for the government or others to actually determine across the country what we mean by rural. That would be a real help instead of all of us doing our own thing” Cheshire PCC

Defra do provide a Rural Urban Classification (Bibby & Brindley, 2013), and according to the rural crime strategies of Cheshire and West Mercia it is this, or the previous classification of 2004, that has defined what is meant by rural. However, it is not clear how useful this is for operational policing, as some rural communities may not be classified as rural due to their proximity to a large population centre.

Furthermore, it was noted by the CPA of West Mercia, that as a result of historic government policies, many rural communities were not policed in the way they should have been policed:

“Crime in rural areas would have been policed on a second-rate basis, and that was to do with Home Office targets and guidelines. These have changed, particularly with the advent of the PCC’s office” West Mercia CPA

While it is possible that these former policies may have led to the low levels of confidence that rural communities have towards the police, it is incumbent upon the police to take action to reverse these historic detrimental policing approaches.

To address these historic issues, the forces have identified a variety of operational strategies that seem to be proving successful in tackling rural crime:

“I think a lot of it is leadership at Local Police Area level” Thames Valley PCC

“We found that targeted policing can be hugely effective...Operation Galileo aimed at dissuading and prosecuting harecourers” Lincolnshire PCC

“Go out on patrol with members of the rural communities so hopefully you learn a little bit about their area, they learn a little bit about our life” Thames Valley CPA

These approaches, it is surmised, are showing signs of success as they are getting farmers involved and the police are making decisions about how to tackle crime at a local level rather than a force-wide level. Even with the large-scale operations, local policing teams

are working with farmers to make the operation work, while still recognising there is still a lot to do. Such an approach should instil confidence in the farmers that the police are serious about tackling farm crime, but the police need to recognise it is a long-term approach that is needed, not just a one-off, week-long operation. While police forces report reduced crime levels, there remains an overreliance on insurance claims data, rather than crime figures:

“You can see it in the National Farmers Union Insurance claims they have gone down in Thames Valley where in most of the rest of the country they have gone up” Thames Valley PCC

As the previous quote illustrates, it seems that some forces use these insurance claims as a measurement of the effectiveness of their strategic response to farm crime. However, this may be problematic due to the various extraneous variables that may influence these data, including the non-reporting of losses to insurers, and the fact that NFU Mutual do not insure every farmer or rural resident across E&W. An unexpected side effect of the increased response to rural crime was highlighted by the Cheshire CPA:

“A lot of people I’ve seen say they have got to talk to too many people...you lot are just bombarding me...I’m a very busy person and I’ve seen lots of you, and whether we need to be more considerate as an organisation and provide more of a one-stop-shop I’m not sure” Cheshire CPA

While farmers may be generally in support of the increased targeting of farm crime, one must wonder if there is a balance to be struck here, as the CPA suggests. It is possible that, due to the historic low-level response on the part of the police, farmers are not aware of the number of people that will attend, and maybe this requires some adjustment. Alternatively, a new non-reporting problem among farmers may be created if the police do not handle any improvement in responding to farm crime adequately. As noted in the above quote, farmers tend to work long hours, and often away from the farm, and they do not have the time to talk to several people about the same thing. It may be that the worry of having to go through this laborious, time-consuming process could override any newly-found confidence in the police that would lead them to report the crime at all.

In summary, the police are facing ongoing cuts in budgets, and so are increasingly turning to volunteers to help, however one would question how likely it would be for farmers to take part given their work schedules and an ageing farming population. FarmWatch schemes continue to be established by the police despite the recognition of the need for a good coordinator, which the police cannot always provide. Furthermore, there continues to be a

lack of effective benchmarking to show how well the police are really doing vis-à-vis tackling farm crime.

7.4.3. The Recording of Rural Crime

By recording rural crime specifically as rural crime, forces would be able to accurately report back to their constituents on progress being made to tackle the issues. However, among the four forces interviewed, very different approaches to the recording practices for rural crime were highlighted.

Two forces were making efforts to record rural crime as rural crime as the PCCs recognised the need to have accurate crime data so they were able to measure the force performance:

“I wanted to measure it so that I could go to the rural communities and say look, I’ve listened to you...and now as a result of it we’re achieving things” Cheshire PCC

“We have a marker on our crime recording systems in relation to rural crime...our performance department are now producing monthly figures for us” West Mercia PCC

One force PCC saw little benefit in recording rural crime, rather relying on the description of the crime to establish whether or not it is a rural crime:

“We don’t have a separate column that says rural crime...but it’s pretty obvious from the description of the crime...that it is a rural crime” Lincolnshire PCC

However, such an approach may lend itself to subjective biases, particularly in the absence of a definition of rural crime, thus providing inconsistent data against which to measure effectiveness. The fourth force provided a mixed response regarding the recording of rural crime. While the PCC felt it was impractical to record rural crime as such, and rather advocated the same response to all crimes, and relied on other data to measure success:

“We don’t really...where do you draw the line?” Thames Valley PCC

the CPA of the same force provided a detailed overview of how rural crimes are recorded using both the current crime recording system, and the previous crime recording system for comparison:

“We used to have a crime recording database...we were able to create a definition for research purposes and measuring purposes...we changed to a different system...we can’t

apply our previously used definition...it's been quite difficult for us to measure rural crime since...a box you can tick where it's a rural crime...I don't think ticking the box is a mandatory field...to try and get people to tick the box is quite hard" Thames Valley CPA

While the ticking of the box provides its own challenges, this clearly shows an attempt to accurately record rural crime, and as such potentially provide a benchmark against which to measure effectiveness. However, the simple fact that the PCC believes that rural crime is not recorded as such raises numerous questions as to how effectiveness, or otherwise, is being measured. The reliance on insurance claims may provide erroneous confidence that rural crime is reducing, when as has already been noted, not all crimes are the subject of insurance claims. One should question what happens to the data that is being gathered by call handlers, as it does not seem to be playing a part in strategic decisions. It is possible that the measurement of rural crime would be more useful if the data was being used to measure effectiveness, and therefore making the ticking of the rural crime box a mandatory field for call handlers or responding officers.

In summary, it is perhaps the case that the differing recording procedures for rural/farm crime means that there is no way to carry out a cross-force comparison, making the true levels of rural/farm crime difficult at this time. This is illustrated by the approach of Lincolnshire relying on a description of the crime to decide if it is rural/farm crime. Not only is such an approach too subjective to be rationally analysed, if call handlers are not adequately trained, they may miss key information that would identify the report as rural/farm crime. However, it is noted that the recording of rural/farm crime does need to be more than just a tick-box exercise for the sake of it, and that this data should be collected for mandatory analysis.

7.4.4. Improvement in Confidence Levels

The improvement of confidence levels towards the police among farmers is perhaps the most important measure of success for police rural crime strategies. Without improved confidence levels, reporting of crime, buy-in of farmers, and the providing of valuable information is unlikely to increase.

From the discussions, it seems the starting point has to be increasing the visibility of the police among rural areas. While research shows that an increased police presence does not necessarily deter crime (Kleck & Barnes, 2010), it seems to be more about reassurance for the farmers:

"It's an operational decision really how to distribute people...but I think the police are absolutely delighted we made rural crime an issue as I think it's running at 3 or 4 times the value of household burglary and it wasn't being taken seriously" Thames Valley PCC

"Some of them say oh this is great, we know you're in the area now and we feel reassured, we feel like there is a presence" Cheshire CPA

By increasing visibility, and talking to the farmers, the police can then make farmers aware of what the police are doing to address farm crime, and potentially encourage the farmers to work with the police:

"It's about developing initiatives and ensuring that the farming community, particularly the rural communities, are aware of what we're doing" Cheshire PCC

"Everybody works together and tries to prevent it, but it is raising people's awareness, not raising the fear of crime" Lincolnshire CPA

It is surmised that, by increasing the visibility of the police, and raising awareness of what they are doing, steps can be taken by the police to ensure farmers know that what they have to say is important and they will be listened to:

"One of the biggest pluses was that they felt they were being listened to at last, and we were actually interested" Thames Valley CPA

and importantly, ensure farmers get feedback on what is happening, or any information they have provided:

"Ensuring that when people do report a crime, they are having information fed back to them and there's some coordination" Cheshire CPA

By taking these simple steps, the police can improve the communication between themselves and farmers, and enable their buy-in to the strategic response:

"It's vital that we have the buy-in of the farming community" Lincolnshire PCC

"I'm not aware of any kick back from any community...And the people are just very happy to see the police and others taking an interest" West Mercia PCC

It is possible that, once this initial visibility and awareness exercise has taken place, farmers will be more likely to cooperate with the police. By laying the foundations of confidence and trust, this may help dispel the negative feelings that persist among farmers, and enable improved measurements of effectiveness:

“You get people saying we don’t bother reporting crime, waste of time the police, or the police aren’t interested, which causes you a little bit of concern” West Mercia PCC

“You can’t prove a negative. We don’t know what we don’t know...There’s always an accusation that people don’t report a crime, but I don’t know, nobody knows” Lincolnshire PCC

Working closely with farmers will engender increased confidence towards the police, enabling farmers to feel their time and information is valued, and that something will be done:

“Encouraging farmers to have the confidence to come forward and know it will be dealt with” Cheshire PCC

“It’s possibly a crime that’s under-reported because they don’t feel that anything can be done...they don’t bother to report...they are given the right response our end so that they feel valued and that information is then used in the right way” Lincolnshire CPA

“Public confidence in the police among rural communities has gone up enormously” Thames Valley PCC

It should also be important to continue the engagement with farmers after they have reported something to the police, and wherever possible, arranging a personal visit to the farm to follow up, feedback, and provide any guidance or assistance where required:

“Through engagement, building confidence in policing within communities” West Mercia PCC

“I don’t think I’ve had more visits requested as a result of crime, I’ve had more visits because the awareness of people has raised of rural crime” Cheshire CPA

By engaging in this way, and ensuring farmers understand the police are aware of how big an issue crime on farms is, police forces may be able to regain the trust of farmers, and as such, increase the likelihood of a farmer reporting a crime to the police:

“It’s a big issue for the people of West Mercia, and we’ve got to win their confidence” West Mercia PCC

“Through our extra communications we have built the trust and people feel it is worth reporting it” Thames Valley CPA

It is arguable that the test for these police forces, and others across E&W, will be in re-establishing this confidence and trust with farmers in the years to come. Some operations do seem to have had a noticeable impact on crime rates, however it is not clear how many of the rural businesses were farms, and to what extent this approach has changed farmer attitudes towards the police and FCP:

“Stop That Thief...been into 250 rural businesses and none have been re-victimised” West Mercia CPA

and at least one PCC hopes the legacy of what is being done now impacts upon future farmers:

“I would hope in years to come that everything we’re doing at the moment is going to have a significant impact in years to come” West Mercia PCC

In summary, by improving confidence levels of the farming community, the police would be able to create a more effective method of benchmarking their response to rural/farm crime. It is suggested that this be done by improving the visibility of the police. Farmers like to see the police in the area, even if it doesn’t deter crime. In addition, timely feedback on their reports will allow farmers to feel that they and their information is valued, making steps towards re-establishing trust in the police.

7.5 Summary

This evaluation has highlighted the inconsistencies in the approaches used, both between forces but also within forces. It has also illustrated that there are little or no clear measurements of the effectiveness of the strategies being adopted by these individual forces, and a lack of a clear understanding of the real impact of farm crime. This analysis will enable a critical evaluation of the disconnect between what the police are doing to tackle farm crime, and the thoughts and feelings of farming communities towards FCP and decision-making, the police, and insurers by way of a quantitative survey discussed in Chapters 8 and 9, and the extensive qualitative case studies with farmers in Chapter 10.

Chapter 8: Farmer Survey Results, Analysis, and Discussion

Table 8.1 presents descriptive statistics for the participants of the survey in comparison to the agricultural sector in the United Kingdom. These indicate that, with a few exceptions, the survey sample is generally representative of the wider farming community in the UK. It is worth noting that while the age ranges of the survey sample show a different distribution than the wider population, it remains representative of the fact that the farming community in the UK is aging.

Table 8.1: Selected Participant Characteristics Compared to UK-Wide Farming Population (Source of UK Figures: Defra, 2017)

Characteristics	United Kingdom (%)	Survey Participants (%)
Gender		
Male	87.7	73.8
Female	12.3	26.2
Age Range (UK/Survey)		
<35 / <30	3	14
35-44 / 31-40	10	22
45-54 / 41-50	25	24
55-64 / 51-60	28	26
65+ / 61+	34	14
Employment Status		
Farmer & Family	61.9	82.5
Manager	2.3	2.4
Other Full-time/Permanent	13.5	11.1
Other Part-time/Temporary	8.4	2.4
Seasonal	13.9	1.6
Farm Size		
<20 hectares	44.8	5.6
20-49 hectares	19.3	11.1
50-99 hectares	15.6	23.8
100 + hectares	20.3	59.5
Agricultural Sector		
Arable	28.1	28.6
Upland Livestock	25.4	14.3
Lowland Livestock	28.3	24.5
Horticultural	2.7	3.2
Mixed	15.5	29.4

In addition to the above key characteristics of the participants who took part in the survey, the key data relating to victimisation levels of those participants can be seen in Table 8.2

below. Approximately 63% of participants reported being a victim of farm crime in the previous 12 months; and of those, over half (53.5%) reported being a victim more than once.

Table 8.2: Levels of Victimisation as Reported by Survey Participants: Past 12 Months

Victimisation	N	%
Been a victim?		
Yes	71	62.8
No	42	37.2
Repeat Victimisation		
1 time	33	46.5
2 times	17	23.9
3 times	14	19.7
4 times	3	4.2
5 times	2	2.8
7 times	1	1.4
10 times	1	1.4

8.1 Farm Crime Prevention

From the data analyses, it can be seen that there were a number of key noteworthy results obtained from the online survey.

The results from this survey show that among the farming community, crime prevention measures are not used as widely as possible. As indicated in Table 8.3, a chi-square (χ^2) test of independence analysis was used to indicate if there was a statistical significance difference between victimisation and the type of crime prevention measure used. Only when considering standard locks/padlocks and membership of a local Farm Watch scheme was the chi-square value statistically significant.

The chi-square test of independence was further employed to address the reasons for using crime prevention measures, based on farmers' victimisation experiences. Results in Table 8.4 show statistically significant chi-squares between several crime prevention measures and consideration of how easy it is to access the farm, the participant having been a victim of crime, whether a crime had been committed on a neighbouring farm, and other crimes that had been committed in the local community. However, the strength of their respective associations with victimisation was small.

Table 8.3: Analysis of Crime Prevention Measures Reported Used by Participants on Their Farms

What Crime Prevention Measures Used: Chi-square Analysis (N = 113)	F	df	χ^2	P	Cramer's V / Phi
Variables					
CCTV	35	1	0	1	0.099
Entry Alarms	27	1	0.45	0.5	0.37
Boundary Alarms	9	1	0.69	0.41	0.23
Standard Locks/Padlocks	64	1	4.31	0.04*	0.23
Heavy Duty Locks	49	1	0.26	0.61	0.48
Signs	53	1	0.09	0.76	0.61
Locking Farmhouse	88	1	0	1	0.89
Secure Vehicle Storage	34	1	0	1	0.88
Fuel alarm	6	1	0	1	0.84
CESAR	27	1	2.5	0.11	0.07
Tracker	12	1	0.001	0.98	0.73
Recording serial numbers	27	1	2.5	0.11	0.07
Noisy animals	59	1	0.38	0.54	0.42
Smart water	9	1	0.01	0.91	0.64
Farm watch	44	1	2.74	0.09**	0.06
Other group	10	1	0	1	0.85
Gates	9	1	0.01	0.91	0.64
Natural barriers	1	1	0	1	0.44
Security lighting	1	1	0	1	0.44
Automatic Number Plate Recognition	1	1	0.07	0.79	0.19
Vehicle immobiliser	3	1	0	1	0.89
Microchipping	1	1	0.59	0.44	0.44

* significant at the $p < 0.05$ level;

** significant at the $p < 0.1$ level

Table 8.4: Analysis of Reasons Crime Prevention Measures Were Used

Reasons: Chi-square Analysis	N	df	χ^2	P	Cramers' V / Phi
Variables					
Cost of farm machinery	113	5	4.03	0.55	0.19
Keeping the farm secure	113	3	1.44	0.7	0.11
Biosecurity	113	5	7.53	0.18	0.26
Tourists	113	4	3.23	0.52	0.17
How easy it is to get to the farm	113	4	9.28	0.05*	0.29
Newcomers to the area	113	4	6.38	0.17	0.24
Participant been a victim	113	4	34.46	0.00***	0.55
Neighbour been a victim	113	3	11.38	0.01**	0.32
Other local crime	113	4	9.1	0.05*	0.28

Insurance incentives	113	5	6.63	0.25	0.24
Government encouragement	113	5	1.42	0.92	0.11
Police encouragement	113	5	3.24	0.66	0.17

* significant at the $p < 0.05$ level;

** significant at the $p < 0.01$ level;

*** significant at the $p < 0.001$ level

In relation to crime prevention, this survey has shown that crime prevention measures are not used widely in E&W and supports the previous findings of McCall and Homel (2003). Despite the large range of products available to farmers to protect their property, the most used were standard padlocks – those with no additional security features such as enclosed shackles and padlock shackle brackets, and membership of the local FarmWatch group. However, one would question how useful either of these would be, as standard padlocks can be picked or broken by a determined criminal, and the success of FarmWatch is only measurable by the number of active members registered. As with many things, it can be argued that success is very localised and therefore, rather than using a broad-brush approach, it may be more useful for farmers to consider what is appropriate crime prevention for their farms, rather than simply using the cheapest option which may then fail. For example, FarmWatch may be a success in some areas and not in others, but such success is reliant on neighbours and communities getting along with each other.

When considering the reasons why participants were using crime prevention measures, a key factor was how easy it is for people, including criminals, to access the farm. This would include the general road network, but also access points on the farm and gateway security. However, the main driver for use of crime prevention measures was the crime itself; whether the farmer was a victim, a neighbouring farm, or indeed just crime in the local community. This would tend to suggest that despite the low levels of crime prevention used, such security steps are more likely to be taken where crimes have occurred, even if the participant was not personally targeted. Furthermore, despite various attempts by police forces across E&W aimed at creating a more proactive approach towards FCP, these results would tend to suggest that while the farming community may be making the right noises to the police, they remain generally reluctant when it comes to employing security measures on their property.

8.2 Potential Predictors of Victimisation

When considering the part that key demographic and geo-physical factors have in determining likelihood of victimisation, results show that in E&W only two of these key factors played a statistically significant part as potential predictors of farm victimisation (Table 8.5).

Tables 8.5 a-c: Analyses of Key Factors Affecting the Likelihood of Becoming a Victim

a. Victimisation: Chi-square Analysis	N	df	χ^2	P	Cramers' V/ Phi
Variables					
Gender	113	1	1.74	0.19	0.12
Agricultural Sector	113	4	0.92	0.92	0.09
Terrain	113	3	5.66	0.13	0.22
Tenure	113	2	1.08	0.58	0.1
Presence on farm	113	5	7.58	0.18	0.18
b. Victimisation – Mann Whitney U Test Analysis	N	U	Z	P	R
Variables					
Age Range	113	1255	-1.44	0.15	-0.14
Distance of farm to town	113	1326.5	-1.01	0.31	0.09
Distance of farm to Road	113	1251	-1.45	0.15	-0.14
Distance of farm to police	113	1408	-0.51	0.61	-0.05
Distance of farm to neighbour	113	1295.5	-1.19	0.23	-0.05
Farm Size	113	1102.5	-2.42	0.02*	-0.23
* Significant at the p < 0.05 level					
c. Victimisation (Further Analysis) – Spearman's Rho Analysis	N	Rho	P	Variance (%)	
Variable					
Farm Size	71	-0.96	0.001*	91.2	
* Significant at the p < 0.001 level					

Firstly, in terms of overall likelihood of victimisation, farm size was the only factor that explained the statistically significant difference between the likelihood of becoming a victim, and not becoming a victim when analysis was carried out using a Mann-Whitney U test. In addition, further analysis of this data using Spearman's Rank test indicated that farms with less than 250 hectares in size were, statistically, significantly more likely to be a victim of crime. This is shown in Figure 8.1. The statistical analysis showed that there was an almost perfect negative correlation, with the size of the farm helping to explain 91% of the variance in victimisation. This perfect, negative correlation reached statistical significance at the high $p < 0.001$ level.

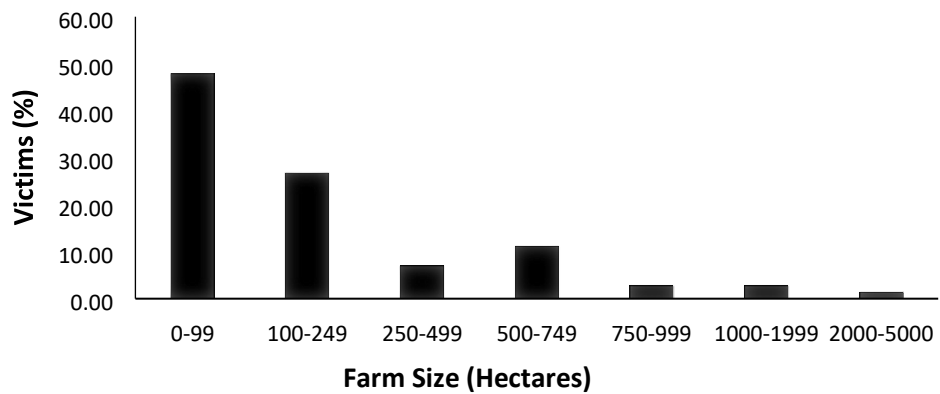


Figure 8.1: Percentage of Participants who were Victims of Crime based upon their reported Farm Size (n = 71)

When considering repeat victimisation, the only key factor statistically significantly affecting the likelihood of being a victim more than once was the distance of the farm from a neighbouring farm, with repeat victimisation being higher on more isolated farms. Turning to Table 8.6, a Spearman's Rank test showed that there was a moderate, positive correlation between the distance from the participant farm to a neighbouring farm and repeat victimisation, with the distance of the farm to a neighbouring farm helping to explain 6% of the variance in participant repeat victimisation. This moderate, positive correlation reached statistical significance at the traditional $p < 0.05$ level.

Tables 8.6 a-c: Analyses of key factors affecting the likelihood of becoming a victim more than once

a. Repeat Victimisation – Kruskal Wallis Test Analysis		N	df	X ²	P	
Variables						
Agricultural Sector	71	4	2.16	0.71		
Terrain	71	3	3.14	0.37		
Tenure	69	2	0.03	0.98		
Presence on farm	71	5	3.96	0.55		
b. Repeat Victimisation – Mann Whitney U Test Analysis		N	U	Z	P	R
Variable						
Gender	71	503.0	-0.64	0.52	-0.08	
c. Repeat Victimisation – Spearman’s Rho Analysis		N	Rho	P	Variance (%)	
Variables						
Age Range	71	0.01	0.91	0.02		
Distance of farm to town	71	-0.08	0.49	0.67		
Distance of farm to road	71	-0.01	0.96	<0.01		

Distance of farm to police	71	0.01	0.94	<0.01
Distance of farm to neighbour	71	0.24	0.04*	6.0
Farm size	71	0.19	0.11	3.0

* Significant at the $p < 0.05$ level

With specific reference to the presence of someone on the farm, a key factor in RAT and COT, as supported by the statistical analysis, Figures 8.2 and 8.3 show that there was little difference between the presence of someone of the farm, and the likelihood of becoming a first time victim, nor a repeat victim.

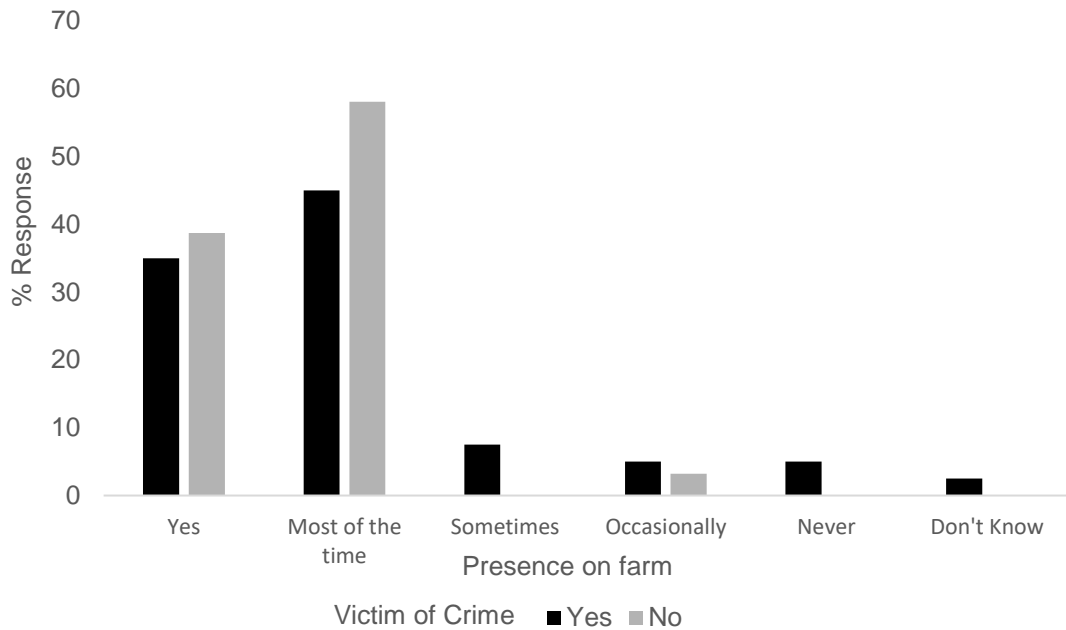


Figure 8.2: Presence of someone on-farm and levels of reported victimisation (n = 71)

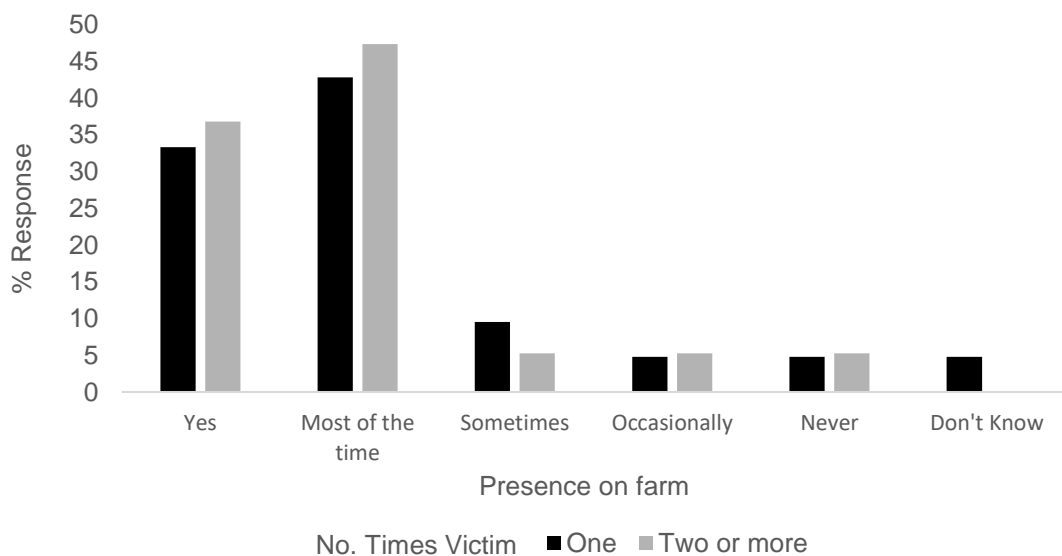


Figure 8.3: Presence of someone on-farm and levels of repeat victimisation (n = 71)

The presence of a capable guardian on farm does not, on its own, reduce the likelihood of victimisation. The results have shown that there was no statistically significant correlation between presence on farm and whether or not a participant became a victim ($p=0.18$). Of those who were victims, there was no significant difference in the number of times they were victimised ($p=0.55$). In light of this, it is arguable that, of the four contributory factors that affect the likelihood of victimisation, as discussed in RAT (Cohen & Felson, 1979), and later in COT (Cohen *et al.*, 1981) – target attractiveness, proximity between offender and target, exposure, and lack of guardianship – improved guardianship on farms may have less of an effect in isolation. This goes some way to support the findings of Weisheit and Donnermeyer (2000) relating to guardianship of large areas, however it should be considered whether guardianship is more likely to succeed in combination with one or more of the other contributory factors.

Previous research has shown, in relation to physical predictors of farm victimisation, that it is predominantly larger farms near main roads and urban centres that are more likely to experience crime (Barclay and Donnermeyer, 2007; Mears *et al.*, 2007; Bunei *et al.*, 2013). However, these pieces of research were carried out in Australia, the United States, and Kenya, where agricultural systems are very different to E&W. This research has shown that the likelihood of becoming a victim on a farm in E&W was more likely in cases where the farm is small, less than 250 Hectares. In contrast, proximity to main roads, urban centres or neighbouring farms did not have a significant impact. It is arguable that in E&W there are a larger number of farms that fall within this size category, and therefore more opportunity for victimisation. Also, it may well be the case that offenders target smaller farms because the key items they are targeting are more likely to be located over a larger area on larger farms, thus increasing the potential for the offender to be apprehended. Smaller farms may offer more cover from buildings and the target property is more likely to be located close together making it easier to steal them in a short period of time.

With regards to repeat victimisation, being a victim more than once was only statistically significantly affected by the proximity of the farm to a neighbouring farm, with such repeat victimisation becoming more likely the more isolated a farm was. Such isolation may mean it is less likely the offender will be seen or caught by a neighbour. Despite the risk to the offender of having to travel further distances, often on more exposed roads, this is clearly an example of the offender employing RCT (Cornish and Clarke, 1986) and weighing up the costs and benefits of targeting this type of property.

It is interesting to note that, while size and distance from towns and main roads have been considered by many of the researchers undertaking original research to establish these

indicators of victimisation (Barclay & Donnermeyer, 2007; Mears *et al.*, 2007; Bunei *et al.*, 2014), none of these projects have considered the impact of the distance of the farm from the nearest police station on the likelihood of becoming a victim. While this research did not show that this variable had a significant impact on victimisation or attitudes towards the police, with the continued closure of rural police stations across E&W (Mawby, 2004), it may be something that changes in the future.

When considering the impact that these geo-physical factors have on the attitudes of the participants towards the police, these results are quite interesting. In relation to the reporting of crimes to the police, only the distance of the farm to a main road was seen as having a statistically significant impact; and those farms within one mile of a main road were more likely to report a crime to the police. Despite the distance of the farm to a main road not having a statistically significant effect on the likelihood of victimisation and repeat victimisation, perhaps there is a perception among the farming community that being closer to a road makes them more vulnerable, which may well relate back to the ease of access to the farm being a statistically significant reason for the use of crime prevention measures on farm. In addition, it may be the case that those farms located closest to a main road feel that the police are more likely to respond to the report of a crime, as directing responding officers to the farm may be easier than if the farm was located along a series of narrow, unmapped lanes, which many farms across E&W still are. These aspects require further exploration to understand the reasoning behind these results.

This latter point is partly supported by the fact that this research shows that only those farmers located close to a main road who reported a crime were, statistically, significantly more satisfied with the way the police are addressing farm crime. These results suggest that farmers located closer to main roads are more likely to have a positive attitude towards the police. As such it is perhaps the case that the police could focus their efforts on improving the situation between themselves and farmers who are more isolated and those who farm larger areas to improve reporting rates and satisfaction levels. This could be addressed by ensuring that when crimes are reported, they are handled in an appropriate manner from the outset.

8.3 Attitudes towards the Police

Attitudes towards the police were examined by looking at likelihood of crimes being reported to the police, and overall satisfaction levels with the police. As an indicator, the levels of reporting crimes to the police in comparison to the levels of reporting to insurers were compared as seen in Figure 8.4.

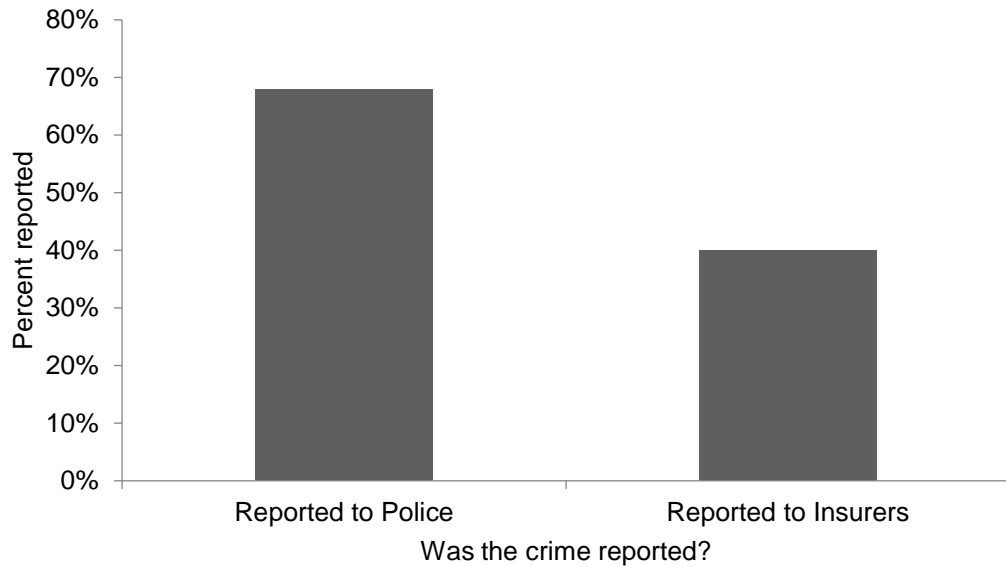


Figure 8.4: Levels of reporting of crime to police and insurers among participants (n = 40)

In relation to participant satisfaction towards the police, an initial analysis was undertaken addressing whether participants felt the police were doing enough to tackle farm crime. Descriptive data addressing this issue can be seen in Figure 8.5.

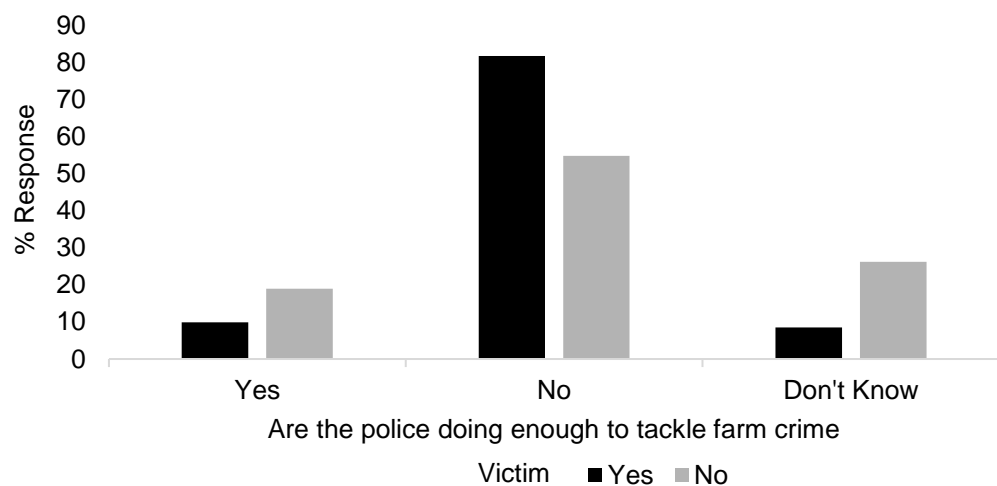


Figure 8.5: Participant confidence that the police are doing enough to tackle farm crime (n = 113)

A Chi-squared test of independence was carried out to establish statistical significance in these two sets of results. This analysis aims to establish whether victims were more likely to report a crime to the police than their insurers. The second analysis aims to establish whether victims were more likely to feel the police are not doing enough to tackle farm crime than non-victims. The results of these analyses can be seen in Table 8.7.

Table 8.7: Analyses of key factors relating to attitudes towards the police

	N	df	X ²	P	Cramer's V/ Phi
Variables					
Reporting to Police/Insurers	40	1	10.49	0.001*	0.57
Police doing enough	113	2	9.87	0.007**	0.3

* significant at the $p < 0.001$ level

** significant at the $p < 0.01$ level

When a Chi-square test for independence (with Yates' Continuity Correction) was carried out, it indicated a statistically significant association between victims who reported a crime to the police, and victims who reported the crime to their insurers, $X^2 (1, n = 40) = 0.001$, $\phi = 0.57$. The strength of this association was large. This would indicate that victims were significantly more likely to report a crime to the police than to their insurers.

A similar analysis indicated a statistically significant association between victimisation and feelings about whether the police are doing enough to tackle farm crime, $X^2 (2, n = 113) = 0.007$, Cramer's $V = 0.30$. The strength of this association was medium in nature. This indicates that participants, and indeed victims, were significantly more likely to feel the police were not doing enough to tackle farm crime.

These two aspects indicating participant attitudes towards the police were further investigated: levels of reporting a crime to the police (Table 8.8), and participant satisfaction with the police (Table 8.9). The identified key demographic and geo-physical factors were analysed in relation to both variables.

Tables 8.8 a-c: Analyses of key factors affecting likelihood of victims reporting a crime to the police

a. Report to Police – Chi Square Analysis	N	df	χ^2	P	Cramers' V/Phi
Variables					
Gender	52	1	0.07	0.79	0.58
Agricultural Sector	52	4	5.26	0.26	0.32
Terrain	52	3	0.16	0.99	0.55
Tenure	50	2	2.38	0.30	0.22
Presence on farm	52	5	3.54	0.62	0.62
b. Report to Police – Mann Whitney U Test Analysis	N	U	Z	P	R
Variables					
Age Range	52	319.5	-0.26	0.79	-0.04

Distance of farm to town	52	304.0	-0.56	0.58	-0.08
Distance of farm to road	52	229.5	-1.95	0.05*	-0.27
Distance of farm to police	52	292.5	-0.78	0.44	-0.11
Distance of farm from neighbour	52	331.0	-0.05	0.96	-0.01
Farm Size	52	314.0	-0.39	0.69	-0.05

* Significant at the $p < 0.05$ level

c. Report to the Police – Spearman's Rho Analysis	N	Rho	P	Variance (%)
Variable				
Distance of farm to road	52	-0.76	0.05*	57.3

* Significant at the $p < 0.05$ level

Tables 8.9 a-c: Analyses of key factors affecting victim's satisfaction with the police

a. Police Satisfaction – Kruskal Wallis Test Analysis		N	df	X2	P	
Variables						
Agricultural Sector		27	3	1.29	0.73	
Terrain		27	3	3.00	0.39	
Tenure		27	2	0.06	0.97	
Presence		27	4	0.46	0.46	
b. Police Satisfaction – Mann Whitney U Test Analysis		N	U	Z	P	R
Variable						
Gender		27	48.0	-1.24	0.20	-0.24
c. Police Satisfaction – Spearman’s Rho Analysis		N	Rho	P	Variance (%)	
Variables						
Age Range		27	0.09	0.64	0.9	
Distance of farm to town		27	0.05	0.80	0.25	
Distance of farm to road		27	-0.33	0.09*	10.89	
Distance of farm to police		27	-0.16	0.42	2.56	
Distance of farm to neighbour		27	-0.06	0.75	0.36	
Farm size		27	-0.19	0.32	3.96	

* Significant at the $p < 0.1$ level

With regards to the effect these key factors have on the reporting of crimes in E&W, only the distance of the farm to the nearest main road provided a statistically significant difference between the likelihood of reporting the crime to the police and not reporting the crime to the police when analysis was carried out using a Mann-Whitney U test. Further analysis, using Spearman's Rank, showed that farms located closer to a main road – within 1 mile – are, statistically, significantly more likely to report the crime to the police as shown in Figure 8.6. The statistical analysis indicated that there was a large, negative correlation, with the distance of the farm to the nearest main road helping to explain 57% of the variance

in reporting a crime to the police. This large, negative correlation reached statistical significance at the traditional $p < 0.05$ level.

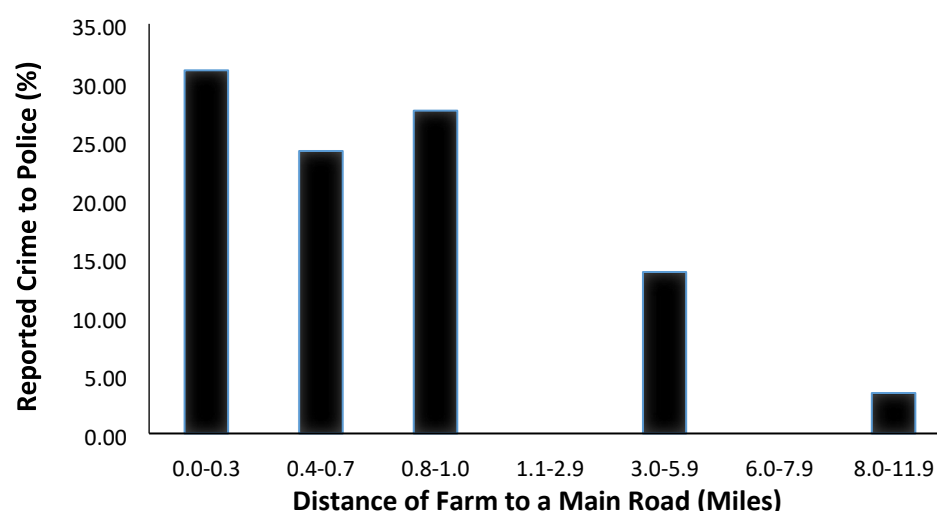


Figure 8.6: Percentage of Participants Who Reported Crimes to the Police Based on the Reported Distance of the Farm to the Nearest Main Road (n = 52)

The last statistically significant result obtained from analysis of this data related to the satisfaction levels towards the police reported by the participants. Analysis using Spearman's Rank test indicated that those farms located closer to a main road were, statistically, significantly more satisfied with the way the police are dealing with reports of farm crime and what the police are doing to tackle farm crime. The statistical analysis indicated a moderate, negative correlation, with distance of the farm to the nearest main road helping to explain 10.9% of variance in participant satisfaction of the police. This moderate, negative correlation reached statistical significance at the $p < 0.1$ level.

There are four key findings from the farmer survey in relation to how these participants feel about the police.

Farmers who have been a victim of crime are more likely to think the police are not doing enough to tackle farm crime. This is likely to lead to the reduction in satisfaction levels among farmers in the future, particularly if the police are not seen to be addressing farm crime adequately as time goes on. This feeling of the police not doing enough may arise from their own experiences, where they have been a victim, but little or nothing has been done to try and solve the crime. However, it may also come from the perceived lack of communication with the police regardless of victimisation; this communication may be in the form of information leaflets or text messages; or it may be from a lack of police visibility in rural communities.

Despite this, these results have shown that farmers are still more likely to report the crime to the police than their insurers. This would tend to suggest that farmers are still investing faith in the police to get their property back, or at least make a concerted effort to do so. It is likely that many farmers only report crimes to the police so that they can get a crime number for insurance purposes, but the fact that 68% of farmers advise they would report the crime to the police compared to only 40% of farmers confirming they would report the crime to their insurers may indicate that a large proportion of farmers do still report the crime to the police with the belief they can help. In contrast, the lower levels of reporting to insurers may be indicative of two possible thought processes among farmers. Firstly, some farmers may not report a theft to their insurers, as the perceived value of the item may be low, and possibly below the insurance excess amount, and therefore it is not worth reporting as the farmer would not get anything in return, and the insurance premium may well increase as a result. Secondly, it may be the case that a farmer simply writes off the loss as part of being a farmer, and to be expected, and therefore simply buys a replacement item from their own pocket and not bothering with the insurance.

Furthermore, these results seem to indicate farmers located near a main road are more likely to report a crime to the police, and also more satisfied with the service the police are providing the farming community. In both cases, it is possible that those farmers have higher confidence levels in the police due to the fact that the farmer may well see a police car more often than a farmer working an isolated farm, even if the police are just driving through the area to get to a destination. The mere sight of a police car may be enough for a farmer to feel the police are carrying out regular patrols in the area. In addition, the fact that a farm is located closer to a main road would also enable a slightly faster response by the police to any report of a crime taking place. This would be due to the improved road network, and the relative accessibility of the farm from the main road. Again, it is likely that isolated farms, often along unclassified lanes, will get a much slower response, if anyone attends at all, simply because they are much more difficult for the average police officer to locate.

8.4 Summary

This quantitative survey completed by farmers across E&W, has highlighted some key issues in relation to crime prevention, potential predictors of victimisation, and attitudes towards the police. While some findings tally with international research that has been undertaken, there are some interesting differences that should be carefully considered by those establishing the police strategic response to farm crime in the future.

Chapter 9: Qualitative Analysis and Discussion – Case Study

This chapter will provide a critical analysis and discussion of the embedded multi-case studies undertaken as part of this research: media content of rural crime reports, an analysis of the Likert attitudinal statements completed by each interview participant, and the interviews and focus groups carried out with the farmers.

The aim of this analysis and discussion is to establish the underlying attitudes of farmers towards crime, crime prevention, the police, and insurers, along with any other key indicators currently influencing their crime prevention decision-making.

The content analyses of media reports and farmer discussions, and the Likert attitudinal statements were analysed according to the four key themes identified as relevant to these datasets:

- Farm Crime and its Impact;
- Farm Crime Prevention;
- Farm Crime Prevention Decision-Making; and
- The Role of the Police and insurers.

9.1 Visual comparison of media reports and farmer discussions

The first part of the qualitative analysis provides a visual comparison of what the media have been saying and what the participant farmers have been saying about farm crime. By doing so, the key differences between the two sources can be identified, thus demonstrating how the way in which crime is reported varies between the media and the farmers as victims of crime. To do this, “Wordles” were created for each dataset; media reports over a three-year period covering 2014-2017; combined transcripts from farmer interviews; and combined transcripts from the farmer focus groups.

The data was handled as set out in the Methodology to ensure the Wordles were a true reflection of the key issues being discussed in each case. The results are shown below in figures 9.1 to 9.3, and an analysis of the outputs is provided based on the four key themes identified.



Figure 9.3: Wordle representation of the top 150 words mentioned during focus groups with farmer participants

This analysis provides a thought provoking comparison of the key areas of discussion between the three sources of information. Table 9.1 below sets out the words that are shared, and those peculiar to a particular dataset, which forms the basis of this section of analysis and discussion.

Table 9.1: Comparison of the key words seen and not seen in the Wordle relating to farm crime.

	Shared	Media Only	Farmers Only
Farm Crime and its Impact	Sheep	Rural	Taken
	Vehicles	Take	Gone
	Cost	Residents	Goes
	Target(ed)	Victims	Feel
	Crime	Agricultural	Worry
	Stolen	Theft	Aware
	Farm(s)	Concerns	Help
	Farmers	Safe	Problem
	Home	Livestock	Hear
	Dogs	Animals	Major
		Machinery	Stuff
		Hare	Tractor
	Coursing	Saw	

		Quad Wildlife Cattle Tools	Money Insurance Security Inconvenience Keys Time Value Night
Farm Crime Prevention	Security Prevention	Reported Campaign Neighbourhood Watch	Got Get Locked CCTV Difficult Gates Dogs
Farm Crime Prevention Decision- Making	Know Think	Together Support Communities	Somewhere Something Somebody Everybody Everything Anything Always
Role of Police and Insurers	Police Mutual People	Resources Commissioner Partnership Crimestoppers NFU Officers Operation Government Forces Criminals Organised Illegal Thieves	Insurers

9.1.1 Farm Crime and its Impact

The media reports, unsurprisingly, focused on reporting 'rural crime', meaning these words far outweigh almost all the other words on the media Wordle. While farmers did talk about crime, it only appeared on the focus group Wordle, and has limited prominence, thus suggesting that while farmers talk about crime as a group, they tend not to refer directly to it as crime. As seen in the focus groups, they tended to talk about real life examples of victimisation, rather than being more generalised. Individual interviewees failed to mention the word crime at all in the top 150 words.

It is hypothesised that the media reports do not seem to make a distinction between rural crime and farm-specific crime (Barclay & Donnermeyer, 2011). Furthermore, they seem to focus on attention grabbing headlines to the detriment of the experiences of the farming

community. It seems possible that the media use rural crime as a catch-all reference for those stories which grab the headlines or are politically relevant, such as fly-tipping, arson, slavery, rather than reporting the everyday experiences of farmers dealing with things like electric wire theft, or farm gates being stolen.

It could be concluded that, by reporting the attention-grabbing stories, and those that were political or topical, in the way the media do, may provide an impression of knee-jerk reporting when a particular crime is high on the government agenda. Moreover, it is possible this may lend itself to accusations of biased or unequal reporting by not providing balanced stories addressing those issues farmers face that would not normally be considered newsworthy. This can be seen with reference to words like quad, coursing, wildlife, machinery, whereas farmers tend to be talking about the day-to-day reality of victimisation; stuff, saw, tractor, insurance, keys. While there is some overlap between what farmers are saying and what the media are reporting, much of what farmers are talking about is simply not being reflected by the media, thus challenging the idea of stimulus similarity (Winkel & Vrij, 1990).

It is noticeable that both the media and the farmers talked about dogs in their discussions. However, when the context in which these comments were made is considered in more detail, it shows that media reports and farmers were referring to dogs in very different ways. In the main, media reports were referring to dogs as an aide to crime, particularly in hare coursing. In contrast, farmers tend to talk about dogs as being the target of criminals. For many farmers, their dogs are not just a member of the family, they are also a member of the business, and so the impact should their dog be targeted may be more closely felt. This impasse may be indicative of a widening schism between the media and strategists, and the farming community, and thus potentially precipitating a de-factualisation of farm crime in E&W.

What is particularly interesting, was the presence of highly emotive words in the farmer Wordle. Words including 'feel', 'worry', 'aware', 'help' were seen in the farmer discussions. This kind of emotion is completely missing from the media reports. This is probably indicative of the factual way crime is reported; however, it shows a stark contrast in discussions about the same topic. In addition, it is noteworthy that farmers were discussing their feelings at 'night', when they 'hear' something in the yard, which seems to be indicative of high levels of anxiety among the farmer participants (Liska & Baccaglini, 1990). In the same vein, where the media reports focus on what they think the public want to hear about and what sells, farmers were talking about the reality of being a victim of crime. This is reflected by the emotions farmers might feel when they discover their farm has been targeted, and their property has been 'taken' it is 'gone', or they replace the stolen item and anticipate how long it will be before it 'goes' again. They also talked about the more

mundane aspects of being a victim of crime, referring to dealing with ‘money’, ‘insurance’, ‘security’, and the general feeling of ‘inconvenience’ felt from being a victim.

9.1.2 Farm Crime Prevention Responses

When considering crime prevention responses, it is notable that the only words seen across both the media and the farmers’ discussions were ‘security’ and ‘prevention’. One might assume there might be other words relevant across these differing discussions; maybe words like protect, or advice.

Crime prevention as reported via the media seems to reflect the police’s strategic response to FCP, rather than the crime prevention needed in the frontline battle against farm crime as seen in Table 9.1. They were talking about ‘neighbourhood’, ‘watch’, and ‘campaign’, not things farmers see as high priority. It could be questioned whether media reports were simply reacting to police strategies, or whether they were in fact perpetuating approaches not necessarily making a difference to farmers but were easy to promote. This would therefore provide the impression of farm crime being proactively addressed, despite the superficial nature of this kind of response.

In the farmer Wordles (Figures 9.2 and 9.3), the crime prevention discussion surrounded preventing future victimisation, talking about ‘gates’, ‘CCTV’, keeping things ‘locked’, and how ‘difficult’ doing all this is in addition to running the farm. Interestingly, when looking at the discussion, farmers were also talking about their dogs as a crime prevention method as well as a target for criminals. This dual-purpose is interesting to note, with farmers worried about protecting their dogs from being targeted, but also making use of the same dogs to deter criminals.

The most prominent words relating to crime prevention seen in both focus groups and interview discussions were the words ‘got’ and ‘get’. While not exclusively, the farmers were talking about what crime prevention measures they already have in place, as well as what they should get, or would like to get at some point in the future. It indicates the recognition among these farmers that they must be more proactive, and they have to take things into their own hands to protect their farms.

Overall, the key difference can again be seen between the media reporting the strategic approach to tackling farm crime, mainly driven by the police, and the reality of what farmers are facing on a daily basis as victims. Unfortunately, there seems to be little overlap between these two standpoints.

9.1.3 Farm Crime Prevention Decision-Making

There is a great disparity between the use of the words 'know' and 'think' by media and the farmers. It is interesting to note that, with the farmer focus groups, the word 'know' was mentioned 250 times, making it the fifth most mentioned word, and 'think' was mentioned 375 times, making it the second most mentioned word. With the farmer interviews, 'know' was mentioned 669 times, and 'think' mentioned 799 times, making them the third and first most mentioned words by these farmers. In contrast, media reports mention these words much less. In this case, 'think' was mentioned 56 times (150th place), and 'know' was mentioned 112 times (52nd place).

While not exclusively, it is argued that the predominance of 'know' and 'think' among farmer discussions seem to represent the fact that farmers know what the problem is and they should be doing something to address it. However, they just do not have the time to be able to think about the problem and how best to tackle it, and therefore make appropriate crime prevention decisions for their farm. In contrast, by focusing on crime, media reports do not address these aspects.

It could be argued farmers use the words know and think interchangeably, possibly incorrectly, when talking about crime prevention as there is a fine line between 'know' – understanding – and 'think' – considering. However, a fine line can make all the difference between realising there is a problem and that the problem can be challenged by taking proactive action. This could indicate validation, and agreement with their fellow farmers. While the idea of the influence of groupthink may be a factor when considering the presence of 'know' and 'think' in the focus groups, this does not seem to follow in the one-to-one interviews. Here there are no external influences from other farmers, and no need to be validated, or to validate others. Moreover, the higher use of 'know' and 'think' from the interviews seems to suggest farmers are independently, proactively considering FCP. Proactive action, it is argued, would be the next step.

Some words used by farmers, but completely absent from media reports, indicate a level of uncertainty about the problems faced and how best to deal with them. This is illustrated by the presence of words like 'somewhere', 'something', and 'somebody'. In the wider discussions, these indicators of uncertainty tend to surround both the targeting of farms, and the lack of communication and advice farmers get regarding crime prevention. Related to this, are words that seem to indicate the level of worry apparent within the farming community. Such words are again not present in the top 150 words used in media reports. This includes words such as 'always', 'anything', 'everybody', and 'everything'. Again, in the wider discussions, this level of worry is seen when farmers are talking about doing anything

they can to protect their property and their family, but they are suspicious of everybody who comes onto their farm that they do not know:

“I’ve got a fear about these at the minute, and I think it’s the Amazon delivery people who are doing it at the moment” (IN)

“Eventually you get paranoid don’t you...And it could be your best friend coming in a different car” (JR)

It is arguable that, such levels of uncertainty and worry about keeping their farm and family safe, will have a detrimental effect on the ability of the farmer to make sound, long-term decisions relating to crime prevention for their farms. Being in this constant state of anxiety will, at some point, influence decision-making unless better processes can be identified to help farmers (Hartley & Phelps, 2012).

Once again, in contrast to what farmers are talking about, the media are using words like ‘together’, ‘communities’, and ‘support’ when discussing crime prevention and decision-making. While farmers may well have some superficial support from their local community, when it comes down to decision-making on crime prevention, farmers are likely to be the sole decision-maker on the farm as indicated by the responses to the Likert Attitude scale discussed in section 9.2. Arguably, as the media reports tend to be driven by police reports of farm crime, it is a representation of what the police ideal is. However, based on this analysis, what farmers think about and how they make their decisions is quite different as an individual subjected to repeated victimisation (Home Office, 2014).

