



# **Evidence Collection and Synthesis to Determine the Barriers to, and Appetite for, Risk Management Tools by Farmers in England**

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## Glossary of Terms

ADO	Animal Disease Outbreak
ADOI	Animal Disease Outbreak Insurance
AHDB	Agriculture and Horticulture Development Board
bTB	Bovine Tuberculosis
FBI	Farm Business Income
FBS	Farm Business Survey
FMD	Foot and Mouth Disease
GCD	Growing Crop Destruction
GCI	Growing Crop Insurance
Ha	Hectare
LFA	Less Favoured Area
MFB	Modern Family Businesses
MFT	Main Farm Type
NFI	Net Farm Income
NFU	National Farmers Union
PRMT	Price Risk Management Tool
RO	Research Officer
SLR	Standard Labour Requirement
TORA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
UAA	Utilised Agricultural Area

## Executive Summary

### Background

Farmers and growers have historically managed, and operated with, risk and reward in their business settings. However, potential changes to policies and levels of price and yield volatility in the agricultural market place may lead to a change in attitudes and behaviours towards holding animal disease outbreak insurance (**ADOI**) and growing crop insurance (**GCI**), and using price risk management tools (**PRMT**). Previous international research demonstrates the importance of understanding farmer behavioural drivers in decision making in relation to the use of risk management tools. This research aims to strengthen this understanding.

### Research Approach and Analysis

This research is based upon semi-structured interviews with 81 farmers and growers who participate in the Farm Business Survey (FBS) for England, plus 20 agricultural stakeholders, during January to March 2018. Quantitative data from the farmer responses have been combined with data from the 2016/17 FBS, to identify structural drivers of risk management tool use. The qualitative data from the farmer and stakeholder interviews have been analysed to provide in depth insights to the drivers, motivations and potentially modifiable outcomes associated with risk management tool use, as detailed below. **The results from interviews with farmer and grower farm types and wider farm type groupings, and also from the stakeholder interviews, represent findings from small sample sizes, and therefore must be interpreted with caution.**

### Summary of results: Why Farmers do, and do not use Risk Management Tools

#### Why the Farmers Interviewed Use Risk Management Tools

	ADOI	GCI	PRMT
Specialised business, with a reliance on a small number of enterprises, or a single enterprise, thus being exposed to a greater level of market or production risk	√	√	
High value of specific animals or specialist crops	√	√	
Needing to use the insurance product to secure borrowing from bank, or to secure a supply contract with a food manufacturer or retailer	√		
To "Top-up" Government compensation that does not adequately compensate full value of loss	√	√	
As business interruption or glasshouse cover		√	
For the Purchase or Sale of <i>some</i> inputs or products			√
To Achieve fixed prices or bulk buying discounts			√

#### Why the Farmers Interviewed Use Do Not Use Risk Management Tools

	ADOI	GCI	PRMT
Government compensation in place for notifiable diseases	√		
Product is too expensive	√	√	√
Product coverage is too restrictive for business needs	√	√	
Product has not been offered to the farmer	√		√
Lack of farmer knowledge of available product and product price	√	√	√
Uncertain of the level of risk exposure faced by the farmer, so unable to make informed decision about use	√	√	

Diversified business with range of agricultural, and / or, non-agricultural enterprises	√	√	√
Strong business balance sheet	√	√	
Previously not needed product and see no need for it now	√	√	
Benign UK growing environment		√	
Basic/Single Payment Scheme providing some buffer		√	
More pressing demands on money to be used elsewhere in the business		√	
Active animal or crop biosecurity	√	√	
Preference of the farmer to take risks	√	√	√
Preference of the farmer to market product themselves			√
Lack of product available to farmer's production			√
Actively spreading sale of product over time (e.g. a year)			√
Good relationship with buyer of product			√
Using the tool can introduce risk to the business			√

### Market, Policy and Social Drivers affecting Risk Management Tool use

For the farmers interviewed, the uptake drivers for **ADOI** and **GCI** relate to business specialisation and hence associated risk exposure, indicating that market drivers are of high importance. The main market driver for lack of uptake of ADOI and GCI is the high premium cost. The main policy driver affecting ADOI uptake, is Government compensation for notifiable animal disease outbreaks; in the absence of this cover there would be some increase in farmers *exploring the possibility* of holding ADOI. For GCI, and to a lesser extent for ADOI, the Basic/Single Payment Scheme policy reduces the need to explore the use of these products. Social factors, for example the influence of other farmers using these risk management tools, were not observed to be key drivers of uptake or lack of uptake. However, lack of product awareness, and of the level of risks faced, are drivers for lower uptake.

Market drivers dominated reasons for using **PRMT**, typically via sale and purchase of *some* outputs and inputs. The level of business specialisation being a key driver of active PRMT use. Lack of PRMT uptake related to the cost of futures/options, and lack of availability or awareness of products suited to the farm produce. A desire to take risks and good market relationships were reasons to not use PRMT. The Basic/Single Payment Scheme providing a buffer against market volatility was identified as a driver lowering PRMT use. Other drivers lowering PRMT use related to farmers having control of marketing activities, and a preference for marketing own produce which provides social interaction (e.g. livestock markets).