9.1.4 Role of Police and Insurers

When looking at the media reports, after ‘rural’ and ‘crime’, the word ‘police’ featured as the next prominent, mentioned 1,008 times in media reports, compared to 244 times in farmers interviews, and 164 times during farmer focus groups. This disparity is driven, in the main, by media either reporting police actions targeting rural crime or providing some form of guidance or request for information from the police. In contrast, the low levels of ‘police’ being mentioned by farmers is possibly a result of the lack of interaction farmers are generally experiencing, which can be seen in the wider discussions. Farmer discussions focused much less on the role of the police in their experiences, and more on what they can do to help themselves.

Media reports made numerous references to Crimestoppers², mentioned 71 times. Crimestoppers seems to be an underutilised tool in crime prevention and crime reporting in the UK; Crimestoppers received 94,259 pieces of useful information in the year ending March 2016 (Crimestoppers, undated), compared to an estimated 6.3 million incidents being reported to the police over the same time period (ONS, 2016). This means many of these references come from the media reports including details of how to report crimes, or any information about these crimes, anonymously via Crimestoppers. This may act as a useful reminder to readers about this facility. However, the prevailing attitude is that crimes should be reported to the police, and Crimestoppers, perhaps, is forgotten when it comes to the action of reporting. It may be that Crimestoppers service could prove to be a useful tool for increasing farm crime reports if it were to be better utilised as seen in other countries such as Australia (McCall & Homel, 2003).

Despite Crimestoppers appearing in the top 150 words in media reports, the Wordle result was small in comparison to several other words. Farmers did not talk about Crimestoppers at all in either the focus groups or the interviews. Possible reasons for this may include:

- It is not something in their consciousness as an option for reporting crimes or useful intelligence they may have;
- Farmers may think everything must be reported directly to the police;
- There is a misunderstanding among the farming community about what Crimestoppers is, and how it works, or
- Crimestoppers is not promoted enough as an alternative for farmers, particularly if they have worries about their anonymity.

There are no clear answers at present, but it is apparent the use of Crimestoppers should be explored further in relation to tackling farm crime.

Several words were seen in the media reports Wordle relating to police response and strategy. These included 'partnership', 'operation', 'policing', 'team', 'government', and 'commissioner'. Again, it is argued this was because media reports are providing coverage of what the police have done to tackle farm crime, and how strategic partnerships of police, insurers, NGOs, and the government were working. However, as none of these words featured in the farmer Wordles, one should consider how much farmers relate to these concepts. Moreover, these reports of farm crime were written in favour of the strategic response to the crime, meaning farmers cannot engage with what is being said (O'Keefe & Reid-Nash, 1987). This may tend to alienate farmers, especially small, isolated farmers who

² Crimestoppers are an independent charity helping law enforcement to locate criminals and help solve crime by offering an anonymous reporting facility. More can be found at <https://crimestoppers-uk.org/about-us/>

may not be engaged with the NFU and other farming stakeholders, thus adding to the lack of confidence towards the police, and the attitudes of these farmers towards police and crime prevention. Indeed, it raises questions about who policy is currently serving due to a focus on the strategic response to farm crime rather than the actual experiences of the farmers.

It is noticeable that, as the media reports came from across the UK, their focus was nationwide, and thus there were words like 'national', 'west', 'north', and 'country'. In addition, there were references to particular counties/forces that may indicate more proactive response – or possibly more crime? Examples included 'Yorkshire' and 'Scotland'. Farmers were understandably more concerned about what is going on in their local area (Public Policy Forum, 2001), which was reflected by words in the farmer Wordle such as 'local' and 'place'.

One must question how much relevance farmers hold in the reports of rural crime from the national perspective. If the farmer was based in Shropshire, and there was a spate of sheep rustling reported in Cumbria, this would have little bearing on the level of credence the farmer placed in the assertion of a sheep rustling problem. This is particularly the case if there have been few or no reports of the same crime in the local area. Also, farmers were very much more aware of the immediate area and vulnerabilities. This was reflected by the presence of words such as 'yard', 'drive', 'door', and 'field(s)'.

The number of mentions relating to insurers by the media were relatively low, only making mention of 'nfu' and 'mutual'. It is argued that this is not representative of the farmers across the UK, as NFU Mutual does not insure all farmers. However, in defence of this reporting, in the majority of cases, only NFU Mutual were active in talking about farm crime. When looking at the farmer Wordle, 'insurance' was mentioned, but nothing relating to particular insurers. This may indicate that farmers were only thinking about their own insurers when they need to make a claim, rather than actively seeking advice. In addition, the fact that 'insurance' was mentioned only 72 times in farmer interviews, and 40 times in farmer focus groups, seemed indicative of the low priority the farmers are giving to insurance. This is surprising given the reliance on insurers and their insurance when criminals target them.

Although not particularly prominent, media reporting does seem to mention words relating to the perpetrators of these crimes but is not something mentioned in the top 150 words from neither the farmer interviews nor the farmer focus groups. Words used by the media in this category, included 'criminal(s)', 'organised', 'illegal', and 'thieves'. In particular, the word 'illegal' being mentioned is interesting. One wonders why these crimes must be

underlined as being 'illegal' is required at all. It could be concluded this is symptomatic of the target readership of the press reports, whether the farming press or the popular press.

Summary

In summary, this section addressing the content analysis of the media reports and farmer discussions, has provided some interesting results. In relation to the impact that the media has on farmers when reporting farm crime, it is clear that there is a definite impasse between what media reports are saying and what farmers are saying. It seems from this analysis that the media are reporting general information about crimes, whereas farmers are talking about the specific impact of the crime, and not necessarily the crime itself. Furthermore, the media are not reflecting the reality of crime as it affects farmers. Examples can be seen in the discussion surrounding dogs, and levels of farmer anxiety.

When addressing FCP, media reports are addressing the strategic response from the police point of view in the main. In contrast, farmers talk about the specific things they are doing to protect their farms, regardless of how small. In terms of FCP decision-making, farmers know what needs to be done to protect their farm, but they do not have the time to do those things. However, despite knowing that they need to protect their farm, they seem uncertain about the best way to protect the farm, underlining the need for appropriate FCP advice as uncertainty leads to poor decision-making.

In relation to the perspectives on police and insurers, the media reports are very police-centric and address police strategies, whereas the farmer discussions tend to focus on self-help and how crime has affected them. Such a difference in approach may not be conducive to engagement between farmers and the police. It is suggested that Crimestoppers could play a bigger role in enabling the reporting of farm crime, and provide another option for farmers to report crimes. The final thing noted in this section, is that neither the farmers nor the media talk much about insurers. This is interesting, as insurers seem to be a key stakeholder for farmer peace of mind.

9.2 Analysis of Likert Attitudinal Statements

Prior to the one-to-one interviews, each participant was asked to read through a list of 29 statements and provide their response based on a Likert five-point scale to indicate whether they agreed or disagreed with the statements (Appendix 8). The aim of this exercise was to help understand individual attitudes towards crime prevention alongside the qualitative data, and to provide a brief quantitative analysis as part of the larger qualitative Case Study. To do this, the results from the Likert scales underwent a descriptive analysis as well as an

inferential analysis to better understand the thought processes of the participants and how this information can assist in guiding the creation of decision-making choice architecture for FCP.

It was important to try to begin the process of examining and understanding how farmers think about, and make decisions about, crime prevention, the impact of farm crime, and their attitude towards the key actors in tackling farm crime. However, it is noted these statements and the responses provided can only provide a snapshot of these beliefs and attitudes in the one moment with the knowledge that the participant will be reflecting on past experiences and influences. The one-to-one interviews took place in late spring, when the weather was good and the nights were lighter for longer. It is anticipated that, were this list of statements to be completed by the farmers in the middle of December with darker nights and poor weather, the responses may be different to those obtained during the current research.

There were several biases requiring consideration when carrying out research such as this. The first is central tendency bias, where participants tend to shy away from providing responses at the extremes of the Likert scale. When looking at the overall results from this scale, the participants did not display central tendency in their responses. This was reflected by the spread of the responses: the central response (3) was seen on 17 occasions; in contrast, the extreme responses of 1 and 5 – representing strongly agree and strongly disagree – are seen on 12 and 35 times respectively.

Secondly, “acquiescence bias”, where participants tend to respond with positive connotations or they agree with all the questions. To avoid this, several negatively worded statements were included. The results show there are responses differing from the modal values, and a few statements where the participants responded in the opposite way than would have been expected if acquiescence bias were present.

Finally, social desirability bias where participants respond in a way they consider to be socially desirable. The results show a number of responses differing from the socially desirable response. This is particularly evident where participants were asked about wearing seatbelts and using their mobile phone when driving. In response to the statements posed, several participants provided an answer not fitting the ideal of social desirability. For example, when participants were asked if they had driven without wearing a seatbelt, some responded that they had. Similarly, where they were asked if they had ever used a mobile phone when driving, some responded that they had.

9.2.1 Descriptive Analysis - Frequency Distribution Analysis

Figure 9.4 below provides a frequency distribution of the responses for each statement as a stacked bar chart. In this chart, an 'R' following the question number indicates those negatively worded statements.

Based on the information provided in Figure 9.4, most participants had a generally positive attitude towards crime prevention, with many of the responses being overall positive in nature. In addition, where questions were negatively worded, participants seem to have generally responded accordingly indicating general disagreement with these statements. There were, of course, exceptions to this. It is noted that several responses provided the opposite response to what was expected. These are discussed in relation to the four key themes identified.

9.2.1a Farm Crime and its Impact

Statement 17, a negatively worded statement, and thus reverse scored, found the majority of participants (two thirds) agree with the statement 'being a victim of crime has a major impact on my mental wellbeing'. This result aligns with previous research relating to increasing levels of farmer physical and psychological neglect (Carrington *et al.*, 2013) and farmer self-harm and suicide (Judd *et al.*, 2006). However, it acts in opposition to the idea of hegemonic rural masculinity (Connell, 1995) of the farmer being a strong, dirty, manual mechanic (Brandth, 1995).

However, these findings do authenticate the assertion made by Brandth & Haugen (2016) that economic transformation and gender equality in the rural environment has led to the facilitation of "new forms of masculinity that are more compatible with gender equality" (p. 420). The fact these farmers were willing to admit the psychological effects of victimisation seem indicative of the potential move towards a new idea of rural masculinity in E&W. The way farmers responded is interesting as it supports this assertion further. Out of the four farmers who agreed or strongly agreed victimisation had a major impact on mental wellbeing, only one was female. Out of the remaining two farmers who provided a neutral response or disagreed with the statement, one was male, and one was female.

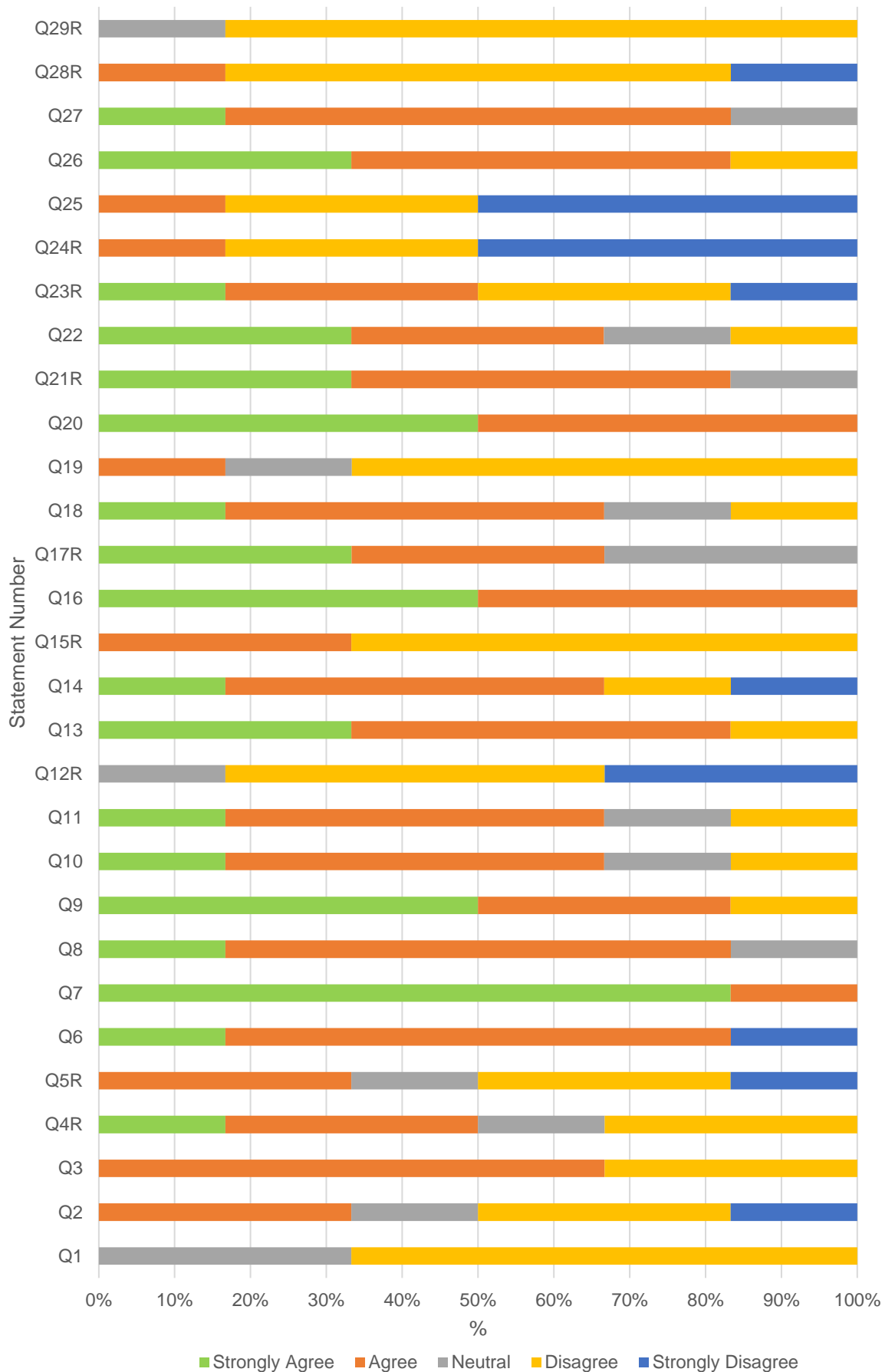


Figure 9.4: Frequency Distribution of Responses to Likert Scale Statements, showing a generally positive attitude towards crime prevention among interviewees (n = 6)

However, one must consider whether there are other factors at play in this seeming move towards more openness in talking about feelings. It may be the case that age plays a part. All farmers that responded were aged over 50. It could be the case that, as older farmers, they have had to contend with many changes and crises in farming over the years, and this is just another one to deal with – psychologically, this constant worry may have made these farmers more open to talking about these issues. Moreover, if this was the case this may impact on how the statements might be completed by younger farmers. In addition, the fact that the author was interested in these aspects of farming life may well have encouraged these more honest responses. It is possible these farmers might not say the same to their family members.

9.2.1b Farm Crime Prevention

When asked whether they thought crime prevention measures were too expensive, there was an equal split between those who felt crime prevention measures were too expensive, and those who felt they were affordable. However, such a response cannot be taken at face value. The fact that half of farmers felt crime prevention measures were affordable does not tell the whole story. The response may be related to other factors such as whether or not they actually used crime prevention on their farm, what types of crime prevention were being employed, and the levels of knowledge the farmer might have around varying crime prevention measures available to them. It is arguable that, a farmer who used little crime prevention, may have little knowledge of the array of options available and so consider crime prevention as being affordable. Whereas, a farmer who had more knowledge of crime prevention measures, may have either adopted more expensive forms of security, or may have researched these – things like electric gates with controlled entry – and be more aware of the price of such measures. However, they could be unaware of much cheaper, or even free, methods of protecting property that may be as effective as an electric gate. Another possibility, might be that a farmer had knowledge of what security options are available to them, and had researched what would work well on their own farm, but did not have the available funds at the time of the interview to be able to adopt the favoured option. Thus, this gives the impression that crime prevention for farms was more expensive than it may be when other options are considered.

9.2.1c Farm Crime Prevention Decision-Making

In relation to decision-making, three statements provided unexpected results.

Statement 19 found that the majority (two thirds) of participants were using crime prevention even though they did not receive a discount on their insurance premium. One should

question whether the simple fact of insurers reducing their premiums for those farmers who adopt certain types of crime prevention on their farm would actually make farmers more likely to use crime prevention. Based on this response, the use of financial incentives may not be enough to change behaviour. This aligns to the findings of Poe *et al.* (2001) and Wandel & Smithers (2000).

Statement 23 shows that half of participants have not changed the way they do things after being a victim of crime. This could indicate a risk-taking nature, or that crime prevention is not affordable or part of their immediate plans for the farm. Alternatively, they may be acting, maybe unconsciously, as crime enablers by not changing things on their farm, thus extending the categories of responses to victimisation identified by Dillenburg (2007). An alternative explanation may be offered by BS in the form of hyperbolic discounting. One questions whether these farmers have not made these changes because they do not see crime prevention as an immediate issue that needs to be dealt with, and so put off any related actions to some undetermined point in the future (Janssens & Kirkke, 1990; Repetto, 2008).

Related to this, is the response to statement 25. Risk taking behaviour was clearly not something these participants consciously do. Eighty three percent of the participants reported that they do not use their mobile phone when driving. If this response was truly about risk taking behaviour, then it negates this as an explanation for the response to statement 23 above. This response may be indicative of law abiding behaviour, but it may also be because of social desirability bias. The latter would also be indicated by the response to statement 24, where most participants disagreed with the statement 'I tend not to wear a seatbelt when I am driving', showing the possibility of high levels of social desirability bias.

In addition, it is arguable that the responses to statements 23 to 25 may be driven by the farmers trying to comply with the idea of traditional rural masculinity. The response to statement 23 certainly reflects this by the fact that they wished to continue doing things the way they have always been done (Carrington *et al.*, 2013).

However, this assertion is countered by the responses to statements 24 and 25. As noted, most participants reported wearing seatbelts when driving. While being a socially desirable response, it is also contrary to both the idea of farmers being risk takers and the stereotypical image of rural masculinity. Additionally, the responses to statement 25 provided further contradictions to the idea of the strong, masculine farmer by again indicating that farmers are not risk takers. This is in opposition to findings from Campbell *et*

a/. (2006) and Iacuone (2005) who stated that farmers often partake of behaviours that are known to be risky to increase their image of masculinity.

However, one must consider whether the way these three statements were worded had an impact on how the participants responded. It is interesting to note that, where the statement was overtly asking about risk taking behaviour – statements 24 and 25 – the participants seemed more likely to provide a socially desirable response, and thus less indicative of risk taking. Whereas statement 23, worded in a way that did not make it obvious that risk taking behaviour was being considered, elicited responses that were more ‘natural’ and therefore more in line with their beliefs of the role of rural masculinity.

9.2.1d Role of Police and Insurers

Statements 1 and 2 provided a decidedly negative response in relation to whether the government and the police were doing enough to tackle farm crime; with 100% of participants providing a neutral response or disagreeing with statement 1, and 66% of participants providing a neutral response or disagreeing/strongly disagreeing with statement 2. This indicated that overall, participants felt the government and police response to farm crime is insufficient, and they are not doing as much as they should or could to tackle the problems farmers are dealing with.

Responses to statement 3 additionally show that a third of participants felt their insurers were not doing enough to provide adequate crime prevention advice. This raises questions about why insurers are less proactive in supporting crime prevention adoption among their clients. It is possible that, if a farm makes use of crime prevention measures they would be a less attractive target for criminals, and as such less likely to make claims for, what can be, quite expensive items, and so insurers would have to pay out less to settle these claims.

Summary

In summary, this section addresses a number of key factors that may influence farmer attitudes and behaviour. It was noted that, from the analysis, the results show that farmers felt crime had a substantial impact on their psychological wellbeing, which is indicative of the challenge to the hegemonic rural masculinity. However, it is acknowledged that other factors may be influencing this, such as age and researcher interest: would the same have been said to someone else?

In terms of FCP, half of the participants felt that FCP was too expensive, but again there are contributing factors to this finding, such as type of FCP used, knowledge of available

FCP options, and financial availability of such FCP measures to the farmer. Despite this, it was noted that financial incentives were not enough to change behaviour, and that farmers used FCP despite there being no insurance premium reduction. In contrast, half of participants reported not changing what they did after being a victim, suggesting that they may be crime enablers, or putting things off for a particular reason – hyperbolic discounting. Findings relating to risk raise a number of issues. It is not clear from these findings whether these farmers were risk takers or not. When overtly asked about risk taking, participants mainly opted for the socially desirable responses. However, the opposite was true when statements were not clearly addressing risk taking. It is possible that the latter was revealing the true nature of the farmer, instead of what they thought the researcher wished to hear.

Across all participants, the attitudes towards the police and government response to tackling farm crime was poor. In addition, a third of participants felt that their insurers' response was also poor. This is perhaps of some concern, as these traditional trusted messengers no longer seem to be seen in that way. If this is the case, consideration should be paid to who will then fulfil the role of trusted messenger.

9.2.2 Descriptive Analysis - Central Tendency Analysis

Central tendency of this data is described using modal responses, as it is noted that means and standard deviations do not provide a clear description of Likert scale data (Sullivan & Artino, 2013). This is illustrated by considering what the average of 'strongly agree' and 'agree' might be – "agree and a half"? (Jamieson, 2004).

Table 9.2 provides an overview of the overall modal responses of each participant and each question, as well as the actual response for each question by each participant. This allows easy identification of where participants' responses vary substantially from the overall mode for each question. The coding for this data is as follows: where the questions were positively worded (normal), the coding is 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. For those questions that were negatively worded (reversed), the coding is reversed, with 1 = strongly agree through to 5 = strongly disagree.

These responses, including those that vary noticeably from the mode, provide some insight into the feelings, beliefs and attitudes of these farmers. Based on the responses to each of the statements, several assumptions can be made about how farmers are thinking and feeling about crime and crime prevention. Again, the overview of this analysis is presented in accordance with the four key themes identified.

9.2.2a Farm Crime and its Impact

Farmers agreed their main aim was to ensure the farm business is profitable and sustainable, and they feel crime prevention is unlikely to reduce the efficiency of the farm.

Table 9.2: Participant responses and modal response for questions and participants

	JP	PM	AM	KB	RB	RA	Question mode
Overall mode of participant	4	4	4	5	4	4	4
Q1	2	3	2	3	2	2	2
Q2	2	4*	1	4*	3	2	2
Q3	2*	2*	4	4	4	4	4
Q4R	2	3	2	4*	4*	1	2
Q5R	2	4*	3	5*	4*	2	2
Q6	4	1*	5	4	4	4	4
Q7	5	5	5	5	5	4	5
Q8	4	4	5	3	4	4	4
Q9	4	2*	5	5	4	5	5
Q10	2*	4	5	3	4	4	4
Q11	4	2*	4	5	3	4	4
Q12R	4	4	5	5	3	4	4
Q13	4	5	4	5	2*	4	4
Q14	4	5	1*	4	2*	4	4
Q15R	4	4	2*	4	2*	4	4
Q16	4	4	5	5	4	5	4
Q17R	1	3*	2	1	3*	2	1
Q18	4	4	3	5	2*	4	4
Q19	2	2	4*	3	2	2	2
Q20	5	4	5	5	4	4	4
Q21R	2	2	2	1	3	1	2
Q22	4	2*	4	5	3	5	4
Q23R	4*	2	4*	5*	2	1	2
Q24R	2*	5	5	5	4	4	5
Q25	2	1	1	1	4*	2	1
Q26	2*	5	4	5	4	4	4
Q27	4	3	4	5	4	4	4
Q28R	4	4	4	5	4	2*	4
Q29R	4	4	4	4	3	4	4

* indicates those responses that vary notably from the mode for each question

To ensure the business continuity of their farm, these farmers reported they would always check the farmyard if the security light came on. These farmers reported that, since becoming a victim of crime, they were now locking doors and making better use of security on their farms, however they also reported not changing the way they do things since becoming a victim. It is suggested this is due to farmers making better use of what they already have rather than adopting new crime prevention measures on farm. If this is indeed the case, does this mean farmers are feeling, even if it is not a conscious feeling, that they are victims of crime rather than survivors (Dillenburg, 2007). In addition, by not changing the way they protect their property they may indeed be making themselves more likely to be targeted again in the future.

9.2.2b Farm Crime Prevention

These farmers felt they had a good knowledge of what crime prevention measures were available, and that by using crime prevention on their farms, they were less likely to be a victim of crime in the future. In addition, they felt strongly that being a victim of crime affects the way they think about crime prevention. In the main, they did check their property on a regular basis throughout the day and found it easy to get into the routine of locking doors and gates.

However, it is hypothesised that the kind of information farmers have received may be limited in its scope. While they may feel they have a good knowledge of crime prevention available, this may be limited to what is available in general – not what might be most suitable or most appropriate for their farm. It may be the case that, despite using some form of crime prevention on their farm, they may be no less likely to be targeted in the future if the guidance they have received was generic crime prevention advice, or if the crime prevention measures have not been installed appropriately. Such a situation would be detrimental to the future of farmers taking advice on crime prevention, and maybe even using crime prevention at all in the future if it has failed to protect them so far. This may also have further impacts on the low levels of trust that are currently experienced between the farming community and the police, thus proving to be detrimental in the longer term for all parties concerned.

9.2.2c Farm Crime Prevention Decision-Making

Despite the farmers feeling that crime prevention does not impact upon farm efficiency, they reported feeling crime prevention measures were too expensive, and too time consuming. This raises again the question of their knowledge levels about crime prevention available to

them. This would be, in part, as a result of the police and insurers not making use of tools available to them that are proven in an urban setting; things like CPTED (Jeffery, 1972) and RAT (Cohen & Felson, 1979). It is postulated that, if CPAs were discussing these tried and tested approaches within the farming setting, it would potentially expand the crime prevention palette available to farmers to include several quick, low cost, or even free methods to protect their farms.

Conversing with other farmers about crime prevention, and even those outside of the farming community, was key to influencing crime prevention decision-making among farmers. The participants reported that other farmers did influence their attitudes towards crime prevention. Therefore, the use of social norms in farm crime decision-making may be key, and could be something easily tapped into by the police and CPAs to establish farmer crime prevention champions.

The participants were generally the people who made the business decisions on the farm, and it is expected this is often done by just that one person. While the participants reported using crime prevention to reduce the chance of financial loss of victimisation, they were actually much less likely to use crime prevention because they received a direct reduction on their insurance premiums. The interesting point of this is two-fold. Firstly, financial incentives, such as reductions on insurance premiums, are unlikely to encourage farmers to make better use of crime prevention on their farms, as noted by Poe *et al.* (2001) and Wandel & Smithers (2000). In addition, it clearly shows a level of planning for a future occurrence that may or may not happen, rather than making decisions based on an immediate benefit, thus intimating that farmers are not, despite previous research to the contrary (Janssens & Kirkke, 1990; Repetto, 2008), hyperbolic discounters. This is further reflected by the modal response to statement 29 which indicated that farmers were making decisions for the future rather than solely focussing on the immediate issues.

Despite the farmer responses to statements 24 and 25 indicating a risk averse nature, the modal responses to statements 26 and 27 indicated the participants were not afraid to take risks, try new things, or use new technologies on their farm. Based on this response, one would assume these farmers were quite happy to use hi-tech measures available to protect their property. However, these statements were compared to the results of an engagement exercise undertaken at the focus groups to identify the types of crime prevention measures used by participants. The overwhelming majority were using low-tech crime prevention solutions on their farms, including padlocks and noisy animals. This seeming inconsistency may be reflective of the information farmers are receiving relating to crime prevention, but it may also indicate how farmers consider their priorities. While they may not be afraid to try new technologies on their farm, the actual purchase and installation may be affected by

tasks that are a higher priority for the farmer, and thus push crime prevention further down the list. Figure 9.5 illustrates the findings from the focus group sticky-dot engagement exercise.

The hi-tech measures listed were used much less often than the low-tech measures. Those hi-tech measures included CCTV/Wildlife Camera, alarms, CESAR, trackers, Smartwater/SelectaDNA, and electric gates. Out of these, only entry alarms and CESAR were used by participants at each focus group. When considering the impasse between what the farmers were using, and the claim they would try new things and use innovative technologies, this will only occur where they have been given the opportunity to try new technologies on their farms.

Furthermore, although farmers seem to be confident they have knowledge of crime prevention methods available to them, in reality, their knowledge is limited to information the police or their insurers have provided. This is illustrated by the fact that there was no mention from the farmers in the focus groups of any CPTED measures they used. However, this may also be explained by the fact that if they did use CPTED measures, they might not realise they are crime prevention methods, and so did not categorise them in the same way as, say, alarms.

9.2.2d Role of Police and Insurers

The Likert modal responses indicated the participants felt that both the government and the police were not doing enough to address and tackle farm crime. This, it is asserted, is because of low levels of action at a national and local government level, and also as a result of the past experiences of these farmers, and the police responses received when farmers have been a victim of crime.

Additionally, in contrast, these participants felt their insurers were providing adequate crime prevention advice. It could be concluded this was as a result of their insurers having paid out on a claim, and they have either sent someone to the farm to offer advice or provided guidance via telephone or email to the farmer on additional things they could be doing to protect their property. However, there is no indication towards the type of advice that was given, whether such advice was consistent across all insurers, and whether it was suitable for the individual farm.

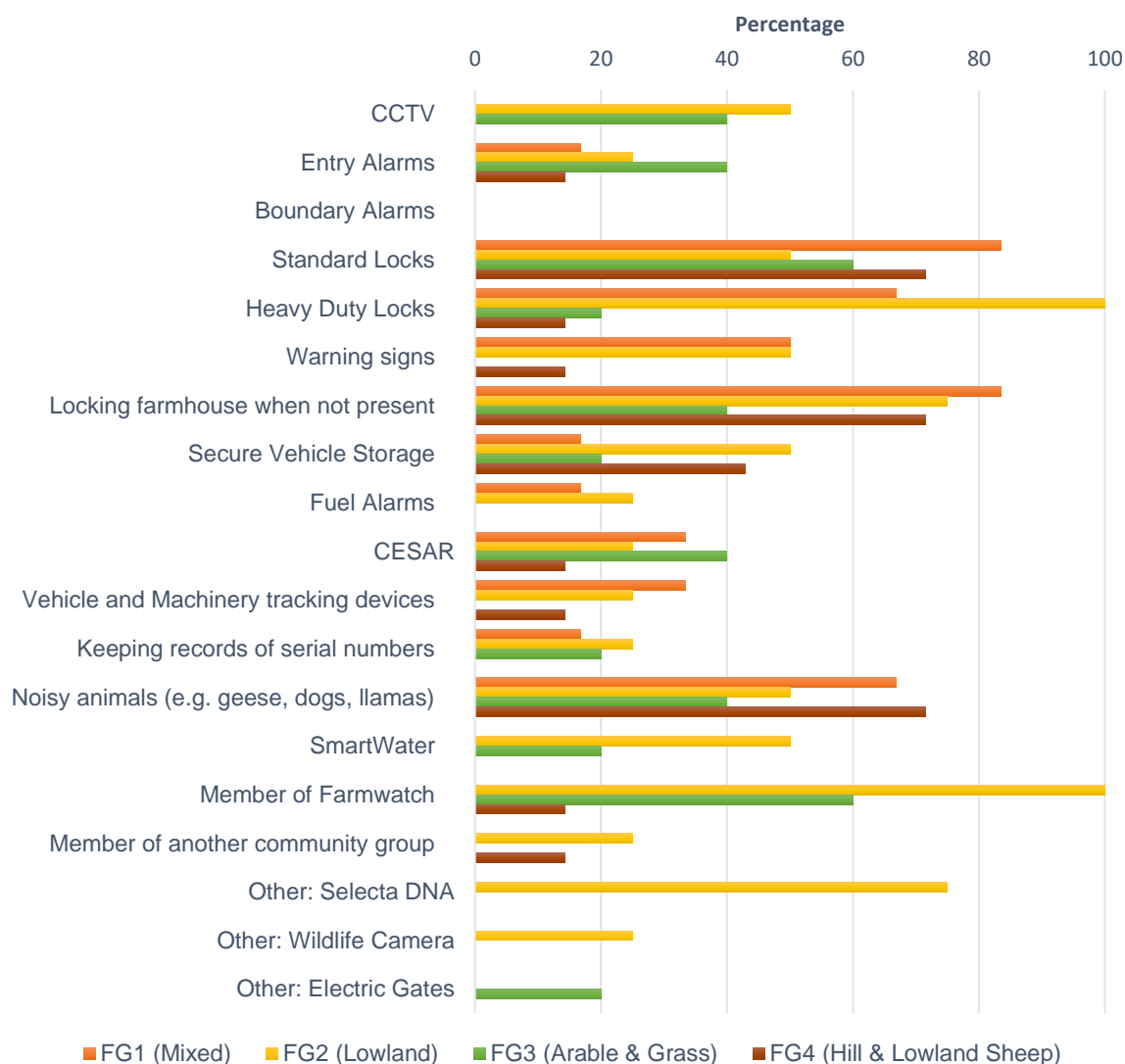


Figure 9.5: Crime Prevention Measures used by Focus Group Participants (n = 23)

The final aspect to consider in the descriptive analysis of the attitudinal statements, is the fact that, in some cases, the participants' responses have deviated from the mode somewhat. What this might mean in relation to additional aspects that must be considered when looking at trying to understand farmer attitudes and beliefs: it is not just about examining the overall responses, it is also about understanding how individual farmers may differ from the norm. These variations were likely due to individual experiences of crime, police responses, and how these have affected the running of the farm. Table 9.3 provides an attitudinal overview for each participant where their responses vary from the mode. As can be seen, each farmer shows some interesting attitudes and beliefs not represented by the modal responses, and that should be considered carefully.

These overviews for each farmer indicate the difficulties present when trying to create a universally inclusive approach to FCP. However, it does indicate some things that should be considered when looking at how best to understand what farmers think and feel about

crime prevention. Such an exercise may well be a key aid in better understanding individual farmers' attitudes to best present the most appropriate crime prevention measures to each individual farmer. It is likely that the same delivery of information would not work for RB, who presented as the archetypal rural masculine farmer. He makes all his business decisions alone, and who does not think being a victim has an impact on mental wellbeing, but who will not go out into the farmyard to check why a security light has come on. In addition, RA for whom the crime prevention decision-making process may be difficult thus requiring less options to choose from.

Table 9.3: Individual Farmer Attitudes and Beliefs differing from the Modal Attitudes and Beliefs based upon Responses to Likert Attitudinal Statements

Farmer	Attitudes/Beliefs
JP	Negative about insurers. A risk taker, but not a crime enabler. Not convinced about the usefulness of crime prevention, or may be resigned to the fact that they are more likely to be a victim? Afraid to try new things to protect their property.
PM	Positive about what the police are doing to tackle farm crime, but feels insurers not doing enough. Willing to use crime prevention, although does not know what is out there. Although does not think crime prevention is time consuming, does not check property regularly and has not improved crime prevention since being a victim. Does not think being a victim has an impact on mental wellbeing.
AM	Does not tend to make crime prevention decisions based on what other farmers are doing. Has changed the way things are done, partly influenced by reductions in insurance premiums, but feels that crime prevention reduces farm efficiency.
KB	Positive about what the police are doing to tackle farm crime. Has changed the way they do things since being a victim, and feels crime prevention is not too expensive and not too time consuming.
RB	A risk taker, but will not check to see why a security light has come on in the farmyard. Does not think being a victim has an impact on mental wellbeing. Does not think crime prevention is too expensive or too time consuming, and makes decisions without talking to other farmers or non-farming friends.
RA	Generally positive about crime prevention, but finds it difficult to make useful decisions to protect their property when there are a lot of options to choose from.

Summary

In summary, the farmer discussions indicate a need to ensure that the farm remains profitable and sustainable for the future, and that farmers feel that FCP does not affect the efficiency of the farm. This would tend to suggest that the FCP measures being used are, in part, suitable for the way the individual farms are being run. This is supported by the

farmers reporting they have a good knowledge of FCP measures available, and the acknowledgement that using FCP reduces their chance of being victimised. However, it is noted that victimisation makes farmers think differently about FCP. As such, it may be the case that the information farmers are receiving may only be general in nature, or not necessarily suitable for the farm in the long-term. Moreover, one should question whether, if the farmer is victimised again, this would influence the likelihood of them taking further FCP advice.

This latter point is supported by the fact that, despite feeling that FCP does not affect efficiency, farmer feel that FCP is too expensive and time consuming. This raises again a question around what kind of information they are receiving, when it is noted that a number of CPTED techniques are general easy, cheap, or free, but none are mentioned in any focus group. Although farmers talk to other farmers about FCP, it seems that they make any decisions in isolation. Furthermore, while farmers say they would try new things, they are in fact mainly using low-tech FCP. However, the fact that they are using FCP at all without any financial incentives to do so, tends to suggest that they are, in fact, planning for a future occurrence that might not happen, and are therefore not hyperbolic discounters.

Farmer experiences with the police when reporting crimes, and the subsequent response of the police, left farmers with feelings of low confidence towards the police. While farmers provide positive feedback relating to insurers, it is suggested that this may be due to the fact that they paid out on farmer claims. Some of the responses from farmers varied noticeably from the mode response, which may be indicative of the heterogeneity of farmers based on their individual farms and experiences.

9.2.3 Inferential Analysis

The responses to the attitudinal statements were subject to statistical analyses to assess whether the key characteristics identified as possibly influential in victimisation via the farmer survey, had any statistical significance when applied to individual farmer attitudes towards farm crime, crime prevention, the police, and insurers. Table 9.4 provides descriptive statistics for the participant farmers who took part in the one-to-one interviews and who therefore completed the Likert attitudinal statements.

Tavakol & Dennick (2011) recommended when using multi-item measures of a concept, such as Likert scales, that a Cronbach's Alpha test be run to establish the reliability, and therefore validity, of the instrument being used to add validity and accuracy to the interpretation of the data (*op cit.* p. 54). As such, a reliability analysis was carried out on the perceived attitudes towards FCP, comprising the 29 Likert items. Cronbach's alpha have

shown the list of statements have a reasonably strong alpha coefficient of $\alpha = 0.68$. Upon further analysis, most of the items included in the list of statements appear to be worthy of retention, resulting in little change or a decrease in the alpha if deleted. The one exception was statement 25, which would increase the alpha to $\alpha = 0.74$. As such, removal of this item was considered appropriate. Considering this reasonably strong alpha coefficient, it is concluded that the items in this list of 5-point Likert statements did examine the underlying construct of farmers' attitudes towards crime prevention, crime prevention decision-making,

Table 9.4: Descriptive statistics of participant characteristics

Characteristic	%
Gender	
Male	67
Female	33
Age	
51-60	67
61+	33
Farm Size (Hectares)	
11-30	17
31-45	33
46-700	17
701-1200	33
Terrain	
Flat	50
Slightly Uneven	33
Quite Hilly	17
Previous Victimisation	
Yes	67
No	33
Guardianship Level	
Sometimes	17
Most of the Time	66
All the Time	17
Distance to Town (miles)	
0-2	50
3-6	33
7-10	17
Distance to Main Road (miles)	
0-0.1	66
0.2-0.7	17
0.8-1.0	17
Distance to Police Station (miles)	
0-2	33
3-6	50
7-10	17
Distance to Neighbouring Farm (miles)	
0-0.25	50
0.26-0.7	33
0.8-1.0	17

and the role of the key actors within this discussion. As stated, the key independent variables used in this analysis were based on those identified during the farmer survey analysis. These were: gender; age; have they been a victim; farm size; terrain; distances to the nearest town, police station, main road, and neighbouring farm; and levels of guardianship on the farm.

A Mann-Whitney U Test was conducted to compare the impact of gender and whether or not the participant had been a victim, and Spearman's Rho tests were carried out on the remainder of the data to identify any associations that may be present between the variables. The results of the Mann-Whitney analysis can be seen in Tables 9.5 and 9.6.

Table 9.5: Analysis of the difference that gender can have on attitudes towards crime prevention, decision-making and key actors

Gender (N = 6)	U	Z	P	R
Q1	0	-2.24	0.03*	0.91
Q2	0	-1.91	0.05*	0.78
Q3	3	-0.56	0.58	0.23
Q4R	1.5	-1.19	0.23	0.49
Q5R	0.5	-1.67	0.09	0.68
Q6	1.5	-1.37	0.17	0.56
Q7	3	-0.71	0.48	0.29
Q8	1.5	-1.37	0.17	0.56
Q9	3	-0.5	0.62	0.2
Q10	3	-0.49	0.62	0.2
Q11	4	0	1	0
Q12R	2.5	-0.75	0.45	0.31
Q13	0	-2	0.04*	0.82
Q14	1	-1.48	0.14	0.6
Q15R	2	-1.11	0.26	0.46
Q16	4	0	1	0
Q17R	4	0	1	0
Q18	1	-1.48	0.14	0.6
Q19	3.5	-0.27	0.78	0.11
Q20	4	0	1	0
Q21R	2.5	-0.75	0.45	0.31
Q22	3.5	-0.24	0.81	0.1
Q23R	2.5	-0.72	0.48	0.29
Q24R	1	-1.5	0.13	0.61
Q26	0	-2	0.04*	0.82
Q27	4	0	1	0
Q28R	1.5	-1.37	0.17	0.56
Q29R	3	-0.71	0.48	0.29

* significant at the $p < 0.05$ level

Based on the above results, it was noted that gender had a statistically significant impact on differences seen in responses to four statements as follows.

Based on the sample population, a Mann-Whitney U Test revealed a statistically significant difference in the response to the statement 'the government is doing enough to address farm crime' between males ($Md = 2$ (Disagree), $n = 4$) and females ($Md = 3$ (Neutral), $n = 2$), $U = 0.00$, $z = -2.24$, $p = 0.03$, $r = 0.91$. This indicated a large effect, with males being more likely to be negative about government responses to farm crime. A statistically significant difference was found in the responses to the statement 'the police are doing enough to tackle farm crime' between males ($Md = 2$ (Disagree), $n = 2$), and females ($Md = 4$ (Agree), $n = 2$), $U = 0.00$, $z = -1.91$, $p = 0.05$, $r = 0.78$. Again, this indicated a large effect on responses, with females much more likely to be positive about the police responses to farm crime.

When considering the responses to the statement 'I talk to my non-farming friends about crime prevention', a statistically significant difference was again seen between males ($Md = 4$ (Agree), $n = 4$) and females ($Md = 5$ (Strongly Agree), $n = 2$), $U = 0.00$, $z = -2.00$, $p = 0.04$, $r = 0.82$. This indicated a large effect, with females being more likely to talk to non-farming friends about crime prevention than males. The final significant result from this test, showed a statistically significant difference in the response to the statement 'I am not afraid to try new things' between males ($Md = 4$ (Agree), $n = 4$) and females ($Md = 5$ (Strongly Agree), $n = 2$), $U = 0.00$, $z = -2.00$, $p = 0.04$, $r = 0.82$. This, again, indicated a large effect, with females being more likely to try new crime prevention methods on their farms.

Overall, these statistically significant results indicated that males were more negative about government and police responses to tackling farm crime. Despite this, males were also less likely to talk to other people about crime prevention – it is speculated this may be due to lingering ideas of rural masculinity as discussed, and they are lagging behind female farmers in their keenness to try new ideas to protect their farms. It is suggested that these results may indicate male farmers could be more likely to resist new approaches to tackling farm crime than female farmers. However, it may be the case, that female farmers could be more likely to act as crime prevention champions to promote alternatives to protecting the farm, or indeed a different way of thinking about crime prevention altogether.

In relation to previous victimisation, a Mann-Whitney U Test revealed only one statistically significant difference in responses to the statement 'my insurers are providing me with adequate crime prevention advice' between those who had not been a victim of crime in the past ($Md = 2$ (Disagree), $n = 2$) and those who had been a victim of crime in the past ($Md = 4$ (Agree), $n = 4$), $U = 0.00$, $z = -2.24$, $p = 0.03$, $r = 0.91$.

This result seems to indicate that, in most cases, the attitudes of farmers did not differ regardless of whether or not they had been a victim of crime, unless they are asked about

Table 9.6: Analysis of the difference that prior victimisation can have on attitudes towards crime prevention, decision-making and key actors

Gender (N = 6)	U	Z	P	R
Q1	3	-0.56	0.58	0.23
Q2	3	-0.48	0.63	0.19
Q3	0	-2.24	0.03*	0.91
Q4R	3.5	-0.24	0.81	0.09
Q5R	3	-0.48	0.63	0.19
Q6	1.5	-1.37	0.17	0.56
Q7	3	-0.71	0.48	0.29
Q8	4	0	1	0
Q9	0.5	-1.75	0.08	0.71
Q10	2	-0.98	0.33	0.4
Q11	2	-0.98	0.33	0.4
Q12R	3	-0.5	0.62	0.2
Q13	2.5	-0.75	0.45	0.31
Q14	1	-1.48	0.14	0.6
Q15R	2	-1.12	0.26	0.46
Q16	1	-1.58	0.11	0.65
Q17R	4	0	1	0
Q18	3	-0.49	0.62	0.2
Q19	2	-1.09	0.27	0.45
Q20	4	0	1	0
Q21R	3	-0.5	0.62	0.2
Q22	1.5	-1.19	0.23	0.49
Q23R	4	0	1	0
Q24R	3	-0.5	0.62	0.2
Q26	3.5	-0.25	0.8	0.1
Q27	1.5	-1.37	0.17	0.56
Q28R	4	0	1	0
Q29R	3	-0.71	0.48	0.29

* significant at the $p < 0.05$ level

the guidance their insurers have provided. It indicates that those who had been a victim of crime were more likely to think their insurers were providing adequate crime prevention advice. This would seem to suggest that insurers were performing well for their farmer clients. However, the reasons lying behind these responses could be questioned. It could be argued that, those farmers who had been a victim of crime were happy their insurers paid out on the claim, and there had been some form of interaction with the insurers simply because they have been a victim of crime. If this were the case, then this means the simple fact of interaction with insurers may have been enough to provide a positive memory the farmers can recall.

The fact those farmers who had not been a victim of crime in the past disagree their insurers were doing a respectable job in providing adequate crime prevention advice, may well be indicative of the fact that insurers seem to be adopting a very reactive response to their clients. Rather than taking the initiative and starting a dialogue with their farmer clients before they fall victim, they are simply waiting until their clients call them to report a theft before the wheels of advice are set in action. It has to be considered whether this approach is indeed a possible explanation for the responses seen in this research, and if so, a different approach to advising their clients would only be beneficial to both parties.

The following responses were analysed using Spearman's Rho, with statistically significant results as shown in Table 9.7 as follows. All but one of the statements shows a negative correlation between the variables. The statistically significant results can be summarised as follows.

There was a strong, negative correlation between age and the feeling that crime prevention was too time consuming, $r = -0.85$, $n = 6$, $p < 0.05$, $R^2 = 72.7\%$, with older farmers being less likely to think that crime prevention was too time consuming. Age helps to explain nearly 73% of the variance (R^2) in the participants' scores on this statement.

When considering farm size, there was a strong, negative correlation between the size of the farm, and whether participants talked to non-farming friends ($r = -0.86$, $n = 6$, $p < 0.05$, $R^2 = 74.1\%$), the feeling that crime prevention reduces farm efficiency ($r = -0.84$, $n = 6$, $p < 0.05$, $R^2 = 70.6\%$), and whether the participant would check out the reason for a security light coming on in the farmyard ($r = -0.96$, $n = 6$, $p < 0.01$, $R^2 = 91.2\%$).

This seems to indicate that, the larger the farm, the less likely the farmer was to talk to non-farming friends about crime prevention, they were less likely to use crime prevention due to its' effect on farm efficiency, and they were less likely to check the reason for a security light coming on in the yard.

The terrain of the farmland also had an impact on farmer attitudes. The analysis shows there was a strong, negative correlation between the farm terrain and the likelihood of the participant checking their property on a regular basis ($r = -0.82$, $n = 6$, $p < 0.05$, $R^2 = 67.2\%$), and whether the participant made the business decisions on their farm ($r = -0.95$, $n = 6$, $p < 0.01$, $R^2 = 90.1\%$). However, it is noticeable that there was a strong, positive correlation between the farm terrain and the likelihood of the participant feeling that being a victim of crime had a major impact on their mental wellbeing ($r = 0.84$, $n = 6$, $p < 0.05$, $R^2 = 70.4\%$).

This indicates that the hillier the farmland is, the less likely the farmer is to check their property on a regular basis, and they are less likely to make the business decisions on the farm. In contrast, the hillier the farmland, the more likely the farmer is to disagree or give a neutral response to the statement that being a victim of crime had a major impact on their mental wellbeing. As a negatively worded statement, the reality is that farmers on flat farmland were more likely to agree with this statement.

Table 9.7: Analysis of how age, farm size, terrain, guardianship, and distances to towns, roads, police and nearest neighbouring farm affect attitudes to crime prevention, decision-making, and key actors.

Spearman's Rho Analysis (n = 6)	Rho	P	Variance (%)
<i>Age Range</i>			
Crime prevention is too time consuming	-0.85	0.03*	72.7
<i>Farm Size</i>			
I talk to my non-farming friends about crime prevention	-0.86	0.03*	74.1
Crime prevention reduces the efficiency of the farm	-0.84	0.04*	70.6
If a security light came on in my farmyard I would always check it out	-0.96	0.003**	91.2
<i>Terrain</i>			
I check my property on a regular basis throughout the day	-0.82	0.04*	67.2
Being a victim of crime has a major impact on my mental wellbeing	0.84	0.03*	70.4
I make the business decisions on my farm	-0.95	0.004**	90.1
<i>Distance to nearest town</i>			
I tend not to wear a seatbelt when I am driving	-0.95	0.003**	90.8
I am not afraid to try new things	-0.87	0.02*	76.4
<i>Distance to nearest main road</i>			
My insurers are providing me with adequate crime prevention advice	-0.88	0.02*	77.4
<i>Distance to nearest police station</i>			
I find it difficult to get into a routine of locking doors and gates	-0.95	0.003**	90.8
I use crime prevention to reduce the chance of a financial loss from being a victim of crime	-0.91	0.01**	81.9
I use crime prevention because it means I get a reduction on my insurance premium	-0.84	0.04*	69.9
<i>Distance to nearest neighbouring farm</i>			
I find it difficult to get into a routine of locking doors and gates	-0.83	0.04*	69.4
I talk to my non-farming friends about crime prevention	-0.83	0.04*	69.4
I tend not to wear a seatbelt when I am driving	-0.85	0.03*	72.3

Level of guardianship on farm

I am not afraid to try new things	-0.82	0.04*	67.6
-----------------------------------	-------	-------	------

* significant at the $p < 0.05$ level
** significant at the $p < 0.01$ level

A strong, negative correlation was found between the distance of the farm from the nearest town and the likelihood of the farmer not wearing a seatbelt when driving ($r = -0.95$, $n = 6$, $p < 0.01$, $R^2 = 90.8\%$), and the feeling that the farmer was not afraid to try new things ($r = -0.87$, $n = 6$, $p < 0.05$, $R^2 = 76.4\%$).

This means that the further the farm was from the nearest town, the less likely they were to disagree with the statement 'I tend not to wear a seatbelt when I am driving'. As a negatively worded statement, this means that the further the farm was from a town, the less likely they were to wear a seatbelt. In addition, the further the farm is from the nearest town, the less likely they were to agree with the statement 'I am not afraid to try new things'. In other words, they seemed to be more afraid to try new things to protect their property.

A strong, negative correlation can be seen between the distance of the farm to the nearest main road and the feeling of whether the participants' insurers were providing adequate crime prevention advice ($r = -0.88$, $n = 6$, $p < 0.05$, $R^2 = 77.4\%$). This hypothesises that those farmers furthest from a main road were less likely to feel their insurers were providing adequate crime prevention advice.

A strong, negative correlation is seen between the distance of the farm to the nearest police station and the statement 'I feel it difficult to get into a routine of locking doors and gates' ($r = -0.95$, $n = 6$, $p < 0.01$, $R^2 = 90.8\%$), the use of crime prevention to reduce the chance of financial loss from being a victim of crime ($r = -0.91$, $n = 6$, $p < 0.01$, $R^2 = 81.9\%$), and the use of crime prevention because it means the farmer gets a reduction on their insurance premium ($r = -0.84$, $n = 6$, $p < 0.05$, $R^2 = 69.9\%$).

This means that those farms further away from a police station were less likely to disagree that they found it hard to get into a routine of locking doors and gates. As a negatively worded statement, this means that farmers further from a police station found it harder to establish this kind of routine. In addition, farms located further from a police station were less likely to use crime prevention to reduce the chance of an economic loss because of victimisation, and they were also less likely to use crime prevention because it gets them a reduction on their insurance premiums.

Strong, negative correlations were found between the distance of the farm from the nearest neighbouring farm and the statement 'I feel it difficult to get into a routine of locking doors

and gates' ($r = -0.83$, $n = 6$, $p < 0.05$, $R^2 = 69.4\%$), the farmer talking to non-farmer friends about crime prevention ($r = -0.83$, $n = 6$, $p < 0.05$, $R^2 = 69.4\%$), and the statement that the farmer tends not to wear a seatbelt when driving ($r = -0.85$, $n = 6$, $p < 0.05$, $R^2 = 72.3\%$).

This shows that those farms further away from a neighbouring farm were less likely to disagree that they found it hard to get into a routine of locking gates and doors, and the less likely they were to disagree that they tend not to wear a seatbelt when driving. As both are negatively worded statements, this equates to those farmers further from their nearest neighbouring farm finding it harder to get into a routine of locking doors and gates, and they were also less likely to wear a seatbelt. In addition, those farms furthest from the nearest neighbouring farm were less likely to talk to their non-farming friends for crime prevention advice.

Finally, there was a strong, negative correlation between the level of guardianship on the participants' farm and the statement 'I am not afraid to try new things' ($r = -0.82$, $n = 6$, $p < 0.05$, $R^2 = 67.6\%$). This means that those farms with higher levels of guardianship were less likely to agree with this statement. Therefore, those farmers with higher guardianship were actually more afraid to try new things to protect their property.

In summary, this statistical analysis of the Likert attitude scale has shown there are some key relationships between potential predictors of victimisation as identified in the farmer survey, the attitudes of the participants towards crime prevention decision-making and key actors within this area. So, not only might these farmer/farm characteristics potentially predict likelihood of becoming a victim, they may also play a part in the creation of an appropriate decision-making choice architecture by driving the key questions and information needed to enable more relevant options to be presented to the farmer to aid in their decision-making.

The key findings from this statistical analysis are illustrated in Figure 9.6, which shows the relationship between the key farmer/farm characteristics and how they may influence attitudes and beliefs towards crime prevention, crime prevention decision-making, and key actors. This is particularly important, as it allows for the beginnings of an understanding of what can affect farmer attitudes and aid in advising on crime prevention and enabling farmers to be more proactive in their crime prevention decision-making.

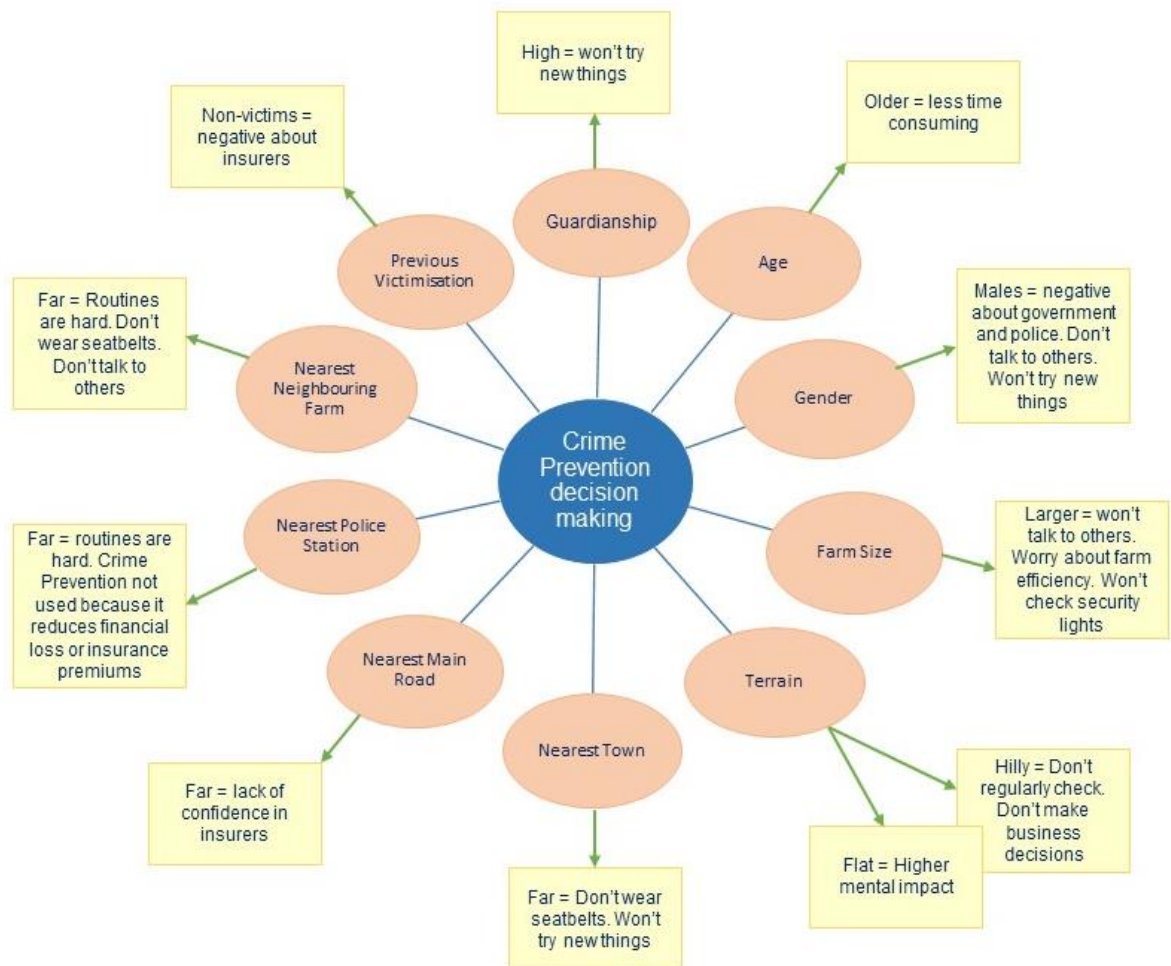


Figure 9.6: Diagram showing interaction of key characteristics and attitudes/beliefs of farmers regarding crime prevention and key factors that may affect crime prevention decision-making based upon responses to the Likert Attitudinal Statements

9.3 Farmer Focus Groups and Interviews

By examining farmer discussions from the focus groups and interviews, a better understanding of their attitudes and beliefs in relation to crime prevention, the police and their insurers was possible. By better understanding what drives these attitudes and what factors play a crucial role in the way farmers think about crime prevention, the first steps towards a better crime prevention decision-making choice architecture can be taken.

For this analysis, the key themes that were identified are:

- Crime Prevention Theory Discussion
- Farm Crime Experiences and Business Impact
- Reporting to, and Response from, Police and Insurers
- Farm Crime as a Challenge to Rural Masculinity

- Attitudes towards Farm Crime Prevention
- Farm Crime Prevention Decision-Making

Appendix 9 provides an overview of the key characteristics and crime experiences of the farmers who took part in the focus groups and one-to-one interviews. Furthermore, Appendix 10 provides an overview of the key points raised in each focus group so that consensus and disparity can be easily identified between each group. These points are grouped in accordance with the coding allocations detailed in Appendix 7.

Farmers across all four focus groups exhibited high level of consensus across many areas of the discussion, with contrasting views possibly reflecting location, farming types, or experiences. Farmers across the board seemed to use a mixture of hi- and low-tech FCP measures, although they all wanted hi-tech FCP given the chance. Where farmers in Cheshire and Worcestershire reported large kit, tractors, and quads being targeted, those in North and South Shropshire referred to animal related kit, fencing, and smaller items being stolen. All farmers agree they do not feel secure, are vulnerable, and that farm crime is increasing. All farmers report fear of violence, being scared, with crime impacting mental wellbeing, time, and causing inconvenience reflecting fear of crime.

Farmers agreed that FCP advice must be tailored, the police are the main source of advice, although responses were mixed about advice from insurers. Farmers tended to agree that they see what other farmers have done to protect their farm, but make the final decisions on their own based on what is best for their farm. While they agreed that they were more likely to use FCP if it was effective and convenient, there was some disagreement across focus groups about the effectiveness of CCTV. All agreed that the response received from the police was poor, and again a mixed response was received regarding their insurers' reaction. All farmers agreed, however, that FarmWatch schemes were, overall, ineffective.

While most farmers tended to agree that they were hyperbolic discounters, those from the Cheshire focus group did not think they were, and that they did not put off FCP decision-making. While there was disagreement among farmers about whether crime is worse at a particular time of year, which is possibly down to the farming sector they are working in, there was general consensus surrounding the impact of bad weather on victimisation. Finally, there was little consensus around offenders, with those from the North and South Shropshire focus groups talking about farmers, and those from Cheshire and Worcestershire talking about foreigners and travelling communities. However, it was noted by all farmers that many things are stolen to order.

9.3.1 Crime Prevention Theory Discussion

Although not aware of the fact, many of the farmers during the focus groups and one-to-one interviews talked about key criminological theories relating to crime prevention.

9.3.1a Routine Activity Theory and Capable Guardianship

Farmers were talking about their awareness that criminals were watching farms to establish patterns of life, and therefore when they can make their move, as noted in RAT (Cohen & Felson, 1979), and COT (Cohen *et al.*, 1981).

“Then one night he [the farmer] put them [the sheep] in, someone came and filled a lorry up. It was just off the road and they’d [the criminals] been watching” (JP)

“They know when you’re busy because they’ve [the criminals] been watching” (KB)

“Don’t park your vehicle in the same place all the time” (JR)

“In the space of time between them [the workers] leaving and her arriving someone had gone down to the farmyard and stolen a quad” (PM)

In addition, farmers were aware they have their own routine activities relating to crime prevention, although some realise these can become problematic:

“It’s almost become a way of life that you put your padlocks on and check them at night and make sure that’s all done” (PC)

“I always hang the filler pipe in a specific way so if I walk past the diesel tank and it’s in a different position, you would tend to think somebody’s been there and done it” (JP)

“It’s almost part of a routine, but you try not to have a routine because that then in itself becomes an issue” (KB)

In addition to understanding routine activities, some farmers were also aware of the issue surrounding capable guardians, but worried about how reducing staff levels will affect guardianship:

“I’m more comfortable when there’s somebody on site...we can go out of here at 6 o’clock in the morning and don’t come back again...until...7-8 o’clock at night” (RB)

“There’s nearly always somebody there, but we are very conscious of the fact that if there is no-one around, we are very vulnerable” (AJ)

One farmer addressed the fact that he was the only person working that farm, and he was fully aware of where everything was, which initially might seem to work counter to capable guardianship. However, it is argued that such work practices are only likely to be seen on small farms with a single person running the farm:

“Because it’s only me I know how I leave the farm set up, so if suddenly there’s a gate open, a door’s open...somebody’s done it” (JP)

Two farmers also raised points that may well highlight limitations of capable guardianship:

“Because [daughter] is here now I haven’t been quite so bothered about it, so the door can be left open all day, not that she’d do much if a burglar came” (PM)

“Google Earth...because you can stake out the whole place can’t you. You can zoom in...see side roads, back roads, you can see what’s behind buildings, machinery and everything” (JP)

The first comment raised the issue of the effectiveness of a capable guardian if that person was a lone female, and whether that would be enough to deter a criminal. The second point raised the issue of whether a capable guardian would be a deterrent to a criminal who does not have to visit the farm to establish what is there and where it is kept as a result of advancements in technology.

9.3.1b Rational Choice Theory

Farmers were talking about RCT (Cornish & Clarke, 1986). In the main these discussions centred around the rational choices of the offenders. However, some farmers seemed to be thinking about their own rational choices, and weighing up the costs and benefits of using one type of crime prevention measure over another:

“They’ve [the criminals] got to weigh up the pros and cons. If I get caught it is going to be worth it what I’m going to get off the farmer. Is it a high value thing worth thousands of pounds, because if it isn’t it’s not worth taking the risk” (PC)

“Our neighbours have got beautiful gates, wide open, and they’re always moaning that someone’s going up their driveway. Well shut the bloody gate and put some string round it” (AB1)

“Their [the criminals] career is to not get caught and not to get prosecuted. So they’ve got time to work out what’s the easiest way for them to get whatever they want” (KB)

“My view is, it’s a bit of a selfish one really, but everybody has got to try and make it more difficult to get on my farm than the farm half a mile down the road” (AM)

“The less secure it looks, the less inviting it is. So if you’ve got big steel doors they think there’s something worth breaking into it for” (JP)

While most of these show a reasonable understanding of how criminals think, and therefore how farmers should think to counter this, in response to the comment by farmer AB1, one should wonder, while gates are a great deterrent, a gate secured with baling twine may not have the desired effect.

9.3.1c Crime Prevention Through Environmental Design

It is surprising how many farmers talked about crime prevention measures that would form part of the CPTED approach in an urban setting (Jeffery, 1971). The simple fact these farmers were talking so much about these ideas would indicate that the principles of CPTED would be well suited to deployment in rural areas, and particularly on farms:

“Locking gates up on the fields and putting big lumps of wood across gateways and such” (PM)

“I might use something that they’ve [the CPA] suggested because they’d found something that works in the town might work in the country” (KB)

“Grow prickly roses in front of your windows...and have gravel that sounds good” (PM)

“Two entrances in one unit and they [the criminals] can drive in one entrance and out the other then that’s ideal for them...We’ve blocked one entrance off so we’ve only got one entrance in now” (RB)

"We've got trees left in the gateways now, big tree trunks. That makes the gateways unusable now...It probably looks a bit stupid, but it seems the only way we can keep them [the criminals] from barging them open" (HG)

"The only way for a machine to go out my yard, the only way out is through the drive. You can't go across the field because there's like a big ditch" (JR)

9.3.1d Broken Windows Theory

One farmer talked about the tidiness of his farm, and how he believed that a tidy farm is more of a deterrent for criminals than an untidy farm:

"Tidiness is a huge factor in reducing rural crime in my opinion...because if something's tidy things will stand out immediately, won't they? You go on some farms and there's rubbish here, there and everywhere, you wouldn't hardly notice anything was missing" (JP)

"Tidy farms they [the criminals] do tend to drive by don't they...It looks better, better sorted. We've all got tidy farms in our area, we don't have too much trouble" (JP)

This could indicate a possible link to BWT in a farm setting. Farmers seemed to believe that tidy farms can be more of a deterrent to criminals than untidy farms. This follows the idea in BWT that physical disorder, as well as social disorder, negatively affects residents' perceptions of an area, creates fear among these residents, and that disorder leads to crime (Wilson & Kelling, 1982). However, while a lack of physical disorder might discourage the opportunist thief, it is hypothesised that an organised criminal may not be deterred by orderly farmyards, and in fact may find a tidy farm is easier to establish target items.

9.3.1e Deterrence Theory

Several farmers noted the likelihood and the harshness of any punishment for committing farm crimes was particularly low. Farmers specifically addressed the issues of certainty and severity of punishment as noted in DT (Paternoster & Piquero, 1995; Piquero & Pogarsky, 2002). While celerity of punishment was not directly mentioned, it is safe to assume that if farmers felt more effort should be put in to catching rural criminals, and the punishment should be harsher, then the swiftness of such punishment should follow:

"We're a soft target, and until there's some sort of deterrent and...the police start doing something about it, it'll get worse" (EH)

“They [the criminals] need to do a decent amount of time to deter others isn’t it really? A slap on the back of the hand isn’t going to stop it” (HG)

“I think generally, the punishment doesn’t fit the crime in most of the cases” (AM)

“I don’t think some of these people [the criminals] get properly...made to be responsible for what they’ve done...Maybe facing people off would be better” (KB)

In respect of the last comment, it is questioned whether restorative justice can make a difference. It is possible this might work in the case of opportunistic criminals, but it is argued this approach would likely prove ineffective with those involved with organised crime, at any level.

Summary

In summary, it seems that a number of comments from farmers during discussions indicates their awareness of factors that fall within the remits of a number of crime prevention and decision-making theories. Farmers are aware of the motivation of criminals, how they establish a suitable target by watching the farm, and also recognised their own routines and how they are used by criminals. Furthermore, farmers recognise that there is not always someone on the farm, but that this was, in part, due to reducing staff. Farmers also know that criminals assess the costs and benefits of targeting a particular farm, but also their own cost-benefit analysis of using one FCP measure over another, for example, how much of a deterrent a gate is when it is secured with baling twine.

Numerous farmers talked about CPTED-driven FCP measures, such as gravel drives, blocking entrances, and prickly roses. However it is not clear how they came about this information, whether it might be the police or another source. Some farmers felt that a tidy farm is more of a deterrent in line with BWT. However, it is perhaps the case that this may be less of a deterrent to a determined or organised criminal than it would be to an opportunist.

There seemed to be consensus in the fact that punishments for these criminals is too lenient; there is a need for more certainty and greater severity to deter future crimes. However, this discussion is counter to Beck’s (1968) economics-based DT, which states that greater certainty should be followed by reduced severity and vice versa in order to obtain effective punishment at an optimum cost to society. This may seem to support the

idea that an economics-based approach to deterrence is not necessarily workable in relation to farm crime.

9.3.2 Farm Crime Experiences and Business Impact

9.3.2a Experiences and Impact

The first category creating key discussion within this theme is the crime experiences of the farmers, how they dealt with these crimes, and how the crimes have affected them, their family, and their business.

When thinking about the items that have been targeted by criminals, one farmer reported having had a particular problem with theft of diesel:

“Diesel has probably been taken out from the diesel tanks in the past” (RB)

However, this comment on its own may be indicative of something that may have a wider reach across the farming community. Farmers tend not to be aware of exactly what has been stolen in many cases, and the fact this farmer reported diesel has *probably* been taken is indicative of this and may be one reason why farm crime is not always reported, where the awareness of a crime may not be present.

This incomplete knowledge or awareness of what has been taken was repeated by another farmer:

“We have had no break-ins, burglaries, whatsoever, as far as we are aware. We have had a few items go missing, but it is probably us losing them” (AJ).

Not only does this indicate there is no certainty this farmer had – or had not – been a victim of crime, it suggests things have gone missing, but it may be down to the farmers or staff losing things, rather than a criminal stealing them. One has to question why this farmer is passing off items that have disappeared as obviously being lost, rather than stolen. It is possible that this approach means it can just be forgotten about, or it enables the farmer to deny they have been a victim of crime, and therefore all the problems that might go with it.

While many of the incidents that the farmers have talked about seem trivial in nature, the items that are being stolen may have a substantial impact on the farmer and the business (Tilley, 1993). Some examples of this include:

“They’ll [the criminals] leave the 300 quid fence and take the 50 quid battery instead” (EH)

“They [the criminals] push the cattle all around the house and up and down the road and while he was chasing cattle around the road, they were emptying the tool shed” (EH)

“They [the criminals] just stole the gates away, so if they wanted to get at them, they could” (PP)

Incidents such as these can create a huge amount of disruption within farming. While seeming inconsequential to the general observer, the loss of fencing and gates can cause immense problems for farmers. This can range from the immediate loss of livestock that have been left free to wander possibly onto other land or even roads; to the financial loss that is incurred by the farmer as a result of the need to replace the stolen fencing or gates. In addition, these statements show that criminals are picking their targets carefully. The first statement may indicate that criminals are not just targeting the things that will bring the highest price, it is possible that some items, such as the battery referred to, have been stolen to order³. However, in contrast, this may also indicate that these criminals may not be completely aware of the price of commodities such as the electric fencing that they left in favour of the battery. This would seem to suggest these crimes are predominantly opportunistic, and the criminal is simply taking what he can carry, in this case the battery rather than the fencing.

From the discussions that have taken place, it is noticeable that there seems to be a lack of awareness among farmers about the value of machinery or livestock on their farm:

“We’ve got a tractor, which is second-hand. We’ve got some basic equipment like chain harrows and a roller that are very, very old, but might be interesting to somebody wanting scrap, I suppose” (PM)

“Sheep tend not to be too valuable” (JP)

This could be problematic for farmers. It is suggested that by not being fully aware of the value of the property they have on their farm, they are potentially less inclined to seek adequate protection of that property, and maybe underestimate their chances of being targeted by criminals as a result (Yarwood & Edwards, 1995). If this situation reflects reality,

³ Criminals who will travel across regional, national, and international borders to locate items they are told to steal by those further up the criminal chain, like a shopping list for criminals. This tends to be driven by supply and demand market forces.

then it would be necessary for the value of property to be made clear to the farmers so they can fully assess what would be suitable and adequate for their FCP.

It is interesting to note that farmer *PM* felt that what can be found in their farmyard would only be of interest to scrap collectors. This comes despite the existence of the Scrap Metal Dealers Act 2013, which provides for increased traceability of metal and those who take it to scrap dealers. It is noted that *PM* lives on a relatively isolated farm, and it may be the case that a lack of contact with other like-minded farmers means they may be less likely to be aware of such legislation and the implications it has on scrap metal collectors, despite its critics.

A comment was made by farmer *AM* in relation to the awareness of the value of farming equipment among the criminal element as compared to the awareness of the general public:

"I think the criminal element of Joe Public need to have a degree of education as to the values because 95-98% of the population wouldn't have a clue of the value of anything out on the farmyard...They wouldn't even come close at valuing a £250,000 combine, or a £50,000 tractor, or a £2,000 cow, they wouldn't have the slightest idea" (AM)

This comment suggests the farmer believed that farms are seen as soft targets only by a small number of people, as most people do not have the knowledge of the value of things on farms to even consider them as targets. It is only the criminal element, and possibly just a small fraction of them, that see the true price of a tractor, a combine, or a cow. This would therefore suggest this farmer feels farm crime is more organised in nature. Criminals who target farms have done so based on directions for target items by another person. Alternatively, they realise that a large amount of money can potentially be made from just one theft – high value, low volume crime, as opposed to the need for multiple offences in an urban setting to reach a similar outcome – low value, high volume crime.

It is possible this comment perhaps has an underlying suggestion that, to some extent, crimes are committed, or at least facilitated, by farmers themselves. While not being stated overtly, this farmer may feel that other farmers could conceivably be involved, and perhaps providing information to criminals on target items. If this were the case, this would support the previous findings of Smith et al. (2013) and Somerville et al. (2015) and their discussions on illicit rural enterprise.

One point of note that was raised by farmer *KB* was the idea of jealousy among the criminal fraternity towards farmers:

"I feel there is still a lot of jealousy of farmers and things because we appear to have a lot going for us in that, you know, we've usually got big houses...we've got big gardens...and we tend to have a bigger car...Sadly, if they [the criminals] knew some of the truths they maybe wouldn't be quite so keen" (KB)

However, the extent to which jealousy explains farm criminal motivation is unclear. In reality farmers may well be cash poor, but they are asset rich and so become targets of criminals as a result of the visible property they have in the farmyard. This then coupled with the low levels of security may well be enough of a driver for some criminals. However, this is just one potential motivator that may drive criminals who target farms.

What was mentioned more frequently as a financial consideration when considering farm crime and protecting the farm, was the role insurers' play in the alleviation of worry for the farmers. The financial impact of farm crime goes beyond the immediate act itself. For many farmers, it is not clear whether they are insured at an adequate level, and part of this is down to insurers and the advice provided:

"As far as I was aware, my insurance will cover me for livestock rustling or you think like in a shed, you'd be covered by contents, no. So I've had to fork out more money to cover for theft of animals out of the shed...you're not covered for that, anyone can steal anything that they feel and you don't get diddly squat" (IN)

It is interesting this farmer thought to check exactly what they were covered for, and it led to an additional premium being levied. It is hypothesised that not all farmers are aware of the level of insurance cover they have, and what that insurance policy does, or does not, cover. In addition, regarding the level of cover often being provided to farmers, how do insurers ensure it is adequate. By not having adequate insurance an additional financial burden is potentially incurred by the farmers if they become a victim of crime. Farmers in these discussions indicated there is the possibility they may not have sufficient insurance cover to address their daily activities if the business is interrupted by crime. Moreover, many of these farmers may not be aware of exactly what their insurance policy does and does not cover. This situation seems to reflect the 'aloof' nature of insurers as noted by Pease & Litton (1984).

While not crime, this dilemma was described by another farmer who worries about avian flu, and the insurance position if there were to be an outbreak. This could easily be repeated with crime:

“But it’s our livelihood, isn’t it? And if you get Avian flu, if you get it in a flock of birds, day one you lose five or six, day two you lose 200, day four three quarters of the flock, and there’s no pay-out, there’s not compensation, there’s nothing” (KB)

While the big value crimes are the ones that catch the headline news, for farmers, it is the small crimes that end up being much more costly for them:

“The small financial losses are almost the more frustrating ones because, you know, often things are insured with a threshold of, say, £200 or something like that, and therefore anything under £200 you just don’t claim for, so if you have quite a few of those it can add up” (JP)

It is debatable that farmers may be focusing on protecting their larger, more expensive machinery and equipment, but should be paying equal attention to the small equipment and tools that are used regularly and adopt crime prevention measures that make such tools much less attractive to the potential thief, and therefore less likely to be stolen. The potential cost of such measures would quickly be offset by the cost of replacing tools and small equipment when stolen.

Two farmers talked about the financial impact the farmer has to deal with as a result of the shortfall between the cost of replacing stolen items, and the amount that the insurers paid out for that event:

“To replace that trailer, you never get the same. The cost is more, hundreds of pounds more to replace, even what would have been a second-hand trailer. Especially, those big, flat I for Williams trailers, they are quite unique and they hold good second-hand value too” (PP)

“Our insurers are very good, they always paid out, but you’ve got to replace it and you’ve got to pay for it before you can get the money...Plus the fact is...you’ve got to buy new stuff whereas what they [the criminals] stole was...could be anything up to 5, 6, 10 years old and the value’s gone” (RA)

These comments are indicative of the need for farmers to ensure they always have a means of covering either the payment for the replacement until the insurance pays out, or the means to cover the shortfall that will likely arise as a result of replacing older equipment with new equipment. This means that, whether or not they have to find the up-front amount to buy the replacement equipment, they are likely to have to absorb the insurance shortfall on the claim. This causes a wider impact on the running of the business than simply the

immediate cost of the replacement, as it may mean money has to be diverted from another project to cover such outlay.

However, despite the possible financial impact resulting from farm crime, the fact that insurance was available for a farmers' equipment seems to be appreciated. One farmer was clear that, if it was not for the cooperation they had from their insurers and the pay-out made when the farmer was a victim of crime, it is likely that they would no longer be in business:

"If we didn't have insurance it might have forced a decision...so it would have been down to the financial implications without insurance rather than the crime itself" (AM)

However, from this comment, it is debatable whether it is the service provided by the insurer that was key, or the simple fact they agreed the financial recompense that formed this positive response.

Summary

In summary, this section has highlighted the impact that even small losses can have on the running of the farm. Farmers are often not aware that something has been taken until much later, and so do not report either to the police or to the insurers. Instead, they pass these off as something that has been lost rather than stolen, possibly to deny to themselves they have been a victim. This section highlights the fact that something that might seem trivial to others can have a big impact on the efficient running of the farm. This is also illustrated by the fact that some farmers are not aware of the value of the things they have on-farm, and so underestimate the need for and level of adequate protection, both FCP and insurance.

Although these farmers have argued that only a small percentage of the public know the value of things on the farm, this is going to be criminals in the main, whose actions are purported to be facilitated by farmers or farm workers in some cases. It is notable that it is often the smaller items that are stolen which have the biggest financial impact as they may be just under the insurance excess threshold and so the farmer does not claim, meaning they have to purchase a replacement out of their own money.

9.3.2b Trust

From the discussions had with farmers, it was clear that crime has had a considerable impact upon trust within the community; a community which prides itself on being trusting and trustworthy:

“And it boils down to one word, trust. We’ve always, as a farming community, you have been a trusting community” (KB)

However, trust seems to have been eroded by experiences of farm crime, leaving farmers suspicious of other people who may simply be going about their business, or indeed other farmers. Moreover, it may be one of the driving forces behind some farmers doing what they can to protect their property:

“Once you’ve been a victim, trust goes out the window; who’s that, what are they doing, where have they gone?” (KB)

In line with findings of Gilchrist *et al.* (1998), not only do farmers seem more suspicious about strangers in the area, they are reporting that the trust has been eroded among those close to them:

“And it could be your best friend coming in a different car” (JR)

This suggests farmers may be increasingly hypervigilant regarding anything that is different from the norm; creating the potential for increased anxiety levels. Despite this reduced level of trust among farming communities in general, there are examples of the trust built up within small communities, such as villages, over a long period of time, and the usefulness of some people within these communities. Crime prevention is not necessarily about overt crime prevention measures, such as CCTV, it is also about people around the farm being alert and making use of those human assets to raise awareness of anyone or anything out of the ordinary:

*“He’s just got that sort of trained eye to see anything...useful people in the community like that are absolutely invaluable...Because you can’t be everywhere all the time, can you?”
(JP)*

Summary

In summary, from the discussions in this section, it is clear that being a victim of crime erodes the trust of the community, leaving farmers suspicious about strangers on their farm, but also friends and family, therefore potentially increasing levels of anxiety. It is suggested that this suspicion and anxiety may be greater among more isolated farmers, as it is noted that villages often retain some level of trust thus providing human assets in the fight against crime. This may well be as a result of stronger social organisation of the village, and therefore greater levels of capable guardianship than would be experienced by isolated farmers.

9.3.2c Offenders

Despite several farmers identifying those targeting farms travelling from cities, this feeling was not shared by all farmers. Those who feel that travelling criminals are involved, are quite specific about where they are coming from:

“I’ve been told that there’s a train of thought that the hare coursing people have been deterred from doing it in Cheshire by the local police, and so they’ve moved over the border” (PM)

“Seriously, there is a big issue in this area from Liverpoolians...hare coursing is a big one, badger baiting, dog fighting...chance is that’s where they’re coming from, and the police know that” (KB)

“The police say there are two or three gangs. One gang they know from Bidford on Avon, which take loads and loads of stuff. Another lot come up out of Wales, and off the services” (RA)

The last comment indicated that some areas were subjected to crime from a combination of criminal gangs that were travelling relatively small distances; Bidford on Avon is approximately 20 miles from the farmers’ location; and those criminal gangs that travel large distances to target farms, making use of the motorway network for easy access and a quick getaway.

Despite this, most of the farmers felt that most crime experienced on farm, was as a result of local criminals:

“There’s notorious people in the area that have a lot to answer for...I’m sure a lot evolves round a few people rather than a lot of people...I don’t think it’s people coming from miles apart just to do it, I think they tend to be fairly local” (RB)

“Certainly, in the cases I’ve had they’ve [the criminals] been local people who would know the area quite well. Don’t think we’ve been...raided by people from a distance because we haven’t had those sort of things taken, really. If they’re seeing tractors...they might come down from Manchester to come into areas like I’m in; this is local, petty crime I think” (JP)

While there is an awareness of the fact that some criminals travel to target high value items (Wiles & Costello, 2001; Cann, 2014), these farmers were sure those targeting farms were,

in the main, local people. One has to question whether this train of thought is because they have not been targeted for the high value items they possibly believe are the key targets of those travelling criminals they are talking about.

Related to this discussion, is the contrast between whether farmers feel criminals who target their farms are opportunistic thieves looking for anything they can take away quickly with an easy avenue of disposal, or are part of a wider organised crime group targeting farms because of the availability of high value equipment that is stolen to order, often for the export market. The views of the farmers include:

“I think it tends to be professional criminals that are going to pinch that type of machinery...they’ve got the market set up long before they do the pinching” (RB)

“You know it’s all nicked to order, Land Rovers and that, you know. And it all ends up in a container on a boat somewhere...it’s not just one person, he doesn’t just do it for his own good does he?” (AB1)

“I think you’ve got two different types of people don’t you? You’ve got the types that go around garden sheds, that sort of thing, and take chainsaws, brush cutters...and the ones who are after machinery which they know they have an outlet for. But they strip it down and ship it abroad in a container or take it straight to the docks and ship it away” (RA)

It seems clear these farmers were aware of the differing tactics and targets of opportunist thieves and organised gangs, and also some knowledge of what happened when things are stolen. This understanding of criminals targeting farms seems to bring a realisation that these offenders are planning their crimes in advance:

“But what the worst thing is, you know they’ve [the criminals] been there sometime...you can’t see anything from the road, they’ve obviously been in the yard sometime, but you can’t see when it is” (RA)

“Suss the job out to see where the object is to take” (HG)

Something one farmer mentioned during a focus group, is that farmers are becoming aware, even if this is not a conscious awareness that criminals are reacting to general market forces and supply and demand. This is particularly reminiscent of the idea that criminals targeting farms are becoming more organised in nature. Since the cessation of Land Rover Defender production in early 2016, existing vehicles seem to be increasingly targeted. This is illustrated by the comment made by farmer JH:

“They’ve [the criminals] been stealing bonnets off Land Rovers and all sorts of things just when it’s parked up, and they’ve just been helping themselves to wings and wheels and all sorts of things” (JH)

In addition to the recognition that farm crime is perpetrated by a mix of opportunist and organised criminals, dependent upon the target, these farmers also talked about at least three specific groups of people as possible offenders, or at least suspicious in their actions. The first group identified were those people who are ‘different’ in some way; in other words, the travelling community and other ‘foreigners’.

“This sounds terrible, it’s not meant to be. Most of the crime now is foreigners, and I might be wrong, but for me it’s foreigners. I’m not saying there’s no English people doing it but I think the foreigners are far more cheekier” (JR)

“You can’t keep carp in any ponds...The Polish and Romanians eat carp, and they clear them out just before Christmas...it’s a well known fact. They’ve been caught at it, it happens a lot sadly” (KB)

“We’ve got a local gypsy camp, which has only been here 18 months, two years, and people have followed their quad bikes into the gateway, parked in the gateway, rung the police...But the thing is, same with any crime, you’ve got to catch them [the criminals] at it...and they’re very good at what they do” (RA)

“We do have quite an itinerant gypsy community around the area, and some of it is that” (KB)

While it is likely some of these attitudes and beliefs may be based on experience, it is not clear that these groups of people play a major part in farm crime. To some extent, there may be cultural or socio-economic factors at play when you consider the type of crimes that may be associated with these so-called ‘foreigners’. Indeed, in some cases, one has to question the reasoning behind a farmers’ belief that the crimes they experience are down to ‘foreigners’:

“A lot of the people that have been arrested around here for different things have all been Eastern Block...The ones we saw on camera definitely looked Eastern Block...They certainly weren’t gypsies” (RA)

Interestingly, this farmer was convinced you can tell where someone is from just by looking at them on CCTV. However, this belief must come from somewhere. One has to question what kind of biases the information providers have in relation to local crime spates and what is given to farmers. What kind of information are farmers given about local crimes, and how does this fit in with the fact that they believe local offenders often commit crimes.

The second group identified by farmers as potential offenders, were visitors and those delivering items to the farm. As this was something that might occur on a weekly, if not daily basis, it was not clear what was driving these beliefs among farmers, how this may have an impact on how they farm, and how they might interact with visitors to the farm;

“We got burgled three times...they [the criminals] came back...and they took the lot. And up to this day, I swear it was the bin man. Not the bin man had stolen it, it was the bin man who was clocking it. Your bin man comes every week, don’t they” (JR)

“I’ve got a fear about these [visitors to the farm] at the minute, and I think it’s Amazon delivery people who are doing it at the minute...I thought I’ll just go back on the camera and see if he had a snoop around...doesn’t go anywhere near the house, straight across, straight to one of the buildings, looking all around the buildings, all around the doors and stuff” (IN)

This seems indicative of the level of ongoing worry about becoming a victim of crime, and how this may lead to some degree of paranoia among farmers. So, bin men come to the house every week, they do the same to countless hundreds of other farms and houses each day. And it may be that the Amazon delivery person was just looking for someone, or even somewhere safe to leave the parcel they were trying to deliver. Such paranoia towards visitors to the farm is perhaps a small indicator of the psychological impact that farmers are living with due to their fear of being a victim of crime.

The last group identified by these farmers as potential offenders in farm crime, were farmers and farm staff (Smith *et al.*, 2013; Somerville *et al.*, 2015). What was surprising was that the farmers who took part in this research were either openly stating farmers might be behind some farm crime, or they suggested this was the case in a less direct manner:

“It’s got to be somebody who’s got access. It’s got to be one of us really” (JH)

“Someone with a trailer and a dog and a plan” (MK)

"They [the sheep] always seem to be nicked in Lfor Williams loads too, it's always thirty five... That's someone in the industry" (EH)

"That's a farmer that is" (JH)

"He [the farmer] has been pulled up for fraud and things himself, but he seems to be a gamekeeper turned poacher. I'm not sure but things don't seem quite right" (PP)

From these comments, farmers were quite willing to suspect their own neighbours of committing, or aiding, certain crimes. It is understandable that most of these comments were made in relation to livestock theft. It could be argued that it was a safe assumption on the part of these farmers, that large numbers of livestock being stolen requires knowledge of the farming industry, the means by which to round up and move the livestock, and somewhere to dispose of the animals once taken. It would be safe to assume that those criminals who do this have knowledge of livestock movement, and access to the tools to undertake this task, and either have contacts in the wider farming industry, or are part of that industry themselves.

It could be argued that, by being resigned to the fact that some crimes are indeed committed by 'one of us', this creates an additional psychological impact on farmers, as they then find themselves becoming suspicious of their own neighbours. However, none of the comments seem to indicate any solid evidence that a farmer is committing these types of crimes. This belief seems to be based on their own experience of farming, and their understanding of what is and what is not possible without the specialist knowledge that comes with working in the same industry.

In light of what farmers have said about who they think was committing these crimes, from organised gangs, right through to their own neighbours, it is hardly surprising they feel these criminals are determined in what they are doing, and are unlikely to be deterred easily:

"Transit van pulled up and blocked the door...so we couldn't get out and just helped themselves to everything in the workshop and waved and drove off. They've got some cheek they have" (MK)

"I see this chap come with a rowing boat...and I helped him to get all these carp into dustbins and that...I said to the landlord about three weeks later, I said oh it was interesting the other night I saw a bloke rounding the carp up, and he said don't suppose you managed to get a registration number? He'd bloody nicked 'em" (HW)

“The one time we were broken into, they [the criminals] used an eight year old child as a decoy. He was stroking the horse in the paddock, while whoever was with him was in the house” (RB)

“The easiest trick in the world is you [the criminals] have a bit of a pick-up and you have a hi-vis jacket and nobody queries it...you go in confident and it’s a complete trickster thing...you don’t even speak to them...you just go and do it” (KB)

“They [the criminals] don’t have a care in the world. When the lights came on, they just put their hands in their pockets and whistled down the middle of the yard” (RA)

These comments just go to show how “brazen” these criminals can be, and what little regard they have for the people they are targeting. It also shows farmers generally have a trusting nature, and it is arguable that criminals know this, and so it makes it easier for them to ‘trick’ farmers into thinking they should be there. As farmer *KB* said, it is a confidence trick, and being the type of community they are, farmers are easy prey for these people who can fit in anywhere, and even when they are caught in the act, they have a story as to why they are on the property.

Another example of the brazen nature of these criminals is the realisation that, in many cases, not only have they planned their attack:

“They’ve [the criminals] got time to work out what’s the easiest way for them to get whatever they want” (KB)

“I think plan A was to go out through my gate, but they [the criminals] also know what plan B was, didn’t they” (AM)

But they have also planned numerous routes of escape, either with or without their ill-gotten gains:

“A police officer or any individual, they could not follow him down the railway track because of the trains and stuff and the tracks being live...it’s just an easier escape” (IN)

“They [the criminals] know there’s not many cameras down there, and they just find a way” (KB)

If the farmers knew the aim of the criminal was to always get away without getting caught, how can they defend their farm from multiple plans of escape? A comment made by farmer

KB highlights this issue particularly well and is particularly pertinent to this research in its entirety. When talking about the time criminals who target farms have to plan their ingress, but also more importantly, their egress, this farmer stated that:

“They’ve [the criminals] got more time to do that than anybody else. They’ve got more time to do it than we have to make life a little safe” (KB)

Summary

In summary, there are mixed opinions relating to those who are targeting farms, differing between whether criminals were locally based, and whether they were opportunistic in nature.

Of those farmers who felt that criminals were travelling from cities to commit these crimes, it was known what areas they were travelling from, and farmers reported that police were aware of this. However, most farmers thought it was local criminals targeting their farms. They all recognised the difference between opportunistic and organised criminals, and felt that this depended very much on what was being targeted. However, it is perhaps the case that, in fact, organised criminals may take low value items that fall just under the insurance threshold as they know they will not be reported to the police or insurers because of the low value, but such items provide an additional source of lower risk funding for other organised criminal activities.

Farmers are often blaming the travelling community and foreigners, delivery drivers, visitors to the farm, and also farmers and farm staff for losses, even without any concrete evidence. However, all farmers tend to agree that these criminals are brazen, confidence tricksters, who are unlikely to be easily deterred.

9.3.3 Reporting to, and Response from, Police and Insurers

9.3.3a Crime Prevention Advice

Farmers tend to obtain their crime prevention advice from several sources. The main advisors seemed to be the police and their insurers, both for crime prevention advice and to receive information about local crime:

“The NFU give us quite good advice really, the local police, the local countryside officer gives you good advice” (KB)

"It's from the police that we've had in the past. When we've had an incident then they will offer a crime prevention service, and I've taken it up in the past on odd occasions just to see what we can do" (RB)

"I rely on Cheshire Alerts, the police messaging system, because if they can't tell us about crime then who else can" (AM)

"Majorly the NFU and NFU Mutual" (JP)

"I think it should be two-fold. It should be the police that goes in neutrally and goes around with fresh eyes and says X, Y, and Z...I think insurers should be giving an incentive to those farms that do increase their crime prevention on the farm" (CW)

Despite this, there are still those farmers who did not make use of the advice the police provided, and those who thought insurers were not doing as much as they could or should regarding crime prevention. Therefore, despite the police and insurers being the expected source of information, not all farmers were receiving adequate and effective advice. This may be because they do not think the advice is worthwhile, but it may also be a lack of trust in the advisors, possibly from a previous poor experience:

"A bobby coming round the farm and telling you, I don't know, I can't imagine I'd get anything out of it really" (MK)

"I do believe the insurance people...could play a lot bigger role in crime prevention" (RB)

"I wouldn't necessarily go to the insurance to be honest. I'd probably just say the police just because insurers I think, they could use it to their own advantage" (IN)

However, from the discussions, farmers were getting crime prevention advice from a variety of sources, even where such sources may also increase fear of crime (Hale, 1996; McQuivey, 1997; O'Keefe & Reid-Nash, 1987). These include other farmers, the media, email newsletters, farming organisations, and even some quite surprising sources of information:

"Recommendations, word of mouth, so and so have got this system...they [the criminals] were unable to get what they [the criminals] wanted because they [the farmers] had this fitted...should we try that option...can it work where we are?" (HG)

"We always look in the papers, you see it in the papers, I'm always scanning the papers for, you know, anything in the locality, it just keeps you on your toes" (RA)

"We tend to take notice of what's on the telly and the press and, you know, farming press of course" (KB)

"I get NFU emails and sometimes when I've read them there's been something like a spate of barn fires, for instance, or the hare coursing" (PM)

"I think Young Farmers would be a good point of call, I think that would help and they are good at spreading the words" (RB)

"Poachers and gypsies. I'm not joking" (EH)

Despite the range of options available, both for crime prevention advice and reports of crime these farmers made use of, not everyone agreed they are all particularly successful. While farmers might take advice from other sources, they would not always act on it, rather they would weigh up what would be beneficial for their own farm:

"I'm not steered by it or I wouldn't make decisions on what anybody else has done...I would make that decision for my own sake and my own farm" (RB)

"Zero really, I don't rely on what they've [the farmers] done at all. I do what I've got to do for my place" (KB)

"Observe rather than ask...Check what they're [the farmers] doing and what I think is necessary" (AM)

What has been noted as a key aspect, is that several of those farmers taking part in this research did not seem to have adequate knowledge of options available to them to protect their farms, or were not confident in where they could obtain the right information for their situation:

"I think it's very important to receive information about crime locally...because that just sharpens you up on your own crime prevention measures and takes away that element of complacency that creeps in" (AM)

"I haven't got a clue what anyone else is doing" (PM)

“But I don’t know enough about technology, what is out there” (EM)

“So I think if I knew a bit more we would go onto it quicker probably. It’s just not knowing where to go sometimes” (PP)

“But who do we go to, to learn more about security? I don’t know” (EM)

“There’s quite a lot of information out there if you’re bothered to take the time to have a look at it and read it. But being busy people we probably don’t do enough of it” (AB2)

While there was crime prevention information available to these farmers, they did not have the time to find it and go through it all to make an appropriate decision on what would be most effective for their farm. In addition, based on the comment by farmer *PP*, by empowering farmers with the right information about crime prevention, this may lead to a diffusion of innovation (Rogers, 1962) among the wider farming community thus enabling more farmers to effectively protect their property (Knowler & Bradshaw, 2007).

These farmers identified that insurers could play a better role in promoting crime prevention on farms. Based on the comments from the farmers, this could be done by way of incentives that allow reductions in premiums:

“I’ve tried to see if we improve the security and put a lot more new technology in would they [the insurers] reduce my premiums, and the answer is a definite no” (RB)

“If they [the insurers] said if you did such and such you would get a reduction in insurance or whatever, it obviously can be quite effective if you do that” (JP)

“I think insurance has got a major play in it, and I think there should be financial incentives to improve crime prevention, and I’m sure it would pay them in the long run” (RB)

However, it is arguable that financial incentives from insurers would possibly only work in conjunction with other incentives. As noted by Wandel & Smithers (2000), financial incentives alone are not enough to influence behaviour. In addition, even where incentives are provided for a particular crime prevention measure, that incentive will only be effective if the crime prevention measure works:

“We used to get 20% off for data tagging anything, which we did tractors and the stock trailer. But they nicked the stock trailer and it was never found anyway, and the next one we didn’t bother, didn’t see the point” (RA)

However, for some farmers, their reliance on insurers fell solely on the fact that they must keep paying out on claims:

“I think as long as the insurance keep paying out and there’s no reduction in the premiums, I don’t get too wound up over it if I’m brutally honest” (RB)

“He [the insurer] gave me some advice on what to do and not do and so on, and they paid up which is the most important thing” (AB2)

“We are not with the NFU, we abandoned them because they weren’t very helpful in a couple of instances with these crimes. So we are with Farm Care now, and they have paid out and came, but they haven’t offered us anymore advice at all” (PP)

This approach cannot surely be sustainable, nor does it encourage farmers to make use of crime prevention measures for their farm if the insurers will simply pay out. In addition, despite farmer *PP* switching from NFU Mutual to Farm Care because the latter were more likely to pay out, they have still been left without appropriate crime prevention advice from the new insurer. One would question the priorities of farmers who prefer an insurer who will pay out on a claim regardless of the impact on the premium price, even if they do not provide any advice and guidance that may prevent them needing to make claims in the future.

Despite this, when it came to the type of advice farmers value, they identified three key aspects as important regarding the advice and advisor. The advice received, and therefore the crime prevention measures used, should be suitable and effective for their farm:

“Short tempers, shotguns and dogs...that’s what puts them [the criminals] off” (EH)

“You’re looking after the countryside. Like with trespassers, you can’t just fence all the footpaths off” (IN)

“You have got to judge for yourself whether it is going to work on your own” (PP)

“I think we’re all doing similar things, they’re just doing things that each individual can afford to do at the time, and what is suitable for their premises” (RA)

“Sometimes it may not be practical for us to do that, or affordable, so we tend to...take advice from several places and then try and combine it to get what we think is the best, because, actually, there’s only us really know the premises” (KB)

These comments are particularly pertinent, as it shows farmers were generally aware of what would and what would not work on their farm, and they were taking advice from several sources to create their own self-established choice architecture for crime prevention.

Following on from this, the crime prevention advice received should be tailored to the individual farm as much as possible:

“I think it does have to be specific to farms...one farm could be completely different to another farm. So I think it does have to be a little bit specific to the farm and what is on the farm” (RB)

“Well it’s got to be tailored to individual properties, because every property is different” (RA)

“Certain advice is common to everybody...you could have someone to actually go out and give everybody specific advice about what they need, that would be great. But it’s time and resources” (ST)

And finally, it was important for farmers that the crime prevention advice came from a trusted source (Collier *et al.*, 2010). It is possible that any advice received from a person or organisation the farmers did not know or have not had dealings with in the past, would not be trusted, and possibly seen as time wasted that could have been better spent elsewhere. This might make them less likely to address crime prevention in the future:

“You sort of half feel like anyone else’s advice is taken with a pinch of salt and is pretty useless ‘cos no-one knows your farm like you do” (MK)

“It depends on the type of advice you’re getting. You can tell whether or not it’s good advice he’s given you” (ST)

“I would worry about a security firm, in case they just give you biased advice so you would just buy something from them” (PP)

“Theoretically, somebody like the NFU usually...but you always worry because they’ve gone over the top...but you don’t want strangers necessarily, you don’t feel comfortable having strangers coming on to tell you about it. Unless they’ve got a very, very, very good reputation, but even then, how do you know” (KB)

“And that’s what I mean about the CCTV people. A lot of the people that have got a good reputation aren’t really interested in doing farms” (IN)

“They [security companies] don’t like doing farms because we have such an open area...you can’t fence miles of farm...To be honest, we are all environment friendly and wouldn’t want it covered in razor wire” (KB)

However hard these farmers worked to ensure crime prevention advice is coming from a reliable, trusted source, it was not always completely infallible as seen in the following stories:

“Well [another farmer] had the police advisor there and had all the cameras and everything possible on the gateways, and it wasn’t long after he got rolled over [victimised] was it. Big style...they had the quad bike, they boxed all the tools didn’t they” (JH)

“The frustrating thing was, they’d [another farmer] got the beam breaker alarms across the gateway, and they [the criminals] hit that with a pick axe stale, so that fused all the buildings out, so they [another farmer] lost the CCTV, all the PIR lights, the whole lot went out at once. So with one big whack with a pick axe stale they [the criminals] made it a whole lot better for themselves” (EH)

Summary

This section identifies that, despite low confidence levels in the police, and to some extent their insurers, they are still the main source of FCP advice for farmers. However, this advice may not always be acted upon, partly because it may not be seen as beneficial for their farm, but also as a result of the continued low confidence in these organisations. This is reflected by the farmers comments suggesting that their knowledge of FCP is limited, as is their knowledge of where to get the right information from for their individual farm. While farmers value advice that is suitable and effective for their farm, tailored to their farm, and comes from a trusted source, this does not necessarily seem to be happening.

Farmers suggest that insurers could provide better, or a wider range of, incentives for varying FCP measures. However these would likely have to be provided in conjunction with other incentives to be effective. Despite this, farmers seem to be satisfied with their insurers as long as they keep paying out on claims, which actually seems to fail to encourage farmers to use FCP to protect their property.

9.3.3b Experiences with Police and Insurers

Various questions were asked of the farmers about their experiences in reporting crimes to both their insurers and the police. While most responses related to various aspects of their experiences with the police, there were some brief comments made about insurers, which may have an impact upon the research.

While there were some fairly positive feedback on insurers' responses to crime reports, the overwhelming feeling was one of pessimism and disappointment. When talking about the reporting of crimes to their insurer, one farmer stated:

"The only reassurance we've got is we keep well insured. So if you do get burgled, you are going to get something back. Insurance company is not very happy about it but then, that's what we're insured for" (PC)

Such a response tends to suggest that, if they did not have to deal with insurers, they possibly would avoid it. It would be interesting to possibly explore this feeling further, to find out whether this is due to a poor experience with insurers in the past, or something like the amount of paperwork that is often involved with insurance claims?

One farmer did report a positive response from the insurer, although that positive response seems to be solely down to the fact that the insurer paid out on the farmers' claim:

"Insurance paid up. I must say it's good how NFU Mutual dealt with it" (JP)

In contrast, there were two particularly negative responses to this part of the discussion, with farmers feeling insurers were not doing as much as they could to support farmers, and may avoid claims wherever possible, remaining "aloof" (Pease & Litton, 1984):

"Well why am I the one doing all this and you [the insurers] don't reward me, meet me half way? No not interested at all. So I said right, well we'll get a quad bike and we won't put a tracker on it. We suggest you lock it up and take the key out. And that was it" (EH)

"I have got bits of reservations now about NFU [Mutual]. If they can get out of something now, they definitely will do. They are not as farmer friendly as they used to be" (RB)

Following on from this, farmers tended to agree that, in general, their insurers were not doing enough to help their farmer clients with crime prevention advice that may prevent repeat victimisation (Pease, 1998):

“I suppose I would like to think that our insurers would take a lead in guiding us over how we can go to keep up prevention on the farm” (EM)

“The insurers should perhaps do more” (AJ)

“Certainly, if they are taking your premiums to cover whatever, they can at least advise you on new [crime prevention] products” (CW)

This brief discussion seems to suggest that farmers' confidence in their insurers may be on the wane. It is possible that farmers may place too much reliance on their insurers paying out, but this argument runs thin when it is considered that all businesses will rely on their insurers to assist if they have been victims of crime to avoid business interruption. Farmers seem to be suggesting there was a lack of crime prevention advice from insurers, and they were not receiving value for money from their insurers considering the premiums they pay.

By contrast, when asked about their experiences with the police when they have been a victim of crime, the discussion was much more extensive. Again, while there were pockets of positive responses, many farmers reported negative experiences with the police regarding their victimisation.

This section addresses the things farmers said about the police response to their reports of crime, followed by their feelings on the level of police communication, finally looking at how this impacts on the reporting of crimes by farmers.

The first thing noted by these farmers, was that they would like to see more police in rural areas, and they lament the closure of rural police stations and the loss of local rural police officers to whom they could report crimes to directly (Smith & Somerville, 2013). While one would question whether this is even possible in the current economic climate, this is clearly something that the farming community have been used to in the past, and felt that it should be retained in some form:

“We'd love to see the police around a bit more often” (RB)

“With the police, you know, they are few and far between now, and I think if there was a local chap that you could ring and have a direct contact to, I think we would actually have a far better relationship than going through a switchboard” (RB)

"We could pick up and ring him [rural officer] and say this is happening...we've only got one in the area now that's active, I think, and he is just pulled from pillar to post" (IN)

Farmers were not oblivious to the pressures the police are under due to resource cuts, but they were mindful of the impact this can and does have on the response received:

"I think they [the police] are trying to address rural crime more but, you know, I don't think they've got the finances to do it at the moment" (RA)

"I'm under the impression that they [the police] are hard pressed to just cope with the work they've got on their plates, and maybe it's the citizens duty to do these things like some neighbourhood watch tactics" (PM)

"I think they've only got two police between here and Leominster...they're the only ones on call at the time available. For all this wide area, well it's ridiculous isn't it" (PM)

"We know that the police are strapped for cash, like everybody else at the end of the day" (RB)

"Nine times out of ten they say sorry, we've got nobody we can send, but they seem to be homing in on the poachers a bit more. Perhaps it's a start" (RA)

There were a small number of examples provided by the farmers where they had received a good response from the police in light of their reporting crimes:

"We've got a good community police officer, and she's pretty good, coming out and seeing the situation. She gives us some useful information" (JP)

"Police came out both times we had the quad bikes stolen. And they gave us some advice on what we ought to do to make things more secure, and to be fair they did let me know that they actually found one of them on the gypsy site of Ledbury about three or four months after it had been taken...so I have to say they did a pretty fair job for me" (AB2)

"Got the police involved, yes...which resulted in a gang being locked up and having over £2 million worth of kit pinned on their chests" (AM)

While the first comment seemed particularly positive, one has to question whether the feelings of the second two farmers resulted from policing priorities. Regarding the incident with the quad bikes, it is possible this positive response was due to the fact that it involved

quad bikes that can be easily identified, additionally it is perhaps more indicative of the level of attention the police direct towards traveller sites. In the third case also, this positive outcome may have been because this crime was committed by an Organised Crime Group whom the police would have been tracking for some time? One wonders whether the outcome would have been the same if it had been a smaller item stolen, or the perpetrators had been a small criminal outfit, or indeed a lone criminal.

Farmers reported feeling dismissed by the police when they reported a crime, and felt like they had to be grateful for a crime number for their insurers, while knowing they were likely to hear nothing further about the incident from the police:

“All they [the police] do is give you a crime number and that’s it” (RA)

“From an insurance point of view, you’ve got to report it to the police to get a crime number. That’s the guaranteed 100% reason why you would report it to the police” (RB)

“I spent a month looking for them [the sheep], because it’s all arable area around me. I couldn’t find them so I rang up the police and said I think they’ve got stolen. They said, oh right here’s a crime number, you can claim on your insurance” (JP)

“Does it just end when you get a crime number? You have almost settled for a crime number and that is it” (CW)

These comments seem to suggest the only reason for reporting a crime to the police is to get a crime number so the farmer can claim on their insurance. As farmer RB suggested, it is almost as if this was the only reason for reporting crimes to the police, and not the fact that they hoped to get the stolen items back.

Many of the farmers commented that they felt the police did not take their reports seriously:

“Somebody had stolen some of her [a friend] new pots with plants and she was quite disgruntled...I said to the lady, well there’s been a spate of garden stuff stolen locally, maybe you should tell the police because it will add to the enquiries...I saw the police lady in question locally and she was a bit fed up, she probably shouldn’t have told me this, but she’d had to go and interview somebody about her flowers being stolen in a flower pot from outside her doorstep, probably the lady I spoke to. And then I felt really guilty because it involved an awful lot of paperwork and time, and the police lady had all manner of far more important things to be dealing with” (PM)

“I think they [the police] are paying lip service to it at the moment. I mean they’ve got far more important things to do probably but I mean we never see a police car come down our lane, ever” (AB2)

These examples clearly indicated the feelings of the farmers, and their feelings that farm crime was not considered as seriously as urban crime (Gilling & Pierpoint, 1999). While this may be due to a lack of resources, it may also be down to a lack of understanding about the situation and the things that have been stolen (Barclay *et al.*, 2001). Interestingly, both farmers reported feeling that the police had more important things to do. However, reports of any crimes should be considered as key intelligence from the community by the police, as it may be the missing link in identifying a possible pattern of crimes that might not have been linked before. These comments suggest that while the police are always saying to report crimes, this kind of attitude from police is unlikely to encourage the kind of two-way communication required, which then could potentially throw into doubt the efficacy and viability of Intelligence Led Policing to tackle rural crime.