### Influence of Farm Type, Size, Business and Farmer Characteristics

For the farms studied, farm type and degree of farm business specialisation represent the key factors affecting uptake across ADOI, GCI and PRMT. Findings from this small sample size also appear to suggest that farm size does not directly influence uptake, however greater education attainment of the farmer, a positive approach to business management, and a greater uptake of professional advice, appear to be positively related to use of risk management tools.

### Barriers towards Risk Management Tools and Factors that would potentially change behaviour towards, and uptake of, Risk Management Tools

For the farms interviewed, barriers to the use of **ADOI** and **GCI** include: cost, Government support for compensation of animal disease outbreak (ADO), Basic/Single Payment Scheme providing a buffer against Growing Crop Destruction (GCD), lack of awareness of the risk of ADO and GCD, and restrictive, or lack of, insurance products available. These preliminary findings, based upon small sample sizes, suggest that the removal of

Government compensation for ADO would lead to an increase in farmers **exploring the possibility** of holding ADOI. Diversified businesses have an inherent risk management provision, which coupled with low farm profitability, will lead to restricted increases in ADOI use if Government ADO compensation was removed. For GCI, lower Basic/Single Payment Scheme support would lead to a greater **possible** uptake of GCI, however, this would be negatively impacted by low profit levels in the industry. For both ADOI and GCI, the use of these products by other farmers would not actively change farmer attitudes.

For the farms interviewed, key drivers lowering **PRMT** uptake are cost, complexity and lack of availability. The Basic/Single Payment Scheme providing a buffer against market volatility lowers use of **PRMT**, and in the absence of the Basic/Single Payment Scheme, there would be an **increased exploration** of the use of PRMT

**Factors that would potentially change behaviour towards, and uptake of, Risk Management Tools, for the farms interviewed:**

	ADOI	GCI	PRMT
Removal or reduction of Government compensation for notifiable disease outbreaks	√		
Lower product cost	√	√	√
More, and more simplified, product information	√	√	√
Government grants for insurance products	√	√	
Government backed or independently arbitrated products	√	√	√
Reduction, or removal of Basic/Single Payment Scheme		√	√
Increased knowledge to farmers about the risks faced	√	√	

## 1.0 Introduction

Since the 1930s, farmers have operated within policy and regulatory frameworks that have either minimised output price risk, or, more latterly, provided a financial support framework via the Single/Basic Payment Scheme. In part these policy interventions have allowed farm businesses to become more specialised over time, and consequently driven productivity as managerial ability is focused on fewer activities, contrasting with the pre-1930s mixed farming agricultural landscape. Thus, farmers and growers have historically managed, and operated with, risk and reward in their business settings, via a range of techniques, including: informal insurance via crop and livestock diversification, generation of off-farm and on-farm diversified income, and bespoke formal business tools that allow farmers to hedge against, and manage, risk. A range of contemporary risk management tools are available to farmers, including: forward selling and buying of outputs and inputs respectively, where farmers agree to deliver an agreed quantity and quality of product at a fixed point in the future, or to take delivery of inputs at a fixed price and quantity at future date; the pooling of an individual farmer's output with that of output from other farmers, in order to allow a marketing agency or co-operative to achieve better prices through bulk selling, and selling across different months of the year, and; taking out bespoke insurance products to mitigate against outright loss of production or breeding animals. However, the use of such approaches, and risk management tools available, varies considerably by Farm Type and Farm Size, as identified by the Defra-funded 2016/17 Farm Business Survey (FBS), with three quarters of businesses undertaking some form of risk management practice, most commonly selling commodities or buying inputs on a contract basis. However, the main reason cited for not carrying out any risk management practice was because the farmer could not see the benefits of doing so.

Anecdotal evidence from the agricultural and horticultural sectors suggests that risk management tools and crop and livestock insurance products are frequently poorly understood, complex for farmers to operate and costly to buy; indeed in the long term the purchase of output price risk insurance (e.g. via options) has a net cost, reducing uptake. By contrast, sugar beet producers are required by British Sugar to take out insurance against frost damage to the growing crop as a condition of their contract to supply sugar beet. Other farmers choose to actively diversify their agricultural production mix, and/or their diversified/off farm income streams to both increase income/profit and minimise volatility in income fluctuations. The current policy and support framework provides a relatively policy secure financial model (which flows from the Single/Basic Payment Scheme), plus a no-cost insurance environment to farmers for major livestock losses due to animal disease outbreak (e.g. Foot and Mouth Disease [FMD]). However, the current model of agricultural support, and government compensation in response to notifiable disease outbreaks, are both borne by the exchequer. Following the UK's decision to exit the European Union by March 2019, the UK Government must establish a new UK based Agricultural Policy, and in addition it may be timely to review the mechanisms of, and approaches to, providing farmers with absolute livestock insurance against major animal disease outbreak at no direct cost to farm businesses. Currently, while the government has information about the level of use of various risk management tools in agriculture, it does not have sufficient depth of information to inform policy makers about the reasons why farmers do, and do not, use risk management tools in the form of insurance-based, or input/output price volatility management-based, products.