Farmers have also reported the feeling that the police are simply not interested in dealing with farm crime. As the first two examples show, this lack of interest was particularly frustrating for farmers when they have spent time and money installing CCTV which, in their opinion, the police were not interested in:

“The police won’t prosecute on CCTV” (JH)

“They [the police] said no you’ve got a man and you’ve got his face, but all he’s doing is rolling a hose pipe across your yard. Have you got him breaking the locks? No, no but we’ve got him here. And he’s like no, you’ve got a man rolling a hose pipe across your yard and that’s all you’ve got. Waste of time” (EH)

In addition, the following comments clearly show the level of frustration that existed towards the police and their perceived lack of interest in anything to do with farm crime (Donnermeyer & Barclay, 2005). It seems that some of the comments show a lack of knowledge among the attending officers, which did not help with the farmers’ feelings of frustration and being treated like second class citizens:

“Well they just don’t want to know the police don’t. They won’t – they don’t come out with a pair of boots on, they come out in low shoes. We don’t exist as far as they’re concerned” (JH)

"I can't see what all the fuss is wasting time with the police when they're just a waste of time. As far as I'm concerned it is a waste of time" (AB1)

"But then when we've reported that we've seen lampers on and they're walking along, are you anywhere near them, no, right, stay away and they won't come. They [the police] just don't respond in time, it's put to the bottom of the list" (KB)

"You're [the police] not gonna catch any of them [the criminals] then so you may as well go back to the town where you want to be" (EH)

"I went to the police and said I've got the reg. I've got the car. I've got the description of three men. No I don't think that's relevant, until they've come to court and he says would you come to court, no thank you" (AM)

This final comment was indicative of the impact that a perceived lack of interest on the part of the police produced. While many farmers were prepared to help the police with information, if that information is passed off as irrelevant by the police, that is only going to harm relations between the two, and once again reduce the possibility of working on Intelligence Led Policing in the future.

In the main, the farmers felt the response from the police was generally poor, leaving some farmers disappointed in the police. This leads to the situation where farmers were only reporting the crime to obtain a crime number for their insurance, as previously discussed, rather than having any expectations that the police will do anything about the report:

"The police, they've been out once out of four incidents. They just say we'll give you a crime number, we can't send anybody at the moment, even though we've got pictures on CCTV, they won't even come and look at it" (RA)

"I rang them [the police] out of desperation and I must admit I was really disappointed in them. They say all the right things and did all the wrong things as far as I was concerned" (JH)

"We know who they [the criminals] are, we know where they are, all we keep doing is going and tormenting them every now and again to check they're in and check they're where they're supposed to be. Well what a waste of public money" (AB1)

“At the end of the day, when you have had something or you need somebody, it just doesn’t happen. The only time it happens is if you threaten that you have got a shotgun under your arm and you are going to use it...and that is terrible really” (RB)

“Reported it, they [the police] said we will give you a crime number...Well that was it, no-one came out to have a look or even give us any advice on what I should be doing or shouldn’t be doing” (PC)

“From the police perspective, they’re thinking well if there’s nothing to be gained from a police officer going out then we haven’t got the time, our time is better spent going to other things. So it’s a bit of a trade-off between the farmer and the police who wants what. It’s a difficult one, it depends on who you looking to appease” (ST)

These comments cast a rather negative light on how the police deal with reports of farm crime. In particular, comments such as “rang them out of desperation”, and “what a waste of public money” are certainly damning for the police. In addition, the last comment here talked about appeasement. This is quite worrying, implying the response to the report of a crime should be dependent upon who it is more beneficial for. This comment does little but reinforce the idea that farmers are considered by the police as second class citizens, and the police are more likely to visit the victim of a theft in an urban area because that is where resources are focused. It is felt that it will be more beneficial for the police to attend that crime rather than the equivalent on a farm, as it will involve less travelling, and a higher likelihood of apprehension.

Police communication was a key area of discussion among the farmers. The feelings were unanimously negative about how the police communicate with farmers as discussed by Barclay *et al.* (2001). The comments revolved around three areas; messaging services, police support for communications, but mainly the constant lack of feedback that farmers received from the police.

When talking about messaging services the police use to advise farming communities about crime related issues, the methods used and the appropriateness of some messages were questioned by some farmers:

“I’ve been critical of RuralWatch for not sending out messages when something’s gone missing, and sending out poor quality RuralWatch messages, like raining drive carefully...Don’t lose the hard core stuff in RuralWatch stuff, otherwise you get switched off...And equally, when we report something we need feedback” (AM)

“Not everybody does Facebook, not everybody does Twitter. The whole point of having the mobile numbers was they [the police] could just text us” (KB)

“This last twelve months, I don’t think they’ve [the police] been just as forthcoming, have they...It’s just gone a bit lackadaisical” (JR)

“I suppose if you got something every day, it would be oh God not that again...You almost want it once a quarter” (EM)

It seems that, whatever the agreed means of communication, it is important that messages are kept on subject, rather than overuse the service for irrelevant messages about the weather as farmer *AM* commented. It is arguable that, by sending out messages that have little or nothing to do with the reason of messaging service, i.e. rural crime messages, many if not all, users would become disenchanted by the service all too quickly and therefore tend not to take part. It is noted that the comment from farmer *EM* referred to messages once a quarter. It is arguable that such a gap between messages would defeat the entire object of the messaging service. If the point of these services was to get live communications about what is happening at that moment based on what people have reported, these messages should be sent out as they happen. It just seems pointless to receive these messages on a weekly, monthly or quarterly basis as they would be of little use to anyone. It is, however, important that the messaging service can be tailored to the farmers’ local area then it would remain relevant without overloading the farmers.

Closely related to this, is the continued support of the police towards such channels of communication. It was clear from the following comments that strategists were keen to put in the resources for messaging services when there was a specific problem that could be addressed by such a system. However, the commitment from the police to keep the system going in the longer term was lacking, regardless of whether there was a particular problem at a particular time:

“We’ve got an alert system that they [the police] spent a lot of money putting in place and we’re not getting any feedback from it” (KB)

“It needs continued support from the police, and doesn’t get in a situation of there’s not much happening in the rural area therefore we’ll [the police] focus resources somewhere else. It’s great to throw everything at it when you’re fire-fighting, it’s easy to pull resources away and fire-fight somewhere else and let things slip, and I do criticise them at the moment...that focus has gone elsewhere and RuralWatch isn’t working as efficiently as it could do” (AM)

The key issue for these farmers in terms of police communication, was the lack of feedback they were getting from the police. Many farmers knew they should be reporting all crimes to the police, and some even encouraged others to report everything to the police. However, without adequate feedback, this is an uphill battle. All these farmers seemed to be asking for was timely feedback from someone, even if it is just to say we have tried all we can and have not been able to find your property. This is a sentiment repeated throughout the following comments:

“They [the police] could perhaps tell us more the results of what happens, because sometimes you feel like you send information in but does anything ever happen from that...I get the impression from a few people locally that they tell information, they try and send stuff in, but they don’t hear what goes on and they get a bit disillusioned so they stop sending” (KB)

“Don’t think I’ve had any” (PG)

“Almost a little demoralising” (EH)

“It’s feedback telling us what’s been happening, what’s going on” (AM)

“We need to know what’s happening about things because we need other people to realise that if they do report something, something happens...They’re not convinced and we need the feedback to come back to prove to people that it’s worth doing” (KB)

“They [the farmers] never hear anything else from the police and I think that really infuriates people. Just a phone call a week later or something to say we’ve checked this, we’ve done that, just to make you feel like the police are actually interested” (ST)

“It’s not an easy job is it...But sometimes they [the police] don’t help themselves” (AB2)

“If they [the police] want us to carry on feeding them with information, we need more feedback. It’s as simple as that isn’t it, because we’re quite happy to help” (KB)

What was also important for these farmers was feedback, not only on crimes they had reported, but also feedback on crimes that their neighbours had reported. Without this feedback a situation as described below could arise, and this could have additional complications for the farmer, even where they were not aware of an incident at a neighbouring farm:

“We’ve had an instance where they’ve [the criminals] come through the fence, took the fence completely out. The police had took the cars away. Nobody had bothered coming and telling us, then the next thing, the police are there knocking on your door, your cattle are on the road...they’ve got through where this police officer has been” (JR)

This combination of a poor response and a lack of communication from the police, has a detrimental impact on the likelihood of farmers reporting crimes or other incidents and intelligence to the police in the future. From all of the farmers that have taken part in this research, only two stated that they report all crimes to the police. This may indicate these farmers continue to have confidence in the police. However, one has to wonder how long such confidence might continue if the quality of the response and communications were not improved:

“We do report it, that’s what we’ve been saying. Either 101 or if it’s really urgent, 999” (KB)

“We always report it to the police” (RA)

It was noted by one farmer that a key problem in reporting crimes to the police was the length of time it took to actually go through the reporting process via the 101 service. However, this farmer was assured that the time spent making these reports was not time wasted:

“Knowing that it’s not a complete waste of our time, because obviously we’re all very busy people and 15 minutes doesn’t sound like a lot of time, but a 15 minute phone call when you’re in the middle of something...to stop right then and go through the effort of getting the registration and phoning it up, that’s 20 minutes of your downtime, if not more” (IN)

One has to wonder if this process can be streamlined to make the reporting of a crime or information much more straightforward. When the Her Majesties Inspectorate of Constabulary, Fire and Rescue Services inspected police efficiencies in 2017, they found that some forces were struggling to meet demand, particularly in relation to 101 non-emergency calls (HMICFRS, 2017), which perhaps resulted in calls being unanswered or abandoned.

Each force offers a facility for online reporting of non-urgent crime, however each force seems to deal with it in a different way. Many that provide an online reporting service state that it will take around 10 minutes to complete the report, such as West Mercia Police (<https://www.westmercia.police.uk/article/2366/Report-a-crime>), but this is only monitored at certain times of the day, or West Yorkshire Police

(<https://www.westyorkshire.police.uk/report-theft>). This means that it can take quite a long time to work through, possibly meaning people are just as likely to abandon the report part way through. Alternatively, some forces simply direct the person through to the Crimestoppers website, or only provide an online reporting facility for certain crimes, such as Essex Police (<https://www.essex.police.uk/>).

Farmers offered numerous comments relating to the fact they were unlikely to report future crimes or information, and some reasons behind this decision were suggested:

"The only way you can sort a problem out is between yourselves. They [the police] say they support you, but it's like [farmer JH] said, by the time they've delayed and messed about it's not even – I wouldn't even ring them [the police] be honest with you" (AB1)

"I must say, I often don't report things to the police because when we have done, then nothing comes of it anyway" (PP)

"There are some things...you think well yes we need to tell them [the police] and there are other things well you know, they're not going to find my spanner that somebody took the other day or something. So you prioritise what you think is worth reporting but we are told we ought to report everything" (AB2)

"The time that it takes for them [the police] to come, that is the frustration...You just don't bother anymore because you don't get a response, and that is sad" (RB)

"If nobody takes any bother not to contact you again, you think well why should I bother" (RA)

"I had a chainsaw pinched...I'm not exactly sure when it went...So, I didn't actually bother reporting it in the end" (PC)

Many of these farmers wondered what benefit they could have from reporting these crimes to the police, because based on past experiences, they heard nothing further, which had a negative effect on the likelihood of reporting crimes in the future. The last comment from farmer PC also suggested a possible lack of interest from the police because it was a relatively low value item that can be replaced by insurance, and there had been no violence involved in the incident. However, despite it only being a chainsaw that had been taken, this still caused problems for the farmer as he was unable to do what he needed to do on the farm, and the knock-on effect of this crime was that a new chainsaw would have had to be purchased, thus adding more financial strain on the farmer. In addition, just because there

was no violence on this occasion indicates that no-one was there at the same time as the perpetrator. If these criminals are so set on something they will stake out a farm for hours or days (Smith & Byrne, 2018b [accepted]), it would be near impossible to establish where they would draw the line to get what they came for.

These situations may lead to a perpetual cycle of low confidence levels among farmers towards the police because of the poor response these farmers are experiencing. This then tends to validate the reasons for low confidence levels, thus making farmers even less likely to report future crimes, which then means that the police do not have the evidence to support the allocation of resources to these communities.

Summary

In summary, farmers reported that there were a number of issues surrounding the police response to farm crime. These include the invisibility of the police in rural areas, reporting crimes to the police was time-consuming, the response farmers perceived they received was nothing short of poor. Furthermore, there was a feeling they were not being taken seriously and should be grateful for a crime number, and the communication received from the police once a crime has been reported was almost non-existent. These factors combined, seem to be the root cause of the low levels of confidence in the police in E&W, which means farmers are much less likely to report crimes to the police. This therefore creates somewhat of a vicious circle. Farmers are not reporting crimes, so the police are not aware of what is happening in rural communities and so do not allocate resources to those areas. This then leads to these communities feeling abandoned by the police reducing confidence levels further, and so making them less likely to report crimes in the future. This ongoing issue, it is suggested, should be a catalyst to consider a move towards a bottom-up, farmer-driven policy approach to tackling farm crime, rather than the current top-down approach (Matland, 1995; Cerna, 2013).

With regards to their insurers, farmers felt that if they did not have to deal with them, they probably would avoid it, and were fairly pessimistic about the role their insurers play in FCP, with the only positive comments linked to the paying of claims. It was noted by farmers that insurers should be doing much more to provide appropriate FCP advice.

9.3.4 Farm Crime as a Challenge to Rural Masculinity

9.3.4a Psychological Health Impact

The vulnerability farmers felt due to crime was a key theme raised during discussions. This was partly indicated by the feeling among farmers that levels of farm crime are rising:

"I think it's getting worse...Yes, absolutely. I've got to the stage where I don't feel safe"
(KB)

"I'd be naïve to think I wouldn't be targeted in the future" (RB)

Although these comments suggested fear of crime is rising, as reported by ONS (2017), this should, as always, be countered with the thought that fear of crime does not always reflect the reality of crime levels (Zedner, 1997). However, it is likely these farmers were fully aware that crime levels in rural areas are much lower than those in urban areas; if this was the case, then there are other factors at play influencing farmers' fear of crime. It is possible these factors may include the isolated nature of farms:

"I think they're [the farmers] targeted because people know we're isolated, they know we are sheltered, and they know we're probably quite often on our own with everything" (KB)

Another factor possibly impacting upon levels of fear of crime may be the increased use of technology, both to establish targets and to commit the crime, as discussed by Smith & Byrne (2018b) [accepted]:

"With poaching the farmers are at risk from distant roads across fields" (JP)

"That's Google Earth that is" (MK)

"We're talking Farm Payment stuff now" (EH)

"I had one [email] wanting two and half thousand pounds out of me!" (KP)

Irrespective of what these criminals are doing, and what they are targeting on the farms, it was clear from the discussions that farmers were worried about confronting people on their land for fear of repercussions:

"It's like these hare coursers, they're better not approached. Unless you want a spell in hospital" (AB1)

"Cos they're [the criminals] prepped. They're not going there thinking they're not going to get caught are they?" (EH)

"I can be suspicious of them [the criminals] but I can't go accusing them" (HG)

This situation was potentially adding to the psychological impact of crime. Even if they did see someone on their land, there were few options available to them. As the farmers saw it, they could either call the police who may not respond, go out and confront them with the risk of attack, or stay in their house and be scared to go out at all.

Some discussion was had as to whether the farmers felt there was more of a problem, and they were more vulnerable, at certain times of the year (Donnermeyer *et al.*, 2010). Across the different farming types, there were a mixture of responses to this question:

"I tend to think around Christmas time to Feb, March maybe that seem to be a really heavy time 'cos they [the criminals] seem to like the dark nights" (EH)

"December's the worst" (JP)

"I would think it's summer time when they [the criminals] know we're all busy outside" (JR)

"Round my yard at the minute, there's a lot of noise and animals rubbing on gates and stuff. So people who walk past...realise there's a lot of noise and they [the criminals] can get away with making a lot of noise breaking stuff. Whereas in the summer everything's out and if there was a noise in the middle of the night, then it's going to alert people" (IN)

"There's nothing that would make me say that one time of the year is any worse than others" (KP)

It is important to note that there was such variation in response to this question, both between sectors, and within them. It only seems sensible to make this question key to the establishment of a crime prevention decision-making choice architecture. The response may lead to varying options for effective crime prevention measures which may possibly be different dependent upon how the farmer responds to this question.

Interestingly, while there does not seem to be consensus among the farmers about the time of year where they felt more vulnerable, there was consensus when considering the time of day, and the weather conditions that made them feel more vulnerable. Despite previous research stating that crime is more likely at night (Hanson, 2001; Bunei *et al.*, 2013), these farmers felt that criminals were now targeting farms at any time of the day or night:

"Our property and the properties around our house have been broken into right in the middle of the day. The implements were stolen at night" (PP)

"It can happen day and night. I have got no time of year" (EM)

"They [the criminals] didn't give a toss what time of day or night it was" (KB)

In addition, the key reason why there may not be a specific time of year or time of day that makes a farm more vulnerable, may be because criminals seem to be waiting for the cover of the right weather conditions, and not darkness, to make their move:

"We feel more vulnerable when it's a windy, wet night" (HG)

"Even if it's winter it doesn't make a difference, they [the criminals] just wait for the right weather" (RA)

"I mean, they'll [the criminals] target specific things and they will wait until the weather comes" (ST)

So, from these comments, it seems that neither the time of the year nor the time of the day was particularly relevant. However, bad weather seemed to have more of an impact on feelings of vulnerability among these farmers. If it follows that offending levels were higher in bad weather, such findings would be opposite to that of Horrocks & Menclova (2011).

Some farmers accepted there was a need to protect their property, and this was something that should be done as par for the course:

"It is part of life...Not that we think about it every day, but it is very much oh, we are going to put that there, is that secure" (EM)

However, this does not diminish the feelings of vulnerability that farmers felt:

"You mustn't have anything out of place because if it is out of place you know it's gone unfortunately" (BH)

"Once you've had an experience of crime...you feel more vulnerable, don't you?" (KP)

"I don't think you have to have crime to feel vulnerable...it's only gotta be in the area" (EH)

"I would say not very secure if I am really honest...I feel that if I worry about my security, they you put yourself in an early grave" (RB)

“They [the criminals] can find a way around or do something to get in” (EM)

“I could be being burgled now...just lift the gates off the hinges or prise them off” (PC)

These comments show a very interesting pattern of clear worries about their vulnerability. This comes despite the idea of these kinds of feelings being in opposition to the idea of the continued existence of a hegemonic rural masculinity (Connell, 1995). Apart from the comment from farmer *RB*, all of these farmers exhibited clear anxiety and fear about how vulnerable they felt on their farms. This was added to by some farmers having additional worries about the location of their farm:

“We’ve got an A road goes through the one side of it, then we’ve got a Byway Open to All Traffic” (PC)

“Location is a big impact as well, where you are...Some are more vulnerable than others” (AB2)

In light of what farmers have said during these focus groups and interviews, the location of the farm could have a notable effect on how vulnerable a farmer feels. However, it is not just about rights of way that might run through the farmyard, or the proximity of a farm to a motorway junction (Barclay & Donnermeyer, 2007; Bunei *et al.*, 2013), it could also be about how isolated the farm is in relation to other farms or houses (Anderson & McCall, 2005). Location seems to have a multi-faceted role in feelings of vulnerability among farmers.

These beliefs about security and vulnerability come together to impact on the farmers’ beliefs about how secure they are overall:

“Sitting ducks. You always feel like you’re on borrowed time” (MK)

“It’s four words, never enough and very likely. Or absolutely probably I would say rather than very likely” (KB)

“Not secure enough, definitely not” (HG)

And their future likelihood of becoming a victim of crime:

“More and more likely isn’t it. But you can’t go about thinking about it all the time” (PG)

“A lot of them [the farmers] have gone back to putting gates in. But they leave it as an open invitation” (AB1)

“It’s probably one of those things that’s going to happen sometime. Again and again” (RA)

It is arguable these feelings of vulnerability, and potential for repeat victimisation (Pease, 1998; Ceccato, 2016), that are being expressed here are indicative of the impact crime has on the traditional idea of rural masculinity. It is possible to argue that crime is in itself creating some kind of rural contra-masculinity (Brandth, 1995).

Farmer discussions in both the focus groups and the interviews were noteworthy as a result of the openness with which most farmers talked about the impact crime had on their emotional wellbeing, from fear of crime to the psychological impact crime has had on them.

Extending comments made by Hale (1996) that fear of crime can lead to social isolation, the increasing isolation of farming was identified as being of particular worry to some of the farmers, with increasing responsibility for the running of the farm falling squarely on the shoulders of one person (Groenwald, 1987):

“Almost all farmers are on their own these days, we used to probably employ two full-time staff. Well, I’m meant to run my whole farm on my own” (IN)

Increasing financial pressures on farmers has led to a reduction in the number of people employed to work on farms on a full-time basis. While the amount of work has not reduced, the number of people available to do the work has, with farmers being unable to afford to pay anyone to help:

“We can’t afford to have staff...Years ago there were two or three of you. So you’d be fine, but now there’s one of you, that’s it” (JR)

As a result, not only is the workload increasing for farmers, the isolation is too. It means that farmers may often be out in fields tending crops or livestock alone for hours on end, potentially with little or no human contact until they get back to the farmhouse. The worries surrounding this personal isolation simply adds to those concerns about geographic isolation farmers may have:

“It’s the isolation, because it’s the isolation, it’s a problem” (KB)

Farmers in these discussions have talked widely about the impact of crime, being a victim, their fear of crime and repeat victimisation. Farmers' beliefs about the levels of farm crime seem to be driving their fear of victimisation in many cases:

"It won't decrease, it will potentially only increase because things are more valuable and as long as there is a market for them out there, it will increase" (RB)

"I hope it doesn't get any worse because they've [the criminals] taken all of the good stuff already once" (HG)

"I think they'll [crime levels] increase because the thieves will get very clever in the way they can deactivate trackers because it's very clever kids out there" (PC)

One farmer talked about the wider impact of being targeted, particularly repeat victimisation (Ceccato, 2016), and the worry and fear that came with that around whether or not they would be targeted again the next night:

"Somebody has intruded onto your property, they've taken your diesel, you're going to have to mend that tank...and then you have to refuel it, and it's very unsettling. Just the prospect that you've been robbed, and that you might get robbed again the next day" (PC)

However, one must question the intensity of that fear. Does it depend on what has been taken, how it has been taken, or the location of the things stolen (i.e. an outlying field, or near to the farmhouse). This question was raised by a comment made by another farmer:

"You worry about it for a little while, you know, and then, a few weeks pass and the worry gets less" (RB)

While some underlying level of anxiety may be present at most times for farmers, the level of fear diminishes as time goes on without an incident. This response may be indicative of an element of the resetting effect (Pogarsky & Piquero, 2003), with some farmers taking the view they are unlikely to be so unlucky as to be a victim of crime more than once, and therefore there is little need to worry about crime prevention in the long term.

Cybercrime and scrap metal dealers were two areas that the farmers particularly highlighted as worries for them

"You seriously need to look into this cybercrime, that's the thing that worries me more than anything" (JP)

“Been one or two lorries asking for scrap just in the last...three or four months...I’ve had two people round and I’ve shut it away already” (PG)

Cybercrime is not something that tends to be considered within crime prevention advice, despite farmers being required to increasingly have an online presence. In addition, the increase in scrap metal collection is a concern for farmers due to the open nature of their farm, and one wonders about the efficacy of the Scrap Metal Dealers Act and whether these collectors are licensed.

In contrast, several farmers talked about not being afraid of farm crime, or not worrying about it, which may be indicative of the persistence of the traditional idea of rural masculinity:

“I don’t lie awake at night worrying about it anyway. Until it happens to you” (AJ)

“If they [the criminals] were adamant they were going to take something, I wouldn’t worry too much about it” (RB)

“We have got the technology that you don’t have to think about it and you can see what’s going on. So I think the lack of fear is because of the technology, it is taking some of that fear away” (EM)

The third comment is particularly insightful. It is arguable that this may indicate some level of apathy towards actively protecting the farm because they think CCTV will deter criminals. In addition, where a farmer would not confront someone on their farm or does not worry about crime on their farm, one has to question why this is. Is it because they have crime prevention methods in place they think are adequate, or because they are sure their insurance will pay out or replace anything stolen? If the former, have they been a victim of crime, and if the latter, is there an overreliance on the service insurers are providing?

What is particularly noticeable among the comments farmers were making, is that the increasing levels of crime targeting farmers is leading to higher levels of fear. Despite Skogan & Maxfield (1981) concluding that fear of crime is an urban problem, there seems to be an overriding feeling that farmers were increasingly being targeted, and the fear among this community had increased as a result:

“It’s a population of disillusioned people” (KP)

"I don't think any of us can rest on our laurels" (CW)

"I think everybody in the room here, we've all been burgled at some point and obviously unfortunately it's true that we can look forwards to have a burglary in the future, it's going to happen" (PC)

"It is quite nerve wracking" (AB2)

These feelings of fear are represented by the actions farmers were talking about, and how these actions may have changed over the past few years:

"The light comes on, I never go out before looking on cameras to see if there is anything out there if the alarm goes off" (RA)

"If they're [the criminals] there just let 'em get on with it" (AB1)

"All you want to do is barricade yourself in and go sod off all of you. It's the mental thing that is worse than anything else" (KB)

There seemed to be an element of resignation among some farmers that they were likely to be targeted at some point, but they were better off just letting them take what they wanted without confronting them, and sort it out later through the police and insurers. This is reminiscent of the findings of Liska & Baccaglini (1990) with high levels of fear altering social patterns. There were also clear indications as to how being a victim has affected these farmers, and their responses reflected this fear:

"And they [the criminals] went to drive out and I stupidly went to stop, you know, challenge them like you do, and they just laughed and tried to run me over...But if I'd have had the meat cleaver in my hand I wouldn't have hesitated to have thrown it at them. I really wouldn't" (KB)

"I'm usually very confident to walk around at night to check things or whatever I do. But that made me not so confident thinking is there somebody round the back part of the farm" (KP)

These comments suggest that, regardless of what is taken, the impact on the farmer could be quite substantial and could have a long-term effect on their feelings of safety. Interestingly, these farmers were both female. However, these feelings of anxiety around

being alone on the farm were also being repeated by male farmers which seemed to reflect the conclusions of Campbell *et al.* (2006):

"We've started locking the house door now if I go out and leave the wife. We never used to but I do now because you never – you get in the field and you never know who might be watching you go in and out" (AB1)

In addition to the general fear seemingly present among farmers, there are some specific worries various farmers had that reflected their individual circumstances:

"The dogs are one of my biggest worries...The Labrador is in a kennel with an alarmed padlock" (EH)

"Increasingly people are expecting to use your land for recreation purposes because of the footpaths...it's out of our control...And it's quite scary to go and confront them, but you need to" (PP)

"I'd be worried about somebody setting fire to bales in a building because we've got such old buildings and they'd be gone" (PM)

There seemed to be a particular worry about hare coursing among farmers, including the extreme actions farmers seem to be taking to fend off these people from their land:

"It makes you quite upset when you have these hare coursers round at night like. And the thing that wound me up more than anything was...He'd no respect for us whatsoever" (JH)

"There's only one way to stop the hare coursing and if you get a problem shoot 'em. Same with the deers. Shoot the hares...We don't like doing it but the minute you let them [the hares] get up then they're [the criminals] there. So we just don't give them the chance now" (AB1)

A key fear among the farmers, was the increasing violence the criminals targeting these farmers were prepared to use to get what they wanted:

"I think quite a few farmers now are becoming aware that thieves are becoming quite violent. And there's been a few reports of farmers having a go at these thieves, and they've been badly abused, knocked about very badly. So, the wisest thing now is to be a live coward rather than a dead hero" (PC)

“It’ll get violent...Somebody is going to get hurt” (JR)

“It’s a risk if then people come back...I don’t know whether it’ll be worth me supplying the CCTV or whatever...So are they [the criminals] going to come back or are they going to be pee’d off” (IN)

In response to this fear of increasing violence and the possibility of retribution, farmers seemed to be adopting a fatalistic attitude towards victimisation and crime prevention (Frameworks Institute, 2015); if it is going to happen then it will happen, and the best you can do is to make your farm less of an attractive target than your neighbours:

“Because if you’re going to be targeted you’re going to be targeted...And you can’t confront these people, they [the criminals] just have to get on with it, but you do your best to make them go next door” (AM)

This feeling of fear was increased by the farmers’ feelings of abandonment by police based on their past experiences:

“I think it will probably increase, not unless there is a concerted effort by the police to actually be proactive in trying to reduce it. And I suspect there aren’t the funds to do that so it will be beholden to us to get on and do it for ourselves” (AB2)

These feelings of isolation, fear of victimisation and retribution, and the acknowledged reduction in the ability of the police to respond to these crimes, all contribute to a substantial psychological impact from occurrences of farm crime. Once again, the extent to which farmers spoke about the effect farm crime has had on their mental wellbeing was surprising, despite the ongoing presence of a traditional rural masculinity within the agricultural sector in E&W.

One evident worry was the issue of guns on farms, and the fact that criminals targeting farms were aware of this fact. It is hypothesised that criminals know guns are present on farms, and as a result they may be more likely to carry a gun themselves because they think the farmer can lay their hands on a gun easily. This fits in with the already discussed fear of increased violence among criminals. The simple presence of guns on farms perhaps makes criminals more likely to carry a gun, and therefore potentially lead to a higher likelihood of violence or death. It is likely that criminals are unaware of the fact that the farmer would not actually be able to get hold of a gun quickly because they are locked away

in a secure cabinet. These propositions were highlighted by the discussion that follows between farmer *IN* and farmer *KB*:

“Some people say oh you’re a farm, so the people presume you’ve got like guns on a farm, like shotguns” (IN)

“But they [the criminals] know you’re not going to shoot them because you’re the one that’s going to get locked up. I won’t say what I’m thinking, but I’d make sure they didn’t breathe again, I’ll tell you” (KB)

“It they [the criminals] want guns, they more than likely know that you probably have guns and it might, they might come for them” (IN)

“But the point is...your guns, they’re locked up, they’re in cabinets because you or I are law-abiding citizens and have our guns locked up. The point is you wouldn’t get to them quick enough to be able to do anything, and they [the criminals] know that. They absolutely know it. So even that’s not a deterrent” (KB)

Part of the reported increase in stress relating to farming was the paperwork that was required. Farmers identify that bureaucracy was a big problem, and a major cause of stress among farmers, partly because of the time factor involved in completing paperwork, but also because of the stringent sanctions involved if something small was missed:

“I think that the stress is to do with paperwork...I don’t know how some people keep abreast with all the red tape. And you could completely inadvertently fall foul of recording something. Farmers are notorious for not liking paperwork and yet it’s made more difficult” (PM)

“I think it’s more stressful...Well I think there’s a hell of a lot more red tape, I think that’s building all the time, more red tape and paperwork, which almost seems unnecessary” (KB)

It is likely the increase in paperwork required for the running of the farm was a key stressor for farmers. The increase in paperwork, and therefore the time required to complete it, means less time to effectively run the farm, and potentially time not available to think about better protecting the farm from criminals. As paperwork, technology and the faster pace of life add to the burden of farmers, it is possible they are less likely to have time available to spend looking at and considering effective crime prevention measures.

When asked about whether the psychological impact has made farmers think twice about continuing with farming, the response was mixed. However, the responses that were given by the farmers, were particularly indicative of their general response to farm crime, and whether they would be considered victims, survivors (Dillenburg, 2007), or potentially enablers of farm crime:

“Very close to be quite honest...You know, it’s not a very nice feeling when you go out and you think, you know, there’s been somebody there...when you’ve been out there and you know they’ve [the criminals] been watching you” (RA)

“Yes, just fed up with it. But usually that’s just straight after an incident...the first thing you think of is I’m fed up with all this, I want to stop. The next thing is, right I’m not letting the buggers grind you down, I’ll do something about it. So you bounce back, you know, resilience is in the breed” (KB)

“It’s never been as serious, well, personally it hasn’t been as serious as that, no. But if you’re asking whether I would, I would think I probably would, it wouldn’t be worth the hassle...if it was really bad area for fly-tipping or something like that you would almost give up...There’s a lot of other reasons for giving up farming, but not that one...I think anybody who has had that experience, never really leaves you, does it?” (JP)

It is suggested that it was the psychological impact rather than the financial impact that plays a larger role in ongoing feelings after being victimised, and thus whether the farmer identified as a victim or survivor. The comments from the first farmer tend to indicate a victim mentality as they quite clearly admit that being a victim has made them think about giving up farming. In contrast, the second two comments suggested more of a survivor response to having been a victim of crime. In the immediate aftermath of a crime, there may have been a feeling of defeat, but this was short lived, and was superseded by the attitude of not wanting to be beaten by these people. Indeed, the third farmer felt crime was not something that would make them give up farming, despite the fact they acknowledged that the memory of being a victim remained with them for a long time afterwards.

A big part of what farmers reported in relation to the psychological impact farm crime created, was the ongoing worry of what had happened, and what might happen in the future. Farmers talked about thinking of the circumstances surrounding past victimisation:

“Then you think, did they [the criminals] watch me leave. They must have watched me leave” (KP)

“The event might have taken 10 seconds...but it’s the mushroom cloud effect of it that takes so much more time...So it’s not just a monetary thing, it is a mental and a physical mushroom cloud. It’s exponential” (KB)

“Oh definitely, yes...I can retrace every wheel track from where my tractor went...I can still see the broken extension cable where they [the criminals] just drove through it and snapped it” (AM)

“It still affects you and it’ll upset you, and if anything, it takes longer to get over it” (JR)

They also talked about the continued worry about the possibility of future victimisation:

“I also worry with the farm, if they [the criminals] get to know who’s done it, are they going to come back, your shed gone, your barn gone, your animals let out onto the road” (JR)

“The only thing is, the longer it goes without a crime being committed in the area, you think the law of averages we’re going to see someone or my close neighbours are going to be visited” (PC)

These comments show there was a psychological impact of direct victimisation, and these memories lingered for a long time after the financial impact has been overcome. However, there was additionally the psychological impact that affected farmers when they thought about the future, and their likelihood of becoming a victim (Ceccato, 2016). In addition, there were comments made by the farmers that indicated an underlying worry about victimisation and that they feel powerless to prevent crime:

“This time of the year when the livestock is inside, there’ll be banging gates, there’ll be quite a bit of noise anyway...So you wouldn’t necessarily pick anything up, and there’s that many places for them [the criminals] to hide and stuff...probably not my worry but probably my wife’s worry...someone wouldn’t probably even know that I was missing” (IN)

“Eventually you get paranoid don’t you” (JR)

“Every time you’re attacked, it multiplies it more than twice. It more than doubles it. Until you’ve been a victim, you don’t take it quite seriously. Once you’ve been a victim, that’s it” (KB)

“There are actually people wandering around your property and so on. Sticking their nose into things that have got nothing to do with them, and that’s not a very nice feeling” (AB2)

The comment from farmer *IN* reflected the isolation he felt as a livestock farmer, but despite his attempt to intimate the fears are those of his wife, it was clear from his last sentence that this was actually his worry too. In line with the tradition of rural masculinity, the farmer tried to project the image of the strong farmer, but the reality of the response seems to suggest an increasingly worried farmer. This reflects the process of “defence othering” as discussed by Stough-Hunter (2015).

A key indicator of the effect farm crime is having on the erosion of the traditional rural masculinity, was reflected by the comments made by farmers who admitted they were afraid to sleep because of the fear of being targeted during the night. These comments were very much the antithesis of rural masculinity, showing fear and vulnerability among these farmers. These comments reflect the conclusion of Christensen & Jensen (2014) that changing masculinity constructs may not always be beneficial:

“You’re on alert the whole time. The slightest noise, you don’t sleep, it can get to you to the extent that you’ve got the windows open at night because it’s that hot, and you think hang on, what’s that” (KB)

“Every night you hear a bump and you’re up thinking. There’s hardly a night that goes by without thinking that” (RA)

Despite all of the above indicators of crime being a significant stressor with an ongoing psychological impact, when asked directly if they worry about crime, some farmers seemed to respond that it is just part of being a farmer, and something that they should simply expect and accept, maybe as a way to uphold the traditional rural masculinity (Connell, 1995):

“You’ve got to keep it in reality...if you get too wound up about it, it can seriously affect your health, there’s no two ways about it, and I think you can get paranoid about it” (RB)

“I should imagine it does do for some people...I try not to let it worry me too much, you know, we just do what we can do and that’s all we can” (RA)

“Farming gets more stressful by the day because we’re having to increase unit output to cope with increased costs to maintain a stable income...I’m getting no more for my milk today than I got in 1996 when I started...Crime is just a small bit of that stress” (AM)

In spite of these comments, it is clear that for these farmers at least, farm crime had a major psychological impact upon them, and this was something that could last for many months or years after the actual crime itself.

Summary

In summary, it can be seen that the psychological impact of crime on farmers may be more extensive than expected, and while the hegemonic RM is trying to be upheld through defence othering and that crime is just part of farming life, the contra-RM emerging through the psychological impact discussed far outweighed these responses. Farmers have worries about the increased use of technology by criminals to target farm. Moreover, this seems compounded by the anxiety surrounding the increase in isolation farmers feel, both geographic and social, including the rise in the need to work long hours alone because of financial pressures. Furthermore, a clear indicator from these comments suggests these farmers are more afraid of victimisation with bad weather more so than at a particular time of the year.

Farmers feel that farm crime and fear of farm crime were rising, with farmers increasingly afraid to confront people on their farm due to the threat of violence, thus leading to increasing feelings of fatalism. While some farmers suggest that levels of fear may reduce over time if they are not targeted, the illustrations of how crime impacts these farmers psychologically create a long list. While some farmers say they are not afraid, the overriding feeling was one of vulnerability. There is an increased level of fear of crime due to a feeling of abandonment by the police. Some farmers have considered giving up farming due to victimisation. Farmers are afraid to sleep at night. Farmers relive what happened and worry about whether it will happen again.

9.3.4b Physical Health Impact

While the impact crime had on physical health was only mentioned once among all of the discussions, it was still a noteworthy item of discussion:

“Yes, and the older you get, it could affect your health” (JR)

“The worse it is, yes...It’s immeasurable, I’m afraid” (KB)

This brief discussion about the impact of crime on physical health has been picked out because the farming population of the United Kingdom are ageing. The median age of farmers in the UK is currently 59 (Defra, 2017), with 62% of farmers being aged 55 and

over. These comments therefore may be indicative of a widespread impending health problem that is yet to manifest itself as a result of issues discussed by Brandth & Haugen (2016).

However, it may be that increasing victimisation among the farming community may add to an already overstretched NHS. Additional health issues may arise as a secondary response to the psychological impact of farm crime; heart attack and stroke, but also asthma, diabetes, and gastro-intestinal problems can be affected by chronic psychological stress (Salleh, 2008). This reflects the impact of illness in farmers and psychological impact that may follow (Gergen & Gergen, 2000; Herzog & Markus, 1999). Is it therefore reasonable to argue that, by better enabling farmers to prevent crime, this reduces their psychological stress levels, which may then reduce the physical manifestations of such prolonged anxiety?

Summary

It is suggested that, as the farming population is ageing, if the anxiety created by farm crime and fear of farm crime continues unchecked, the physical health of farmers across E&W may be detrimentally affected.

9.3.5 Attitudes towards Farm Crime Prevention

9.3.5a Current Position of Farm Crime Prevention Use

From farmers' comments, it seems that a variety of crime prevention methods were being used in various combinations by different farmers. This was clearly indicative of the heterogeneous nature of farms, and that a one-size-fits-all policy is unlikely to work for all farms (Pike, 2008). These crime prevention measures being used vary from the low-tech to the high-tech, and a mix of both, despite previous research highlighting traditional crime prevention measures are more likely to be used (Anderson & McCall, 2005; George Street Research Limited, 1999). Examples of low-tech crime prevention include:

"Dog barking's a deterrent...he [a suspicious visitor] was just about to get out his van, and I says you get out that van and that dog'll have you. You've never seen a van door slam shut so quick in my life...and that old collie would have made mutton of his leg if he'd have got out. Yeah, good dog" (AB1)

"I've just got padlocks, chains and padlocks...plenty of gates closed because there are a lot of different entrances to the farm" (PC)

"We get a permanent marker and we put our postcode where you can see it and take a photo" (EH)

One example given of a low-tech approach to crime prevention was quite an extreme reaction to stopping hare coursers:

"Where you've got no hedges, you string it with high tensile and let them dogs run under that, break his neck or break his leg. The dog is number one, it don't matter about anything else really" (AB1)

While several farmers were making use of things like padlocks, not all farmers were convinced of their efficacy, but still felt that something was better than nothing:

"I think locks are a bit of a waste of time but you've got to just put that little bit in front of them [the criminals]. I mean they're [the padlocks] just so easy to break...they put stuff on like YouTube all the time. You can break one with just two spanners and I didn't believe it worked, and I tried it and it was so easy" (IN)

A number of farmers reported using a mixture of both low-tech and high-tech measures to protect their farms:

"We've got padlocks but we've also put a gateway alarm in...Which I guess would be overboard if you haven't got a problem" (EH)

[Protecting the battery for electric fencing] "I've made some little boxes, put 'em in, and put that box on a big piece of insulated rubber and electrify it. We just carry a big piece of insulated rubber in the truck...I make the box live yeah" (HW)

"I believe in making life difficult for people...I believe it would have been watched before they [the criminals] actually came and got it...I've had to go down the route of CCTV...put the signs up...just add a little bit of something to try and capture somebody...I also think a noise alarm would be good...but above the foxes and cats and badgers and that" (AM)

There were also a number of farmers who reported using high-tech measures only on their farms:

"We have got CCTV cameras, we have got them for about four years now...and there is an app on our phones and we can check up on them anytime" (AJ)

"We have electric gates on both ends of the farm and we have a CCTV and we also have alarm systems" (EM)

However, again some farmers recognised the limitations that exist even with the high-tech options:

"They very rarely give an image that they [the police] can use anyway...if you put it up what is the benefit? There is no benefit whatsoever" (RB)

"Most good alarm systems will frighten people off, unless they're [the criminals] certain you're not about" (ST)

What was clear among those farmers that used crime prevention measures, regardless of whether they are high-tech or low-tech, was that the simple act of using these measures may be enough to indicate that the farm is not an easy target:

"It makes them [the criminals] think you're more aware" (KB)

Despite this, a number of farmers still reported using little or no crime prevention measures on their farm (McCall & Homel, 2003):

"I don't lock anything up" (HW)

"To deal with today, you'd have to go for alarms and that sort of thing and your CCTV, but like my son goes, he doesn't warrant it. So you rely on your locks and good gates and a dog" (JR)

"We haven't really got a lot of signs, but I think if you put stuff like that on, it makes them [the criminals] think it's a bit hard, it's a bit more of a challenge, it's a bit harder" (IN)

However, it is still the case that some farmers, despite having been a victim of crime, talked about crime prevention, but for one reason or another, they failed to act:

"We're considering CCTV...But we'll probably talk about it but not do anything about it" (PG)

Despite a mixture of farmers using and not using crime prevention, some interesting responses were obtained when they were asked what crime prevention measures they

would use if money was no object. These responses ranged from the sensible right through to the outlandish:

"I'd quite like a tracker to go in an electric fence unit. Find out where they gone" (HW)

"Those light sensor things are very good" (JP)

"Fire bells I think, attached to them – to the lights. I think a loud noise might scare them [the criminals] off more than the light itself" (PG)

"I think beams would be a good option. I think if you could protect the rest of the farm internally with those beams" (RB)

"Just big gates, I'd go for big electric gates" (AM)

"Full alarm system and Smartwater" (RA)

The more unrealistic responses from farmers included:

"An electric chair!" (MK)

"Snares! Snares! Man traps!" (KP)

"A flame gun!" (JR)

One conversation that was discussed at a focus group was whether farmers would even continue to farm if money were no object. This conversation was indicative of the high levels of financial and psychological stress farmers are under, not just from crime although this plays an important part. However, the first part of the conversation talking about giving up was very much indicative of a victim mentality, whereas it was the final part of the conversation that showed more of a survivor mentality in response to this situation (Dillenburg, 2007):

"You wouldn't farm" (JR)

"No you wouldn't bother. No, if you've got that much money, then you can have anything you want" (KB)

“I’m being serious...if money was no object, that would be the answer, and I bet nine times out of ten, I would say the same” (JR)

“If money was no object, I’d carry on with it just for a laugh. I would carry on anyway” (IN)

Whatever approach was used in protecting their farm, the reality is, many of these farmers will still be worrying about crime:

“CCTV is manning it, keeping up to date with it and checking on it and seeing, it’s not just a case of plug it in and let it get on with it. You can’t let your guard down, if you spent all the money in the world you still couldn’t let your guard down, you would still have to be vigilant of what could happen” (HG)

“How difficult do we make it, you know, do we put lockable caps on and then have them broken off, or do we just accept it when it happens and hope for the best” (RB)

One aspect highlighted by the farmers was that of self-protection – were farmers doing enough to adequately protect themselves and their property. One farmer seemed optimistic about the increasing levels of awareness among the farming community:

“I do believe some farmers open themselves up to it a little bit, but they’re getting less and it’s few and far between” (RB)

However, the same farmer later suggested that the likelihood of doing something to protect their property was driven mainly by having been a victim of crime in the past:

“I think if you were targeted a bit more often then you’d have to do something a bit differently” (RB)

This is something particularly reminiscent of the idea that farmers are hyperbolic discounters (Janssens & Kirkke, 1990; Repetto, 2008), which is discussed at section 9.3.6. It was clear this farmer felt that both he and other farmers were unlikely to do anything about protecting their property until after they became a victim of crime.

An interesting comment made by one farmer, seemed to suggest it was easier to protect their property if they had been accepted as part of the community:

“If you’re a person who makes a lot of enemies you can expect an element of repercussions, but I think providing you’re regarded as a fairly respectable person...” (JP)

One should question the meaning behind this comment. It is possible this farmer was implying there is an element of criminal farmers who make themselves enemies of the other locals, thus not being able to partake in the wider community crime prevention measures. Alternatively, it may be down to how those farmers fit in with the rest of the community; how they look, how they act. Moreover, it is considerably more parochial, insofar as they do not fit the traditional idea of farmers in England – white, male, middle class from a farming family, rather they are seen as a new farmer who wants to make many changes.

Something one farmer said, that was particularly noteworthy, related to the fact that the farmer felt by increasing crime prevention measures on-farm, it is providing criminals with some sort of game or sport:

“It becomes a challenge to those people [the criminals] to go and still drive round that field because he’s [the farmer] tried to prevent it. I think it becomes a...that’s the sport rather than the actual committing crime” (RB)

It is interesting to see how this farmer viewed crime prevention. In reality, this farmer did not use high levels of crime prevention on the farm, whereas other members of the family who farm do. The idea that offenders might see it as some kind of sport to try and beat crime prevention measures is an interesting one, and not something previously considered by the author. However, it is widely the case that some criminals do engage in other criminal activities which they see as hobbies to be done in their past time, such as hare coursing, while the main focus continues to be the crime targets. This line of thinking is reflected by the growing trend of live betting being video streamed by hare courses in the field using facilities such as Periscope® or Facebook Live®. This is perhaps also indicative of the thrill such criminals are chasing, which is thus driving their actions (Burt & Simons, 2013; Zuckerman, 2007).

There was a brief discussion about the role that technology plays in the farmers’ feelings of safety and security. However, what was surprising was that technology was never mentioned as a positive aspect helping them make their farms more secure, it was solely about how technology was making it easier for the criminals:

“Google Earth has got a lot to answer for...Drones have got a lot to answer for. And in town CCTV has got a lot to answer for...there’s so much intensive CCTV in towns but the countryside there’s no equivalent. You can see so much on Google Earth you can set it all up before going” (JP)

“Only a cordless drill to drill the pop rivets off and they’ve [the criminals] got a new doorway” (EH)

When specifically asked about whether technology makes them feel more secure, the farmers were not positive. One wonders whether this is because they see high-tech crime prevention as something they think they ought to be doing as it has been recommended by the police or insurers. However, they still do not see it as something that will reduce their likelihood of being targeted by criminals in the future, despite enthusiasm for things like electronic gates.

In addition to the vulnerability and insecurity farmers have reported as discussed above, there are indicators of a number of very important areas of farmers’ lives that crime, vulnerability and insecurity impacts upon. These impacted areas may play a significant role in the way farmers feel about crime, crime prevention, the police, and insurers.

Inconvenience and Frustration

At a first glance, some farmers seemed to accept that the use of crime prevention measures would have an impact on how quickly a job can be done, and finding a balance between preventing crime and creating daily inconvenience was possible:

“You have to get to a level that you are happy with, that is not too much of an inconvenience” (RB)

However, farmer *RB* reported having an unlocked key box for the tractor keys. It is arguable that such an approach is of little more use than leaving the key in the tractor. It would not take long for a determined thief to find the key box if it is not secure. And this is an added inconvenience as now tractor manufacturers have started to provide different keys for each tractor, rather than the historic one-key-fits-all approach.

The comments from farmer *PC* indicated that having keys for everything has become a part of life on the farm, and was being accepted as something that had to be done:

*“Up until about 18 months ago, I didn’t bother locking much stuff up at all, but now I’ve got a permanent bowl of keys...so every time I think what keys will I need today...And after a while, doing something every single day, you get to know each key just by looking at it”
(PC)*

It is clear from these farmers that most are trying to do the best they can to protect their property, but the more they did, the more time it takes to do anything, creating inconvenience for the farmers:

“I say we could do a lot more...Where do you start and where do you stop...There are only a certain amount of gates you can lock, it takes long enough of the day to get from one field to another through gates and everything” (HG)

Many farmers have noted that, even when they tried to lock things away, the inconvenience factor had a major influence on their working day:

“It takes a massive amount of time just to unlock your stuff and locking it up again...but you do it. That could add an hour a day, that covers seven hours on a week” (IN)

“I think the most annoying thing is everything you’ve got, you have to put a bloody lock on, and every time you want to go and do anything you have to go and get your keys out and the amount of time I must waste unlocking and locking things up, which 25, 30 years ago you wouldn’t have to do because it didn’t go...But that is something you’ve just got to live with” (AB2)

Farmers tended to compare the current situation with how things used to be in the past. It is arguable that, by thinking in this way, the psychological impact of crime and trying to prevent it is exacerbated because of the contrasting situations and the perceived negative qualities of farming today. Farmer AB2 ended the above comment by saying that this “is something you’ve just got to live with”. However, all things being equal, should a farmer accept this is the case; urban-based businesses would not accept this, so should a farmer, simply because they live and work in the countryside.

Several farmers noted the inconvenience factor that emerged when faced with the delay of getting replacement equipment. However, one has to question whether this inconvenience is driven somewhat by the endowment effect (Kahneman *et al.*, 1991):

“It is just the inconvenience of not having it when you want it, until you have replaced it” (RB)

“They [the criminals] always take it when it seems to be the busiest time to use it. We seem to use ours all the time, but you don’t realise how much you rely on it until it’s gone...You never get the true value of what it is back” (HG)

"We've got tractors now with GPS fitted systems and that sort of thing...you can't just go and pick up a tractor with GPS systems, that has to be ordered in...Our seasons tend to be in short, hard bursts, whether it's harvest, grain harvest, potato harvest, they tend to be in short sharp bursts...it would be a major inconvenience not to have a certain tractor at a certain time of year" (RB)

Frustration among the farmers also seemed to arise directly because of the fact they have been victimised:

"It's very frustrating, isn't it, when it happens" (JH)

"Yes, it's a big frustration" (AB1)

"As much as he [another farmer] wanted to take the law into his own hands he did refrain from it...don't put yourself in any sort of danger whatsoever. If they get away with it they get away with it" (RB)

In addition, one farmer voiced their frustration about the ever-increasing number of scam emails, and telephone calls that farmers were receiving:

"And you're being bombarded all the time. And I find that very frustrating" (JH)

Another aspect farmers were finding increasingly frustrating, was the time spent dealing with various aspects of crime, whether it be reporting crimes or suspicious behaviour, or looking at possible crime prevention options for their farms. In relation to dealing with insurers after being a victim of crime, farmers commented that:

"I think 50% of it is one's time, which you don't get recompense, and this is the stress of it" (EM)

"The first thing we lost was a trailer, it was only two years old. Then you try and get another trailer and you have to wait, I don't know how long you have to wait, three months?" (RA)

Looking for the right crime prevention information could be time consuming, particularly if the farmer was having to look at various different suppliers for the information they need:

“I probably spent three, four hours just last week just looking into upgrading like the CCTV and stuff, and it’s not just the cost like we said before. It’s the time that you’re losing doing stuff like that” (IN)

This was qualified by the fact that another farmer immediately responded:

“Yes, we tend to end up doing it ourselves” (KB)

Farmers seemed to make best endeavours to get the right type of crime prevention measures for their farms. However, if this process was as time consuming as suggested by farmer *IN*, it is argued that many farmers would just end up buying something from a shop or from the internet, and setting it up themselves. This is an example of “satisficing behaviour” where decision-makers are unable to make decisions that would maximise their wellbeing due to constraints on their capacity to do so (Schwartz *et al.*, 2002). This leads to the possibility that farmers are either not protecting themselves adequately, or are spending time and money on things that might not be the most effective way to protect their property.

Time spent reporting crimes and providing what evidence they have to the police was noted as particularly time consuming by Farmer *IN*:

“There’s one instant where I probably spent half a day with a Police Officer looking...three, four conversations on the phone to him, 10, 15 minutes all the time...and then I had to download the CCTV onto a pen drive, go to where there’s a Police Station at eight o’clock at night. Got there, nobody there. Oh just sit tight, we’ll be there in half an hour, and then fifty minutes later and we’re still sat outside” (IN)

Farmers did cooperate with the police. But it is likely this cooperation will only go so far, and last so long:

“If you don’t get feedback, you just think oh why should I bother...there was this suspicious van and I’m like shall I or shan’t I ring it up. That’s 15 minutes” (IN)

Financial Impact

When talking about crime prevention, these farmers did have financial worries about protecting their farm. These worries essentially fell into two categories; the cost of protecting the farm, and the shortfall in insurance pay-outs they receive.

For those farmers who were trying to protect their farm, the overriding concern was the amount of money they have spent on crime prevention, or the fact that such measures were unaffordable, something identified as a key influence on farmer decision-making by Prendergrast *et al.* (2008), and Toma *et al.* (2013):

“Some farms, they could afford to do that sort of thing, but basic farms, no they can’t” (JR)

“To get really good CCTV, to get registrations, you’re going to be spending a fortune” (IN)

And this feeling did not only reside with the adoption of crime prevention measures, it was also noticeable in the improvement of crime prevention:

“Once you’ve been hit you’ve then got all the added cost of upgrading what you’ve got to do something about it to stop it happening again” (KB)

Even where farmers seemed to have good information about crime prevention for their farms, the focus tended to be towards the high-tech, and therefore more expensive, options available. There was little discussion of the use of proven crime prevention measures that might be low in price, or even free. One has to question whether it is due to information farmers received from the police or insurers being biased towards the high-tech end of the options available. Did farmers err towards the high-tech options as they are under the impression these will provide better protection, or did CPAs not consider, for example, that concepts from CPTED, may be of equal use to farmers as they are to urban residents.

However, farmer *KB* seemed to have a more pragmatic approach to the expense of protecting the farm:

“If you’re likely to have high value products stolen, then it certainly is cost-effective...The most expensive bit is actually just putting the gates in and what have you...Once it’s in, it’s worth its weight” (KB)

It is suggested that farmers do not just consider the immediate expense of installing crime prevention measures on farm, but also the long-term benefits of lower levels of property being stolen and therefore having to be replaced (Kooreman & Prast, 2010).

Summary

In summary, it can be seen that FCP is used in a variety of combinations, with a mixture of high and low-tech measures being used. This would suggest that a one-size-fits-all policy

is unlikely to work for FCP due to the heterogeneity of farms, farmers, and crime prevention needs. Those farmers who use FCP, regardless of type, felt they were doing enough to deter criminals. However, many farmers talk about FCP, but admit that they fail to act. Moreover, farmers admit they are unlikely to do anything about FCP until they had been a victim of crime, even though it is getting easier. Despite this apathy, some farmers did suggest that, if money was no object, they would give up farming. Feelings of fatalism persist within the farming community, with some feeling there is nothing they can do to stop criminals, that beating FCP is just a sport for them, and that these criminal are making better use of technology to assist in their criminality.

Two key aspects of the impact of victimisation that were particularly highlighted by these farmers that may play a key role in addressing farmer attitudes. This included discussions around the inconvenience of FCP when running the farm, countered by the frustration of being a victim and the time spent dealing with the repercussions of crime. In addition, farmers discussed the financial impact of crime, the cost of protecting their farm weighed against the costs incurred due to a shortfall in insurance payouts they receive.

9.3.5b Improving Effective Crime Prevention

From the comments made, it was clear that some farmers were making proactive efforts to improve the crime prevention measures they were using. In some cases these improvements have been successful:

“We’ve got Smartwater now so, you know, hopefully that will deter them [the criminals] a bit” (RA)

“We have actually now got electronic gates, which we open...ourselves. They have a number code on them so there’s only certain people got access to them” (KB)

“Locked gates, other physical barriers...in front of one gateway...And then the front gate gets locked, and I have a wildlife camera monitoring that when the SIM card’s in it...That camera when I’ve got it set right will take car registration numbers” (AM)

It is noted that being a victim of crime made farmers more likely to think about crime prevention in a different way, and think about what would work best on their farm:

“Oh definitely...if you’ve been a victim you think how you can prevent that the next time so hopefully you won’t get hit next time” (RA)

“Absolutely definitely, yes...I’ve used the word complacency, crime prevention disrupts our day so you then become complacent, and to learn about somebody else’s misfortune will sharpen you up on that complacency” (AM)

Of interest, is the fact that some farmers reported making use of crime prevention measures, but not necessarily primarily for crime prevention, thus making these measures dual-purpose in nature:

“We’ve been talking about getting a gate...I’m pretty anxious really to get a gate put everywhere on our boundary because, partly security, but also to stop the animals straying” (PM)

“Loose dogs is always my biggest advantage...they’re my working sheepdogs but their dual action is to, you know, make everyone aware...more times than not dogs will alert people, they will bark in the night or something like that, so there’s few things as effective as that” (JP)

The point these farmers raised was particularly noteworthy, as it may indicate farmers who could use crime prevention measures for a secondary purpose may be more likely to adopt those measures.

When addressing the question of effectiveness (McCall & Homel, 2003), it seems there is a split between farmers who felt cheaper crime prevention options were less effective than those that were more expensive:

“Obviously they’re less effective, the more cost or the more technology that you embrace, it’s there and it will...improve the situation, I genuinely believe that” (RB)

“You only get what you pay for...If you buy something cheap it might help to a certain extent but, you know, they’re just not as good, they don’t last, they go off when they shouldn’t do and all these sort of things” (RA)

And those who felt cheaper crime prevention measures were effective if employed correctly:

“Sometimes some of the cheaper methods, just putting a gate in somewhere even if it’s not locked, can be as much as deterrent as anything...So you know, no, I don’t think it’s cost, totally a cost thing” (KB)

“So you don’t have to have expense...And put in the right place...Making access difficult is the best thing you can do. That doesn’t cost anything, it’s just daily inconvenience...an electronic gate is no more of a deterrent than silage bales or a big lump of concrete or something like that, it’s just gates look pretty, operate electronically and therefore easily”
(AM)

It is interesting to note, however, that the comments of those farmers who felt cheaper crime prevention was less effective seem to be referring to high-tech options and CCTV exclusively, and not considering those cheaper options that are not technology based:

Farmers seemed to be in a consensus about what is, and what is not, effective. Most farmers commented that alarms, whether alone or in combination with lights, were the most effective crime prevention measure, which is in opposition to the findings of George Street Research Limited (1999):

“Noise is what they [the criminals] don’t like. I think anything that makes a noise is better than light” (RB)

“I think alarms with lights is a good idea...they don’t like working under lights or a lot of noise” (RA)

However, it was also noted by farmer RA that:

“Nothing’s really a waste of time, if you just slow them [the criminals] down a bit, it’s something, you know, the more you can slow them down the better it is” (RA)

When talking about less effective crime prevention measures, a variety of methods were noted:

“Don’t get too het up over cameras because that’s not the be all and end all” (RB)

“Everything’s padlocked but they [the criminals] can cut them through nowadays...Whatever sort of lock you put on there’s no way of stopping the professional thieves” (RA)

“The buildings have got sensor lights on them, but even those can be a nuisance...if sheep wander in front of the barn the light keeps coming on, so, you know, sometimes they’re more irritating than anything” (JP)

"I think I would get bored with reviewing CCTV footage. I think it's good and we're possibly in an age now where if we've not got pictures of criminals then we're less likely to catch them...So cameras are maybe not so much prevention as catching the culprits" (AM)

When talking specifically about police-led FarmWatch and RuralWatch schemes, farmers were mixed in their views of the effectiveness of these schemes:

"I'm not convinced that we're probably in a high risk crime area, so I don't believe perhaps the need is as great as I would like to think it could be" (RB)

"We've got like, an unofficial farm wire...everybody picks up the phone and rings their neighbours" (RA)

"It works in fits and starts...It was meant to be every six months...There's not the passion from the police anymore, they've refocused" (AM)

"Too many chiefs and not enough Indians" (JR)

"I'm a great believer in Rural Watch, you know, seeing unusual things, unusual vehicles, people are very good at noting" (JP)

"I think a FarmWatch...is only as good as the person who is coordinating it and running it. Unless you've really got someone that is really up for it and enthusiastic and has got time to commit to it, it just fizzles out" (ST)

Based on these comments, two queries were raised that need to be addressed to establish the usefulness of FarmWatch schemes more widely. Firstly, the comment by farmer RB that the level of need was not great as the area was not a high crime area. It is arguable that FarmWatch should be considered a preventative measure and not something only needed if there is a specific problem in an area. One has to question whether the police follow this train of thought; resources are put in to setting up a FarmWatch scheme in response to calls from community members, or from a spate of crimes in a particular location. The FarmWatch scheme addresses a certain problem by community driven actions, but then when that problem goes away, the resources are allocated elsewhere and so the scheme becomes inactive, and community members lose faith in its effectiveness. This is reflected by the comments from various farmers about the resourcing of watch schemes, as well as the police strategic response to the schemes. A change at the top inevitably means a change in the focus on the front line, yet another form of abandonment of farming communities by

the police strategists? This reflects the low levels of involvement in such schemes as described by Barclay *et al.* (2001).

In addition, the preponderance of community only watch schemes, without police involvement, such as that identified by farmer RA, may be indicative of the level of confidence those communities have in the police, meaning they were more likely to take part in local watches within their own community. Moreover, the concerns surrounding coordination may be moot if the watch scheme is being run at a community level rather than at a strategic level from the police.

This last point is reflected in a comment from farmer JP, exhibiting a level of resignation to the fact that police did not respond to crimes in rural areas in the same way as those in urban areas, and the potential reasons behind that:

“To be honest, I wouldn’t expect the police to put huge resources in that, to be honest, it’s fairly minor compared to theft in the towns, isn’t it” (JP)

This resignation may be indicative of the belief that, as far as the police are concerned, farm crime always comes second to town crime (Gilling, 2011). Despite police forces saying a crime is a crime regardless of where it happens, and they shall be treated equally, there remains a disparity in police action and also farming community buy in to police operations and actions.

These farmers tended to agree that, in general, crime prevention did have a negative impact on the efficient running of the farm:

“Most crime prevention actually, I think, would go against efficiency not improve it, that’s my opinion, because it slows things down” (RB)

“It takes ten minutes or so in the morning to unlock everything and switch the alarm off, unlock the gates. Mostly now we just unlock it as and when we want to use it” (RA)

“It takes time to go and unlock padlocks and things, but you need to do it to make sure it’s right” (KB)

“I think you’re always checking things to a degree. But there’s a lot that doesn’t get checked because there’s a limited amount of physical time you can put into it, so that bigger it gets, the less it gets checked” (JP)

However, despite this, the farmers did acknowledge they have an important role in using crime prevention to protect their farm, and knowing where things were, even when it did take up a lot of time from the running of the business:

“Because it’s only me, I know how I leave the farm set up. So if suddenly a gate’s open, a door’s open...somebody’s done it” (JP)

“We need to be more efficient about checking things and locking things up” (PM)

These farmers also noted that, while crime prevention was affecting the efficiency of the farm, victimisation did have an equal or greater impact on farm efficiency if targeted as identified by the British Chambers of Commerce (2002) and as indicated in the following:

“If somebody nicks your tractor you just can’t get to do anything...if it’s stolen you’re then spending the next sort of day or so trying to replace it or hire something, so it does affect efficiency in that way” (RA)

“One night somebody had come along and obviously put a chain around the gatepost, metal gatepost, and pulled it over, obviously trying to take the gate off” (JP)

“So having been a victim of crime, crime prevention is very important in maintaining efficiency for that period of time that you have to do without whatever’s been nicked or damaged. So 99% of the time crime prevention has low impact on business efficiency, but if you’ve prevented it, you’ve prevented a crisis albeit a short-term crisis...We all help one another out, but it’s never the same as having what you want where you want it” (AM)

It is clear from these comments from farmers that, while they felt crime prevention affects farm efficiency, it was less impactful than the loss of kit that had to be replaced, which as has been noted earlier, could take some considerable length of time if there are specialist requirements. While the level of efficiency reduction crime prevention had may vary between smaller and larger farms, it may be that this was equally reflected by the efficiency impact of losing key equipment or livestock as a result of crime.

Summary

In this section, it is noted that, while there have been some proactive efforts to improve FCP, the main driver for its use remains victimisation. However, some farmers use FCP as it plays a dual purpose role in the farm setting. If this is the case, it is perhaps the case that FCP could be seen as a more viable option for some farmers if it can be used for more than

one job, although this is possibly limited to CCTV/wildlife cameras rather than a wider array of FCP measures. There was little consensus as to whether cheaper FCP measures were less effective, however, it did seem that most farmers agreed that alarms, with or without lights, seemed to be the most effective FCP measure available.

Farmers provided mixed responses in relation to the effectiveness of FarmWatch schemes, but it is noted that informal, community-led schemes seemed to be more widely accepted. Farmers did note that, while FCP does affect farm efficiency by slowing tasks down, they did recognise that victimisation is just as problematic, if not more so.

9.3.6 Farm Crime Prevention Decision-Making

9.3.6a Are Farmers Hyperbolic Discounters in Crime Prevention.

When asked if they think farmers tend to put off making decisions about crime prevention because they were busy doing other things, the majority tended to agree with this statement:

“Sadly, it’s very true” (EH)

“We’re doing more than we ever used to about crime prevention. But it’s not enough” (PG)

“I would agree with that. I think you have to be forced into these crime prevention things and I think yes, you do need to be forced to do things sometimes” (RB)

“If there’s been the theft of a vehicle relatively close to us...it will prompt us into removing all the keys from all the tractors, telehandlers and whatever, locking the doors. But after about a week or a fortnight, you can’t find the keys, somebodies got it in their overalls pocket half a mile away, you tend to lapse a little bit, and then keys get left in things” (AJ)

“They just haven’t got round to it” (PP)

“It’ll never happen to us” (RB)

“You know you ought to be doing better than you probably are, but do you want to spend £1,000 in a moment, probably not. So you will tend not to do something. The moment something goes wrong, you will wish you had done it” (AB2)

“There’s always something else you feel is more pressing, obviously until it’s happened, and a previous night when something’s been stolen and you think if we had spent a day last week putting new gates up there and locking them” (HG)

These comments tend to support the conclusions of Janssens & Kirkke (1990) and Prendergrast *et al.* (2008). Some did suggest the reason farmers put off crime prevention efforts, was partly because of a lack of time, but also because of the cost of crime prevention:

“You’re always thinking about it. You can’t find the time to get around to doing it, or the money half the time” (RA)

“And you know if you’ve got plenty of money then you will put in place whatever you need and I suspect you won’t get bothered too much. But it’s the same old thing, we don’t like spending money and we haven’t got a lot of money to spend. But when you get something taken then it just concentrates the mind again for a while” (AB2)

“I should be looking more of a preventative than a reaction...it’s a cost I don’t need to worry about at the moment is the way I look at it...it’s not high up on the agenda” (RB)

Despite most agreeing they and their fellow farmers were hyperbolic discounters, some did qualify their response by saying getting crime prevention was easier these days, and so farmers are improving. However, just because buying CCTV is easier, it does not necessarily mean the farmer is more likely to buy it. Other farmers commented it was not that farmers were putting off crime prevention decisions; it was sometimes because they were lazy or complacent about their chances of becoming a victim in the future. Alternatively, it may be indicative of status quo bias among farmers as they anchor to what has always been done, and any changes that are made may only be a small move away from the status quo (Repetto, 2008):

“Because getting CCTV today or an electric gate is much easier. Okay I know the expense is there, but I think people...now are more conscious of this. So I think it does apply, but I don’t think it applies as much as it did in the past” (EM)

“I think you just need to get into the habit” (RB)

“I think a lot of people rely on other people to do stuff for them” (IN)

"You ask the busy person, they're the ones that will do it...and the ones who just sit back are the ones who always sit back, and they'll sit back and moan about it, but they don't do anything" (KB)

While all farmers tended to agree that no-one deserved to be a victim of crime, they also acknowledged that by not using crime prevention measures and adhering to the status quo, they potentially made themselves more attractive to the criminal fraternity. This came despite the previous comments about farmers who did not use crime prevention:

"They [the farmers] don't deserve to be targeted, definitely not, but they do leave themselves a little bit open" (RB)

"Nobody deserves to be a victim of crime. A lot of people who don't take precautions, they just can't afford to" (RA)

"Nobody deserves to be a victim of crime...But it's a case of asking for trouble if you don't do it, so if we left the keys in our machines outside on the yard, I'd say that was rather foolish, but I wouldn't have said that we deserved to have things taken...Because nobody has the right to take somebody else's stuff" (PM)

"Possibly, because he's [the farmer] not helping himself...Having said that, I think you all tend to err on that path until you get hit. I think it is one of those things that you naturally don't think about until it hits you, and then once you've been burnt that's when you start listening" (KB)

"I wouldn't say deserves to be, but you would have less sympathy for somebody who made no effort...I don't think anyone deserves to be...at the end of the day, it's their private property and nobody has a right to enter it or take anything from it" (JP)

"I wouldn't use the word deserves to be, but he's [the farmer] not helping himself and then pushes himself up the list of easy targets" (AM)

There were a number of comments around the future use of crime prevention from various farmers, all of which seem to show some level of resignation to the fact that, despite their best efforts to protect their farm, they were very likely to be a victim of crime in the future:

"You make yourself a little bit more difficult then they'll [the criminals] move down the road where it's a bit easier, so as long as there's some easier ones I'm quite happy" (RB)

“There’s so many [the criminals] out there, that there’s always going to be a fresh one...there’s always somebody to take their place” (RA)

“It’s not just what you can afford, it’s what you can justify, there’s a balance between the two things” (KB)

“My first farm was half a mile off a public road, never dreamt about anything being nicked. When we came here, from day one I took the approach that we were vulnerable” (AM)

“Oh, I think you’re likely, very likely...Because I think they’ll [the criminals] always find ways round it...they’re always likely to be one step ahead of us” (KB)

However, some of these comments may indicate the potential for the use of behavioural strategies such as commitment mechanisms (Hepburn *et al.* 2010), and loss aversion to encourage the better use of effective crime prevention on farm to protect themselves, their business, their workers, and their families:

“Life’s about experiences really and any experience you’ve had you would try and make sure that isn’t repeated” (JP)

“Whether it’s just a case of taking the key out of a vehicle and locking it, that’s crime prevention...And then it’s where do you stop after that?...We’ve got to accept that we’ve got to help ourselves, there’s absolutely no doubt about it” (AM)

“We have to do our best, beyond that we hope the insurance bails us out if it happens. Yes, we have to sleep, we have to go to bed, we have to leave things in the field...Can’t watch everything all the time” (AM)

Summary

In summary, most farmers agreed that they put off making FCP decisions, partly due to a lack of time, but also because of the cost of FCP. This may be influenced by limited knowledge of FCP measures available, thus making any decision harder, and therefore more likely to be put off. Some farmers did say that getting FCP was easier, but this does not guarantee that it is more likely to be used. Farmers agreed that while no one deserved to be a victim, some farmers make themselves more vulnerable by not using FCP. Interestingly, this seems to be the case even when the responding farmer used little or no FCP themselves. However, despite their best efforts to protect their farm, these farmers felt that they were likely to be a victim in the future. It is suggested that BS techniques such as

commitment mechanisms or loss aversion could be easily employed to help improve FCP decision-making.

9.3.6b Are Farmers Lone Decision-Makers.

When asked whether farmers tended to make decisions about crime prevention as part of a group or as an individual, the response was mixed. While several seemed to feel farmers are lone decision-makers, some felt decisions could be made on crime prevention as part of a group, or by a mixture of both approaches (Brekke & Johansson-Stenman, 2008). When looking at the latter, the idea of sharing the responsibility seemed to be the theme, from talking with other farmers to Neighbourhood Watch schemes:

“Probably a bit of both really” (HW)

“If anything unusual is happening in the village, they [local residents] usually come to us because we’re up and down the road all the time asking have you seen anything” (RB)

“Cooperation I think” (IN)

“Because you’ll not get anywhere on your own” (JR)

“It all works because we can only help ourselves if we join together” (KB)

“You do tend to talk to neighbours, if somebody’s got something to protect his borders, if he’s got something, you go look at it, if you can afford it, you try and do it, but you look at the best option for you. Or the most reasonable priced option for you” (RA)

However, as noted, several of the farmers felt the decision on crime prevention is one made by the individual farmer for the best option for the farm (Groenwald, 1987):

“It tends to be me that’s the decision-maker” (RB)

“It’s all me, yes...So I have to take the blame...And the credit as well” (JP)

“Probably wouldn’t talk to other people about it, no. Well it’s no different to any other decision you make in any business or farming...You think about yourself” (MK)

“The buck stops with you at the end of the day and I think it’s something you have to take on board individually” (RB)

“When there’s been a burglary in the area, that message sure gets around the farmers very, very quickly. And it galvanises your brain into thinking, yes well, I better update what I’m doing so it makes you focus on your own place more” (PC)

Summary

In summary, this section indicates a mixed approach to farming decision-making. Some farmers report making decisions alone, some do so as part of a group, with some reporting a mix of both approaches. This latter approach is illustrated by some farmers sharing information as a group, but then making decisions on an individual basis to ensure the best approach for their own farm, again indicating the heterogeneity of farms and farmers. This discussion suggests that improving the use of social norms may be useful, and the possibility of using FCP champions could be considered to improve the diffusion of innovation among farmers. This mixture of opinions on the best method for making appropriate decisions for the farm is once again indicative of the varying nature of farms and farmers, and should be carefully considered if providing crime prevention advice.

9.3.6c Crime Prevention Decision-Making and Barriers

When making decisions about crime prevention, farmers identified a number of influencing factors that may help them in making a decision on whether or not to use crime prevention, but also the type of crime prevention they might consider using. Previous victimisation was a key influencing factor in crime prevention decision-making:

“I think it makes you tougher, you know. It makes you want to put in more measures” (KB)

“So because of the thefts, we have definitely upped the prevention on our doors to make it much better... You can’t lock everything up, and you don’t know it’s gone until maybe a year later” (PP)

“But it’s self-security, isn’t it... So you’re always thinking of your own personal family security. So it’s piece of mind knowing that you’ve done your best” (KB)

“If I hadn’t looked back on the camera, I wouldn’t have known they’d [the criminals] stolen anything” (IN)

These farmers reported that their wider experiences, and ‘gut instinct’, had an important role to play in crime prevention decision-making (Garforth *et al.*, 2006). In addition, crime prevention having a dual-purpose role made the decision a more straightforward one:

“Because you’re a stockman, you see it because you’re used to dealing with things that can’t talk to you...you know what’s not right...we’ve got that instinct thing that says something is wrong” (KB)

“A lot of livestock farmers have done that because the starting really hasn’t been from crime prevention, but it has been from an easy management basis...The crime prevention is the add on bit that goes with it” (RB)

However, despite these important influences in the decision-making process, the farmers reported their decision-making being restricted by a number of barriers. Some of these may make the difference between a farmer choosing to use crime prevention, or taking their chances. With a small number of examples for each, it is clear how these barriers play a significant part in the decision-making process for these farmers:

Inconvenience:

“Inconvenience is the biggest barrier which affects your day to day life or how you operate your business. And that’s my biggest worry, it’s probably why I haven’t done too much about it...For the one occasion that you’re trying to stop somebody doing something they shouldn’t be doing, you have to deal with that on a daily basis...And that’s the challenge” (RB)

“No I don’t lock anything up...Takes too long unlocking it. Bloody gates. It gets on your nerves with the gates” (HW)

“We did have the police come in, but some of the stuff they’d [the police] done was really quite impractical. I said you must be joking. You have to lock that and keep it locked all the time. I said I can’t keep that locked ‘cos I’m getting things in and out of it all the time” (KP)

“It’s like having one entrance. Really you can’t put a gate on it because like machinery coming in and out, your wife coming in and out, the daughter-in-law, the kids, it’s all the time” (JR)

Money:

“If we were in a position where we were perhaps making a bit more money and we didn’t need to invest in other things, then it’s something we would consider investing in” (RB)

"If the police or somebody turned round and gave it you free, you'd have it done in seconds" (RA)

"Money probably...Because money is very limited and so that's one of the reasons why our gates have been not so good, and we're gradually buying more gates to fill up the holes" (PM)

Technology:

"Probably the technology behind it I would think...if it's done and explained simply then you can manage it, but it's just the time taken to install and set it up" (KB)

"And it's no use investing in technology and being dependent on technology because all this technology needs manpower to review...Not even the police could get the people to review the CCTV footage for the 8, 10, 12 hours" (AM)

Overall Effectiveness:

"The effectiveness of it really, you know, is it cost effective to do anything...it depends how much value you're trying to protect" (JP)

"You've got tractors and they've both got trackers on them. So whether it'd stop them [the criminals] nicking them or not I don't know, but you'd thought they'd nick one without a tracker before nicking one with a tracker, do you think? I don't know" (MK)

"But the trouble is you can do what you like to put locks on the tank, but they'll [the criminals] just come along with a drill and...drill a hole" (JH)

"We've got one [tracker] now on our Kawasaki mule and we set a perimeter up for it...but it's servers haven't quite got the whole farm on it so every time I go into one field...I get messages to say I was down at A fence" (HG)

Time:

"We put CCTV in after we lost our trailer. We've got images that the police can look at but they didn't come out to look at them. So you suddenly think that was a waste of time and a waste of money" (RA)

"Ours are on a sensor that we've got now, but we haven't got it quite right still because the grass blows by the motorway and it sets the thing off...it needs fine tuning but it takes a lot of doing with the sensors and there are a lot of them as well" (HG)

Summary

In summary, these examples illustrate that, while inconvenience seemed to be the biggest issue for these farmers, the biggest barrier may be the farmers' overall beliefs regarding the effectiveness of these crime prevention measures. For example, if it is inconvenient to have a gate locked all of the time it is left open, thus rendering that gate ineffective. A crime prevention measure may not be overly expensive to buy, but if it requires additional updates or add-ons, the farmer may not have the available money to purchase these, and so the usefulness and effectiveness of that measure is limited. The technology may be prohibitively complicated, meaning it is not user friendly, and so risk averse farmers are less likely to adopt it (Pile, 1991; Guerin & Guerin, 1994), and therefore render it ineffective. It is not necessarily the time involved with the initial set up that makes some technologies problematic, rather it is the lack of time available for additional adjustments that are required to get the system working appropriately for the environment. All of these examples can clearly prevent a decision being made if this is what the farmer believes will be involved in the upkeep of whatever crime prevention measure is chosen. On this basis, it is argued that overly complicated, time consuming, expensive, and inconvenient options are less likely to be chosen, and more likely to put a farmer off from adopting any crime prevention measures at all. This leads to comments such as that made by farmer *RA* relating to the use of crime prevention if it was free. While this seems like an ideal solution to a number of barriers for farmer decision-makers, it does not necessarily guarantee the farmer will be getting the most effective crime prevention for their individual farm, they will only be getting what is available freely.

9.4 Summary

This extensive analysis of the qualitative responses given by the farmers has enabled an examination of how farmers think about crime, crime prevention, the police and insurers, and how this may influence the decision-making processes surrounding the use of appropriate and effective crime prevention on farm.

Several key findings have been highlighted. Firstly, there was a noticeable difference between how the media are reporting rural/farm crime, and how farmers are discussing farm crime and their experiences. This potentially indicated a widening schism between the strategists and the farming community, possibly leading to a de-factualisation of farm crime in E&W.

Half of the farmers who completed the Likert attitudinal statements indicated they had not made any changes to FCP since being a victim, possibly due to hyperbolic discounting, or

maybe apathy. However, it is suggested that such a lack of response, may be making it easier for criminals to target farmers multiple times to take the items that have been purchased to replace those originally stolen.

It seems farmers need to be helped to become innovation adopters, rather than relying on the same thing as their neighbours which may not be suitable for their individual farm. This should apply, to not only the hi-tech responses to crime, but also the low-tech options beneficial in reducing the likelihood of future victimisation. Figure 9.6 indicates some key characteristics and how these may potentially affect attitudes and beliefs regarding FCP decision-making.

The analysis of what farmers have said has shown that farmers have been victims of numerous crimes, and these crimes have a noteworthy impact on the viability of the farm as a business. Despite being understanding of the pressure the police are under, farmers were generally critical about the response they have received from the police when reporting these crimes, thus leading to low levels of confidence and reporting to the police. The feelings among farmers about the response received from insurers were mixed. While farmers were happy that insurers were willing to pay claims, not all losses are reported, and farmers felt their insurers should be taking a more proactive approach to providing crime prevention advice.

While farmers were generally positive about FCP, the crime prevention measures used were seen as inconvenient and impacting on their time and efficiency, and they felt that to get FCP that would be more effective for their farm, would have a detrimental financial impact.

Farmers were talking openly about the psychological and physical health impact farm crime has had on them. As a direct challenge to rural masculinity, farm crime is creating a major challenge to the traditional view of the strong, stable farmer by establishing a culture of fear among farmers in E&W.

Chapter 10: Discussion

10.1 Overview of the Research

This research has been the first to explore the attitudes and beliefs of farmers towards farm crime, crime prevention, the police, and their insurers in E&W. Moreover, it has provided clarity on the real impact of farm crime upon farmers, validated by a quantitative survey with farmers across E&W, acting as an initial scoping survey to identify key aspects relating to farm crime that required further exploration.

A range of qualitative methodologies provided further exploration: interviews with PCCs and CPAs across four police forces in England, and embedded multi-case studies with farmers made up of focus groups, one-to-one semi-structured interviews, Likert attitudinal statement analysis, and a comparative content analysis of media reports of farm crime and the discussion undertaken with farmers. The results from this extensive research are discussed in the following section relative to each research question.

10.2 Key Findings Addressing the Research Questions

Many important findings from this research clearly address the five original research questions as discussed below.

1. What are the levels of farm crime in E&W, and what is the impact of these crimes.

In relation to the level of farm crime that participants have reported during this research, a figure of 62.8% of participants reported having been a victim of farm crime within the previous 12-month period. Of those, 53.5% had been a victim of crime on more than one occasion. Despite this, it was found that, in some cases the police continue to rely on insurance figures relating to rural crime to measure their effectiveness in tackling these problems. However, without a more organised method to measure effectiveness, it is perhaps the only benchmark that the police have.

Small farms were more likely to be victimised, suggesting a UK phenomenon differing from the international findings such as Barclay & Donnermeyer (2007). However this research corroborates the findings of Anderson & McCall (2005) with isolated farms being more likely to be victimised more than once. This would tend to suggest that crime prevention advice should be targeted at those small, isolated farmers as a priority, as they are unlikely to have been visited by a CPA to provide key crime prevention advice, and do not have the social network from which to pick up information locally.

Contrary to the ideas of RAT (Cohen & Felson, 1979), capable guardianship seems to make little difference in the likelihood of being a victim, meaning that the presence of someone on the farm is not necessarily acting as the deterrent it was thought to be within the farming community. This suggests that more emphasis may be needed to address the motivated offender and the suitable target aspects of RAT, and certainly more research should be undertaken to explore this in more detail.

When considering the impact that farm crime has on farmers, there were some interesting external factors noted that were discussed by farmers surrounding how keenly the impact of farm crime is felt. The first relates to the weather. While it is perhaps the case that the weather is the most stressful aspect of farming in E&W, the weather also affects the impact of crime. The research indicated that weather seemed to have a greater impact on fear as noted by Cohn (1990) but contrary to Horrocks & Menclova (2011). However, findings were less clear regarding the time of year, contrary to Donnermeyer *et al.* (2010), and time of day despite findings of Bunei *et al.* (2013). Another aspect, that was expected to have an influence on the impact of farm crime, but in reality played little part, was the influence of the media. Despite CPAs understanding the need to know about the impact on farmers, the media was not reflecting reality, although media had little effect on perception of crime among farmers, supporting the findings of McQuivey (1997) and Vanderveen (2003).

The research shows that farm crime may be creating a rural contra-masculinity supporting the findings of Brandth (1995) and Wilson (2014), with the psychological impact being so great that some farmers have considered giving up farming because of crime. This is supported by the openness of the participants in talking about the impact crime has had upon their psychological wellbeing. Despite this, the research also shows there are feelings of fatalism towards crime prevention, as noted by the Frameworks Institute (2015), due to increased violence, fear of retribution, lack of police response, and misunderstandings about guns on farms. If farmers feel that there is little point in using crime prevention as these things will happen anyway, there seems to be an uphill battle faced by CPAs and police in general to change that perspective.

Farm crime has left a situation where farmers are in denial in some cases that they have been a victim of crime often suggesting something had been lost rather than stolen, which concurs with the findings of Barclay (2003) and Barclay *et al.* (2001). In addition, it was the small losses that often had the biggest financial impact on farmers; e.g., the loss of gates can lead to stock getting onto roads, and no insurance claims are made due to the value of the stolen item being less than the insurance excess.

Fear of crime was rising despite crime levels being lower than in urban areas (Skogan & Maxfield, 1981; Yarwood & Gardener, 2000). This research indicated that fear of farm crime is a socially relevant issue (Vanderveen, 2006), with particular issues seen in the farming community. The impact of geographic and social isolation, criminals using technology, violent repercussions, what was taken/how it was taken/where it was taken from, were all factors affecting fear of crime.

These factors suggest that the psychological impact of farm crime is adding to an already stressed and distressed community. This research has indicated that farm crime had a major psychological impact on farmers (Farkas, 2014), with this being supported by the farmer discussions. Crime erodes trust, not just towards strangers, but also towards friends as discussed by Jackson (2008). Farmers exhibited defence othering as noted by Stough-Hunter (2015), however admitted they cannot sleep because of fear of repeat victimisation but accepted this as part of being a farmer.

Farmers had general worries as well as specific worries, such as their dogs, cybercrime, scrap metal dealers. It is suggested that the increasing fear of crime could lead to poor decision-making which may affect the use of appropriate and effective crime prevention supporting the discussions of Hartley & Phelps (2012) relating to the role of anxiety and fear leading to “negative choices”.

The findings from the case studies indicated that the prolonged psychological impact of farm crime might lead to issues with the physical health of farmers in line with the findings of Brandth & Haugen (2016), Carrington *et al.* (2013), and Courtenay (2000, 2002, 2003). It is suggested that further exploration of the psychological impact of farm crime should be addressed in more detail, along with its challenges to the traditional RM discussed by this research.

2. Does the level of confidence farmers have in the police affect the likelihood of farmers reporting these crimes?

Police interviews indicated a lack of consistency in how police define rural crime reflecting the findings of Weisheit *et al.* (2006), with some forces treating all crime the same that is not reflected by farmers’ experiences. Moreover, this, along with the lack of knowledge of farming issues among call handlers, and a national recording standard for farm crimes when they are reported, is leading to inconsistencies in the recording of farm crime by police as noted by Jones (2010), thus suggesting the need for training for call handlers and CPAs. The research further indicated internal issues, with some departments not knowing what other departments were doing. In addition, some PCCs were stating the responsibility of

protecting farms is down to the farmers, suggesting some form of “responsibilisation” as discussed by Garland (2001).

The research indicates that 68% of farmers report crimes to the police in line with findings of Donnermeyer & Barclay (2005) and Swanson (1981), and only 40% report to their insurers. Despite this, over 80% of participants felt the police were not doing enough to tackle farm crime. In addition, those farmers located closest to a main road were more likely to report a crime, and also more likely to be satisfied with the police response. Despite this, the Likert scales found that most participants felt the police and government response to farm crime was inadequate, and 1/3 felt their insurers were not providing adequate crime prevention advice.

Police interviews show an acknowledgement by the police that visibility of police and contact with farmers needs to be improved as concluded by Smith (2010), and they are making use of volunteers to try to address this. However, it is noted that the use of volunteers may not have the same effect in rural areas as it has in urban areas as discussed by Barclay (2016). While farmers were mindful of reduced budgets as noted by Smith & Somerville (2013), they would still like to see more warranted police in their area; however, nothing was said about the police approach using volunteers or Specials.

According to farmer discussions, farmers were unanimously negative about police feedback extending the findings of Barclay *et al.* (2001), as well as poor or inconsistent messaging services, and a lack of police commitment to keep messaging services going in the long-term. Farmers felt the police did not take reports seriously, there is a lack of understanding, the police were not interested in coming to look at CCTV supporting the findings of Donnermeyer & Barclay (2005), and farmers felt like second-class citizens. This leaves farmers feeling dismissed, and that they should feel grateful for a crime number, with many farmers stating they only report crimes to the police to get a crime number for their insurance claim, and not to get their stolen items back. It is suggested that this situation is perpetuating the low use of crime prevention, as the police do not provide any kind of support or guidance, and the insurers will pay out anyway.

3. If farmers are using crime prevention measures, what measures are being used?

The research shows that farmers were more likely to use low-tech crime prevention in line with the findings of Anderson & McCall (2005) and George Street Research (1999). The main reasons for using crime prevention were how easy it is to get to the farm, and victimisation, both direct and indirect. The ‘sticky dot’ exercise at the focus groups concurred with this finding, despite farmers saying they would take risks and try new things.

However, when discussed in-depth with farmers, it was found that there were a range of crime prevention measures being used in a variety of combinations. Those farmers using only low-tech measures were not convinced of the efficacy, but felt it was better than doing nothing. Those farmers using high-tech or a mixture of both portrayed more satisfaction but acknowledged that high-tech measures still had their limitations. Farmers felt alarms, with or without lights, were most effective, but there were some farmers that felt CCTV, sensor lights, and padlocks were ineffective, indicative of the heterogeneity of farms and farmers. This may also be indicative of the fact that these farmers may have acted on the FCP advice received, only to find that such measures were ineffective on their farm. This may reflect the limited and general nature of the FCP advice being provided to farmers, illustrating the lack of advice tailored to individual farms. While it is noted that this may be due to a lack of police resources to provide such tailored advice, it is perhaps yet another aspect influencing the low confidence levels that farmers feel towards the police.

The data suggests that farmers did carry out regular checks on their farm. Farmers also felt they had good knowledge of crime prevention, however it is not clear from these findings whether such information is limited or general in nature as discussed above, potentially making farmers no less likely to be a victim in the future. Farmer discussions did indicate that farmers try to get the best crime prevention for their farm, but in many cases the time involved often meant farmers ended up getting something from a shop or the internet and setting it up themselves without further advice. This is indicative of the need for a facility by which farmers can easily review all FCP options available to them with key information to enable effective and appropriate FCP decision-making. This is a role that could be filled by a FCP decision-making choice architecture toolkit based on the findings of this research.

In addition, farmer discussions found a mixed response towards FarmWatch schemes. Support depended upon a proactive coordinator as noted by Barclay *et al.* (2001), the Watch needed to be proactive and not reactive to a particular problem, and required long-term buy-in from the police. While some farmers did feel FarmWatch schemes were beneficial, most discussed the fact they were police driven and relied on police support to continue being effective. This meant informal community 'watches' were more likely to be created, and more likely to succeed.

Farmer discussions highlighted the feeling among farmers that crime prevention was seen as a sport for criminals, with the excitement of beating the crime prevention farmers put in place being a key motivator for some criminals. This supports the findings of Burt & Simons (2013) and Zuckerman (2007), who conclude that thrill-seeking behaviour is often key in criminal motivation. If this is the case in some situations, it could be a further contributing

factor to the feelings of fatalism some farmers are experiencing in relation to farm crime, thus potentially making it harder to convince farmers of the efficacy of FCP.

Farmer discussions indicated that it is possible that farmers may not have adequate insurance to cover potential theft from some parts of the farm, thus supporting the conclusions of Deeds *et al.* (1992) and Skogan (1984). This, it is suggested, may be due to an air of denial among farmers that they have been, or may be, a victim of crime. Alternatively, it may be down to an incomplete knowledge, or bounded rationality (Kahneman, 2003), which may then lead to a false sense of security about their level of protection. This may also be indicative of the fact that farmers simply do not have the time to check the 'fine print' of their insurance policy. They believe they are insured for all eventualities, and so do not ask any more questions, simply then allowing their policies to auto-renew each year. One would have to question the role of their insurers if this is the situation, and whether they should be obliged to make clear what a particular policy does and does not cover. This may be particularly important in light of the ever-increasing threats farmers are facing, including crime, climate change, and Brexit.

4. What are the factors influencing farmer crime prevention decision-making?

The analysis of the Likert scale responses highlighted some key potential patterns between farm type and attitudes to crime prevention (Figure 9.6), some of which should be considered in the creation of a FCP decision-making choice architecture. Such patterns may be key in designing such a choice architecture. They may drive the questions a CPA should be asking to establish an individual farmers' attitudes towards a particular aspect. This may in turn influence the way the FCP options are presented to the farmer.

Farmer discussions indicated a much greater willingness of farmers to talk about the psychological impact of farm crime, suggesting the idea of a hegemonic RM seems to be changing, as concluded by Brandth (1995) and Connell (1995). This may be as a result of increased fear of crime among farmers highlighted by Jackson (2008), and the psychological impact of farm crime noted by Campbell *et al.* (2006) and Stough-Hunter (2015). If this is the case, and the hegemonic RM is being challenged by farm crime, it is imperative that this is adequately handled to ensure that there are no hidden negative consequences emerging as the new RM develops. This may include an increase in rural domestic violence, an increase in abuse of alcohol or drugs, or an increase in farmer suicides.

Farmer discussions indicated the main sources of crime prevention information for farmers were the police and insurers, despite feeling both could do more to tackle farm crime. Other sources of information included the media, particularly the farming press despite the impact

on fear of crime, other farmers, and farming organisations such as the NFU (Collier et al., 2010; Toma et al., 2013), however it is questionable that such advice was consistent (Blackstock et al., 2010). Despite being reported as a useful source of information, media report analysis shows that the media did not seem to be influencing farmer decision-making. However, it did show a disconnect between what the media are reporting, and the reality for farmers as noted by Vanderveen (2003) and Sacco (1995).

Importantly, farmer discussions found it was important that the advice provided must be suitable and effective for the individual farm, tailored to the farm, and provided by a trusted messenger as discussed by Eck (2002). These are particularly valuable findings, as it supports the conclusions of Pike (2008) that any policy affecting farmer decision-making must recognise diversity and that no two farmers are the same. It is key in FCP decision-making to understand and recognise the heterogeneous nature of farms and farmers, and that a one-size-fits-all policy approach will not achieve the intended outcome.

The research shows the cost of crime prevention affected what was being used, although there was no consensus on whether cheap FCP measures were less effective. However, this is countered by the fact that participants seemed to have a good knowledge of high-tech crime prevention, and less knowledge of cheaper/free options. In addition, by using high-tech crime prevention, there seemed to be some apathy about actively protecting their property using other measures, with some farmers feeling CCTV would be enough to deter the criminals, and that the use of crime prevention, whatever it may be, is enough to indicate that the farm was not an easy target. An interesting point noted by some farmers was the fact that they only used crime prevention as it had a dual purpose for their farm, for example, one farmer only had CCTV on his farm because he used it initially to monitor his livestock, not as a crime prevention measure. It is perhaps the case that, if a FCP measure could provide a dual purpose it may be more attractive as an investment and easier for a farmer to justify the cost of such measures. Indeed, such actions may well contribute to an increased level of diffusion of innovation among local farmers, thus improving the uptake of FCP measures in a given area.

Interestingly, two-thirds of farmers reported using crime prevention even if there was no associated reduction in insurance premiums, which may be indicative of satisficing behaviour as discussed by Mohaidin (2012). In addition, farmer discussions suggested farmers would like to see reduced insurance premiums for a wider range of crime prevention measures, which may be in opposition to the findings of Wandel & Smithers (2000). This may indicate that insurers could positively influence the uptake of FCP measures on farms by providing a wider range of premium discounts. Based on the comments of farmers, they currently have insurance because they have to as a business, which would not suggest a

particularly proactive or innovative approach to insurance policies on the part of the insurers.

Where money was no option, most farmers opted for high-tech measures, although some reported they would not continue farming. This reliance on high-tech measures seems to be counter to the findings of McCall & Homel (2003) who concluded that crime prevention was most likely to be used if it was easy to set up and run, and effective.

This research supports this conclusion, finding that half of participants felt crime prevention was too expensive, which may be indicative of bounded rationality described by Kahneman (2003). Farmer discussions show there was incomplete knowledge of the options available to them, and from where they can get this information. This leads to the reliance on, and desire for, high-tech FCP measures.

In addition, most farmers felt crime prevention was too time consuming, and what was key with farmers was the issue of inconvenience. Crime prevention reduced farm efficiency by having to lock things away and getting things replaced, in addition to the frustration of being victimised, the number of scams they have to deal with, and the time wasted dealing with crime and reporting to the police. However, time and inconvenience as barriers to decision-making seem to be at odds with the socio-demographic barriers suggested by previous research (Bryan *et al.*, 2013; De Jalon *et al.*, 2014; Deressa *et al.*, 2009).

The research shows that other farmers influenced attitudes on crime prevention, which indicated the presence of social norms. However, farmers of larger farms were less likely to talk to non-farming friends about crime prevention, they stated that the use of crime prevention would reduce efficiency, and they were less likely to check the reason for a security light coming on (Avineri, 2012; Knowler & Bradshaw, 2007). Such a response may be reduced with a choice architecture that provides full information of all FCP measures available, thus reducing bounded rationality. In addition, making use of FCP champions and commitment mechanisms as discussed by Hepburn *et al.* (2010), may increase the levels of diffusion of innovation (Rogers, 1962) among the farming community.

Farmer discussions suggest they believe offenders were mostly local, but this does depend on what has been taken as they recognised the difference between opportunistic and organised criminals. Farmers also recognised the role market forces play in farm crime, e.g. increased theft of Land Rover Defenders following the end of production. However, there were still those who thought criminals were foreigners or from the travelling community, even if they have no proof. Farmers openly admitted to worries about delivery drivers, and farmers and farm workers are openly accused of crimes as discussed by Smith *et al.* (2013).

Farmer discussions indicated that farmers thought they were hyperbolic discounters as they put off crime prevention due to the cost and time involved, but they recognised it was getting easier to protect their farms despite status quo bias (Janssens & Kirkke, 1990; Kahneman *et al.*, 1991) still being evident. Farmers were quite harsh on other farmers who do not use crime prevention, stating that while they do not deserve to be a victim, they make themselves a more likely target. However, even when they have been a victim, some farmers either did not use any crime prevention, or they talked about crime prevention but failed to act. This raises questions relating to hyperbolic discounting, cognitive dissonance, and whether farmers are enabling repeat victimisation by not using crime prevention. This extends the findings of Dillenburg (2007).

Police interviews suggested that police were aware of these issues, stating that farmers have done things the same way for decades and resent change, again an indication of status quo bias as described by Kahneman *et al.* (1991). However, the content analysis of farmer discussions tended to indicate that farmers were aware there was a problem and that something had to be done about it. This suggests some level of cognitive dissonance at play where behaviour and beliefs differ, with beliefs more likely to be changed than behaviour as outlined by the Behavioural Insights Team (2010).

Police interviews indicate that farmers were more likely to be receptive to crime prevention when they have been a victim. Discussions with farmers suggested that even when they have been a victim, they still do not adopt crime prevention. This may be due to hyperbolic discounting (Janssens & Kirkke, 1990; Repetto, 2008), or the resetting effect (Pogarsky & Piquero, 2003). Despite this, farmer discussions also show the main driver for crime prevention use is victimisation itself. Therefore, a balance must be found in providing crime prevention advice as soon as possible after the crime to avoid the influence of the resetting effect as discussed by Pogarsky & Piquero (2003), but without being too soon that any decisions made are influenced by stress, potentially leading to poor decision-making as noted by Mani *et al.* (2013). This is supported by the fact that farmers themselves reported that being a victim made them think differently about crime prevention, and what would work best on their farm.

5. Can the findings be used to improve the appropriate, effective crime prevention decision-making of farmers?

Likert scale responses featured a number of responses surrounding their attitudes towards factors affecting FCP decision-making that varied notably from the modal response. This was clearly indicative of the heterogeneity of farmers, the strong attitudes they hold, how prior experiences affect these attitudes, and how this then affects the running of the farm.

It is arguably key to understand these factors to then understand why these farmers chose the way they do.

Farmers felt that the police needed to take farm crime more seriously, seem interested in investigating it, and provide useful, relevant communications and feedback as noted by Barclay *et al.* (2001). Farmers suggested this would make them more likely to report crimes, although they noted that the police also need to make the reporting process easier and quicker, possibly with call handler training.

Police interviews show that PCCs talked about FCP in a general way. In contrast, the CPAs recognised the need to make farm visits and provide individualised advice in accordance with the conclusions of Edwards-Jones *et al.* (1998). Moreover, CPAs noted that they gave advice, but they could not control if farmers used it, which may be partly due to the low confidence levels among farming communities. By building on the individualised approach, and establishing a clear choice architecture framework, CPAs would be able to use this to raise levels of confidence farmers have in the police, and therefore potentially increase the likelihood of crime prevention use. In addition, this research has shown that it was not just about the advice given, rather trust in the messenger (Collier *et al.*, 2010), and how the advice was given (Toma *et al.*, 2013). This would suggest that, while a FCP decision-making choice architecture was being created, steps should be taken by the police at all levels, to take clear steps in rebuilding the confidence of the farming communities, and establish with the farmers the best way they could provide FCP advice, either in person or over the telephone. Alternatively, the police could provide the farmer with the choice architecture toolkit to enable the presentation of the most appropriate and effective FCP measures for that farm. This might be something the farmers could do in their own time, rather than having to set aside specific time for a meeting. By providing adequate and complete information about crime prevention the police could encourage more farmers to use these methods, resulting in a potential diffusion of innovation (Rogers, 1962) among the wider farmer community.

Likert scale responses found that female farmers were more likely to try new crime prevention methods, and talk to non-farming friends about crime prevention. This is partly in opposition to the findings of Pile (1991) and Guerin & Guerin (1994), who argued that, as farmers are risk averse, they are less likely to adopt new, innovative methods.

Farmer discussions show that previous victimisation was a key influencing factor in crime prevention decision-making in line with findings from Barclay *et al.* (2001). However these discussions also found that farmers' wider experiences, 'gut instinct', and the possibility of crime prevention being multi-purpose aid decisions. The latter factor may make crime

prevention more attractive to farmers, especially if the methods are expensive. By having multiple uses may enable farmers to see beyond the price. Furthermore, crime prevention advice needs to go beyond protecting physical property, as farmers also displayed worries about things like cybercrime.

Key information provided during farmer discussions highlighted that farmers were aware of relevant theoretical underpinnings, even if they did not realise it. Theories such as RAT and capable guardianship (Cohen & Felson, 1979), RCT (Simon, 1955), CPTED (Jeffery, 1971), BWT (Wilson & Kelling, 1982), and DT (Becker, 1968). This being the case, more should be made of the concepts aligned with these theories in FCP. It is perhaps the case that methods such as defensive planting, gravel driveways, or tidy farms may have a positive effect. In addition, layering FCP by using entry signs indicating FCP is in use, electric gates, or alarms, may make a farm a less suitable target for a motivated offender as discussed by Cohen & Felson (1979), and make criminals re-evaluate the costs and benefits of targeting such a farm (Simon 1955).

In addition, social norms seemed to play a part in farmer attitudes. Crime prevention decisions tended to be made by talking to other farmers as discussed by Knowler & Bradshaw (2007), even where the final decision was made individually. These findings may suggest the potential for crime prevention cooperatives and peer mentors for information sharing among local farming communities. Moreover, the use of commitment mechanisms described by Hepburn *et al.* (2010) may benefit from such cooperatives, and thus improve the uptake of crime prevention and diffusion of innovation (Rogers, 1962). Furthermore, framing crime prevention options as ways to avoid losses, may improve uptake due to the concept of loss aversion as illustrated by Kahneman & Tversky (1979).

This research also shows that older farmers felt that crime prevention was not time consuming. It is argued this may be because of a better understanding of the implications of victimisation, and is contrary to the findings of de Jalon *et al.* (2014). It may be useful to explore the reasons for this further, as including this information in a FCP decision-making choice architecture may assist in identifying appropriate FCP measures for younger farmers or those who have not been victimised, and so do not have this experience of the immediate issues, and the subsequent ongoing impact to draw upon.

When looking at the farmer discussions, it is arguable that as the impact of time of year (Donnermeyer *et al.*, 2010), and time of day (Bunei *et al.*, 2013) are not clear-cut among the participants in this research. These aspects should be addressed in any crime prevention decision-making choice architecture, as different responses may lead to differing attitudes to crime prevention.

Finally, farmer discussions further identified the key factors surrounding specific barriers to using crime prevention measures. Firstly, the role insurers' play in FCP was vital. If insurers keep paying out on claims without question, farmers are less likely to use crime prevention. Farmers indicated they only had insurance because they are likely to be a victim of crime, and if they did not need insurance, they probably would not bother.

In addition, farmers identified inconvenience, technology, money, effectiveness, and time consuming as the main barriers to using crime prevention. In other words, crime prevention measures that are overly complicated, time consuming, expensive, inconvenient, and that are ineffective, would not be used. These findings are, in the main, contrary to the socio-economic barriers identified by Deressa *et al.* (2009), de Jalon *et al.* (2014), and Bryan *et al.* (2013). However this may be as a result of the specificity of the subject area. This would tend to suggest that FCP measures more likely to be used should be simple and easy to use, cheap to buy and maintain, effective and not impacting on the running of the farm. The things farmers are currently using do not necessarily reflect this – padlocks are ineffective despite being cheap and easy to use. Neither is it reflected by what farmers think they should have – alarms, lights, and electric gates, which are high-tech, expensive, time consuming, and very often inconvenient or ineffective. This may be as a result of bounded rationality on the part of the farmers resulting from the potentially incomplete and generalised information being provided by the police, insurers, or other sources of information.

10.3 Green Criminology

Similar to the plight of farm crime, green criminology is often ignored in criminological research (Lynch & Stretsky, 2012). However, it is possible that there are close links between what this research has addressed and aspects of 'green crime' that affects the countryside in E&W.

Green criminology addresses three key areas as discussed by Lynch & Stretsky (2012). These are:

- Air, Land, and Water Pollution
- Timber and Mining Crimes
- Wildlife Crimes

While in some parts of the world, green crime is driven by the state, such as 'ownership' and exploitation of water resources (Johnson *et al.*, 2016), in E&W it is likely that green

crimes are committed by criminals, particularly Organised Crime Gangs, who are operating within communities.

It is possible that the findings of this research may be extended to address farmer behaviour and attitudes towards aspects of green crime that particularly affect the E&W countryside. In particular, how these behaviours and attitudes might differ or align with those of urban residents. Such crimes that could be considered that may be affecting rural areas as well as urban, include fly-tipping, waste dumping – including toxic waste, agrochemicals, and old tyres), and the emerging crime of standing timber theft.

11: Conclusions and Recommendations

11.1 Conclusions and Implications of the Research on Policy, Practice, and Theory

This research is the first to suggest the innovative use of BS in FCP decision-making, and provides the first steps towards understanding farmer culture and attitudes surrounding crime prevention and the police to underpin the use of BS in this way.

A number of conclusions can be drawn from this research that have implications on policy surrounding FCP, the way police and insurers approach FCP, and the theoretical underpinning of the varying aspects affecting FCP. These are each discussed in light of what the findings of the research mean for the future of FCP decision-making.

11.1.1 Conclusions and Implications relating to Farm Crime Policy

The findings of this research support the role BS could play in providing an alternative to government policy, and current police strategies, to improve the uptake of appropriate, effective FCP. Driving this conclusion is the seeming failure of the current approach to improve the uptake of FCP and thus reduce levels of farm crime. Moreover, the fact that BS has been widely used in farmer decision-making thus making it an extension of existing methods used in improving farmer decision-making.

This research has shown that there are several key aspects of farmer behavioural culture relating to farm crime and FCP that should be considered as essential to frame the argument supporting the need for a change in policy approaches to farm crime:

1. Hyper-masculinity still exists within farming communities leading to continued denial of the impact of farm crime, despite the surprising openness of some farmers;
2. The impact of farm crime must be recognised as separate and distinct from the impact of other crimes, particularly urban-based crimes, thus requiring a different approach to the issues raised, both financial, social, and psychological;
3. The increasing amount of lone working farmers are undertaking as a result of reducing staff, means increasing social isolation making them more vulnerable to victimisation, and having a detrimental impact on their psychological wellbeing;
4. Farmer's attitudes to risk must be carefully considered. While looking outwardly as being risk averse, the low levels of FCP used suggests otherwise, and should be handled conscientiously;

5. The heterogeneity of farmers is clearly illustrated by this research, indicating that national policy will not be successful, and so the tackling of farm crime must be done at the individual level;
6. Despite farmers displaying the socio-economic elements that should suggest support of the police and their strategies, this research shows that there is a distrust of the police relating directly to their handling of farm crime. This raises the question as to whether the police are in fact the best placed organisation to take the lead in future strategies to improve FCP use and reporting of farm crimes.

In conclusion, making any future approach easier must start with the agreeing of a clear, national definition of rural crime, and thus farm crime, to enable a national recording standard of these crimes as they are reported. This will enable the police to establish reliable rural and farm crime datasets to better evaluate the scale of the problem. This would allow a much better measurement of effectiveness of any approaches taken to tackle these issues, rather than relying on incomplete and possibly misleading datasets. This will therefore eliminate the current discontinuity between the measurements of effectiveness that are present; police using insurance claims data to show how well they are doing, while farmers measure the effectiveness of the police by whether or not they have been a victim of crime.

It is recommended that the current approach to tackling farm crime needs to re-focus so that the heterogeneous needs of the farmers are central to any approach taken. While government and police strategists may need to ensure appropriate policies are in place, it is suggested that this should be driven by, or at least informed by, those whom this crime affects directly. This form of bottom-up approach (Matland, 1995) may provide much needed insight into the impact of farm crime allowing the targeting of local strategic approaches according to the real need of the farmers.

When considering the key aspect of deterrence, RAT may go some way to explain why the criminal justice system, and the wider community have not been seen as effective social controls. Cohen & Felson (1979) argued that it is hard for a criminal justice system to deter crime by increasing the certainty, celerity, and severity of punishment, when changes in society move much faster than the wheels of justice, which therefore increases the certainty, celerity, and the reward of illegal activities. It is arguable that there is a need for a more agile criminal justice system where it is able to do so. With specific reference to farm crime, this might be achieved by providing better crime prevention advice for farmers, and better engagement with farming communities, especially those particularly prone to crime. By

making use of the criminal justice system in all its forms, this may break the cycle of the motivated offender who sees farms as easy pickings, by reducing their target options, and increasing certainty of detection on the farm.

It is suggested that insurance providers have a key role to play in their farm crime insurance policies. Insurers could be approaching farm crime in a different way. While this research shows that farmers' use FCP measures even if there is no insurance premium discount, this may be an appropriate course of action to consider. While farmers consider themselves hyperbolic discounters, the simple fact that they use crime prevention despite there being no insurance discount proves the opposite is true. Therefore, premium reductions on a wider range of approved FCP measures may encourage wider uptake. Moreover, there could be additional restrictions on the insurance claim pay-outs, which may provide incentive enough for farmers to think differently about protecting their property. Furthermore, it is suggested that insurers could play a much more proactive role in providing crime prevention advice to their insured, whether or not they have been a victim.

Despite its pervasive nature, the media seem to have little influence on farmer decision-making, however it may be impacting more on farmer fear of crime. It could be that the media, particularly the farming press, could also prove to be a useful source of crime prevention advice, rather than simply running stories on crimes. Furthermore, this research indicates a current disconnect between the type of stories being reported, and the reality for farmers. One has to wonder whom or what is driving these reports; whether it is the police, government targets and politically motivated reporting, or indeed the insurers themselves.

In conclusion, a cooperative approach is needed to improve the decision-making choice architecture available to farmers, and ensure the messengers deliver a consistent message.

11.1.2 Conclusions and Implications relating to Farm Crime Practice

The key conclusion from this research in relation to farm crime practice, seems to be the issue of farmer confidence in the police and their insurers. As seen in all datasets obtained, confidence in the police is low and this impacts upon the cooperation between the police and farmers. The police therefore need to do more to regain the confidence of farmers, and indeed need to do things differently. As a starting point, the police need to improve the communications between them and the farmers, and ensure the farmers know they are valued, and the information they provide is taken seriously. Farmers are more likely to see the police and CPAs as trusted messengers if confidence levels are improved (Eck, 2002).

Improved communications coupled with an individualised FCP decision-making choice architecture may improve the uptake of advice given.

It is noted by this research that some PCCs feel the responsibility of protecting farms is down to the farmers (Garland, 2001). This is perfectly reasonable; however, it is suggested that farmers are not able to protect their own property effectively if they do not have the key knowledge and ability to do so, via a crime prevention choice architecture. Moreover, it is proposed that police need to present a more united front internally in their approach to tackling farm crime. With inconsistencies both between forces and within forces, as illustrated in the police interviews, there cannot be a coherent response to the issues raised by farmers, and this therefore leaves farmers thinking they are not being taken seriously, thus reducing confidence levels further.

This research further notes that farmers closest to main roads are more likely to be satisfied with the way police are tackling farm crime. This would tend to suggest it is those more isolated farms that are less likely to be visited by a CPA, and thus feel abandoned by the police. It is suggested that these farms should be the starting point for any future strategy aimed at improving confidence levels in the police. These should be the first farms visited, to start building up that relationship and trust.

Police should work closely with farming communities to build their knowledge about farmer-led community groups, and to get involved with these. This does not necessarily mean Watch schemes, rather those groups set up on a much more informal basis by farmers to talk about their experiences, worries, and crime prevention used. It is suggested that these farmer-led crime prevention 'cooperatives' could form the basis of community-wide crime prevention advice groups and enable crime prevention 'champions' to be identified to illustrate what can be done, and most importantly, how easily it can be done. This would make effective use of social norms among farmers, but also the use of commitment mechanisms to improve crime prevention use (Hepburn *et al.*, 2010).

Key to providing an improved service to farmers is the understanding of the impact of farm crime across the force. This is indicated in the research by the need for training among police, police staff, call-handlers, and insurers, to enable a clear understanding of the issues farmers face. Training which provides knowledge of what the crime is, the impact, the factors surrounding farmer attitudes as discussed in this research, and understanding of farms, the equipment, animals, farming life, and how farm crime differs from other crime types is essential. This knowledge would mean that the police and insurers would be better able to communicate with and understand farmers to ensure their issues are addressed. Such language skills are key to improving farmer confidence. This approach is seen with

human trafficking, Child Sexual Exploitation, and financial crime, where police have specialist knowledge of how to talk to victims and key actors, therefore farm crime should be approached in the same way.

It is essential, in this knowledge exchange, that police and insurers better understand the psychological impact of farm crime. It is key to understand that farmer fear is driven by their isolation, the fear of repercussions, and repeat victimisation in general, but that individual farmers have their own specific worries about dogs or guns. This worry and the poor response from the police leaves farmers with a feeling of fatalism towards crime prevention, which just adds to the psychological impact. This means that farmers will not check things on CCTV they have installed in case they see something, they cannot sleep at night, which has added implications in farm health and safety, and some farmers have even considered giving up farming because of crime. All these responses to fear, if left unchecked, can lead to issues with the farmers' physical health. It is therefore important to understand the role of the hegemonic rural masculinity and the challenge presented by farm crime, to enable farmers to understand it is okay to feel scared or worry about their farms, which may make them more amenable to the discussion of adopting or improving their crime prevention.

By understanding the factors affecting farmer attitudes, crime prevention use, and the barriers to crime prevention use as discussed in this research, allows CPAs to start asking the right questions of farmers to create an individual FCP decision-making choice architecture. This will ensure farmers have full knowledge of all crime prevention available, presented in a way that makes the choice of appropriate, effective crime prevention much easier.

11.1.3 Conclusions and Implications relating to Farm Crime Theory

Several conclusions relating to the theoretical underpinning of this research can be highlighted.

Firstly, CPAs should make more consistent and effective use of concepts from BWT, CPTED, and Defensible Space within the farming environment. Such concepts are often cheap or even free, are not time consuming, and so clearly address some of the barriers to crime prevention use highlighted by this research.

The issue of the relevance of capable guardianship in a farm setting is interesting. This research has shown that most participants from the survey reported there being someone on the farm all or most of the time, but this presence of a capable guardian had little impact in reducing the likelihood of victimisation. Moreover, small farms which should be easier to

guard, where more likely to be victimised. Based on RAT (Cohen & Felson, 1979), this would indicate that the role of the motivated offender and the suitable target play a much greater role in determining the likelihood of victimisation. This suggests that crime prevention therefore has a much more important role to play in making farms a less attractive target than other business or residential properties.

This research has highlighted the potential for extending the work by Dillenburg (2007), who highlighted the response of victims to crime may categorise them as crime victims or crime survivors. However, this research suggests there may be a need for a category of crime enablers, where victims do not change the things they do in a bid to prevent repeat victimisation. This is highlighted in this research by the fact that some farmers admitted to not changing the way they do things despite being a victim of crime.

There needs to be a reconsideration of the concept of a hegemonic rural masculinity (Brandth, 1995; Bull, 2009) considering the openness of participants in talking about the psychological effects of farm crime.

It is suggested that the concept of loss aversion should be better used to frame crime prevention decisions, and to support the use of commitment mechanisms. Loss aversion notes that a person prefers to avoid losses more than they prefer to acquire gains (Kahneman & Tversky, 1979). Therefore, by presenting crime prevention as a way to avoid losses, may be more appealing to the farmer decision-maker.

Finally, while farmers consider themselves hyperbolic discounters, this research indicates mixed findings in support of this statement. On one hand, farmers often talked about crime prevention, but do not do anything about it, and any crime prevention adoption should occur soon after victimisation otherwise the likelihood of the resetting effect (Pogarsky & Piquero, 2003) occurring rises, making farmers less likely to adopt crime prevention because of hyperbolic discounting. However, farmers use crime prevention despite there being no reduction in insurance premiums, and they wish for insurance premium reductions to be available for a wider range of crime prevention measures. This suggests that farmers are not hyperbolic discounters as they are making use of crime prevention despite there being no immediate benefit.

11.2 Limitations of the Research

The first thing that is recognised is that there were too many questions included in the farmer survey. The number of questions may have put off some potential participants from

completing the survey. It is recognised that a number of the questions are superfluous to the research, and therefore not necessary.

As a result, the number of participants who took part in the survey was relatively small. However, as seen in Table 8.1, the demographics of the participants was fairly representative of the wider farming community, thus allowing a level of generalisability. It is also noted that the survey could benefit from greater geographic granularity concerning location of the farm to ensure that different people are not talking about the same farm. Furthermore, it is arguable that, by conducting the survey wholly online, a proportion of the farming community may have been excluded from taking part; particularly older farmers, those farmers with little or no computer experience, and those who experience poor or intermittent internet signal. This could be addressed by employing a telephone, postal, and face-to-face survey methodology. For those who do wish to complete the survey online, it must be ensured that the online survey is optimised for a variety of devices including tablets and mobile phones.

In relation to the focus groups and interviews with the farmers, it is recognised that the number of participants was small. While demographics were, in the main, representative of farmers across E&W, it is acknowledged that there were farming types not covered by this research, including isolated hill farmers, and large arable farmers.

Finally, it is noted that only four police forces took part in the research. While other PCCs and CPAs were interviewed, it was the case that only four forces provided interviews with both PCC and CPA, and therefore a direct comparison could be undertaken between the force strategic approach, and the approach taken by CPAs with farmers. However, it is acknowledged that a larger number of police forces could provide a more in-depth insight to these aspects of policing farm crime, and therefore a richer analysis of farm crime approaches used by police.

11.3 Recommendations for Future Research

This research has identified several recommendations for future research that can further extend these findings.

1. It is recommended that the farmer survey be re-run as a longitudinal study to assess whether there are any changes in key areas, and to allow the tracking of crime levels, police response, and attitudes towards police, over a longer period. This may indicate any changes or improvements in the situation for farmers and may act as a

driver for police and insurers to address their response to farm crime and crime prevention.

2. The police interviews and qualitative case studies should be conducted with police forces and farmers on a larger scale, to explore the questions across differing parts of the country, police forces, and farming sectors. In addition, more extensive media analysis should be conducted to explore any variation in farm crime reporting, and to enable further comparison with the more extensive farmer discussions to identify key similarities and differences.
3. It is suggested that additional research be carried out to further investigate the relevance of RAT and COT in a farm setting considering the findings of this research that capable guardianship makes little difference in the likelihood of becoming a victim; also, whether the corresponding aspects of RAT and COT have a more important role in farm crime.
4. More research is required concerning the role of insurers in crime prevention decision-making among farmers. They are reported to be a key source of crime prevention advice; therefore, it is important insurers understand the reliance placed on the information and guidance they provide to farmers after victimisation. There is a need to ensure insurers understand the impact of crime on farmers, the factors that influence decision-making, and the barriers to the use of crime prevention, so they can provide appropriate and effective advice, potentially in conjunction with other providers of advice, including the police and farming organisations such as the NFU.
5. Further research is necessary to establish the role natural factors have on farmers' feelings of vulnerability, particularly the weather. There is no existing research on the role of the weather on farmer fear of crime, and how weather affects the motivation of offenders targeting farms, other than the findings of this research suggesting that weather has an impact on farmer fear.
6. The role of cognitive dissonance in explaining the low levels of crime prevention use by farmers requires exploration. It is questioned whether this issue could be addressed to enable a change in behaviour as well as beliefs around FCP using varying BS techniques, and what role cognitive dissonance has in hyperbolic discounting among farmers.

7. Finally, and key to extending this research, it is recommended that these findings are extended to establish a possible choice architecture for FCP. This will enable farmers to be able to make appropriate and effective decisions based on their individual needs, and worries, in accordance with the key concepts of BS.

In conclusion, this research has established that there are key factors influencing the attitudes and beliefs of farmers towards farm crime, crime prevention, the police, and their insurers. By understanding these influencing factors, it is suggested that key CPAs can make use of BS to assist in improving the uptake of appropriate FCP in light of the relative failure of other methods aimed at improving the uptake of FCP.

References

- ABI. 2017. *Reframing Pension Savings* [Online] Association of British Insurers. Available from <https://www.abi.org.uk/globalassets/files/subject/public/lts/abi-reframing-pension-savings-report-040717b.pdf>. [Accessed 23/04/2016].
- Ackerman, N.M., Jenson, G. and Bailey, D.V. 1991. Domains explaining the life quality of dairy farm couples. *Lifestyles: Family and Economic Issues*, 12(2) pp. 107-130. DOI: 10.1007/BF00987271.
- AHDB. 2017. *Brexit Scenarios: an impact assessment*. Stoneleigh, Warwickshire: AHDB.
- Ainslie, G. 1991. Derivation of "Rational" Economic Behavior from Hyperbolic Discount Curves. *American Economic Review*, 81(2), pp. 334-340.
- Ajzen, I. and Fishbein, M. 2005. The influence of attitudes on behaviour. In D. Albarracín, B.T. Johnson, and M.P. Zanna (Eds.) *The Handbook of Attitudes*. Mahwah, NJ: Erlbaum. pp. 173-221.
- Ajzen, I., Brown, T.C., and Carvajal, F. 2004. Explaining the Discrepancy between Intentions and Actions: The Case of Hypothetical Bias in Contingent Valuation. *Personality and Social Psychology Bulletin*, 30(9), pp. 1108-1121. DOI: 10.1177/0146167204264079
- Akers, R. L. 1997. *Criminological Theories: Introduction and Evaluation*. 2nd Ed. Los Angeles, CA: Roxbury Publishing Co.
- Akers, R.L. & Sellers, C.S. 2004. *Criminological theories: Introduction, evaluation, and application*. 4th Ed. Los Angeles: Roxbury.
- Almeida, S.R., Lourenço, J.S., Dessart, F.J. and Ciriolo, E. 2016. *Insights from behavioural sciences to prevent and combat violence against women*. JRC Science for Policy Report, EUR 28235EN. DOI: 10.2788/412325.
- Amir, D. and Lobel, O. 2009. Stumble, Predict, Nudge: How Behavioral Economics Informs Law and Policy. *Columbia Law Review*, 108, San Diego Legal Studies Paper No. 09-006 [Online] <https://ssrn.com/abstract=1327077>.

- Anderson, K.M. & McCall, M. 2005. *Farm Crime in Australia*. [Online] Australian Institute of Criminology. Available from <http://www.aic.gov.au/publications/reports/2005-09-farmCrime.html> [Accessed 24/08/2014].
- Andrew, S. and Halcomb, E.J. 2006. Mixed methods research is an effective method of enquiry for community health research. *Contemporary Nursing*, 23(2), pp. 145-153. DOI: 10.5172/conu.2006.23.2.145.
- Ariely, D. 1998. Combining Experiences Over Time: The Effects of Duration, Intensity Changes and On-Line Measurements on Retrospective Pain Evaluations. *Journal of Behavioral Decision Making*, 11(1), pp. 19-45. DOI: 10.1002/(SICI)1099-0771(199803)11:1<19::AID-BDM277>3.0.CO;2-B.
- Ariely, D. 2008. *Predictably irrational: The hidden forces that shape our decisions*. New York: Harper Collins.
- Ariely, D. and Wertenbroch, K. 2002. Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, 13(3), pp. 219-224. DOI: 10.1111/1467-9280.00441.
- Armitage, R. and Pascoe, T. 2016. *Crime Prevention through Environmental Design*. [Online] Huddersfield University. Available from <http://erints.hud.ac.uk/26948/> [Accessed 17/10/2016].
- Asthana, S. and Gibson, A.J.S. 2016. *Police Funding Arrangements in England and Wales: Report to the NRCN*. University of Plymouth.
- Aust, R. & Simmons, J. 2002. *Rural Crime: England and Wales, 01/02*. London: Home Office.
- Austin, E.J., Deary, I.J., Edwards-Jones, G. and Arey, D. 2005. Attitudes to Farm Animal Welfare: Factor Structure and Personality Correlates in Farmers and Agriculture Students. *Journal of Individual Differences*, 26(3), pp. 107-120. DOI: 10.1027/1614-0001.26.3.107.
- Avineri, E. 2012. On the use and potential of behavioural economics from the perspective of transport and climate change. *Journal of Transport Geography*, 24(2012), pp. 512-521. DOI: 10.1016/j.jtrangeo.2012.03.003.

- Azrin, N.H., Holz, W.C. and Hake, D.F. 1963. Fixed-Ration Punishment. *Journal of the Experimental Analysis of Behavior*, 6(2), pp. 141-148. DOI: 10.1901/jeab.1963.6-141.
- Bankston, W.B., Jenkins, Q.A.L., Thayer-Doyle, C.L. and Thompson, C.Y. 1987. Fear of Criminal Victimization and Residential Location: The Influence of Perceived Risk. *Rural Sociology*, 52(1), pp. 98-107.
- Barclay, E.M. 2003. The determinants of reporting farm crime in Australia. *International Journal of Comparative and Applied Criminal Justice*, 27(2), pp. 131-151, DOI: 10.1080/01924036.2003.9678706.
- Barclay, E. 2007. *Crime in Rural Australia*. Sydney: Federation Press.
- Barclay, E.M. 2015. *Crime on Farms: A Survey of Farmers in NSW and Queensland 2001-2014*. Final Report to NSW and Queensland Police. Armidale: University of New England, unpublished.
- Barclay, E.M. 2016. Farm victimisation: The Quintessential Rural Crime, in J.F. Donnermeyer (Ed.) *International Handbook of Rural Criminology*. New York: Routledge, pp.107-116.
- Barclay, E. & Donnermeyer, J.F. 2002. Property Crime and Crime Prevention on Farms in Australia. *Crime Prevention and Community Safety: An International Journal*, 4(4), pp. 47-61, DOI: 10.1057/palgrave.cpcs.8140169.
- Barclay, E. & Donnermeyer, J.F. 2007. Farm Victimisation: The Quintessential Rural Crime. In Barclay, E.M., Donnermeyer, J.F., Scott, J., Hogg, R. (Eds) *Crime in Rural Australia*. Sydney: Federation Press. Pp. 57-68.
- Barclay, E. and Donnermeyer, J.F. 2011. Crime and security on agricultural operations. *Security Journal*, 24(1), pp. 1-18. DOI: 10.1057/sj.2008.23
- Barclay, E., Donnermeyer, J. F., Doyle, B. P. and Talary, D. 2001. *Property Crime Victimization and Crime Prevention on Farms: Report to the New South Wales Attorney General's Crime Prevention Division*. University of New England: The Institute for Rural Futures.

Baum, L. 2010. Motivation and Judicial Behavior: Expanding the Scope of Inquiry. *Presented at the Workshop on Exploring the Judicial Mind, University of Virginia, March 30-31 2007.*

Beccaria, C. 1763[1963]. *On crimes and punishments*. Indianapolis, IN: Bobbs-Merrill.

Becker, G.S. 1968. Crime and Punishments: An Economic Approach. *Journal of Political Economy*, 76(2), pp. 169-217. DOI: 10.1086/259394.

Behavioural Insights Team. 2010. *Applying behavioural insights to health*. London: Cabinet Office.

Behavioural Insights Team. 2011. *Behaviour change and energy use*. London: Cabinet Office.

Behavioural Insights Team. 2013a. *Applying behavioural insights to charitable giving*. London: Cabinet Office.

Behavioural Insights Team. 2013b. *Applying behavioural insights to organ donation: Preliminary results from a randomised controlled trial*. London: Cabinet Office.

Bentham, J. 1780[1948]. *An Introduction to the Principles and Morals and Legislation* (7th Ed.). Mineola, NY: Dover.

Bernard, H. R. 2011. *Research methods in anthropology* (5th Ed.). Lanham: AltaMira Press.

Bernoulli, D. 1738[1954] Exposition of a new theory on the measurement of risk. *Econometrica*, 22(1), pp. 23-36 [Translation of Bernoulli, D. 1738. Specimen theoriae novae de mensura sortis; Papers of the Imperial Academy of Science St. Petersburg, 5. pp. 175-192]

Bewsell, D. and Monaghan, R.M. 2007. Adoption of stream fencing among dairy farmers in four New Zealand catchments. *Environmental Management*, 40(2), pp. 201-209. DOI: 10.1007/s00267-006-0184-2.

Bibby, P. and Brindley, P. 2013. *Urban and Rural Area Definitions for Policy Purposes in England and Wales: Methodology*. London: Defra.

- Binswanger, H.P. 1980. Attitudes towards risk: Experimental measurements in rural India. *American Journal of Agricultural Economics*, 62(3), pp. 395-407. DOI: 10.2307/1240194.
- Birke, R. 1999. Reconciling Loss Aversion and Guilty Pleas. *Utah Law Review*, 1999, pp. 205-227.
- Blackstock, K.L., Ingram, J., Burton, R., Brown, K.M. and Slee, B. 2010. Understanding and influencing behaviour change by farmers to improve water quality. *Science of the Total Environment*, 408(23), pp. 5631-5638. DOI: 10.1016/j.scitotenv.2009.04.029.
- Blackstone, A. 2012. *Principles of sociological inquiry: Qualitative and quantitative methods*. Arlington, Virginia: Saylor Academy.
- Blytham, J. 2010. *Shopped: The shocking power of British supermarkets*. London: Harper Perennial.
- Boddy, J., Neumann, T., Jennings, S., Morrow, V., Alderson, P., Rees, R. and Gibson, W. 2010. *The Research Ethics Guidebook: A resource for social scientists*. [Online] ESRC/Institute of Education. Available from www.ethicsguidebook.ac.uk. [Accessed 21/04/2015].
- Boetig, B.P. 2006. The Routine Activity Theory: A Model for Addressing Specific Crime Issues. *FBI Law Enforcement Bulletin*, 75(6), pp. 12-19.
- Booth, N., Briscoe, M. & Powell, R. 2000. Suicide in the farming community: methods used and contact with health services. *Occupational Environmental Medicine*, 57(9), pp. 642-644. DOI: 10.1136/oem.57.9.642.
- Bottoms, A. E. and Wiles, P. 1997. Environmental criminology. In: Maguire, M., Morgan, R. and Reiner, R. (Eds.) *The Oxford Handbook of Criminology*. 2nd Ed. Oxford: Clarendon Press. pp. 305-359.
- Bourdieu, P. 1977. *Outline of a theory of practice*. Cambridge, UK: Cambridge University Press.
- Bradford, W.C. 2007. *Because that's where the money is: toward a theory and strategy of corporate legal compliance*. [Online] SSRN. Available from <https://ssrn.com/abstract=955428>. [Accessed 04/04/2018].

Brandth, B. 1995. Rural masculinity in transaction: Gender images in tractor advertisements. *Journal of Rural Studies*, 11(2), pp. 127-149. DOI: 10.1016/0743-0167(95)0007-A.

Brandth, B. and Haugen, M.S. 2005. Text, Body, and Tools: Changing Mediations of Rural Masculinity. *Men and Masculinities*, 8(2), pp. 148-163. DOI: 10.1177/1097184X05277716.

Brandth, B. and Haugen, M.S. 2016. Rural Masculinity. In M. Schucksmith and D.L. Brown (Eds.) *Routledge International Handbook of Rural Studies*. London: Routledge. pp. 412-423.

Bratton, W.J. and Knobler, P. 1998. *Turnaround: How America's top cop reversed the crime epidemic*. New York, NY: Random House.

Brekke, K.A. and Johansson-Stenman, O. 2008. The behavioural economics of climate change. *Oxford Review of Economic Policy*, 24(2), pp. 280-297. DOI: 10.1093/oxrep/grn012.

Brennan, M.L., Kemp, R. and Christley, R.M. 2008. Direct and indirect contacts between cattle farms in north-west England. *Preventative Veterinary Medicine*, 84(3-4), pp. 242-260. DOI: 10.1016/j.prevetmed.2007.12.009.

British Chambers of Commerce. 2002. *Securing Enterprise: A Framework for Tackling Business Crime*. London: BCC.

Broadhurst, R., Cornish, M., Nolan, L. and Williams, L. 2012. The Future of Policing in Australia: 2021 and beyond. [Online] SSRN. Available from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2136695. [Accessed 21/05/2016].

Bryan, E., Ringler, C., Okoba, B., Roncoli, C., Silvestri, S. and Herrero, M. 2013. Adapting agriculture to climate change in Kenya: Household strategies and determinants. *Journal of Environmental Management*, 114(15 January), pp. 26-35. DOI: 10.1016/j.jenvman.2012.10.036.

Bryan, G., Karlan, D. and Nelson, S. 2010. Commitment Devices. *Annual Review of Economics*, 2(1), pp. 671-698. DOI: 10.1146/annurev.economics.102308.124324.

Bull, J. 2009. Watery Masculinities: Fly-Fishing and the Angling Male in the South West of England. *Gender, Place and Culture*, 16(4), pp. 445-465. DOI: 10.1080/09663690903003959.

Bull, J. 2012. Loads of green washing - can behavioural economics increase willingness-to-pay for efficient washing machines in the UK? *Energy Policy*, 50(November 2012), pp. 242-252. DOI: 10.1016/j.enpol.20120.07.001.

Bunei, E.K., Rono, J.K., Chessa, S.R. 2013. Factors influencing farm crime in Kenya: Opinions and experiences of farmers. *International Journal of Rural Criminology*, 2(1), pp. 75-100. DOI: 10.18061/1811/58846.

Bunei, E.K., Rono, J.K., & Chessa, S.R. 2014. Crime Prevention on Farms: The Opinion of Farmers. *International Journal of Rural Criminology*, 2(2), pp. 209-224. DOI: 10.18061/1811/61594.

Burt, C.H. and Simons, R.L. 2013. Self-Control, Thrill Seeking, and Crime: Motivation Matters. *Criminal Justice and Behaviour*, 40(11), pp. 1326-1348. DOI: 10.1177/0093854813485575.

Burton, R.J.F. 2004. Reconceptualising the 'behavioural approach' in agricultural studies: a socio-psychological perspective. *Journal of Rural Studies*, 20(3), pp. 359-371. DOI: 10.1016/j.rurstud.2003.12.001.

Butler, G. 1994. Commercial Burglary: What Offenders Say. In Gill, M. (Ed.) *Crime at Work*. Leicester: Perpetuity Press. pp. 29-41.

Camerer, C., Issacharoff, S., Loewenstein, G., O'Donoghue, T. & Rabin, M. 2003. Regulation for conservatives: Behavioural economics and the case for "asymmetric paternalism". *University of Pennsylvania Law Review*, 1151, pp. 1211-1254. DOI: 10.2307/3312889.

Cameron, S. 1998. The Economics of Crime Deterrence: A Survey of Theory and Evidence, *Kyklos*, 41(2), pp. 301-323. DOI: 10.1111/j.1467-6435.1988.tb02311.x.

Campbell, H., Bell, M.M. and Finney, M. 2006. *Country Boys: Masculinity and Rural Life*. Pennsylvania: Pennsylvania State University Press.

Cann, R. 2014. Round 'em up. *Police Monthly*, November 2014, pp. 16-17.

- Carcach, C. 2000. *Size, accessibility and crime in regional Australia: Trends and issues in crime and criminal justice*. Canberra: Australian Institute of Criminology.
- Carr, S. and Tait, J. 1991. Differences in the attitudes of farmers and conservationists and their implications. *Journal of Environmental Management*, 32(3), pp. 281-294. DOI: 10.1016/S0301-4797(05)80058-1.
- Carrington, K., McIntosh, A., Hogg, R. and Scott, J. 2013. Rural Masculinities and the Internationalisation of Violence in Agricultural Communities. *International Journal of Rural Criminology*, 2(1), pp. 3-24. DOI: 10.18061/1811/58849.
- Ceccato, V. 2016. *Rural Crime and Community Safety*. London: Routledge.
- Cerna, L. 2013. *The Nature of Policy Change and Implementation: A Review of Different Theoretical Approaches*. OECD.
- Chalfin, A., Roman, J., Mears, D.P., Scott, M.L. 2007. *The Costs of Benefits of Agricultural Crime Prevention*. Urban Institute Justice Policy Center: Florida State University College of Criminology and Criminal Justice.
- Chiba, S. and Leong, K. 2016. Behavioral Economics of Crime Rates and Punishment Levels. *Journal of Institutional and Theoretical Economics*, 172(4), pp. 727-754. DOI: 10.1628/093245616X14631368691817.
- Christensen, A-D. and Jensen, S.Q. 2014. Combining hegemonic masculinity and intersectionality. *International Journal for Masculinity Studies*, 9(1), pp. 60-75. DOI: 10.1080/18902138.2014.892289.
- Cialdini, R. 2003. Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12(4), pp. 105-109. DOI: 10.1111/1467-8721.01242.
- Clarke, R. V. 1992. *Situational Crime Prevention: Successful Case Studies*. Albany, New York: Harrow and Heston.
- Clarke, R.V. 1993. Situational Crime Prevention: Its Theoretical Bases and Practical Scope. In Tonry, M. and Morris, N. (Eds.) *Crime and Justice: An Annual Review of Research*, Vol. 4. Chicago: University of Chicago Press. pp. 225-256.

- Clarke, R.V. 1997. *Situational Crime Prevention: Successful Case Studies*. 2nd Ed. Guilderland, NY: Harrow and Heston.
- Clarke, R.V. and Cornish, D.B. 1983. *Crime Control in Britain*. Albany, NY: State University of New York Press.
- Clarke, R. V. & Felson, M. 1993. *Routine activity and rational choice*. New Brunswick, NJ: Transaction Publishers.
- Clarke, R.V. and Homel, R. 1997. A Revised Classification of Situation Crime Prevention Techniques. In S.P. Lab (Ed.) *Crime Prevention At a Crossroads*. Cincinnati, OH: Anderson. pp. 17-27.
- Clarke, R.V. and Weisburd, D. 1994. Diffusion of crime control benefits: Observations on the reverse of displacement. In Clarke, R.V. (Ed.) *Crime Prevention Studies, Vol. 2*. Monsey, NY: Criminal Justice Press. pp. 165-184.
- Clarke, R.V., Cody, R.P. and Natarajan, M. 1994. Subway Slugs: Tracking Displacement on the London Underground. *British Journal of Criminology*, 34(2), pp. 122-138. DOI: 10.1093/oxfordjournals.bjc.a048399.
- Cleland, C.L. 1990. *Crime and Vandalism on Farms in Tennessee*. Report of the Agricultural Experiment Station, Institute of Agriculture. Knoxville, TN: University of Tennessee.
- Cohen, L. E. and Felson, M. 1979. Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), pp. 588-608. DOI: 10.2307/2094589.
- Cohen, L.E., Kluegel, J.R. & Land, K.C. 1981. Social Inequality and Predatory Criminal Victimization: An Exposition and Test of Formal Theory. *American Sociological Review*, 46(5), pp. 505-524. DOI: 10.2307/2094935.
- Cohn, E.G. 1990. Weather and Crime. *British Journal of Criminology*, 30(1), pp. 51-64. DOI: 10.1093/oxfordjournals.bjc.a047980.
- Collier, A., Cotterill, A., Everett, T., Muckle, R., Pike, T. and Vanstone, A. 2010. *Understanding and influencing behaviours: a review of social research, economics and policy making in Defra*. Defra Discussion Paper. London: Defra.

- Conly, S. 2012. *Against autonomy: Justifying coercive paternalism*. Cambridge: Cambridge University Press.
- Connell, R. 1995. *Masculinities*. Los Angeles, CA: University of California Press.
- Cook, K.S. 2001. *Trust and Distrust in Organizations: Dilemmas and Approaches*. New York: Russell Sage Foundation.
- Cornish, D. and Clarke, R. 1986. *Situational prevention, displacement of crime and rational choice theory. Situational Crime Prevention: From Theory into Practice*. London: HMSO.
- Cornish, D. and Clarke, R.V. 1987. Understanding Crime Displacement: An Application of Rational Choice Theory. *Criminology*, 25(4), pp. 933-947. DOI: 10.1111/j.1745-9125.1987.tb00826.x.
- Cornish, D. and Clarke, R. 2003. Opportunities, precipitators and criminal decisions: A reply to Wortley's critique of situational crime prevention. In Smith, M.J. and Cornish, D.B. (Eds.) *Theory for Practice in Situational Crime Prevention: Crime Prevention Studies, Vol. 16*. Monsey, NY: Criminal Justice Press. pp. 111-124.
- Cornish, D.B. and Clarke, R.V. 2014. *The Reasoning Criminal: Rational Choice Perspectives on Offending*. 2nd Ed. New Brunswick: Translation.
- Cossman, J.S., Porter, J.R., & Rader, N.E. 2016. Examining the effects of health in explaining fear of crime: A multi-dimensional and multi-level analysis. *American Journal of Criminal Justice*, 41, pp. 565–582.
- Courtenay, W. 2000. Engendering health: A social constructionist examination of men's health beliefs and behaviours. *Psychology of Men and Masculinity*, 1(1), pp. 4-15. DOI: 10.1037/1524-9220.1.1.4.
- Courtenay, W. 2002. A global perspective on the field of men's health. *International Journal of Men's Health*, 1(1), pp. 1-13. DOI: 10.3149/jmh.0101.1.
- Courtenay, W. 2003. Key determinants of health and well-being of men and boys. *International Journal of Men's Health*, 2(1), pp. 1-30. DOI: 10.3149/jmh.0201.1.
- Covey, R. 2007. Reconsidering the Relationship between Cognitive Psychology and Plea Bargaining. *Marquette Law Review*, 91(1), pp. 101-132.

Covey, R. 2016. Plea Bargaining and Price Theory. *George Washington Law Review*, 84(4), pp. 920-973.

Cozens, P.M. 2002. Sustainable Urban Development and Crime Prevention Through Environmental Design for the British City: Towards an Effective Urban Environmentalism for the 21st Century. *The International Journal of Urban Policy and Planning*, 19(2), pp. 129-137. DOI: 10.1016/S0264-2751(02)00008-2.

Cozens, P. 2008. Crime prevention through environmental design in Western Australia: planning for sustainable urban futures. *International Journal of Sustainable Development and Planning*, 3(3), pp. 272-292. DOI: 10.2495/SDP-V3-N3-272-292.

Cozens, P. and Melenhorst, P. 2014. Exploring community perceptions of crime and Crime Prevention Through Environmental Design (CPTED) in Botswana. *In Proceedings of The British Criminology Conference, Edge Hill University, Lancashire*. pp. 65-83.

Cozens, P.M., Saville, G. and Hillier, D. 2005. Crime prevention through environmental design (CPTED): a review and modern bibliography. *Property Management*, 23(5), pp. 328-356. DOI: 10.1108/02637470510631483.

CPRE 2015. *A beautiful countryside to sustain us all: food and farming*. [Online] CPRE. Available from www.cpre.org.uk/resources/farming-and-food/item/3870-a-beautiful-countryside-to-sustain-us-all-through-food-and-farming-cpre-manifesto-briefing [Accessed 16/05/2016].

Crimestoppers. Undated. *Crimestoppers Impact Report 2015/16*. [Online] Crimestoppers. Available from <http://www.bdnw.org.uk/v3/attachments/article/103/Crimestoppers%20Impact%20Report%202015%202016.pdf> [Accessed 18/09/2017].

Crompton, R. 2011. Broken fences. *Police Professional*, 278, 14.

Cronbach, L.J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), pp. 297-334. DOI: 10.1007/BF02310555.

Darby, S. 2006. *The effectiveness of feedback on energy consumption: A review for DEFRA on the literature on metering, billing and direct displays*. Oxford: University of Oxford, Environmental Change Institute.

de Haan, W. and Vos, J. 2003. A crying shame: the over-rationalized conception of man in the rational choice perspective. *Theoretical Criminology*, 7(1), pp. 29-54. DOI: 10.1177/1362480603007001199.

de Jalón, S.G., Silvestri, S. and Iglesias, A. 2014. Behavioural barriers in response to climate change in agricultural communities: an example from Kenya. *Regional Environmental Change*, 15(5), pp. 851-865. DOI: 10.1007/s10113-014-0676-y.

Deary, I.J., Willock, J. and McGregor, M. 1997. Stress in Farming. *Stress and Health*, 13(2), pp. 131-136. DOI: 10.1002/(SICI)1099-1700(199704)13:2<131::AID-SMI727>3.0.CO;2-T.

Deeds, J., Frese, W., Hitchner, M., Solomon, M. 1992. *Farm Crime in Mississippi*. Mississippi State: Mississippi Agricultural and Forestry Experiment Station, Mississippi State University.

Defra. 2012. *Crime*. [Online] Defra. Available from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/227013/Crime_Aug_2013.pdf. [Accessed 17/03/2016].

Defra. 2014a. *Agriculture in the United Kingdom Data Sets*. [Online] Defra. Available from www.gov.uk/government/statistical-data-sets/agriculture-in-the-united-kingdom. [Accessed 18/08/2014]

Defra. 2014b. *Agriculture in the United Kingdom 2013*. London: Defra.

Defra. 2017. *Agriculture in the United Kingdom 2016*. London: Defra

DeKeseredy, W.S. and Donnermeyer, J.F. 2013. Thinking critically about rural crime: Toward the development of a new left realist perspective. In Winlow, S. and Atkinson, R. (Eds.) *New Directions in Crime and Deviancy*. Abingdon: Routledge. pp. 206-222.

DeKeseredy, W.S., Donnermeyer, J.F. and Schwartz, M.D. 2009. Toward a gendered second generation CPTED for preventing woman abuse in rural communities. *Security Journal*, 22(3), pp. 178-189. DOI: 10.1057/sj.2009.3.

Denzin, N.K. 1970. *The Research Act*. Chicago, IL: Aldine.

Department of Transport. 2016. *A consultation on changes to the Fixed Penalty Notice and penalty points for the use of a hand-held mobile phone whilst driving*. London: Department of Transport.

Deressa, T.T., Hassan, R.M., Ringler, C., Alemu, T. and Yesuf, M. 2009. Determinants of farmers' choice of adaptation methods to climate change in the Nile Basin of Ethiopia. *Global Environmental Change*, 19(2), pp. 248-255. DOI: 10.1016/j.gloenvcha.2009.01.002.

Devine, D.J. 2012. *Jury decision-making: The state of the science*. New York, NY: New York University Press.

Dhami, M.K. 2011. *Behavioural Science Support for JTRIGs (Joint Threat Research and Intelligence Groups) Effect and Online HUMINT Operations*. DSTL: Human Systems Group, Information Management Department.

Dhami, S. 2016. *Foundational of behavioral economic analysis*. Oxford: Oxford University Press.

Dhami, S. and al-Nowaihi, A. 2010. *The Behavioral Economics of Crime and Punishment. Working Paper No. 10/14*. Leicester: University of Leicester Economics Department.

Dillenburg, K. 2007. A Behavior Analytic Perspective on Victimology. *International Journal of Behavioral Consultation and Therapy*, 3(3), pp. 433-448. DOI: 10.1037/h0100817.

Donnermeyer, J.F. 1987. *Crime Against Farm Operations. Report of the National Rural Crime Prevention Center*. Columbus, OH: Department of Agricultural Economics and Rural Sociology, The Ohio State University.

Donnermeyer, J.F. 1995. Crime and violence in rural communities. In S.M. Blaser, J. Blaser, and K. Pantoja (Eds.) *Perspectives on Violence and Substance Use in Rural America*. Oakbrook, IL: North Central Regional Education Library (NCREL). Pp 27-63.

Donnermeyer, J.F. & Barclay, E. 2005. The Policing of Farm Crime. *Police Practice and Research*, 6(1), pp. 3-17. DOI: 10.1080/15614260500046913.

Donnermeyer, J.F., Barclay, E.M., and Mears, D. 2010. Policing Agricultural Crime. In Mawby, R.I. and Yarwood, R. (Eds.) *Rural Policing and Policing the Rural: A Constable Countryside*. Farnham: Ashgate. Pp. 193-204.

Dorset Police, 2014. *Drug operation to tackle drug misuse in Bournemouth*. [Online] Dorset Police. Available from <https://www.dorset.police.uk/news-information/news-archive/drug-operation-to-tackle-drug-misuse-in-bournemouth/>. [Accessed 15/07/2015].

Draper, R. and Cadzow, E. 2004. *Crime Prevention Through Environmental Design*. PEB Exchange, Programme on Educational Building, 2004/13, OECD Publishing. DOI: 10.1787/605207554154.

Druckman, J.N. and Lupia, A. 2000. Preference Formation. *Annual Review of Political Science*, 3(1), pp. 1-24. DOI: 10.1146/annurev.polisci.3.1.1.

DSTL. 2018. *Influence Programme*. [Online] DSTL. Available at <https://www.gov.uk/guidance/influence-programme>. [Accessed 08/05/2018].

DSTL. Undated. *Skills of capability area: Counter Terrorism and Security*. [Online] DSTL. Available at <https://rcloud.dstl.gov.uk/capability-area/cts/skills>. [Accessed 15/09/2017].

Duflo, E., Kremer, M. and Robinson, J. 2009. *Nudging farmers to use fertilizer: Theory and experimental evidence from Kenya*. NBER Working Paper Series, 15131. Cambridge, MA: National Bureau of Economic Research.

Eagly, A.H. and Chaiken, S. 1998. Attitude structure and function. In Gilbert, D.T., Fiske, S.T., and Lindzey, G. (Eds.) *The Handbook of Social Psychology*. New York, NY: McGraw-Hill. pp. 269-322.

Eck, J.E. 1993. The Threat of Crime Displacement. *Criminal Justice Abstracts*, 25(3), pp. 527-546.

Eck, J.E. 2002. Preventing crime at places. In: Sherman, L.W., Farrington, D., Welsh, B. and MacKenzie, D.L. (Eds.) *Evidence-Based Crime Prevention*. New York: Routledge.

Edwards-Jones, G. 2006. Modelling farmer decision-making: concepts, progress and challenges. *Animal Science*, 82(6), pp. 783-790. DOI: 10.1017/ASC2006/12.

Edwards-Jones, G., Deary, I. and Willock, J. 1998. Incorporating psychological variables in models of farmer behaviour: does it make for better predictions? *Études et Recherches sur les Systèmes Agraires et le Développement*, INRA Editions 31, pp. 153-173.

Eisenhardt, K.N. and Graebner, M.E. 2007 Theory Building From Cases: Opportunities And Challenges. *Academy of Management Journal*, 50(1), pp. 25-32. DOI: 10.5465/amj.2007.24160888.

Emanuelsson, A. and Mele, R. 2004. *Impact of media on fear of crime*. [Online] Hogeschool Van Utrecht. Available from www.svj.hvu.nl/mediahype/risk4/page2.htm. [Accessed 15/04/2018].

Environment Agency, 2016. *Waste Crime targeted in Environment Agency day of action*. [Online] Environment Agency. Available at <https://www.gov.uk/government/news/waste-crime-targeted-in-environment-agency-day-of-action>. [Accessed 21/07/2016].

Errington, A. 1991. *Getting out of farming? Part two: the farmers*. Study No. 27, Department of Agriculture, University of Reading Farm Management Unit.

Evans, J.S., Barson, J.L. and Pollard, P. 1983. On the conflict between logic and belief in syllogistic reasoning. *Memory and Cognition*, 11(3), pp. 295-306. DOI: 10.3758/BF03196976.

Fabrigar, L.R., MacDonald, T.K. and Wegener, D.T. 2005. The Structure of Attitudes. In Albaracin, D., Johnson, B.T., and Zanna, P. (Eds.) *The Handbook of Attitudes*. New York, NY: Psychology Press. pp. 79-124.

Farkas, T. 2014. *Why Farmer Suicide Rates are the Highest of Any Occupation*. [Online] Huffington Post. Available from https://www.huffingtonpost.com/terezia-farkas/why-farmer-suicide-rates-1_b_5610279.html. [Accessed 23/07/2014].

Farmer, F.L. and Voth, D.E. 1989. *Ecological Characteristics of Farm Victimization in Arkansas*. Report to the Arkansas Agricultural Experiment Station. Fayetteville, AK: University of Arkansas.

Farrell, G. and Pease, K. 1993. *Once Bitten, Twice Bitten: Repeat Victimization and its Implications for Crime Prevention*. Police Research Group Crime Prevention Unit Series Paper No. 46. London: Home Office Police Department.

Farrell, G., Ellingworth, D., Clarke, K. and Pease, K. 1994. High Crime Areas, Repeat Victimization and Routine Activities. *Presented at the 22nd Cropwood Conference on Crime and Disorder, University of Cambridge, 14-16 September 1994*.

- Fearne, A.P. 1989. Changing practices on the farm: A survey of farmers perceptions. *Farm Management*, 7, pp. 192-198.
- Felson, M. 2008. The routine activity approach. In Wortley, R. and Townsley, M. (Eds.) *Environmental Criminology and Crime Analysis*. Abingdon: Routledge. pp. 87-97.
- Felson, M. 2014. Breaking rules: the social and situational dynamics of young people's urban crime. *Journal of Criminal Justice Education*, 25(2), pp. 254-258. DOI: 10.1080/105/1253.2014.895497.
- Felson, M. and Clarke, R.V. 1998. *Opportunity Makes the Thief: Practical theory for crime prevention*. London: Routledge.
- Ferguson, K.M., & Mindel, C.H. 2007. Modeling fear of crime in Dallas neighborhoods: A test of social capital theory. *Crime and Delinquency*, 53(2), pp. 322–349.
- Ferraro, K.F. 1995. *Fear of crime: Interpreting victimization risk*. New York: SUNY Press.
- Field, S. 1992. The effect of temperature on crime. *British Journal of Criminology*, 32(3), pp. 340-351. DOI: 10.1093/oxfordjournals.bjc.a048222.
- Fischbacher, U. and Gaechter, S. 2008. *Social Preferences, Beliefs, and the Dynamics of Free Riding in Public Good Experiments*. CESifo Working Paper Series No. 2491. [Online] SSRN. Available at <https://ssrn.com/abstract=1314689>. [Accessed 15/01/2015].
- Fishbein, M. and Ajzen, I. 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Forrester, D., Chatterton, M. and Pease, K. 1988. *The Kirkholt Burglary Prevention Project, Rochdale*. Crime Prevention Unit Series Paper No. 13. London: Home Office.
- Fotuhi, D., Fong, G.T., Zanna, M.P., Borland, R., Yong, H. and Cummings, K.M. 2013. Patterns of cognitive dissonance-reducing beliefs among smokers: a longitudinal analysis from the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, 22(1), pp. 52-58. DOI: 10.1136/tobaccocontrol-2011-050139.
- Foucault, M. 1977. *Discipline and Punish: The Birth of the Prison*. [Translated by Alan Sheridan]. New York, NY: Vintage Books.

Frameworks Institute. 2015. *Reframing Crime and Justice in England and Wales*. [Online] Frameworks Institute. Available from <http://syyj.org.uk/wp-content/uploads/2015/02/Executivesummaryreframe-criminal-justice-FINAL-1.pdf>. [Accessed 13/02/2016].

Franklin, C.A., & Franklin, T.W. 2009. Predicting fear of crime: Considering differences across gender. *Feminist Criminology*, 4, 83–106.

Fraser, J. 2011. *Rural crime prevention: A literature review*. Ottawa: Crime Prevention Ottawa.

Fredrickson, B.L. and Kahneman, D. 1993. Duration neglect in retrospective evaluations of affective episodes. *Journal of Personality and Social Psychology*, 65(1), pp. 45-55.

Fricker, R.D. 2008. Sampling Methods for Web and E-Mail Surveys. In Fielding, N., Lee, R.M. and Blank, G. (Eds.) *The SAGE Handbook of Online Research Methods*. London: Sage. pp. 195-216.

Friedman, L. S. and Hausker, K. 1988. Residential energy consumption: Models of consumer behavior and their implications for rate design. *Journal of Consumer Policy*, 11(3), pp. 287-313. DOI: 10.1007/BF00411952.

Garofalo, J. and Laub, J. 1978. The Fear of Crime: Broadening our Perspective. *Victimology*, 3, pp. 242-253.

Garforth, C. and Rehman, T. 2006. *Research to Understand and Model the Behaviour and Motivations of Farmers in Responding to Policy Change (England)*. Final Report, 9. London: Defra

Garland, D. 1996. The limits of the sovereign state: strategies of crime control in contemporary societies. *British Journal of Criminology*, 36(4), pp. 445-471. DOI: 10.1093/oxfordjournals.bjc.a014105.

Garland, D. 2001. *The Culture of Control: Crime and Social Order in Contemporary Society*. Oxford: Oxford University Press.

Garoupa, N. 2003. Behavioral Economic Analysis of Crime: A Critical Review. *European Journal of Law and Economics*, 15(1), pp. 5-15. DOI: 10.1023/A:1021152523137.

Garside, R. 2015. *Crime is down. Crime is up. What's going on?* [Online] Centre for Crime and Justice Studies. Available from <https://www.crimeandjustice.org.uk/resources/crime-down-whats-going>. [Accessed 06/04/2018].

Gau, J.M. and Pratt, T.C. 2008. Broken Windows or Window Dressing? Citizens' (in)ability to tell the difference between disorder and crime. *Criminology and Public Policy*, 7(2), pp. 163-194. DOI: 10.1111/j.1745-9133.2008.00500.X.

Gau, J.M. and Pratt, T.C. 2010. Revisiting Broken Windows Theory: Examining the Sources of the Discriminant Validity of Perceived Disorder and Crime. *Journal of Criminal Justice*, 38(4), pp. 758-766. DOI: 10.1016/j.jcrimjus.2010.05.002.

Gau, J.M., Corsaro, N. and Brunson, R.K. 2014. Revisiting broken windows theory: A test of the mediation impact of social mechanisms on the disorder-fear relationship. *Journal of Criminal Justice*, 42(6), pp. 579-588. DOI: 10.1016/j.jcrimjus.201.10.002.

George Street Research Limited. 1999. *Crime and the Farming Community: The Scottish Farm Crime Survey, 1998*. Edinburgh: The Scottish Office, Central Research Unit.

George, A.L. and Bennett, A. 2004. *Case Studies and Theory Development*. Cambridge, MA: MIT Press.

Gerbner, G. and Gross, L. 1976. Living with television: The violence profile. *Journal of Communication*, 26(2), pp. 172-199. DOI: 10.1111/j.1460-2466.1976.tb01397.x.

Gerbner, G., Gross, L., Morgan, M. and Signorielli, N. 1994. Growing up with television: The cultivation perspective. In Bryant, J. and Zillman, D (Eds.) *Media effects: Advances in theory and research*. Hillsdale, NJ: Erlbaum. pp. 17-44.

Gergen, K. and Gergen, M. 2000. The new aging: Self construction and social values. In Schaie, K.W. (Ed.) *Social Structures and Aging*. New York, NY: Springer. pp. 281-306.

Gilchrist, E., Bannister, J., Ditton, J. and Farrall, S. 1998. Women and the 'Fear of Crime': Challenging the Accepted Stereotype. *British Journal of Criminology*, 38(2), pp. 283-398. DOI: 10.1093/oxfordjournals.bjc.a014236.

Gill, P.W., Stewart, K.F., Treasure, E. and Chadwick, B. 2008. Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, 204(6), pp. 291-295. DOI: 10.1038/bdj.2008.192.

Gilling, D. 2011. *Crime Reduction and Community Safety: New Labour and the Politics of Local Crime Control*. Cullompton: Willan.

Gilling, D. and Pierpoint, H. 1999. Crime prevention in rural areas. In: Dingwall, G. and Moody, S. (Eds.) *Crime and Conflict in the Countryside*. Cardiff: University of Wales Press. Pp. 114-129.

Giné, X., Karlan, D. and Zinman, J. 2010. Put Your Money Where Your Butt Is: A Commitment Contract for Smoking Cessation. *American Economic Journal: Applied Economics*, 2(4), pp. 213-235. DOI: 10.1257/app.2.4.213.

Girling, E., Loader, I. & Sparks, R. 2000. *Crime and social control in Middle England: Questions of order in an English town*. London: Routledge.

Giuliani, R.W. and Kurson, K. 2002. *Leadership*. New York, NY: Hyperion.

Glazer, N. 1979. On subway graffiti in New York. *Public Interest*, 54(Winter), pp. 3-11.

Gneezy, U. and Rustichini, A. 2000. A fine is a price. *Journal of Legal Studies*, 29, pp. 1-18. DOI: 10.1086/468061.

Gordon, W. 2011. Behavioural economics and qualitative research - a marriage made in heaven? *International Journal of Market Research*, 53(2), pp. 171-185. DOI: 10.2501/IJMR-53-2-171-186.

Gottfredson, M.R. 1994. *Victims of Crime: The Dimensions of Risk*. London: Home Office.

Grant, W. and Warhurst, C. 2014. *Could the 'Westminster Bubble' be detrimental to British Politics?* [Online] University of Warwick. Available from <https://www.warwick.ac.uk/newsandevents/knowledge/socialscience/westminsterbubble/>. [Accessed 03/04/2018].

Groenwald, J.A. 1987. The Producer as Decision-Maker. *Proceedings of Agrekon, Agricultural Economics Research, Policy and Practice in Southern Africa, 4-5 May 1987*, 26(3), pp. 43-46.

Guerette, R.T. 2009. The Pull, Push, and Expansion of Situational Crime Prevention Evaluation: An Appraisal of Thirty-Seven Years of Research. In Knutsson, J. and Tilley, N.

(Eds.) *Evaluating Crime Reduction Initiatives, Crime Prevention Studies, Vol. 24*. Cullompton: Willan. pp. 29-58.

Guerin, L.J. and Guerin, T.F. 1994. Constraints to the adoption of innovations in agricultural research and environmental management: a review. *Australian Journal of Experimental Agriculture*, 34(4), pp. 549-571. DOI: 10.1071/EA9940549.

Gunn, G.J., Heffernan, C., Hall, M., McLeod, A. and Hori, M. 2008. Measuring and comparing constraints to improved biosecurity amongst GB farmers, veterinarians and the auxiliary industries. *Preventative Veterinary Medicine*, 84(3-4), pp. 310-334. DOI: 10.1016/j.prevetmed.2007.12.003.

Gustafsson, J. 2017. *Single case studies vs. multiple case studies: A comparative study*. [Online] Available at www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf. [Accessed 15/01/2017].

Guthrie, C., Rachlinski, J.J. and Wistrich, A.J. 2002. Judging by heuristic: Cognitive Illusions in Judicial Decision Making. *Judicature*, 86(1), pp. 44-50.

Hale, C. 1996. Fear of Crime: A Review of the Literature. *International Review of Victimology*, 4(2), pp. 79-150. DOI: 10.1177/026975809600400201.

Halpern, S., Asch, D. and Volpp, K. 2012. Commitment contracts as a way to health. *British Medical Journal*, 344(e522), pp. 22-24. DOI: 10.1136/bmj.e522.

Han, A.H., Olson, M.A. and Fazio, R.H. 2006. The influence of experimentally created extrapersonal association on the Implicit Association Test. *Journal of Experimental Social Psychology*, 42(3), pp. 259-272. DOI: 10.1016/j.jesp.2005.04.006.

Hanf, K. Hjern, B. and Porter, D. 1978. Local networks of manpower training in the Federal Republic of Germany and Sweden. In Hanf, K. and Scharpf, F. (Eds.) *Interorganisational Policy Making: Limits to Coordination and Central Control*. London: Sage. pp. 303-344.

Hannon, L. 2002. Criminal Opportunity Theory and the Relationship between Poverty and Property Crime. *Sociological Spectrum*, 22(3), pp. 363-381. DOI: 10.1080/02732170290062676.

Hanson, L. 2001. *Stock Theft Sparks Alert*. [Online] North Queensland Register, 29th March. Available from

www.northqueenslandregister.com.au/news/agriculture/agribusiness/general-news/stocktheft-sparks-alert/5120.aspx [Accessed 24/07/2014].

Harcourt, B.E. 1998. Reflecting on the subject: A critique of the social influence conception of deterrence, the broken windows theory, and order-maintenance policing New York style. *Michigan Law Review*, 97, pp. 291-389.

Harcourt, B.E. 2001. *Illusion of order: The false promise of broken windows policing*. Cambridge, MA: Harvard University Press.

Harcourt, B.E. and Ludwig, J. 2006. Broken windows: New evidence from New York City and a five-city social experiment. *The University of Chicago Law Review*, 73(1), pp. 271-320.

Harel, A. 2014. Punishment and the State. In Bruinsma, G. and Weisburd, D. (Eds.) *Encyclopedia of Criminology and Criminal Justice*. New York, NY: Springer. DOI: 10.1007/978-1-4614-5690-2.

Harel, A. and Segal, U. 1999. Criminal law and behavioral law and economics: Observations on the neglected role of uncertainty in deterring crime. *American Law and Economic Review*, 1(1), pp. 276-312. DOI: 10.1093/aler/1.1.276.

Hartley, C.A. and Phelps, E.A. 2012. Anxiety and decision-making. *Biological Psychiatry*, 72(2), pp. 113-118. DOI: 10.1016/j.biopsych.2011.12.027.

Hearnden, I. and McGill, C. 2004. *Decision-Making by House Burglars: Offenders' Perspectives*. Home Office Research Findings, 249. London: Home Office.

Henson, B., Wilcox, P., Reyns, B.W. and Cullen, F.T. 2010. Gender, Adolescent Lifestyles, and Violent Victimization: Implications for Routine Activity Theory. *Victims and Offenders: An International Journal of Evidence-Based Research, Policy, and Practice*, 5(4), pp. 303-328. DOI: 10.1080/15564886.2010.509651.

Hepburn, C., Duncan, S. and Papachristodoulou, A. 2010. Behavioural Economics, Hyperbolic Discounting and Environmental Policy. *Environmental and Resource Economics*, 46(2), pp. 189-206. DOI: 10.1007/s10640-010-9354-9.

Hernstein, R.J. 1990. Behaviour, Reinforcement and Utility. *Psychological Science*, 1(4), pp. 217-224. DOI: 10.1111/j.1467-9280.1990.tb00203.x.

Herriott, R.E. and Firestone, W.A. 1983. Multisite qualitative policy research: Optimizing description and generalizability. *Education Research*, 12(2), pp. 14-19. DOI: 10.3102/0013189X012002014.

Herzog, A. and Markus, H. 1999. The self concept in life span and ageing research. In Bengtson, V.L. and Schaie, K.W. (Eds.) *Handbook of theories of ageing*. New York, NY: Springer. pp. 227-252.

Hesseling, R.D.P. 1994. Displacement: A Review of the Empirical Literature. In Clarke, R.W. (Ed.) *Crime Prevention Studies, Vol. 3*. Monsey, New York: Willow Tree Press. Pp. 97-230.

Hinkle, J.C. and Weisburd, D. 2008. The irony of broken windows policing: A micro-place study of the relationship between disorder, focussed police crackdowns and fear of crime. *Journal of Criminal Justice*, 36(6), pp. 503-512. DOI: 10.1016/j.jcrimjus.2008-09-010.

Hirschi, T. 2014. On the Compatibility of Rational Choice and Social Control Theories of Crime. In Cornish, D.B. and Clarke, R.V. (Eds.) *The Reasoning Criminal: Rational Choice Perspectives on Offending*. New Brunswick: Transaction. pp. 105-118.

HM Government. 2010. *The coalition: Our programme for government*. London: HM Government.

HM Treasury. 2010. *Spending Review 2010*. London: HM Treasury.

HMICFRS. 2017. *PEEL: Police Efficiency 2017. A National Overview*. London: HMICFRS.

HMSO. 1998. *The Crime and Disorder Act 1998*. London: HMSO.

Hobbes, T. 1651[1968] *Leviathan* [Edited by C.B. Macpherson]. Harmondsworth: Penguin.

Hollis-Peel, M.E., Raynauld, D.M., van Bavel, M., Elffers, H. and Welsh, B.C. 2011. Guardianship for crime prevention: a critical review of the literature. *Crime, Law and Social Change*, 56, pp. 53-70. DOI: 10.1007/s10611-011-9309-2.

Home Office. 2014. *Crime against businesses: Detailed findings from the 2013 Commercial Victimisation Survey*. 2nd Ed. London: Home Office.

- Hopkins-Burke, R. 2014. *An Introduction to Criminological Theory*. 4th Edition. Abingdon: Routledge.
- Horrocks, J. and Menclova, A.K. 2011. The effects of weather on crime. *New Zealand Economic Papers*, 45(3), pp. 231-254. DOI: 10.1080/00779954.2011.572544.
- Hough, M. 1995. *Anxiety about crime: Findings from the 1994 British Crime Survey*. Home Office Research Study no. 147, London: HMSO.
- Humberside Police (undated). What is Rural Crime? Available at <https://www.humberside.police.uk/what-rural-crime> [Accessed 31/07/2018].
- Iacuone, D. 2005. "Real Men are Tough Guys": Hegemonic Masculinity and Safety in the Construction Industry. *The Journal of Men's Studies*, 13(2), pp. 247-266. DOI: 10.3149/jms.1302.247.
- Ianole, R. and Cornescu, V. 2013. Overconsumption society through the looking-glass of behavioural economics. *Procedia Economics and Finance*, 6, pp. 66-72. DOI: 10.1016/S2212-5671(13)00115-9.
- Jackson, J. 2008. Bridging the social and the psychological in the fear of crime. In Lee, M. and Farrall, S. (Eds.) *Fear of Crime: Critical voices in an age of anxiety*. Abingdon: GlassHouse Press. pp. 143-167.
- Jacobs, C. 1961. *The death and life of great American cities*. London: Jonathon Cope.
- Jamieson, S. 2004. Likert Scales: How to (ab)use them. *Medical Education*, 38(12), pp. 1217-1218. DOI: 10.1111/j. 1365-2929.2004.02012.x.
- Janoff-Bulman, R. 1985. The aftermath of victimization: Rebuilding shattered assumptions. *Trauma and its Wake*, 1, pp.15-35.
- Janssens, S.R.M. and Kirkke, A.T. 1990. Business planning for arable farming and field production of vegetables. In Christensen, J. (Ed.) *Proceedings of the 23rd Symposium for the European Association of Agricultural Economists (pp. 73-82)*. Copenhagen, Denmark.
- Jeffery, C. 1971. *Crime prevention through environmental design*. Beverly Hills, CA: Sage.

Jeffery, C.R. 1993. Obstacles to the Development of Research in Crime and Delinquency. *Journal of Research in Crime and Delinquency*, 30(4), pp. 491-497. DOI: 10.1177/0022427893030004010.

Johnson, R.B. 2014. *Mixed Methods Research Design and Analysis With Validity: A Primer*. [Online] Department of Professional Studies, University of South Alabama. Available at [http://zebip.ph-weingarten.de/fileadmin/redaktuere/Subdomains/Zentrum_fuer_Innovation_und_Professionalitaet/Prof. Dr. Burke Johnson Mixed Methods PRIMER.pdf](http://zebip.ph-weingarten.de/fileadmin/redaktuere/Subdomains/Zentrum_fuer_Innovation_und_Professionalitaet/Prof._Dr._Burke_Johnson_Mixed_Methods_PRIMER.pdf). [Accessed 23/02/2015].

Johnson, H. 1958. *Exploration in responsible business behavior: An exercise in behavioral economics*. Georgia State College of Business Administration, Research Paper No. 4.

Johnson, J.H., Kerper, H.B., Hayes, D.D. and Killenger, G.G. 1973. *The Recidivist Victim: A Descriptive Study*. Criminal Justice Monograph, vol. 41. Institute of Contemporary Corrections and The Behavioural Sciences. Huntsville, Texas: Sam Houston University.

Johnson, S.D., Guerette, R.T. and Bowers, K. 2014. Crime displacement: what we know, what we don't know, and what it means for crime reduction. *Journal of Experimental Criminology*, 10(4), pp. 549-571. DOI: 10.1007/s11292_014_9209-4.

Johnson, H., South, N., and Walters, R. 2016. The commodification and exploitation of fresh water: Property, human rights and green criminology. *International Journal of Law, Crime and Justice*, 44, pp. 146–162. DOI: 10.1016/j.ijlcrj.2015.07.003.

Jolls, C. 1998. Behavioral Economic Analysis of Redistributive Legal Rules. *Vanderbilt Law Review*, 51, pp. 1653-1677.

Jolls, C. 2005. On Law Enforcement with Boundedly Rational Actors. In Parisi, F. and Smith, V.L. (Eds.) *The Law and Economics of Irrational Behavior*. Stanford, CA: Stanford University Press. Pp. 186-207.

Jones, J. 2008. *Agricultural Crime on Anglesey: Local Partners' and Organisations' Views on the Issues*. Report to the Anglesey Joint Action Group Committee. Available at www.aber.ac.uk/en/media/departamental/lawcriminology/staff/pdf/jane-jones---second-report.pdf. [Accessed 02/08/2018].

Jones, J. 2010. The neglected problem of farm crime: an explanatory study. *Safer Communities*, 9, pp. 36-44. DOI: 10.5042/sc.2010.0013.

Jones, J. and Phipps, J. 2012. *Policing farm crime in England and Wales*. [Online] Papers from the British Criminology Conference 12, 3-24. Available from http://britsoccrim.org/new/volume12/PBCC_2012_12_wholevolume.pdf. [Accessed 14/05/2014].

Jones, P., Hawton, K., Malmberg, A. and Jones, J.W. 1994. Setting the scene: the background to stress in the rural community, causes, effects and vulnerable groups. In Read, N. (Ed.) *Rural Stress: Positive Action in Partnership*. Stoneleigh Park: National Agricultural Centre.

Judd, F., Jackson, H., Fraser, C., Murray, G., Robins, G. and Komiti, A. 2006. Understanding suicide in Australian farmers. *Social Psychiatry and Psychiatric Epidemiology*, 41(1), pp. 1-10. DOI: 10.1007/s00127-005-0007-1.

Jung, C.G. 1921[1971] *Collected Works of C.G. Jung: Vol. 6, Psychological Types*. Princeton, NJ: Princeton University Press.

Jupp, V. 1996. *Methods of Criminological Research*. New York, NY: Routledge.

Kahneman, D. 2003. Maps of bounded rationality: Psychology for behavioural economics. *The American Economic Review*, 93(5), pp. 1449-1475. DOI: 10.1257/000282803322655392.

Kahneman, D. and Tversky, A. 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), pp. 263-291. DOI: 10.2307/1914185.

Kahneman, D., Knetsch, J. L. and Thaler, R. H. 1991. Anomalies: The endowment effect, loss aversion, and status quo bias. *The Journal of Economic Perspectives*, 5(1), pp. 193-206. DOI: 10.1257/jep.5.1.193.

Kaiser, F.G. and Byrka, K. 2015. The Campbell Paradigm as a Conceptual Alternative to the Expectation of Hypocrisy in Contemporary Attitude Research. *The Journal of Social Psychology*, 155(1), pp. 12-29. DOI: 10.1080/00224545.2014.959884.

Katz, D. and Stotland, E.A. 1959. Preliminary Statement of a Theory of Attitude Structure and Change. In Koch, S. (Ed.) *Psychology: A Study of a Science, Vol. 3*. New York, NY: McGraw-Hill. pp. 423-475.

- Kelling, G. and Coles, C.M. 1996. *Fixing broken windows: Restoring order and reducing crime in our communities*. New York, NY: Free Press.
- Kelling, G. and Sousa, W.H. 2001. *Do police matter? An analysis of the impact of New York City's Police Reforms, Civic Report 22*. New York, NY: Free Press.
- Kidder, T. 1982. *Soul of a New Machine*. New York, NY: Avon.
- Kleck, G. and Barnes, J.C.C. 2010. Do More Police Lead to More Crime Deterrence? *Crime and Delinquency*, 60(5), pp. 716-738. DOI: 10.1177/0011128710382263.
- Kleck, G., Sever, B., Li, S. and Gertz, M. 2005. The Missing Link in General Deterrence Research. *Criminology*, 43(3), pp. 623-660. DOI: 10.1111/j.0011-1348.2005.00019.x.
- Kleinman, S.S. 2006. Café Culture in France and the United States: A Comparative Ethnographic Study of the Use of Mobile Information and Communication Technologies. *Atlantic Journal of Communication*, 14(4), pp. 191-210. DOI: 10.1207/s15456889ajc1404_1.
- Knowler, D. and Bradshaw, B. 2007. Farmers' adoption of conservation agriculture: A review and synthesis of recent research. *Food Policy*, 32(1), pp. 25-48. DOI: 10.1016/j.foodpol.2006.01.003.
- Kogut, T. and Beyth-Marom, R. 2008. Who helps more? Self-Other discrepancies in helping-behaviour contexts. *Judgement and Decision Making*, 3(8), pp. 595-605.
- Kooreman, P. and Prast, H. 2010. What does behavioural economics mean for policy? Challenges to savings and health policies in the Netherlands. *De Economist*, 158(2), pp. 101-122. DOI: 10.1007/s10645-010-0141-6.
- Krosnick, J.A. and Petty, R.E. 1995. Attitude Strength: An Overview. In Petty, R.E. and Krosnick, J.A. (Eds.) *Attitude Strength: Antecedents and Consequences*. New York, NY: Psychology Press. pp. 1-24.
- Krueger, R.A. 1994. *Focus Groups: A practical guide for applied research*. Thousand Oaks, CA: Sage.

Ladikos, A. and Krueger, J.F.E. 2006. Experiences of crime in a commercial production area: utilising the empirical-phenomological method. *Acta Criminologica: Southern African Journal of Criminology*, 19(3), pp. 156-179.

Laerd Statistics. 2013. *Cronbach's Alpha (α) using SPSS Statistics*. [Online] Laerd Statistics. Available at <https://statistics.laerd.com/spss-tutorials/cronbachs-alpha-using-spss-statistics.php>. [Accessed 23/05/2015].

LaGrange, R.L., & Ferraro, K.F. 1989. Assessing age and gender differences in perceived risk and fear of crime. *Criminology*, 27, 697–719.

Landes, W.M. 1983. Optimal sanctions for antitrust violations. *The University of Chicago Law Review*, 50(2), pp. 652-678. DOI: 10.2307/1599506.

LaPiere, R.T. 1934. Attitudes vs. Actions. *Social Forces*, 13(2), pp. 230-237. DOI: 10.2307/2570339.

Leonard, T. C. 2008. Richard H Thaler, Cass R Sunstein, Nudge: Improving Decisions about Health, Wealth, and Happiness. *Constitutional Political Economy*, 19(4), pp. 356-360. DOI: 10.1007/s10602-008-9056-2.

Levitt, S.D. 1998. Why do increased arrest rates appear to reduce crime: Deterrences, incapacitation, or measurement error? *Economist Inquiry*, 36(3), pp. 353-372. DOI: 10.1111/j.1465-7295.1998.tb01720.x.

Lie, M. 1991. *Technology as masculinity*. Paper No. 6191. SINTEF-IFIM, Trondheim.

Linder, R.K. 1987. Adoption and diffusion of technology: An Overview. In Champs, D., Highley, E. and Remenyi, J. (Eds.) *Technological change in post harvest handling of grains in the humid tropics: ACIAR proceedings series*, 19, pp. 114-151.

Lipset, S.M., Trow, M. and Coleman, J. 1956. *Union democracy: The inside politics of the international typographical union*. New York, NY: Free Press.

Liska, A.E. and Baccaglini, W. 1990. Feeling Safe by Comparison: Crime in the Newspapers. *Social Problems*, 37(3), pp. 360-374.

Liska, A.E., Sanchirico, A. & Reed, M.D. 1988. Fear of crime and constrained behavior: Specifying and estimating a reciprocal effects model. *Social Forces*, 66, 827–837.

Litosseliti, L. 2003. *Using Focus Groups in Research*. London: Continuum.

Litton, R.A. and Pease, K. 1984. Crimes and Claims: The Case of Burglary Insurance. In Clarke, R.A. and Hope, T. (Eds.) *Coping with Burglary: International Series in Social Welfare, Vol. 4*. Dodrecht: Springer. pp. 201-217.

Loewenstein, G. and Lerner, J.S. 2003. The Role of Affect in Decision Making. In Davidson, R., Goldsmith, H. and Scherer, K. (Eds.) *Handbook of Affective Science*. Oxford: Oxford University Press. pp. 619-642.

Loewenstein, G., Brennan, T. and Volpp, K. G. 2007. Asymmetric paternalism to improve health behaviors. *Journal of the American Medical Association*, 298(20), pp. 2415-2417. DOI: 10.1001/jama.298.20.2415.

Loewenstein, G., Sunstein, C. R. and Golman, R. 2014. Disclosure: Psychology changes everything. *Annual Review Economics*, 6(1), pp. 391. DOI: 10.1146/annurev-economics-080213-041341.

Lord, C.G., Ross, L. and Lepper, M.R. 1979. Biased assimilation and attitude polarization: The effects of prior theories on subsequently considered evidence. *Journal of Personality and Social Psychology*, 37(11), pp. 2098-2109. DOI: 10.1037/0022-3514.37.11.2098.

Lynch, M.J. and Stretsky, P.B. 2012. Green Criminology. In F.T. Cullen and P. Wilcox (Eds.) *The Oxford Handbook of Criminological Theory*. Oxford: Oxford University Press, pp. 625-647.

Lynne, G.D. and Rola, L.R. 1988. Improving attitude-behavior prediction models with economic variables: Farmers actions towards soil conservation. *Journal of Social Psychology*, 128(1), pp. 19-28. DOI: 10.1080/00224545.1988.9711680.

MacCoun, R., Cook, P.J., Muschkin, C. and Vigdor, J.L. 2008. Distinguishing Spurious and Real Peer Effects: Evidence from Artificial Societies, Small-Group Experiments, and Real Schoolyards. *Review of Law and Economics*, 4(3), pp. 695-714. DOI: 10.2202/1555-5879.1226.

Malmberg, A., Hawton, K. and Simkin, S. 1997. A study of suicide in farmers in England and Wales. *Journal of Psychosomatic Research*, 43(1), p. 107-111. DOI: 10.1016/S0022-3999(97)00114-1.

- Mani, A., Mullainathan, S., Shafir, E. and Zhao, J. 2013. Poverty impedes cognitive function. *Science*, 341(6), pp. 976-980. DOI: 10.1126/science.1238041.
- Marshall, D. and Johnson, S. 2005. *Crime in rural areas: A review of the literature for the rural evidence research centre*. London: UCL.
- Marteau, T. M., Ogilvie, D., Roland, M., Shurcke, M. and Kelly, M. P. 2011. Judging nudging: Can nudging improve population health? *British Medical Journal*, 342(d228), pp. 263-265. DOI: 10.1136/bmj.d228.
- Matland, R.E. 1995. Synthesizing the Implementation Literature: The Ambiguity-Conflict Model of Policy Implementation. *Journal of Public Administration Research and Theory*, 5(2), pp. 145-174. DOI: 10.1093/oxfordjournals.jpart.a037242.
- Mawby, R.I. 2004. Myth and reality in rural policing: perceptions of the police in a rural county of England. *Policing: An International Journal of Police Strategies and Management*, 27(3), pp. 431-446. DOI: 10.1108/13639510410553158.
- Mawby, R.I. 2014. Commercial Burglary. In Gill, M. (Ed.) *The Handbook of Security*. 2nd Ed. Basingstoke: Palgrave MacMillan.
- Mawby, R.I. & Jones, C. 2004. Explaining patterns of victimisation within a rural county of England. *International Criminal Justice Review*, 14(1), pp. 99-123. DOI: 10.1177/105756770401400105.
- May, D.C., Rader, N.E., & Goodrum, S. 2010. A gendered assessment of the “threat of victimization”: Examining gender differences in fear of crime, perceived risk, avoidance, and defensive behaviors. *Criminal Justice Review*, 35(2), 159–182.
- McAdams, R.H. and Ulen, T.S. 2008. *Behavioral criminal law and economics*. John M. Olin Program in Law and Economics Working Paper No. 440. [Online] University of Chicago. Available at https://chicagounbound.chicago.edu/cgi/viewcontent.cgi?article=1079&content=law_and_economics. [Accessed 17/02/2016].
- McCall, M. 2003. *Results from the 2001-2002 National Farm Crime Survey*. Trends and Issues in Crime and Criminal Justice, 266, Australian Institute of Criminology, Canberra.

McCall, M. & Homel, P. 2003. *Preventing Crime on Australian Farms: Issues, Current Initiatives and Future Directions*. [Online] Canberra: Australian Institute of Criminology. Available from http://www.aic.gov.au/media_library/publications/tandi2/tandi268.pdf [Accessed 25/08/2014]

McGregor, M., Willock, J. and Deary, I.J. 1995. Farmer Stress. *Farm Management*, 9(2), pp. 57-65.

McGregor, M., Willock, J., Dent, B., Deary, I., Sutherland, A., Gibson, G., Morgan, O. and Grieve, B. 1996. Links between psychological factors and farmer decision making. *Farm Management*, 9(5), pp. 228-239.

McLeod, J.M. 1995. The synthetic crisis: Media influences on perception of crime. *Paper presented to the Association for Education in Journalism and Mass Communications, Washington DC, August 1995*.

McMaster, C. and Lee, C. 1991. Cognitive dissonance in tobacco smokers. *Addictive Behaviours*, 16(5), pp. 349-353. DOI: 10.1016/0306-4603(91)90028-G.

McNaught, C. and Lam, P. 2010. Using Wordle as a Supplementary Research Tool. *The Qualitative Report*, 15(3), pp. 630-643.

McQuivey, J. 1997. *Fearing the "Mean World": Exploring the Victim-Offender Relationship's Influence on Fear of Violent Crime*. [Online] Available at http://web.syr.edu/~jlmcquiv/mean_world.html. [Accessed 12/03/2016].

Mears, D.P., Scott, M.L., Bhati, A.S. 2007. *A Process and Impact Evaluation of the Agricultural Crime, Technology, Information, and Operations Network (ACTION) Program*. Washington DC: The Urban Institute

Meier, R. and Miethe, T. 1993. Understanding Theories of Criminal Victimization. In Tonry, M. (Ed.) *Crime and Justice: A Review of Research*. Chicago, IL: University of Chicago Press. Pp. 459-499.

Meier-Pesti, K. and Penz, E. 2008. Sex or gender? Expanding the sex-based view by introducing masculinity and femininity as predictors of financial risk taking. *Journal of Economic Psychology*, 29(2), pp. 180-196. DOI: 10.1016/j.joep.2007.05.002.

- Melde, C., Taylor, T.J., & Esbensen, F. 2009. "I got your back": An examination of the protective function of gang membership in adolescence. *Criminology*, 47, 565–594.
- Mesch, G. 2000. Perceptions of Risk, lifestyle activities, and fear of crime. *Deviant Behavior*, 21, 67–72.
- Miethe, T.D., Stafford, M.C. and Long, J.S. 1987. Social Differentiation in Criminal Victimization: A Test of Routine Activities/Lifestyle Theories. *American Sociological Review*, 52(2), pp. 184-194. DOI: 10.2307/2095447.
- Mingay, G.E. 1989. *The Rural Idyll*. London: Routledge.
- Mitchell, G. 2005. Libertarian paternalism is an oxymoron. *Northwestern University Law Review*, 99(3), pp. 1245-1277.
- Moffat, R. 1983. Crime Prevention Through Environmental Design - a management perspective. *Canadian Journal of Criminology*, 25(1), pp. 19-31.
- Mohaidin, Z. 2012. Behavioural economics approach on consumer brand choice - an individual analysis. *Procedia Social and Behavioral Sciences*, 65, pp. 410-418. DOI: 10.1016/j.sbspro.2012.11.142.
- Mohamend, Y.A. 1982. Diffusion of agricultural innovations among traditional farmers of Western Sudan - The case of East Kordofan and El Fasher districts. *GeoJournal*, 6(1), pp. 31-40. DOI: 10.1007/BF00446591.
- Morris, C. and Potter, C. 1995. Recruiting the new conservationists: Farmers' adoption of agri-environmental schemes in the UK. *Journal of Rural Studies*, 11(1), pp. 51-63. DOI: 10.1016/0743-0167(94)00037-A.
- Morrison, W. 1995. *Theoretical Criminology*. London: Cavendish.
- Morse, J. R. 1997. Who is rational economic man? *Social Philosophy and Policy*, 14(1), pp. 179-206. DOI: 10.1017/S0265052500001722.
- MRS. 2014. *MRS Code of Conduct*. [Online] MRS. Available at <https://www.mrs.org.uk/pdf/mrs%20code%20of%20conduct%202014.pdf>. [Accessed 10/04/2015].

- Murphy, G. and Likert, R. 1938. *Public opinion and the individual. A psychological study of student attitudes on public questions, with a retest five years later*. Oxford: Harper.
- Myers, S.L. 1983. Estimating the Economic Model of Crime: Employment Versus Punishment. *The Quarterly Journal of Economics*, 98(1), pp. 157-166. DOI: 10.2307/1885572.
- Napier, J. 1987. Farmers and Soil Erosion: A Question of Motivation. *Forum*, 2(2), pp. 85-94.
- National Audit Office. 2015. *Financial Sustainability of police forces in England and Wales*. London: NAO.
- Newman, D.L., Saunders, L.S., Pittaway, S.F. and Anderson, G.A. 1990. Multidiscriminant analysis of farmers risk responses. *Proceedings of the 16th Annual Conference of the New Zealand Branch of the Agricultural Economics Society, Ministry of Agriculture & Fisheries Rural Policy Unit, No. 26*.
- Newman, O. 1972. *Defensible space*. Tokyo: Kajima Institute.
- NFU Mutual. 2017. *Rural Crime Report 2017 – Rural Crime Now*. [Online] NFU Mutual. Available from <https://www.nfumutual.co.uk/farming/initiatives/rural-crime/> [Accessed 14/08/2017].
- NFU Online. 2017. *Rural crime costs up 20% despite 'fortress farms'*. [Online] NFU. Available at <https://www.nfuonline.com/news/latest-news/rural-crime-costs-up-20-despite-fortress-farms/>. [Accessed 01/10/2017].
- Northumbria Police. Undated. *Rural Crime and Farm Security*. [Online] Northumbria Police. Available at https://www.northumbria.police.uk/advice_and_information/crime_prevention/rural_and_farm_crime/ [Accessed 04/04/2018].
- Nottinghamshire Police. Undated. *Rural Crime*. [Online] Nottinghamshire Police. Available at <https://www.nottinghamshire.police.uk/ruralcrime> [Accessed 03/04/2018].
- NRCN. 2015. *National Rural Crime Survey 2015*. [Online] NRCN. Available from <http://www.nationalruralcrimenetwork.net/research/internal/national-rural-crimes-survey2015/> [Accessed 18/09/2016]

- O'Donoghue, T. and Rabin, M. 2000. *Addiction and present-biased preferences*. Cornell University & UC Berkeley: Centre for Analytical Economics Working Paper No. 02-10.
- OECD. 2012. *Farmer Behaviour, Agricultural Management and Climate Change*. OECD Publishing. DOI: 10.1787/9789264167650-en.
- O'Keefe, G.J. and Reid-Nash, K. 1987. Crime news and real-world blues: The effects of the media on social reality. *Communication Research*, 14(2), pp. 147-163. DOI: 10.1177/009365087014002001.
- ONS. 2015. *Crime Statistics, Focus on Public Perceptions of Crime and the Police, and the Personal Well-being of Victims: 2013 to 2014*. London: Office for National Statistics.
- ONS. 2016. *Crime in England and Wales: Year ending March 2016*. London: Office for National Statistics.
- ONS. 2017. *Crime in England and Wales: Year ending June 2017*. London: Office for National Statistics.
- Ortúzar, J de Dios. and Willumsen, L.G. 2011. Discrete Choice Models. In Ortúzar, J de Dios. and Willumsen, L.G. (Eds.) *Modelling Transport*. 4th Ed. Chichester: Wiley.
- Oxford Times. 2017. *Drugs Raid: 22 arrests after major police operation into crack cocaine and heroin supply in Oxfordshire*. [Online] Oxford Times. Available at www.oxfordtimes.co.uk/news/15043603.VIDEO_22_arrests_after_major_police_operation_into_crack_cocaine_and_heroin_supply/ [Accessed 21/07/2017].
- Padel, S. 2001. Conversion to organic farming: a typical example of the diffusion of an innovation? *Sociologia Ruralis*, 41(1), pp. 40-61. DOI: 10.1111/1467-9523.00169.
- Pallant, J. 2013. *SPSS survival manual: a step by step guide to data analysis using IBM SPSS*. Berkshire: Open University Press.
- Pantazis, C. 2000. Fear of crime, vulnerability, and poverty. *British Journal of Criminology*, 40, 414–436.

Paternoster, R. and Piquero, A. 1995. Reconceptualizing Deterrence: An Empirical Test of Personal and Vicarious Experiences. *Journal of Research in Crime and Delinquency*, 32(3), pp. 251-286. DOI: 10.1177/0022427895032003001.

Pauwels, L., Weerman, F., Bruinsma, G. and Bernasco, W. 2011. Perceived sanction risk, individual propensity and adolescent offending: Assessing key findings from the deterrence literature in a Dutch sample. *European Journal of Criminology*, 8(5), pp. 386-400. DOI: 10.1177/1477370811415762.

Pease, K. 1998. *Repeat Victimisation: Taking Stock*. Crime Detection and Prevention Series, Paper No. 90. London: Home Office.

Persky, J. 1995. The Ethology of Homo Economicus. *Journal of Economic Perspectives*, 9(2), pp. 221-231. DOI: 10.1257/jep.9.2.221.

Petty, R.E., Fazio, R.H. and Briñol, P. 2009. The New Implicit Measures: An Overview. In Petty, R.E., Fazio, R.H. and Briñol, P. (Eds.) *Attitudes: Insights from the New Implicit Measures*. New York, NY: Psychology Press. Pp. 3-18.

Pike, T. 2008. *Understanding Behaviours in a Farming Context: Bringing theoretical and applied evidence together from across Defra and highlighting policy relevance and implications for future research*. Defra Agricultural Change and Environment Observatory Discussion Paper.

Pile, S. 1991. Securing the future: "Survival strategies" amongst Somerset dairy farmers. *Sociologia Ruralis*, 25(2), pp. 255-274. DOI : 10.1177/0038038591025002007.

Piquero, A. and Paternoster, R. 1998. An Application of Stafford and Warr's Reconceptualization of Deterrence to Drinking and Driving. *Journal of Research in Crime and Delinquency*, 35(1), pp. 3-29. DOI: 10.1177/0022427898035001001.

Piquero, A.R. and Pogarsky, G. 2002. Beyond Stafford and Warr's Reconceptualization of Deterrence: Personal and Vicarious Experiences, Impulsivity, and Offending Behaviour. *Journal of Research in Crime and Delinquency*, 39(2), pp. 153-186. DOI: 10.1177/002242780203900202.

Poe, G. L., Bills, N.L., Bellows, B.C., Crosscombe, P. and Koelsch, R.K. 2001. Will Voluntary Educational Programs Meet Environmental Objectives? Evidence from a Survey of New

- York Dairy Farms. *Review of Agricultural Economics*, 23(2), pp. 473-491. DOI: 10.1111/1467-9353.00073.
- Pogarsky, G. and Piquero, A.R. 2003. Can punishment encourage offending? Investigating the "resetting effect". *Journal of Research in Crime and Delinquency*, 40(1), pp. 95-120. DOI: 10.1177/0022427802239255.
- Posner, R.A. 1997. Rational Choice, Behavioral Economics, and the Law. *Stanford Law Review*, 50(5), pp. 1551-1575. DOI: 10.2307/1229305.
- Posner, R.A. 2007. *Economic Analysis of Law*. 7th Ed. Austin, TX: Wolters Kluwer for Aspen Publishers.
- Prendergrast, J., Foley, B., Menne, V. and Isaac, A.K. 2008. *Creatures of Habit? The Art of Behavioural Change*. London: The Social Market Foundation.
- Prieto Curiel, A. & Bishop, S. 2017. Modelling the fear of crime. *Proceedings of the Royal Society A*, 473. DOI: 10.1098/rspa.2017.0156.
- Public Policy Forum. 2001. Crime Perception. *Research Brief*, 89(2), pp. 191-212.
- Quetelet, A.J. 1842[1969]. *A treatise on man and the development of his faculties*. Gainesville, FL: Scholar's Facsimiles and Reprints.
- Rader, N.E. 2008. Gendered fear strategies: Intersections of doing gender and fear management strategies in married and divorced women's lives. *Sociological Focus*, 41(1), 34-52.
- Rebonato, R. 2012. *Taking liberties: A critical examination of libertarian paternalism*. Hampshire: Palgrave Macmillan.
- Reid, J.I., McRae, A.F. and Brazendale, R. 1993. Farmer first research: A review of phase one results in relation to farmers' willingness and ability to change. *Proceedings of the New Zealand Grassland Association*, 55, pp. 17-21.
- Repetto, R. 2008. *The Climate Crisis and the Adaptation Myth*. Working Paper No. 19. Yale School of Forestry and Environmental Studies.

- Repetto, T.A. 1976. Crime Prevention and the Displacement Phenomenon. *Crime and Delinquency*, 22(2), pp. 166-177. DOI: 10.1177/00112877602200204.
- Robinson, P.H. and Darley, J.M. 2004. Does criminal law deter? A behavioural science investigation. *Oxford Journal of Legal Studies*, 24(2), pp. 173-205. DOI: 10.1093/ojls/24.2.173.
- Robison, L.J., Barry, P.J. and Burghardt, W.G. 1987. Borrowing Behavior Under Financial Stress by the Proprietary Firm: A Theoretical Analysis. *Western Journal of Agricultural Economics*, 12(2), pp. 144-151.
- Rogers, E.M. 1962. *Diffusion of Innovations*. New York, NY: The Free Press
- Rogers, E.M. 1983. *Diffusion of Innovations*. 3rd Ed. New York, NY: The Free Press.
- Rosenberg, M.J. and Hovland, C.I. 1960. Cognitive, Affective, and Behavioral Components of Attitude. In Rosenberg, M.J., Hovland, C.I., McGuire, W.J., Abelson, R.P. and Brehm, J.W. (Eds.) *Attitude Organization and Change: An Analysis of Consistency among Attitude Components*. New Haven, CT: Yale University Press. pp. 1-14.
- Sabatier, P. 2005. From policy implementation to policy change: a personal odyssey. In Gornitzka, A., Kogan, M. and Amaral, A. (Eds.) *Reform and change in higher education: analyzing policy implementation*. Dordrecht: Springer. Pp. 17-34.
- Sacco, V.F. 1995. Media constructions of crime. *Annals of the American Academy of Political and Social Sciences*, 539(1), pp. 141-154. DOI: 10.1177/00027/629553900/01/.
- Salleh, M.R. 2008. Life Event, Stress and Illness. *Malaysian Journal of Medical Sciences*, 15(4), pp. 9-18.
- Saltiel, J., Gilchrist, J. and Harvie, R. 1992. Concern about crime among Montana farmers and Ranchers. *Rural Sociology*, 57(4), pp. 535-545. DOI: 10.1111/j.1549-831.1992.tb00478.x.
- Sampson, R.J. and Raudenbush, S.W. 2004. Seeing disorder: Neighborhood stigma and the social construction of "broken windows". *Social Psychology Quarterly*, 67(4), pp. 319-342. DOI: 10.1177/019027250406700401.

- Sampson, R.J., Raudenbush, S.W., & Earls, F. 1997. Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, 227(5328), 918–924.
- Sanstad, A. H. and Howarth, R. B. 1994. *Consumer rationality and energy efficiency*, ACEEE Summer Study on Energy Efficiency in Buildings.
- Santos, R.B. 2017. *Crime Analysis With Crime Mapping*. 3rd Ed. Los Angeles, CA: Sage
- Saugeres, L. 2002a. The Cultural Representation of the Farming Landscape: Masculinity, Power and Nature. *Journal of Rural Studies*, 18(4), pp. 373-384. DOI: 10.1016/S0743-0167(02)00010-4.
- Saugeres, L. 2002b. Of Tractors and Men: Masculinity, Technology and Power in a French Farming Community. *Sociologia Ruralis*, 42(2), pp. 143-149. DOI: 10.1111/1467-9523.00207.
- Saville, G. and Cleveland, G. 2003a. An Introduction to second generation CPTED: Part 1. *CPTED Perspective*, 6(1), pp. 7-9.
- Saville, G. and Cleveland, G. 2003b. An Introduction to second generation CPTED: Part 2. *CPTED Perspective*, 6(2), pp. 4-8.
- Schafer, J.A., Huebner, B.M., & Bynum, T.S. 2006. Fear of crime and criminal victimization: Gender-based contrasts. *Journal of Criminal Justice*, 34, 285–301.
- Scholz, R.W. and Tietje, O. 2002. *Embedded case study methods: Integrating quantitative and qualitative knowledge*. Thousand Oaks, CA: Sage.
- Schreck, C.J. 1999. Criminal Victimization and low self-control: An extension and test of a general theory of crime. *Justice Quarterly*, 16(3), pp. 633-654. DOI: 10.1080/07418829900094291.
- Schreiber, C.A. and Kahneman, D. 2000. Determinants of the remembered utility of aversive sounds. *Journal of Experimental Psychology*, 129(1), pp. 27-42. DOI: 10.1037/0096-3445.129.1.27.
- Schroeder, E.H., Fliegel, F.C. and van Es, J.C. 1985. Measurement of the Lifestyle Dimensions of Farming for Small-Scale Farmers. *Rural Sociology*, 50(3), pp. 305-322.

- Schwartz, M. and Bohner, G. 2001. The Construction of Attitudes. In Tesser, A. and Schwartz, N. (Eds.) *Blackwell Handbook of Social Psychology: Intraindividual Processes*. Malden, MA: Blackwell. pp. 436-457.
- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K. and Lehman, D. R. 2002. Maximising versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, 83(5), pp. 1178-1197. DOI: 10.1037/0022-3517.83.5.1178.
- Scott, J. 2000. Rational choice theory. In Browning, G., Halchi, A. and Webster, F. (Eds.) *Understanding Contemporary Society: Theories of the Present*. London: Sage. Pp. 126-137.
- Scrap Metal Dealers Act. 2013. London: TSO.
- Shavell, S. 1992. A Note on Marginal Deterrence. *International Review of Law and Economics*, 12(3), pp. 345-355. DOI: 10.1016/0144-8188(92)90013-H.
- Shavelson, R. and Towne, L. 2002. *Scientific Research in Education Development, c. 1670-1911*. Washington, DC: National Academy Press.
- Shaw-Taylor, L., Bogart, D., Satchell, M., Wrigley, T. You, X. and Alvarez, E. 2016. *Elevation: Shuttle Radar Topography Mission Raster Data (90x90m)*. [Online]. Cambridge University. Available at <https://www.campop.geog.cam.ac.uk/research/projects/transport/data/geography.html>. [Accessed 01/06/2017].
- Sheeran, P. 2002. Intention-Behavior Relations: A Conceptual and Empirical Review. *European Review of Social Psychology*, 12(1), pp. 1-36. DOI: 10.1080/14792772143000003.
- Siardos, G.C. 1992. Diffusion and acceptance of farm technology: A new approach. *Medit*, (192), pp. 24-26.
- Simon, D. 2012. *In Doubt: The Psychology of the Criminal Justice Process*. Cambridge, MA: Harvard University Press.
- Simon, H. 1955. A Behavioral Model of Rational Choice. *The Quarterly Journal of Economics*, 69(1), pp. 99-118. DOI: 10.2307/1884852.

- Simon, H. 1972. Theories of bounded rationality. In: McGuire, C.B. and Radner, R. (Eds.) *Decision and Organization*. Amsterdam: North Holland Publishing Co. pp. 161-176.
- Simon, H.A. 1959. Theories of decision-making in economics and behavioral science. *The American Economic Review*, 49(3), pp. 253-283.
- Simon, R.J. 1975. *Women and Crime*. Lexington, MA: D.C. Heath.
- Skinner, B.F. 1953. *Science and human behavior*. New York, NY: The Free Press.
- Skogan, W.G. 1984. Reporting crimes to the police: The status of world research. *Journal of Research in Crime and Delinquency*, 21(2), pp. 113-137. DOI: 10.1177/0022427884021002003
- Skogan, W.G. 1990. *Disorder and Decline: Crime and the Spiral of Decay in American Neighbourhoods*. New York, NY: The Free Press.
- Skogan, W.G. and Maxfield, M.G. 1981. *Coping with Crime: Individual and Neighborhood Reactions*. Beverly Hills, CA: Sage.
- Smith, K. 2014. Crime Prevention as part of the Business Plan for Rural Start-Ups. *Proceedings of the 12th International Rural Entrepreneurship Conference, 18-19 June 2014, Harper Adams University*.
- Smith, K. and Byrne, R. 2018a. Re-imagining Rural Crime in England: A Historical Perspective. *International Journal of Rural Criminology*, 4(1), pp. 66-85.
- Smith, K. and Byrne, R. 2018b [accepted]. Horizon Scanning Rural Crime in England. *Crime Prevention and Community Safety*, tbc.
- Smith, R. 2010. Policing the changing landscape of rural crime: A case study from Scotland. *International Journal of Police Science and Management*, 12(3), pp. 373-387. DOI: 10.1350/ijps.2010.12.3.171.
- Smith, R. and Somerville, P. 2013. The long goodbye: A note on the closure of rural police stations and the decline of rural policing in Britain. *Policing*, 7(4), pp. 348-358. DOI: 10.1093/police/pat031.

- Smith, R., Laing, A. and McElwee, G. 2013. The rise of illicit rural enterprise within the farming industry: a viewpoint. *International Journal of Agricultural Management*, 2(4), pp. 185-198. DOI: 10.5836/ijam/2013-04-01.
- Soane, E. and Chmiel, N. 2005. Are risk preferences consistent?: The influence of decision domain and personality. *Personality and Individual Differences*, 38(8), pp. 1781-1791. DOI: 1-.1016/j.paid.2004.10-005.
- Solberg Søilen, K. and Huber, S. 2006. *20 svenska fallstudier för små och medelstora företag - Pedagogik och vetenskaplig metod*. Lund: Studentlitteratur.
- Somerville, P., Smith, R. and McElwee, G. 2015. The dark side of the rural idyll: stories of illegal/illicit economic activity in the UK countryside. *Journal of Rural Studies*, 39(2), pp. 219-228. DOI: 10.1016/j.jrurstud.2014.12.001.
- Sousa, W.H. and Kelling, G.L. 2006. Of "Broken Windows", criminology, and criminal justice. In Weisburd, D. and Braga, A.A. (Eds.) *Policing Innovation: Contrasting Perspectives*. Cambridge: Cambridge University Press. pp. 77-97.
- Stafford, M., Chandola, T., & Marmot, M. 2007. Association between fear of crime and mental health and physical functioning. *American Journal of Public Health*, 97(11), 2076–2081.
- Stark, C., Gibbs, D., Hopkins, P, Belbin, A., Hay, A. and Selvaraj, S. 2006. Suicide in farmers in Scotland. *Rural and Remote Health*, 6(1), pp. 509-517.
- Steele, R. 2016. How offenders make decisions: Evidence of rationality. *British Journal of Community Justice*, 13(3), pp. 7-20.
- Sterling, T. D., Rosenbaum, W. L. and Weinkam, J. J. 1992. Analysis of the relationship between smokeless tobacco and cancer based on data from the national mortality followback survey. *Journal of Clinical Epidemiology*, 45(3), pp. 223-231. DOI: 10.1016/0895-4356(92)90082-X.
- Stough-Hunter, A.N. 2015. Negotiating Masculinity, Class, and Health in a Rural Context. *International Journal of Men's Health*, 14(2), pp. 129-145. DOI: 10.3149/jmh.1402.129.

- Strauss, A. and Corbin, J. 1994. Grounded Theory Methodology: An Overview. In Denzin, N.K. and Lincoln, Y.S. (Eds.) *Handbook of Qualitative Research*. Thousand Oaks, CA: Sage. pp. 273-285.
- Sullivan, D., Armel, C. and Todd, A. 2012. *When "not losing" is better than "winning": Using behavioral science to drive customer investment in energy efficiency*. ACEEE Summer Study on Energy Efficiency in Buildings.
- Sullivan, G.M. and Artino, A.R. 2013. Analyzing and Interpreting Data From Likert Scales. *Journal of Graduate Medical Education*, 5(4), pp. 541-542. DOI: 10.4300/JGME-5-4-18.
- Sunstein, C. 2014. *Why nudge? The politics of libertarian paternalism*. New Haven: Yale University Press.
- Sunstein, C. 2015. *Choosing not to Choose: Understanding the value of Choice*. Oxford: Oxford University Press.
- Sunstein, C.R. and Thaler, R.H. 2003. Libertarian paternalism is not an oxymoron. *University of Chicago Law Review*, 70(4), pp. 1159-1202. DOI: 10.2307/1600573.
- Sunstein, C.R. and Thaler, R.H. 2006. Libertarian paternalism is not an oxymoron. In Lichtenstein, S. and Slovic, P. (Eds.) *The Construction of Preference*. Cambridge: Cambridge University Press. pp. 689-707.
- Sussex Police (undated) Rural Crime. Available at <https://sussex.police.uk/advice/protect-your-neighbourhood/rural-crime/>. [Accessed 31/07/2018].
- Sutherland, E.H. 1947. *Principles of Criminology*. 4th Ed. Philadelphia, PA: J.B. Lippincott.
- Swanson, C.R. 1981. Rural and Agricultural Crime. *Journal of Criminal Justice*, 9(1), pp. 19-27. DOI: 10.1016/0047-2352(81)90048-9.
- Tamborini, R., Zillman, D. and Bryant, J. 1984. Fear and victimization: Exposure to television and perceptions of crime and fear. In Bostrom, R. (Ed.) *Communications Yearbook*, Vol. 8. Beverly Hills, CA: Sage. pp. 492-513.
- Tarleton, M. and Ramsey, D. 2008. Farm-Level Adaptation to Multiple Risk: Climate Change and Other Concerns. *Journal of Rural and Community Development*, 3(2), pp. 47-53.

- Tasker, J. 2017. 'Brazen' criminals trigger sharp rise in farm thefts. [Online] Farmers Weekly. Available from <http://www.fwi.co.uk/news/brazen-criminals-trigger-sharp-rise-farm-thefts.htm>. [Accessed 01/10/2017].
- Tavakol, M. and Dennick, R. 2011. Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2, pp. 53-55. DOI: 10.5116/ijme.4dfb.8dfd.
- Taylor, R.B. 2001. *Breaking away from broken windows*. Boulder, CO: Westview Press.
- Teichman, D. and Zamir, E. 2014. Judicial Decision Making: A Behavioral Perspective. In Zamir, E. and Teichman, D. (Eds.) *The Oxford Handbook of Behavioral Economics and the Law*. Oxford: Oxford University Press. pp. 664-702.
- Tesser, A., Whitaker, D., Martin, L. and Ward, D. 1998. Attitude heritability, attitude change and physiological responsivity. *Personality and Individual Differences*, 24(1), pp. 89-96. DOI: 10.1016/S0191-8869(97)00137-2.
- Thaler, R.H. and Sunstein, C.R. 2003. Libertarian paternalism. *American Economic Review*, 93(2), pp. 175-179. DOI: 10.1257/00028280321947001.
- Thaler, R. and Sunstein, C. 2008. *Nudge: Improving decisions about health, wealth and happiness*. New Haven: Yale University Press.
- Thurstone, L.L. 1928. Attitudes Can Be Measured. *American Journal of Sociology*, 33(4), pp. 529-554. DOI: 10.1086/214483.
- Tilley, N. 1993. *The Prevention of Crime Against Small Businesses: The Safer Cities Experience*. Police Research Group, Crime Prevention Unit Series Paper No. 45. London: Home Office Police Department.
- Toma, L., Stott, A.W., Heffernan, C., Ringrose, S. and Gunn, G.J. 2013. Determinants of biosecurity behaviour of British cattle and sheep farmers - A behavioural economics analysis. *Preventative Veterinary Medicine*, 108, pp. 321-333. DOI: 10.1016/j.prevetmed.2012.11.009.
- Trasler, G. 1986. Situational crime control and rational choice: a critique. In Heal, K. and Lovelock, G. (Eds.) *Situational Crime Prevention*. London: HMSO.

Trickett, A., Osborn, D.K., Seymour, J. and Pease, K. 1992. What is Different About High Crime Areas? *British Journal of Criminology*, 32(1), p. 81-90. DOI: 10.1093/oxfordjournals.bjc.a048181.

Tseloni, A. and Zarafonitou, C. 2007. *Fear of Crime and Victimisation: A multivariate multilevel analysis of competing measurements*. Available at http://irep.ntu.ac.uk/id/eprint/6354/1/185757_3444%20Tseloni%20PostPrint.pdf. [Accessed 04/08/2018].

Tseloni, A., Mailley, J., Farrell, G. and Tilley, N. 2010. Exploring the international decline in crime rates. *European Journal of Criminology*, 7(5), pp. 375-394. DOI: 10.1177/1477370810367014.

Tucker, S. 2015. *Rural Crime and Policing: Literature Review*. Cardiff: Universities' Police Science Institute.

Tversky, A. and Kahneman, D. 1971. Belief in the law of small numbers. *Psychological Bulletin*, 76(2), pp. 105-110. DOI: 10.1037/h0031322.

Tversky, A. and Kahneman, D. 1982. Evidential impact of base rates. In Kahneman, D., Slovic, P. and Tversky, A. (Eds.) *Judgement under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press. pp. 153-160.

Tversky, A. and Kahneman, D. 1991. Loss aversion in riskless choice: A reference dependent model. *The Quarterly Journal of Economics*, 106(4), pp. 1039-1061. DOI: 10.2307/2937956.

Tyler, M. and Fairbrother, P. 2013. Bushfires are "men's business": The importance of gender and rural hegemonic masculinity. *Journal of Rural Studies*, 30(April), pp. 110-119. DOI: 10.1016/j.rurstud.2013.01.002.

Ullmann-Margalit, E. 1997. The invisible hand and the cunning of reason. *Social Research: An International Quarterly*, 64(2), pp. 181-198.

Underwood, C. 2002. Belief and Attitude Change in the Context of Human Development. In Sirageldin, I. (Ed.) *Sustainable Human Development in the Twenty-First Century, Vol. II*. Oxford: Eolss Publishers. pp. 103-214.

Van Dijk, J.J. 1994. Understanding Crime Rates: On the Interactions between the Rational Choices of Victims and Offenders. *British Journal of Criminology*, 34(2), pp. 105-120. DOI: 10.1093/oxfordjournals.bjc.a048398.

van Winden, F.A.A.M. and Ash, E. 2012. On the Behavioural Economics of Crime. *Review of Law and Economics*, 8(1), pp. 181-213. DOI: 10.115/1555-5879.1591.

Vanderveen, G. 2006. *Interpreting Fear, Crime, Risk and Unsafety*. The Hague: BJU Legal Publishers.

Varey, C. and Kahneman, D. 1992. Experiences extended across time: Evaluation of moments and episodes. *Behavioral Decision Making*, 5(3), pp. 169-185. DOI: 10.1002/bdm.3960050303.

Veetil, V. P. 2011. Libertarian paternalism is an oxymoron: An essay in defence of liberty. *European Journal of Law and Economics*, 31(3), pp. 321-334. DOI: 10.1007/s10657-010-9193-8.

Vilalta, C.J. 2012. Fear of crime and home security systems. *Police Practice and Research*, 13(1), 4–14.

Virgili, M., Owen, N. and Sverson, H. H. 1991. Adolescents' smoking behaviour and risk perceptions. *Journal of Substance Abuse*, 3(3), pp. 315-324. DOI: 10.1016/S0899-3289(10)80015-X.

Volpp, K. G., John, L. K., Troxel, A. B., Norton, L., Fassbender, J. and Loewenstein, G. 2008. Financial incentive-based approaches for weight loss: A randomized trial. *Journal of the American Medical Association*, 300(22), pp. 2631-2637. DOI: 10.1001/jama.2008.804.

Volpp, K. G., Loewenstein, G., Troxel, A. B., Doshi, J., Price, M., Laskin, M. and Kimmel, S. E. 2008. A test of financial incentives to improve warfarin adherence. *BMC Health Services Research*, 8, pp. 272-277. DOI: 10.1186/1472-6963-8-272.

Volpp, K. G., Troxel, A. B., Pauly, M. V., Glick, H. A., Puig, A., Asch, D. A., Galvin, R., Zhu, J., Wan, F., DeGuzman, J., Corbett, E., Weiner, J. and Audrain-McGovern, J. 2009. A randomized, controlled trial of financial incentives for smoking cessation. *New England Journal of Medicine*, 360(7), pp. 699-709. DOI: 10.1056/NEJMSa0806819.

Walsh, D. 1986. *Heavy Business*. London: Routledge and Kegan Paul.

Wandel, J. and Smithers, J. 2000. Factors Affecting the Adoption of Conservation Tillage on Clay Soils in South Western Ontario, Canada. *American Journal of Alternative Agriculture*, 15(4), pp. 181-188. DOI: 10.1017/S0889189300008754.

Weisheit, R. & Donnermeyer, J.F. 2000. Changes and Continuity in Crime in Rural America. In LaFree, G., Short, J.F., Bursik, R.J. and Taylor, R.B. (Eds) *Volume 1: The nature of crime: Continuity and Change*. Washington DC: National Institute of Justice. pp. 309-357.

Weisheit, R., Falcone, D.A., and Wells, L.E. 2006. *Crime and policing in rural and small-town rural America*. Prospect Heights, IL: Waveland Press.

West Mercia Police. Undated. *Rural Crime: Crime prevention advice for the rural community*. [Online] West Mercia Police. Available from <https://www.westmercia.police.uk/Rural-crime>. [Accessed 03/04/2018].

West, C. 1999. *Marketing Research*. Basingstoke, Hampshire: MacMillan Press Ltd. DOI: 10.1007/978-1-349-14681-9.

West, R.F., Toplak, M.E. and Stanovich, P.J. 2008. Heuristics and biases as measures of critical thinking: Associations with cognitive ability and thinking dispositions. *Journal of Educational Psychology*, 100(4), pp. 930-941. DOI: 10.1037/a0012842.

Whitley, R., and Prince, M. 2005. Fear of crime, mobility, and mental health in inner-city London, UK. *Social Science and Medicine*, 61, 1678–1688.

Wiles, P. and Costello, A. 2000. *The 'road to nowhere': The evidence for travelling criminals*. London: Home Office Research, Development and Statistics Directorate.

Wilkinson, T. 2018. *The Law and Using Your Mobile Phone While Driving*. [Online] No Penalty Points. Available from www.nopenaltypoints.co.uk/thelaandusingyourmobilephonewhiledriving.html. [Accessed 01/04/2018].

Wilkinson, T. M. 2013. Nudging and manipulation. *Political Studies*, 61(2), pp. 341-355. DOI: 10.1111/j.1467-9248.2012.00974.x.

Willock, J., Deary, I.J., McGregor, M.M., Sutherland, A., Edwards-Jones, E., Morgan, O., Dent, B., Grieve, R., Gibson, G. and Austin, E. 1999. Farmers' Attitudes, Objectivism

Behaviors, and Personality Traits: The Edinburgh Study of Decision Making on Farms. *Journal of Vocational Behavior*, 54(1), pp. 5-36. DOI: 10.1006/jvbe.1998.1642.

Wilson, C.A. 2014. A Manly Art: Plowing, Plowing Matches, and Rural Masculinity in Ontario, 1800-1930. *The Canadian Historical Review*, 95(2), pp. 157-186. DOI: 10.3138/chr.1918.

Wilson, G.A. 1996. Farmer environmental attitudes and ESA participation. *GeoForum*, 27(2), pp. 115-131. DOI: 10.1016/0016-7185(96)00010-3.

Wilson, J. and Kelling, G. 1982. The police and neighbourhood safety: Broken windows. *The Atlantic Monthly*, 3(2), pp. 29-38.

Winkel, E.W. and Vrij, A. 1990. Fear of crime and mass media crime reports: Testing similarity hypotheses. *International Review of Victimology*, 1(3), pp. 251-265. DOI: 10.1177/0269758090000100303.

Wortley, R. 2010. Critiques of situational crime prevention. In Fisher, B. and Lab, S. (Eds.) *Encyclopedia of Victimology and Crime Prevention*. Thousand Oaks, CA: Sage. pp. 884-887.

Wynne, T. 2008. *An Investigation into the Fear of Crime: Is there a Link between the Fear of Crime and the Likelihood of Victimisation?* Undergraduate Thesis, Nottingham Trent University. [Online] Internet Journal of Criminology. Available from <https://www.internetjournalofcriminology.com/undergraduate-masters-dissertations>. [Accessed 12/03/2015].

Yarwood, R. 2001. Crime and policing in the British countryside: Some agendas for contemporary geographical research. *Sociologia Ruralis*, 41(2), pp. 201-221. DOI: 10.1111/1467-9523.00178.

Yarwood, R. and Edwards, W. 1995. Voluntary action in rural areas: The case of neighbourhood watch. *Journal of Rural Studies*, 11(4), pp. 447-460. DOI: 10.1016/0743-0167(95)00030-5.

Yarwood, R. and Gardner, G. 2000. Fear of crime, cultural threat and the countryside. *Area*, 32(4), pp. 403-411. DOI: 10.1111/j.1475-4762.2000.tb00156.x.

Yin, P. 1985. *Victimisation and the Aged*. Springfield, IL: Charles C. Thomas.

- Yin, R.K. 2012. *Applications of Case Study Research*. 3rd Ed. Los Angeles, CA: Sage.
- Zedner, L. 1997. Victims. In Maguire, M., Morgan, R. and Reiner, R. (Eds.) *The Oxford Handbook of Criminology*. 2nd Ed. Oxford: Clarendon Press. pp. 577-612.
- Zigger, G.W. and Bots, J. 1989. The farmer as "producer" of the strategic planning process. In Christensen, J. (Ed.) *Proceedings of the 23rd Symposium of the European Association of Agricultural Economists*. Copenhagen, Denmark.
- Zillmann, D. and Wakshlag, J. 1985. Fear of victimization and the appeal of the crime drama. In Zillmann, D. and Bryant, J. (Eds.) *Selective exposure to communication*. Hillsdale, NJ: Erlbaum. pp. 141-156.
- Zimbardo, P.G. and Leippe, M.R. 1991. *The Psychology of Attitude Change and Social Influence*. New York, NY: McGraw-Hill.
- Zuckerman, M. 2007. *Sensation seeking and risky behavior*. Washington, DC: American Psychological Association.

Appendices

Appendix 1: Consent Forms for Police Interviews, Farmer Interviews, and Farmer Focus Groups



Harper Adams
University

Consent Form for an Interview on Rural Crime Strategy

Please tick the appropriate boxes

Yes **No**

Taking Part

I have read and understood the project information sheet dated 15/10/2015. ☐ Yes ☐ No

I have been given the opportunity to ask questions about the project. ☐ Yes ☐ No

I agree to take part in the project. Being involved in the project will include taking part in a one-to-one interview which will be audio recorded. ☐ Yes ☐ No

I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part. ☐ Yes ☐ No

Use of the information I provide for this project only

I understand my personal details such as phone number and address will not be revealed to people outside the project. ☐ Yes ☐ No

I understand that my words may be quoted in publications, reports, web pages, and other research outputs. ☐ Yes ☐ No

*Please choose **one** of the following two options:*

I would like my real name used in the above ☐ Yes ☐ No

I would **not** like my real name to be used in the above. ☐ Yes ☐ No

Use of the information I provide beyond this project

I agree for the data I provide to be archived in secure storage at Harper Adams University. ☐ Yes ☐ No

I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form. ☐ Yes ☐ No

I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form. ☐ Yes ☐ No

So we can use the information you provide legally

I agree to assign the copyright I hold in any materials related to this project to Kreseda Smith. ☐ Yes ☐ No

Name of participant [printed] Signature Date

Researcher [printed] Signature Date

Project contact details for further information:
Miss Kreseda Smith, Harper Adams University, Edmond, Newport, Shropshire, TF10 8NB
T: 01952 815113
E: kresedasmith@harper-adams.ac.uk



**Consent Form for Interviews on
Farm Crime
Researcher: Kreseda Smith**

Please tick the appropriate boxes

Yes No

Taking Part

I have read and understood the project information leaflet dated 11/10/2016. ☐ ☐

I have been given the opportunity to ask questions about the project. ☐ ☐

I agree to take part in the project. Being involved in the project will include taking part in an interview which will be audio recorded. ☐ ☐

I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part. ☐ ☐

Use of the information I provide for this project only

I understand my personal details such as phone number and address will not be revealed to people outside the project. ☐ ☐

I understand that my words may be quoted in publications, reports, web pages, and other research outputs. ☐ ☐

*Please choose **one** of the following two options:*

I would like my real name used in the above ☐ ☐

I would **not** like my real name to be used in the above.

Use of the information I provide beyond this project

I agree for the data I provide to be archived in secure storage at Harper Adams University. ☐ ☐

I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form. ☐ ☐

I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form. ☐ ☐

I understand the above information and voluntarily consent to participate in the study.

Name of participant [printed] Signature Date

Researcher [printed] Signature Date

Project contact details for further information:
Miss Kreseda Smith, Harper Adams University, Edgmond, Newport, Shropshire, TF10 8NB
T: 01952 815113
E: kresedasmith@harper-adams.ac.uk



**Consent Form for Focus Groups on
Farm Crime
Researcher: Kreseda Smith**

Please tick the appropriate boxes

Yes No

Taking Part

I have read and understood the project information leaflet dated 11/10/2016.

☐ ☐

I have been given the opportunity to ask questions about the project.

☐ ☐

I agree to take part in the project. Being involved in the project will include taking part in a focus group which will be video recorded.

☐ ☐

I understand that my taking part is voluntary; I can withdraw from the study at any time and I do not have to give any reasons for why I no longer want to take part.

☐ ☐

Use of the information I provide for this project only

I understand my personal details such as phone number and address will not be revealed to people outside the project.

☐ ☐

I understand that my words may be quoted in publications, reports, web pages, and other research outputs.

☐ ☐

*Please choose **one** of the following two options:*

I would like my real name used in the above

☐

I would **not** like my real name to be used in the above.

☐

Use of the information I provide beyond this project

I agree for the data I provide to be archived in secure storage at Harper Adams University.

☐ ☐

I understand that other genuine researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.

☐ ☐

I understand that other genuine researchers may use my words in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.

☐ ☐

I understand the above information and voluntarily consent to participate in the study.

Name of participant [printed]

Signature

Date

Researcher [printed]

Signature

Date

Project contact details for further information:

Miss Kreseda Smith, Harper Adams University, Edmond, Newport, Shropshire, TF10 8NB

T: 01952 815113

E: kresedasmith@harper-adams.ac.uk

Some information about you⁴

What is your name?

.....

What is your address:

.....
.....
.....
.....
.....

What is your telephone number:

.....

What is your email address:

.....

Are you: Male ☐ Female ☐

What is your age range?

17 or under ☐ 18-20 ☐ 21-30 ☐ 31-40 ☐

41-50 ☐ 51-60 ☐ 61+ ☐

Approximately how many hectares does your farm cover?

How would you describe the terrain surrounding your farm?

Flat ☐
Slightly uneven land ☐
Quite hilly ☐
Very hilly ☐
Other (please specify) ☐

Approximately how far in miles is your farm from:

The nearest town

The nearest main road

The nearest police station

The nearest neighbouring farm

Is there someone present on your farm 24 hours a day?

Yes ☐
Most of the time ☐
Sometimes ☐
Occasionally ☐
Never ☐
Don't know ☐

⁴ All personal details will be kept confidential. This information is for comparison with other data to ensure that the focus groups are representative of the wider farming community across England and Wales.

Appendix 2: Questions for Police and Crime Commissioners, and Crime Prevention Advisors

CPTED Advisors

Topic 1: Rural Crime Definition	
You will be aware that there isn't a national definition of rural crime. How does your force define rural crime?	
Do you think there should be a distinction between rural specific crimes, such as farm crime, hare coursing, or livestock theft, and other crimes that may be committed in both rural and urban areas?	
Topic 2: Rural Crime Strategy	
Does your force have a published Rural Crime Strategy?	
Yes: What are the key points?	No: Why not?
Is there anything not in there that you'd like to see?	If you were to write a Rural Crime Strategy today what would you include?
Do you think it's important?	Do you think it's important?
In what ways?	In what ways?
Topic 3: Crime Prevention Advice	
What is your remit in the provision of crime prevention advice?	
What areas do you cover? Urban or rural or both?	
Are there aspects of crime prevention that you don't undertake but would like to as part of your job?	
Topic 4: Farm Crime Prevention	
Do you provide crime prevention advice to farmers?	
Yes: What kind of advice do you provide?	No: Do you think this should be something that you do?
How do you provide this advice? E.g. phone, visit	Why is it not part of your job now?
Topic 5: Differing Crime Prevention Advice	
Does/would the advice you give a farmer differ from the advice you'd give someone who lives in an urban area? If so, how?	
Do/would the advice you give to farmers differ to that given to businesses? If so, how?	
Is there any crime prevention advice that would be specific to your force area, e.g. do you have a particular problem with counterfeit pesticides or stolen agrochemicals?	
Topic 6: Specialist Training	
As you/if you provide crime prevention advice to farms, have you had/did you need any specialist training?	
Yes: What training did you receive?	No: Why not?

<p>How do you think it helped you to do your job?</p> <p>Is there any other training that you think would be helpful in your job? If so, what?</p>	<p>What training do you think you need to be able to do your job better?</p>
<p>Who do you think is best placed to provide specialist training to the police, and why? E.g. farmers, NFU, other police etc.</p>	
<p>Topic 7: Rural Crime Important</p>	
<p>Why do you think it's important to address rural crime in your force?</p> <p>Based on your experience, do you think levels of rural crime have changed over the last 3 years?</p>	
<p>Topic 8: Priority</p>	
<p>Where would you rank rural crime on a list of priorities for your force?</p> <p>What about across England and Wales?</p> <p>What priorities do you think come above rural crime in your force?</p> <p>What about across England and Wales?</p>	

PCCs

<p>Topic 1: Rural Crime Definition</p>	
<p>You will be aware that there isn't a national definition of rural crime. How does your force define rural crime?</p> <p>Do you think there should be a distinction between rural specific crimes, such as farm crime, hare coursing, or livestock theft, and other crimes that may be committed in both rural and urban areas?</p>	
<p>Topic 2: Rural Crime Strategy – review if have one before interview</p>	
<p>I note that you have a published Rural Crime Strategy. Why do you think it's important to have a Rural Crime Strategy?</p>	<p>I note that you don't have a published Rural Crime Strategy. Why is that?</p> <p>How do you decide how to tackle rural crime?</p>
<p>Topic 3: Since November 2012</p>	
<p>What has been done in your force since November 2012 to tackle rural crime, and what do you still intend to do?</p>	
<p>Topic 4: Policies</p>	
<p>In relation to tackling rural crime, why do you think some policies are more successful than others?</p> <p>Prompt: role of personality, police presence in delivering policy, buy-in of police on front line and farmers?</p>	
<p>Topic 5: Taking the lead</p>	
<p>Who do you think should take the lead role in providing crime prevention advice in rural areas?</p>	

<p>Do you think the person/people to take this lead should be those who provide crime prevention advice for urban areas in your force, or do you think this should be a separate role?</p> <p>Who do you think should take the lead in promoting crime prevention on farms? Should this be down to the police, insurers, or the farmers themselves?</p>
<p>Topic 6: Specialist Training</p>
<p>What training has been provided to those giving crime prevention advice in rural areas?</p> <p>Why do you think it's important for rural crime prevention advisors to have specialist training?</p>
<p>Topic 7: Rural Crime Important</p>
<p>Why do you think it's important to address rural crime in your force?</p> <p>How are rural crimes recorded by your police force when they are reported?</p> <p>What partnerships have you established with rural organisations to address rural crime, e.g. NFU, CLA, Agricultural Shows, Land Rover Owners Club, etc.</p> <p>Based on your experience, do you think levels of rural crime have changed over the last 3 years?</p> <p>How is your force tackling the issue of low levels of reporting of rural crime?</p>
<p>Topic 8: Priority</p>
<p>Where would you rank rural crime on a list of priorities for your force?</p> <p>What about across England and Wales?</p> <p>What priorities do you think come above rural crime in your force?</p> <p>What about across England and Wales?</p>

Appendix 3: Farmer Survey Questions

Farm Crime Survey England and Wales.



Harper Adams University

Page 1 of 9

Welcome

Welcome to the **Harper Adams University Farm Crime Survey for England and Wales**. This survey aims to establish how farms in England and Wales are affected by crime, and how farmers are protecting their property.

The survey is completed anonymously, can be saved part way through and takes around 20-25 minutes to complete.

All data collected in this survey will be held anonymously and securely. No identifying data is asked for or retained.

The survey is made up of the following sections:

- Section 1a: General information about you - 4 questions
- Section 1b: General information about your farm - 18 questions
- Section 2: Attitudes to on-farm security and farm crime - 10 questions
- Section 3: Victimisation - 13 questions
- Section 4: Police involvement with the crime(s) - 14 questions
- Section 5: Insurers involvement with the crime(s) - 9 questions
- Section 6: If you have not been a victim of crime - 1 question

Not all questions will be relevant, and you will be guided through with instructions where necessary.

Cookies, personal data stored by your Web browser, are not used in this survey.

"Note that once you have clicked on the CONTINUE button at the bottom of each page you cannot return to review or amend that page.

Section 1a: General information about you

1. Who are you?

- The Farmer
- Family Member
- Permanent Farm Worker
- Temporary Farm Worker
- Seasonal Worker
- Other (please specify):

2. How would you describe your farm ownership?

- Own farm outright
- Farm is mortgaged
- Farm is leased

Other (please specify):

3. Are you:

Male Female

4. Which of the following represents your age range?

17 or under 18-20 21-30 31-40 41-50 51-60 61+

Section 1b: General information about your farm

5. In which county is your farm located?

6. In which police force area do you live?

7. Approximately how many hectares does your farm cover?

8. How would you describe the terrain surrounding your farm?

Flat

Slightly uneven land

Quite hilly

Very hilly

Other (please specify):

9. How many of the following make up your farm?

a. Fields and Paddocks

b. Yards (e.g. farmyards around which work or residential buildings are located)

c. Farmyard Buildings currently in use (e.g. Barns, Animal Housing, Dairy Parlour)

d. Farmyard Buildings currently unused

e. Storage Buildings currently in use for storage of farm related items (e.g. Sheds, feedstores, garages/vehicle storage, chemical storage)

f. Storage Buildings currently unused

g. Greenhouses

h. Non-domestic Fuel Tank

i. Residential Buildings (e.g. Farmhouse, farm worker houses, residential lettings)

j. Access Roads

10. Do you have any other buildings or areas on your farm that have not been listed in Q.9?

11. Approximately how far is your farm from the nearest town in miles?

12. Approximately how far is your farm from the nearest major road in miles? (A and B roads)

13. Approximately how far is your farm from the nearest police station in miles?

14. Approximately how far away is the nearest neighbouring farm in miles?

15. Would you consider your farm to be primarily:

Arable

Upland Livestock (including dairy, beef, pigs and poultry)

Lowland Livestock (including dairy, beef, pigs and poultry)

Horticultural (including fruit and vegetables)

Mixed

16. How many people work on your farm?

- a. Farmer(s)
- b. Family Members
- c. Permanent Farm Workers
- d. Temporary Farm Workers
- e. Seasonal Workers

17. Do you have any other people working on your farm that are not listed in Q.16?

18. Is there someone present on your farm 24 hours a day?

- Yes
- Most of the time
- Sometimes
- Occasionally
- Never
- Don't Know

**19. What crime prevention methods do you currently use anywhere on your farm?
(select all that apply)**

- CCTV
- Entry Alarms
- Boundary Alarms
- Standard Locks
- Heavy Duty Locks
- Warning signs
- Locking farmhouse when not present
- Secure Vehicle Storage
- Fuel Alarms
- CESAR (Construction Equipment Security And Registration)
- Vehicle and Machinery tracking devices
- Keeping accurate records of serial numbers
- Noisy animals (e.g. geese, dogs, llamas)
- SmartWater
- Member of FarmWatch
- Member of another farming community group
- Other (please specify):

20. If you have indicated that you have CCTV, Entry Alarms, or Boundary Alarms, do you have an up to date service contract?

Yes No N/A

- a. CCTV
- b. Entry Alarm
- c. Boundary Alarm

21. What do you think is the most effective crime prevention measure, and why?

22. Given unlimited resources, what crime prevention measures would you like to implement on your farm, and why?

Section 2: Attitudes to on-farm security and farm crime

23. Do you think levels of farm specific crime (for example, the theft of a tractor) have changed over the last five years?

	Greatly Increased	Somewhat Increased	No Change	Somewhat Decreased	Greatly Decreased	Don't Know
a. Nationally						
b. In your local area						

24. Do you think levels of general crime happening in rural areas (for example, theft of a car) have changed over the last five years?

	Greatly Increased	Somewhat Increased	No Change	Somewhat Decreased	Greatly Decreased	Don't Know
a. Nationally						
b. In your local area						

25. In terms of changes to farm security, do you feel the following issues have become more or less important over the past 5 years?

	Much More Important	Somewhat More Important	Neither Important nor Unimportant	Somewhat Less Important	Much Less Important	No Opinion
a. Farm machinery costs a lot more these days						
b. Need to make my farm more secure						
c. Biosecurity issues						
d. More tourists in the area						
e. How easy it is to get to my farm from the nearest town						
f. Increase of newcomers to the local rural area						

g. Personal experience of being a victim						
h. Crime on neighbouring farms						
i. Other crimes in the local rural community						
j. Incentives from insurance providers						
k. Government encouragement						
l. Police Encouragement						

26. Still thinking about reasons for increasing security on your farm, are there any other reasons not listed in Q16 that you think are more important than five years ago?

Yes No

Please detail your reasons.

27. Still thinking about reasons for increasing security on your farm, are there any other reasons not listed in Q16 that you think are less important than five years ago?

Yes No

Please detail your reasons.

28. Who do you think commits most crime on farms?

(select all that apply)

Local People

People living in other rural areas

Urban residents travelling to rural areas

Seasonal Workers

Tourists/day trippers

The travelling community

Other (please specify):

29. What is your local police force doing to address the issue of farm crime?

(select all that apply)

Creating FarmWatch Schemes

Supporting existing FarmWatch Schemes

Creating other community crime prevention groups

Supporting other community crime prevention groups

Increasing the frequency of rural patrols in cars

Increasing the frequency of rural patrols on foot or on bicycles/horses
Attending community meetings
Using Rural Special Constables
Sending out information on crime prevention
Don't know
None of the above
Other (please specify):

30. Do you think your local police force is doing enough to address the issue of farm crime?

Yes No Don't Know

**31. Which farm crime prevention measures would you like the police to introduce in your area?
(select all that apply)**

Creating FarmWatch Schemes
Supporting existing FarmWatch Schemes
Creating other community crime prevention groups
Supporting other community crime prevention groups
Increasing the frequency of rural patrols in cars
Increasing the frequency of rural patrols on foot or on bicycles/horses
Attending community meetings
Using Rural Special Constables
Sending out information on crime prevention
Don't know
None of the above
Other (please specify):

**32. Is there anything that your local community is doing as a group to protect farms, and
reduce the possibility of becoming a victim of farm crime?**

(select all that apply)

Creating FarmWatch Schemes
Joining existing FarmWatch Schemes
Creating other community crime prevention groups
Joining existing community crime prevention groups
Holding regular community meetings to discuss crime prevention
Taking details of suspicious vehicles
Liaising with the police to report any suspicious activity
Regular checks on more isolated or vulnerable members of the community
Don't know
None of the above
Other (please specify):

Section 3: Victimisation

General

33. Are you or any other household members serving police officers, Police and Community Support Officers (PCSOs), or work for a rural insurer?

Yes No

34. On average, how often do you see police officers or Police and Community Support Officers (PCSOs) in your local area?

More than once a day

Once a day
Once a week
Once a month
Less than once a month
Never

35. In the last 12 months, have you noticed any change in how often you see police officers or PCSOs in your local area?

More often
Less often
About the same
Not noticed any change
Never see any officers on patrol in the local area

36. Have you been a victim of property crime on your farm in the LAST 12 MONTHS? This includes damage to, or theft from, farm buildings, farm machinery, and livestock (but doesn't include the farmhouse).

Yes (please go to the next question) No (please go to Q.68)
If yes, how many times?

Your experiences of being a victim

The next set of questions will ask you about the most recent incidents where you have been a victim of property crime on your farm in the LAST 12 MONTHS. I am looking for information relating to THE MOST RECENT INCIDENT only.

37. Thinking about the most recent incident in the last 12 months:

- a. Can you please confirm what was stolen or damaged?
- b. What was the approximate value of the items stolen or damaged?

38. Were the stolen or damaged item(s) marked, branded, tagged, or identifiable in some way?

Yes No

Please detail how the item(s) were identifiable.

39. If you had item(s) stolen, did you get them back?

Yes
No
Some of the items
Nothing stolen

40. If you had property damaged, was it repaired/replaced?

Yes
No
Some of the items
Nothing damaged

41. Was the offender caught?

Yes No Don't know

42. In which month did the incident happen?

January
February
March
April
May
June
July
August
September
October
November
December
Not sure

43. On what day of the week did the incident take place?

Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday
Not sure

44. At what time of the day did the incident occur?

Morning (daylight hours)
Afternoon
Overnight
Not sure

45. Can you recall what the weather was like at the time of the incident?

Sunny
Cloudy
Raining
Windy
Snowing
Foggy
Not sure

Section 4: Police Involvement with the crime(s)

46. Still thinking about the most recent incident in the LAST 12 MONTHS, did you report the crime to the police?

Yes (please go to Q. 49) No (please continue to Q. 47)

**47. Why did you not report the crime to the police? (please now go to Q.60)
(select all that apply)**

Lack of confidence in the police

Previous bad experience
Not aware a crime had occurred until much later
Low value theft
No damage to property
Nothing stolen
Know who it was and will deal with it personally
Crime not considered serious enough to report
No insurance
Didn't dare (for fear of reprisal)
Other (please specify):

48. How did you report the incident to the police?

Called 999
Called 101
Called the local police station
Attended the local police station
Approached a police officer of PCSO on foot/bicycle/in car
Reported it to someone you know in the police force
Reported it to someone you know not in the police force
Other (please specify):

49. Why did you report the incident to the police?

(select all that apply)

To recover property
For insurance reasons
Crimes should always be reported
Wanted the offender caught/punished
To stop it happening again
To get help
Don't know
None of the above
Other (please specify):

50. What was the response that you received from the police?

The police told me what action they were going to take
The police told someone else in my household/someone who was with me what action they were going to take
The police told me (or someone else) that they were not going to take any action
The police were on the scene and dealt with it immediately
The police did not tell me (or anyone else) anything about what they were going to do
I did not want any further information
Other (please specify):

51. When you contacted the police, how seriously do you think the police took the matter?

Was it:

As seriously as you thought they should
Less seriously than you thought they should

52. Did the police visit the scene of the crime (i.e. your farm) after you reported the crime?

Yes (please go to Q.53) No (please go to Q.54)

53. If the police did visit your farm, how long after you reporting the crime did they arrive?

- Less than 1 hour after I reported the crime
- Between 1 and 5 hours after I reported the crime
- Between 5 and 10 hours after I reported the crime
- Between 10 and 24 hours after I reported the crime
- More than 24 hours after I reported the crime

**54. After becoming a victim of crime, did you START USING any crime prevention measures?
(select all that apply)**

- CCTV
- Entry Alarms
- Boundary Alarms
- Standard locks
- Heavy Duty locks
- Warning signs
- Locking farmhouse when not present
- Secure vehicle storage
- Fuel Alarms
- CESAR (Construction Equipment Security And Registration)
- Vehicle and Machinery tracking devices
- Keeping accurate records of serial numbers
- Noisy geese and/or dogs
- SmartWater
- Member of FarmWatch/HorseWatch
- Member of another farming community group
- None of the above
- Other (please specify):

**55. After becoming a victim of crime, did you MAKE IMPROVEMENTS to any existing crime prevention measures?
(select all that apply)**

- CCTV
- Entry Alarms
- Boundary Alarms
- Standard locks
- Heavy Duty locks
- Warning signs
- Locking farmhouse when not present
- Secure vehicle storage
- Fuel Alarms
- CESAR (Construction Equipment Security And Registration)
- Vehicle and Machinery tracking devices
- Keeping accurate records of serial numbers
- Noisy geese and/or dogs
- SmartWater
- Member of FarmWatch/HorseWatch
- Member of another farming community group
- None of the above
- Other (please specify):

56. If you did not start using or making improvements to any crime prevention measures listed in Q.54 and Q.55, what are the main reasons for this decision?

(select all that apply)

- Too expensive
- Don't need any crime prevention measures
- Don't know what to use
- The methods I have in place are suitable
- Nothing suitable for my needs
- Don't know how to go about arranging this
- Too much hassle
- Don't have the time
- Other (please specify):

57. Overall, how satisfied or dissatisfied were you with the way the police handled this matter?

- Very satisfied
- Fairly satisfied
- Neither satisfied nor dissatisfied
- Fairly dissatisfied
- Very dissatisfied
- No opinion

58. Please explain the reasons for your answer to Q.57.

59. On the basis of the response you received, did this alter your impression of the police?

- Significantly improved
- Somewhat improved
- Neither improved nor worsened
- Somewhat worsened
- Significantly worsened
- No opinion

Section 5: Insurers involvement with the crime(s)

60. Did you report the crime to your insurers?

Yes (please go to Q.62) No (please go to Q.61)

61. Why did you not report the crime to your insurers? (please complete this question then go straight to the end page to complete this survey?)

(select all that apply)

- Lack of confidence in your insurers
- Previous bad experience
- Low value theft
- No damage to property
- Nothing stolen
- Know who it was and will deal with it personally
- Inappropriate for insurers/insurance not necessary
- Potential loss of No Claims Discount
- No insurance
- Didn't dare (for fear of reprisal)
- Other (please specify):

62. If you did report the crime to your insurers, how did you report it?

Called Head Office

Called the local office

Went in to the local office

Reported it online

Reported it by email

Reported it to someone you know who works for the insurers

Other (please specify):

63. Why did you report the crime to your insurers?

(select all that apply)

To recover property

To get the property replaced with a newer version

For insurance reasons

To stop it happening again

To get help

Don't know

Other (please specify):

64. What was the response that you received from your insurer?

The insurers told me what action they were going to take

The insurers told someone else in my household/someone who was with me what action they were going to take

The insurers told me (or someone else) that they were not going to take any action

The insurers did not tell me (or anyone else) anything about that they were going to do

I did not want any further information

65. When you contacted your insurers, how seriously do you think they took the matter? Was it:

as seriously as you thought they should

or less seriously than you thought they should

66. Overall, were you satisfied or dissatisfied with the way your insurers handled this matter?

Very satisfied

Fairly satisfied

Neither satisfied nor dissatisfied

Fairly dissatisfied

Very dissatisfied

No opinion

67. Please explain the reasons for your answer to Q.66

68. On the basis of the response you received, did this alter your impression of your insurers?

Significantly improved

Slightly improved

Neither improved nor worsened

Slightly worsened

Significantly worsened

No opinion

Section 6: If you have not been a victim of on-farm crime

69. If you have not been a victim of property crime on your farm in the LAST 12 MONTHS but have crime prevention measures on your farm, why have you adopted/installed these? (select all that apply)

- Farm machinery costs a lot more these days
- Need to make my farm more secure
- Biosecurity issues
- More tourists in the area
- How easy is it to get to my farm from the nearest town
- Increase of newcomers to the local rural area
- Personal experience of being a victim
- Crimes on neighbouring farms
- Other crimes in the local rural community
- Incentives from insurance providers
- Government encouragement
- Police encouragement
- Other (please specify):

Thank You

This is the end of the survey.

I would like to thank you for taking the time to provide your responses to my questions. Your feedback will be important in shaping the next stage of the research.

If you wish to provide any other relevant feedback relating to farm crime and on-farm crime prevention, or wish to be involved in a focus group for the next stage of the research, you can email farmcrime@harper-adams.ac.uk.

More information relating to farm crime can be found at the following websites:

Victim Support: <http://www.victimsupport.org.uk/>

CrimeStoppers: <https://crimestoppers-uk.org/>

Crime data: <http://www.police.uk/>

Crime Prevention Advice: <http://thecrimepreventionwebsite.com/>

Appendix 4: Farmer Interview Questions

Interview Questions

Your Farm
<p>1. Tell me about your farm.</p> <p>Prompts: How long have you/your family been farming What do you farm What kit/livestock do you have on farm</p>
Victimisation
<p>2. Tell me about your experiences of crime on your farm.</p> <p>Prompts: How many times in the last 3 years Report to Police/Insurers Most recent – what happened – reported? Change in level of farm crime over last 3 years – why? Who do you think is committing crimes on farms? Why do you think farms are being targeted?</p>
External: Key Advisers
<p>3. a) Where do you get your crime prevention advice from? Police/Insurers/Other</p> <p>Prompts: Acted on advice? Incentives? (Operant Cond) Level of trust placed on the guidance</p> <p>b) What effect, if any, do you think Brexit might have on levels of farm crime?</p>
External: Financial Costs
<p>4. Do you think that cheaper/free crime prevention options are less effective?</p> <p>Prompt: Financial costs stop you using it?</p>
External: Time/Effort Costs
<p>5. Would you be more likely to use crime prevention if it was easy and straightforward to use?</p> <p>Prompt: How does locking things away affect your work?</p>
External: Knowledge of Crime Prevention Options
<p>6. Do you think you have enough knowledge about all crime prevention options available to you?</p> <p>Prompts: What more could police/insurers/other do? Crime prevention used based on past experience? Which crime prevention options best suited for your farm?</p>
Internal: Values
<p>7. Do you think using crime prevention is the most helpful thing you can do to protect your workers and family from crime?</p> <p>Prompts: Pride in farm Important to leave land in better state than found – role of cp in that goal</p>
Internal: Beliefs
<p>8. a) To what extent do news reports influence your belief of crime levels in this area?</p> <p>Prompts: Where do you get information about local farm crime – is it press, markets, pubs, other?</p>

<p>Press influence use of crime prevention? Trust depends on source?</p> <p>b) How has being a victim of crime changed the way you think about crime prevention?</p> <p>c) Do you think a farmer who doesn't use crime prevention deserves to be a victim of crime? Prompts: Certain crime prevention more likely to deter criminals? How likely is it that you will become a victim of crime on your farm?</p>
Internal: Routines
<p>9. Do you check your property and crime prevention measures regularly, or just when you remember to check/want to use them? Prompts: Any benefits/rewards from this kind of routine? Neighbouring farm victim = more likely to do regular checks?</p>
Social: Family and Friends
<p>10. What kind of input do your family members have in making decisions on crime prevention for the farm? Prompt: Do you think your children's attitudes towards crime prevention on-farm differ from yours? In what way?</p>
Social: Social and Work Peers
<p>11. On a scale of 1-10, how much do you rely on what other farmers have done in protecting their property? Prompts: How much influence? Influenced by other farmers using new cp measures? Input from people who don't farm in dm for cp?</p>
Social: Traditions
<p>12. How does crime prevention fit in with the need for efficiency on farm? Prompt: Does tradition mean farms are soft targets?</p>
Social: Significant Life Events
<p>13. a) How does the financial impact of being a victim of crime compare to other financial risks in farming? Prompt: Plough all profits back into farm, or use some profits on cp?</p> <p>b) Do you find farming on a daily basis more or less stressful than 3 years ago? Prompts: Considered giving up after being a victim of crime? How does crime rank against other significant life events (bereavement, illness)? Reports of crime make you feel like you felt when you were victim? (Classical Cond)</p>
Wrap Up
<p>14. What one thing is the biggest barrier to you using or improving crime prevention on your farm?</p> <p>15. Is there anything else you want to say about farm crime?</p>

Appendix 5: Focus Group Questions

Time	Code	Questions
		Engagement Question 1 (White board/flip chart)
0-5	EQ1	I would be interested to find out what crime prevention you currently use on your farm, and why you use it? Follow up (novel ideas): would you be more likely to choose traditional crime prevention methods e.g. locks, dogs, signs, or do you think new, novel methods would be of interest, such as alarms, dna marking?
6-10	EQ2	Engagement Question 2 If you had unlimited resources to use on crime prevention, what crime prevention measures would you use on your farm and why?
		Exploration Questions
11-15	ExQ1	(Loss Aversion) How much does crime cost you? Don't just think about the financial cost, but also time lost, crops/stock lost, breed lines lost, personal health and stress.
16-20	ExQ2	(Attributional Bias) How secure do you think you are on your farm? (Prompt: How likely do you think it is that you will become a victim of theft on your farm?)
21-25	ExQ3	(Hyperbolic Discounting) "Farmers don't get around to doing anything about adopting crime prevention measures on their farms because they are busy doing many other things and don't consider the future too much". What would your response be to this statement?
26-30	ExQ4	(Salience and Relevance) How important is it that crime prevention advice you receive is tailored to your own farm rather than generic information?
31-35	ExQ5	(Messenger) Who would you trust to give you accurate, appropriate crime prevention advice for your farm?
36-40	ExQ6	(Social Norms) Do you think crime prevention is something you decide as an individual farmer, or is it best to act in co-operation with other farmers in your community?
41-45	ExQ7	(Barriers) For those who DO have crime prevention: what made you choose the crime prevention measures you currently use? Follow-up: Are they effective? For those who DO NOT have crime prevention: why have you decided not to use crime prevention measures? Prompt: time, cost, building improvements, etc.
46-50	ExQ8	(Time of year) Is there a particular problem with farm crime at particular times of the year?
51-55	ExQ9	(Feedback) How important to you is regular feedback from the police or insurers on the simple changes you could make on your farm to reduce your likelihood of being a victim of crime?
56-60	ExQ10	(Attitudes to Police) Did you report the crime(s) to the police? How do you feel about how your local police are tackling farm crime?
61-65	ExQ11	(Farmwatch) Are you involved in a Farmwatch scheme? What have been your experiences? If not, why are you not involved with a Farmwatch scheme?
66-70	ExitQ1	Exit Questions What are your thoughts on how farm crime will change in the future? ➤ Prompt: increase, decrease, stay the same
71-75	ExitQ2	Follow up: What are your thoughts on your fear of farm crime? Is it more or less than it was 5 years ago? Why is that?

Appendix 6: Leaflet on Research Purpose given to Farmers

Will what I say be kept confidential?

The transcripts of the focus groups and interviews will be available for researchers to look at. However, unless you indicate otherwise, your real name will not be used on the transcript. This will protect your anonymity, and you will not be identifiable to others. All of your personal details will be kept in secure storage in accordance with the Data Protection Act 1998, and Harper Adams University Data Management Policies.

Will the recordings of the focus groups/interviews be kept confidential?

Yes. All original recordings will be kept on encrypted storage to ensure that your details are kept confidential.

Who is organising and funding this research?

This research is being organised by Kreseda Smith, with support from Harper Adams University. It is being funded by the Office of the Police and Crime Commissioner for West Mercia.

How can I get in touch?

You can ring Kreseda on:
01952 815113 (direct line)

Or you can email her:
farmcrime@harper-adams.ac.uk

You can also write to her:
Kreseda Smith
Harper Adams University
Edmond
Newport
Shropshire
TF10 8NB

www.harper.ac.uk/kresedasmith
Twitter: [@FarmCrimePhD](https://twitter.com/FarmCrimePhD)

Date: 11/10/2016



Harper Adams University

Increasing on-farm crime prevention to reduce farm crime



Source: www.fwi.co.uk



Office of the Police and Crime Commissioner West Mercia

An invitation to take part in a research project looking at ways to improve on-farm crime prevention



Rural Security Research Group

Who am I?

My name is Kreseda Smith. I work at Harper Adams University full-time, and I am also undertaking a part-time PhD looking at ways to tackle farm crime by addressing farmer behaviour and on-farm crime prevention uptake, and I would like your assistance in furthering my research.

Farmer focus groups

I am carrying out focus groups with farmers from each of the main agricultural sectors in England and Wales. These focus groups will allow me to establish how farmers feel about crime and crime prevention, and start to understand what drives the decision making process of farmers when it comes to protecting their property.

I would like to gather six to eight farmers together from each agricultural sector who would be willing to talk about their experiences with crime on their farms. Each focus group would be video recorded, and I will transcribe the discussion for analysis.

Farmer interviews

I am planning to carry out one-to-one interviews with farmers from my focus groups to get a more in-depth representation of farm crime, how it has affected the farmer, and use of and attitudes towards crime prevention.

These interviews will be face-to-face with one farmer at a time and venue to suit, would be audio recorded, and the interview will be transcribed for analysis.

I hope to learn a lot from farmers about their feelings and thoughts around farm crime, and how they have been addressing the issue, and what they may be considering for the future when it comes to tackling farm crime.



Source: www.citizenstv.co.ke

Some questions that you may have...

Do I have to say 'yes' to talking to you?

No. It is your choice. No one will mind if you don't want to take part. You can also change your mind at any time. Just let Kreseda know.

How long will each focus group/interview take?

It is anticipated that each focus group and interview will take around an hour of your time. If you wish to leave the group or stop the interview at any time once it has started, this will not be a problem. Again, please just let Kreseda know.

Where and when will we meet?

Kreseda is using various local contacts to arrange the focus groups. Therefore, they will be located in your area. You will receive plenty of notice of the time and venue once these have been arranged. Kreseda will attempt to arrange the meetings at a time that best suits the farmer participants.

The interviews will take place over the telephone at a location that best suits your needs, whether it is your home or another venue.

Appendix 7: List of Codes for Interviews and Focus Groups with Farmers

Coding

Focus Groups

Original Coding

- 1 What crime prevention used? Traditional v modern
- 2 What don't you do?
- 3 What is targeted?
- 4 How secure is your farm?
- 5 How likely are you to be a victim?
- 6 Hyperbolic discounters?
- 7 Tailored crime prevention advice?
- 8 Who trust for crime prevention advice?
- 9 Crime prevention decisions – individual or with other farmers?
- 10 Is your crime prevention effective?
- 11 Why did you choose the crime prevention you use?
- 12 Problem at certain time of the year?
- 13 Feedback from police/insurers?
- 14 Report and response of police/insurers?
- 15 FarmWatch experience?
- 16 How will farm crime change in the future?
- 17 Fear of Crime
- 18 Impact of crime – financial and other
- 19 If money was no object...
- 20 Offenders

Final coding

New Code	Coding Title	Original Code
1	Crime prevention used/not used?	1&2
2	What is targeted?	3
3	Are you secure/likely to be a victim?	4&5
4	Hyperbolic discounters?	6
5	Tailored/trusted advice?	7&8
6	Individual/group decision?	9
7	Why chose and is it effective?	10&11
8	Problem at certain time of the year?	12
9	Report/response/feedback from police/insurers?	13&14
10	FarmWatch experience	15
11	How will farm crime change in the future?	16
12	Fear of Crime/Impact of crime	17&18
13	If money was no object...	19
14	Offenders	20

Interviews

Original Coding

- 1 Crime experience
- 2 Reporting crime
- 3 Response to crime
- 4 Disturbing offenders
- 5 Police response
- 6 Crime levels
- 7 Improving crime prevention
- 8 Offenders
- 9 Why farms targeted
- 10 Crime prevention advice
- 11 Insurers input to crime prevention
- 12 Brexit
- 13 Effective crime prevention
- 14 Inconvenience
- 15 Knowledge
- 16 Protection
- 17 Crime prevention to protect for the future
- 18 External crime prevention influences
- 19 Deserving targets?
- 20 Crime prevention decision making
- 21 Efficiency
- 22 Impact of crime
- 23 Barriers

Final Coding

New Code	Coding Title	Original Code
1	Crime experiences	1&3
2	Reporting and response from police	2&5
3	Offenders	4&8
4	Farm crime and targets	6&9
5	Improving effective crime prevention	7&13&15
6	Crime prevention advice	10&11&18
7	Brexit	12
8	Protecting for the future	17&19
9	Decision making and barriers	20&23
10	Farm efficiency	21
11	Impact of crime	22&14&16

Appendix 8: Likert Scale Statements

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No Opinion
The government is doing enough to address farm crime						
The police are doing enough to tackle farm crime						
My insurers are providing me with adequate crime prevention advice						
Crime prevention measures are too expensive						
Crime prevention is too time consuming						
I know what crime prevention measures are available for the farm						
My goal as a farmer is to ensure the success of my farm						
I believe most of what I read in the press about farm crime						
Being a victim of crime in the past affects the way I think about crime prevention						
Using crime prevention means I am less likely to be a victim of crime						
I check my property on a regular basis throughout the day						
I find it difficult to get into a routine of locking doors and gates						
I talk to my non-farming friends about crime prevention						
Other farmers influence my attitude towards using crime prevention						
Crime prevention reduces the efficiency of the farm						
I use crime prevention to reduce the chance of a financial loss from being a victim of crime						

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	No Opinion
Being a victim of crime has a major impact on my mental wellbeing						
If a security light came on in my farmyard I would always check it out						
I use crime prevention because it means I get a reduction on my insurance premium						
I make the business decisions on my farm						
Since becoming a victim of crime I don't leave doors unlocked						
Since becoming a victim of crime I have started to make better use of security on farm						
Since becoming a victim of crime I have not really changed the way I do things						
I tend not to wear a seatbelt when I am driving						
I have used my mobile phone when driving						
I am not afraid to try new things						
I am not afraid to use new technologies						
I find it difficult to make decisions when I have a lot of options to choose from						
I make decisions on my farm to address immediate issues rather than think about planning for the future						

Appendix 9: Key characteristics and crime experiences of the farmer participants who took part in the focus groups and one-to-one interviews for this research

Farmer	Focus Group Attended	Male/Female	Age	Farm Size (Ha)	Terrain	Distance to Town	Distance to Road	Distance to Police	Distance to Nearest Farm	Presence on farm	No. times victim	Interviewed?
EM	North Shropshire	M	51-60	120	Flat	3	0.2	3	0.5	Yes	3	
AJ	North Shropshire	M	61+	90	Flat	5	1	7	3	Sometimes	4	
PP	North Shropshire	F	51-60	80	Flat	2	0.5	9	1	Most of the time	3	
CW	North Shropshire	F	41-50	70	Flat	3	2	5	2	Sometimes	1	
RB	North Shropshire	M	51-60	121	Slightly Uneven	3	0.2	10	2	Sometimes	2	Y
JR	Cheshire	M	61+	45	Quite Hilly	6	2	7	3	Occasionally	4	
KB	Cheshire	F	51-60	13	Flat	2	0.2	2	1	Most of the time	5	Y
AM	Cheshire	M	51-60	15	Flat	2	0.1	2	0.8	Most of the time	4	Y
IN	Cheshire	M	31-40	40	Flat	3	0.5	3	1	Sometimes	3	
PG	South Shropshire	M	41-50	40	Slightly Uneven	5	0.1	5	1	Most of the time	2	
JE	South Shropshire	M	61+	86	Slightly Uneven	10	5	8	0.5	Most of the time	3	
AB1	South Shropshire	M	41-50	55	Slightly Uneven	5	2	5	0.5	Most of the time	7	
EH	South Shropshire	M	31-40	85	Quite Hilly	9	5	9	1	Yes	5	
KP	South Shropshire	F	51-60	5	Quite Hilly	10	3	6	0.5	Sometimes	2	
MK	South Shropshire	M	31-40	200	Slightly Uneven	0.5	0.5	5	1	Sometimes	3	
JP	South Shropshire	M	61+	42	Flat	10	1	5	0.5	Sometimes	2	Y
HW	South Shropshire	M	41-50	200	Slightly Uneven	3	0.4	3	1	Most of the time	4	
RA	Worcester-shire	M	61+	60	Slightly Uneven	4	0.1	4	0.5	Most of the time	4	Y
PC	Worcester-shire	M	61+	90	Slightly Uneven	2	0.2	5	1	Most of the time	1	
BH	Worcester-shire	M	51-60	100	Slightly Uneven	3	0.2	4	0.5	Most of the time	3	

HG	Worcester-shire	M	21-30	300	Slightly Uneven	4	2	5	0.5	Yes	6	
AB2	Worcester-shire	M	51-60	265	Slightly Uneven	5	3	6	1.5	Most of the time	2	
ST	Worcester-shire	M	41-50	125	Quite Hilly	3	1	5	1.5	Sometimes	1	
PM	N/A	F	51-60	65	Quite Hilly	2	1.5	6	1.8	Occasionally	2	Y

Appendix 10: Overview of key points raised in each focus group to illustrate consensus and differences in farmer responses

	South Shropshire	North Shropshire	Cheshire	Worcestershire
FCP used/not used	<ul style="list-style-type: none"> -No problem, don't use -Mix of hi/low-tech -Electric gates but inconvenient -Dogs -Low-tech/homemade 	<ul style="list-style-type: none"> -Mix of hi/low tech -Trying to do best they can -CCTV -No insurance benefits 	<ul style="list-style-type: none"> -Hi-tech better but use low-tech -Dogs -Avoid patterns -Locks don't work but use to delay -Signs -Alarms -CCTV -Ditch around farm 	<ul style="list-style-type: none"> -Mix of hi/low-tech -Smartwater -Alarms -Signs -Locks
What is targeted	<ul style="list-style-type: none"> -Animals – sheep/pigs -Fencing -Batteries -Replacement items stolen -Cybercrime 	<ul style="list-style-type: none"> -Tools -Gates -Trailers -Guns 	<ul style="list-style-type: none"> -Machinery -Tractor -Avoid CCTV by going through fields 	<ul style="list-style-type: none"> -Tractor -Quad bikes
Are you secure	<ul style="list-style-type: none"> -Problems due to Google Earth -Ignore main entrances -Tidy farm less inviting -Sitting ducks -Land Rovers -Vulnerable if crime in area -Leave radio on -Leave dog kennel open -Closed gates deter 	<ul style="list-style-type: none"> -Delivery lorries in yard overnight -Outlying things most vulnerable -Lack of capable guardian -Individual keys are inconvenient -Things left in fields/side of road -Trust is an issue 	<ul style="list-style-type: none"> -Can never do enough to protect property -Very likely to be victim -Make farm harder to target than neighbour 	<ul style="list-style-type: none"> -Proximity to main road/footpaths -Don't feel secure -Trees in gateways -Varies between farms -Location has big impact on security -Can't have things out of place
Hyperbolic Discounters	<ul style="list-style-type: none"> -Sadly it's true -Doing more but not enough 	<ul style="list-style-type: none"> -Disagree -Have to be forced into it -Relapse after short time -It'll never happen to us -Getting round to it -Way it's always been -Deal with it when it happens 	<ul style="list-style-type: none"> -Disagree -People rely on others to do things 	<ul style="list-style-type: none"> -Price means do nothing -Agree -Always something else more important -Think about it, but don't do it -Prevention better than cure -Don't want to spend money -Victimisation focuses mind for a while
Tailored/ trusted advice	<ul style="list-style-type: none"> -Take advice from others with pinch of salt -Very individual -Advice given not always effective -Trust other farmers 	<ul style="list-style-type: none"> -Don't have complete information -Don't know where to get information -Specific to farms -Don't trust security firms -Police good source -Insurers too but need discounts 	<ul style="list-style-type: none"> -Need views from outsiders -Advice from police -Insurers mixed for trust -Worry gone over the top with advice 	<ul style="list-style-type: none"> -Tailored as each farm is different -Some common, some specific -Police trusted – insurers mixed -Recommendations -Farming press if time to read

Individual or group decisions	<ul style="list-style-type: none"> -Bit of both -Wouldn't talk to other people -No different to any other decision 	<ul style="list-style-type: none"> -Individual is responsible -Local residents are information Watch 	<ul style="list-style-type: none"> -Cooperation is key in FCP decision-making -Helping other farmers too 	<ul style="list-style-type: none"> -See what others have done and see if work for them -Think more when others been victims -Guard dogs – puppies from another farmer
Why chose and is it effective	<ul style="list-style-type: none"> -Trackers for tractors -Locks waste of time – easily broken -Police suggestions impractical -Locking things away is inconvenient -NFU provide signs -Cost vs risk -Can't make farm a fortress -No incentives 	<ul style="list-style-type: none"> -Robust but not too inconvenient -Aim to slow them down -Electric gates -CCTV -Gates locked but can get through hedge -Don't know it's gone until a year later -Technology is better and cheaper -Dual purpose FCP -Feel uncomfortable without it 	<ul style="list-style-type: none"> -CCTV doesn't provide clear pictures -Can't lock entry gate because being used -If they want it they'll take it -CCTV – check not someone you know -CCTV – don't need to go out just call police -Instinct – you know something not right 	<ul style="list-style-type: none"> -Start cheap and work up to CCTV -Police don't come to look at CCTV -Pictures of spiders so switched off -Light deters but needs reliable trigger -Beams better than lights -Smartwater -Good dog -Tracker on quad but GPS not accurate
Problem at certain time of year	<ul style="list-style-type: none"> -Christmas to March 	<ul style="list-style-type: none"> -It can happen any time of the year -It can happen day or night 	<ul style="list-style-type: none"> -Harvest time -Know what to target and when -Summer when everything's out -More animal noise in winter to cover tracks -Depends what they're targeting 	<ul style="list-style-type: none"> -More vulnerable on a wet, windy night -Wait until there's poor weather -It happens any time of the year -Shed break-ins higher in summer -Opportunists – if they can they will take it
Report/ response/ feedback from police/ insurers	<ul style="list-style-type: none"> -Poor experiences with police -Lack of interest -Just give crime number -Mixed response for insurers -Insurers should provide more incentives to use FCP 	<ul style="list-style-type: none"> -Poor experiences with police -Lack of feedback -Poor text alerts -Only report to get crime number -Poor experiences with insurers -Insurers have a bigger role to play in FCP 	<ul style="list-style-type: none"> -Poor experience with police -Poor feedback -Too reliant on social media -Takes too long to report things -Too much paperwork from insurers 	<ul style="list-style-type: none"> -Poor experience with police -Poor feedback -Just give crime number -Police leaving farmers to do it themselves -Want to be able to see police -Insurance reassuring and get some feedback
FW experience	<ul style="list-style-type: none"> -Was a FarmWatch but don't get anything anymore -Lack of funding to keep it going -Know neighbours so just ring them up 	<ul style="list-style-type: none"> -FarmWatch was good system but it petered out -Needs a good coordinator 	<ul style="list-style-type: none"> -Started well but then faded away and hear nothing -Not dedicated Rural officers so have many other jobs -Lack of support from police 	<ul style="list-style-type: none"> -Needs a good coordinator with a good relationship with farmers -Farmers talk to neighbours about what's happened anyway

How will farm crime change in future	<ul style="list-style-type: none"> -It's going to get worse -Farmers are a soft target -Population of disillusioned people 	<ul style="list-style-type: none"> -It will increase -Can't rest on laurels -Easier to get rid of stolen items 	<ul style="list-style-type: none"> -Easier in the country than town -Affecting levels of trust -Worries about guns -It will get worse -Punishment doesn't fit the crime 	<ul style="list-style-type: none"> -It will increase -Criminals becoming more violent and clever -Lot is stolen to order -Police don't have funds to tackle so farmers do it themselves
Fear of crime/ impact	<ul style="list-style-type: none"> -Frustration -Fear of violence -Incredibly nervous -Think you're safe on your own property -More vulnerable when you're busy -Upsetting -They watched me leave -Worry about dogs -Just let them get on with it -Scrapmen started again – just shut it away 	<ul style="list-style-type: none"> -Uncomfortable -Costs more to replace -Takes a toll on your wellbeing -Lost time -Inconvenience -Emotional -Feeling vulnerable -Scary to confront people but you need to -CCTV reduces fear as can see what's going on -Would think twice about going out -Would challenge but older and wiser 	<ul style="list-style-type: none"> -Expensive -Affects health -Upset -Petrified -Mental impact worse -Lost time -Will they come back -Working alone -Money and mental impact -Worry about family -Many places they can hide -Isolation -Scared -Inadequate insurance -Paranoid -Being victim makes more worried -Loss of trust -Don't sleep -Violence 	<ul style="list-style-type: none"> -Inconvenience -Lost time -Long wait for replacements -Like Fort Knox -Insurers don't pay full value -Wasted time sorting insurance -Lock everything up now -Fear of it happening again -People wandering around your property -Seeing it on CCTV -Stress leads to safety issues -Stress more than monetary value -Don't sleep -Check padlocks each morning and breath sigh of relief
If money was no object...	<ul style="list-style-type: none"> -Electric chair -Snare, man traps -CCTV -Electric gates but very expensive -Light sensors -Alarms -Beam sensors 	<ul style="list-style-type: none"> -Electric gates -More CCTV -Beam sensors -Infrared Cameras -Alarms -Easy to use or watch, so beams or -CCTV -Trackers 	<ul style="list-style-type: none"> -PIR sensors -CCTV -Electric gates -Big dogs -Wouldn't farm -Fingerprint/iris recognition -Whatever the latest development is -Barricades -Flame guns 	<ul style="list-style-type: none"> -Full alarm system -Smartwater -Security man -Dogs -CCTV -Tracker on tractor
Offenders	<ul style="list-style-type: none"> -Farmers -Cheeky -Change routines -Plan escape routes -Stolen to order -Stealing Land Rover parts -Best not approached -Bit of sport for them 	<ul style="list-style-type: none"> -Own staff -Delivery drivers -Gamekeeper turned poacher -Used child as decoy -Don't hide what they're doing 	<ul style="list-style-type: none"> -Escape plans -Use Google Earth to view farm, assets, escape -Time to plan -Bin men -Delivery drivers -No work so turn to crime -Confidence trickster -Foreigners -From cities with easy motorway access -Cheeky -More violent 	<ul style="list-style-type: none"> -Don't have care in the world -Find item and come back for it -Suspicious but can't accuse them -Not just white vans -Not scared to take a risk -Brazen -Punishment doesn't deter -Advertise in Farmers Weekly or EBay -Steal to order -Opportunists and Organised