### 1.1 Review of Literature on Behavioural Theory and the Uptake of Insurance as Applied within Developed Agricultural Economies

Behavioural understanding of farmer decision making has been the subject of previous research in recognition that profit maximisation rarely adequately represents farmer decision making. A number of studies have focused upon economic modelling frameworks to examine economically optimum uptake of insurance under a range of external (e.g. market) and internal (e.g. farmer risk preferences; attitudes towards risk probabilities) conditions. With respect to understanding drivers of farmer behaviour in relation to crop

yield insurance, Wang et al.'s (1998) examination of the effect of crop yield insurance designs on US corn farmer insurance participation drew upon numerical optimisation and simulation modelling to explore economically optimum behaviour of a representative Iowa corn farmer. Within this analysis they drew upon time series data to generate a distribution of yield and price outcomes that feed into the economic model that represents a typical corn producer. From this modelling approach, Wang et al. identified the importance of coverage of insurance product, premium and the link between individual farm yields and the average yields of the region upon which the insurance product (and hence payout) was based. It is informative to note that Wang et al. identified the restrictions placed on the results, indicating that future research needed to take a more holistic view of the crop mix on farms and the impact of geography in determining the optimal uptake of crop insurance. Babcock and Hennesy's (1996) analysis examines the trade-off between the use of insurance products and fertiliser inputs in US corn production, on the assumption that revenue from corn production can be achieved from yield achieved through production, or crop insurance return from crop failure; however both inputs incur a cost to the grower. Specifically, Babcock and Hennesy's analysis of optimal insurance uptake by growers is based upon econometric modelling approaches that initially identifies the technology available to the farmer (i.e. the production possibilities) to examine the trade-offs between variable input levels (e.g. nitrogen fertiliser) and crop insurance as a potential input to the production process that would deliver a defined financial output. Babcock and Hennesy's analysis identified that in US corn production the application of fertiliser, to ensure crop production, and the purchase of crop insurance against crop failure, act as substitutes in production. This finding introduces issues of understanding substitutions in production, in contrast to viewing insurance as an additional input; hence crop insurance in this context would lead to a reduction in nitrogen fertiliser use, impacting upon overall production, and hence increasing market price in aggregate. This result demonstrates the wider market impacts that can flow from insurance products operating within a production market environment, with unintended potential food production and environmental outcomes generated. However, Babcock and Hennesy note that the modelling approach does not draw upon farmer decisions as observed within the market place, but draws upon theoretically optimal solutions from the model.

Just et al. (1999), in their analysis of US farm-level data, note that multiple peril Federal crop insurance uptake has been low, and has not provided the premiums needed to cover payouts as they occur, including the costs of operating such schemes. The authors draw upon a modelling approach that captures, as one of its arguments, farmers' level of risk preference (or aversion). Their modelling approach highlights the issue of asymmetric information in the agricultural insurance market whereby an individual farmer may have a higher probability of incurring loss due to farm or farmer specific characteristics, than the average farmer, yet in this context the insurance provider does not have this level of information when setting the insurance premium. Just et al. note that in the US corn and soy insurance context this gives rise to an adverse selection problem in relation to participation in crop insurance. Specifically, if, relative to the insurance agency, a farmer has greater knowledge that they individually face a high risk of crop failure, then they have a greater incentive to hold this insurance. In this situation, there is a direct incentive for US corn and soy producers to participate in crop insurance, primarily to receive the government backed payout associated with crop failure. In this context, Government based insurance uptake would be selectively taken up by some farmers, with those most likely to make a claim on the insurance product, being the ones most likely to purchase the insurance; this adverse selection issue makes such a scheme inherently reliant upon Government support as the free market will not, in the long term, engage in an unprofitable insurance product market. Wu (1999) found that in the US the provision of corn insurance would shift land from hay and grass-based production activities, where insurance cover did not exist, into corn production where insurance products were available, hence identifying an unintended consequence of product-specific insurance offerings that change land use and production behaviour in competing production activities.

Other research into the use of insurance products in agriculture has drawn upon farmer survey techniques to elicit farmer understanding and responses to potential scenarios affecting their businesses. Vandever and Loehman (1994) drew on farmer survey approaches with 55 corn producers in Indiana, USA, to examine how farmers would respond to changes in insurance product offerings. The farmers were categorised as insurance buyers / non-buyers from their previous insurance holding decisions. Vandever and Loehman's used show cards to present different outcomes to survey participants. These cards detailed yield outcomes, the associated probability of these yield outcomes, and the potential revenue from production under each outcome under conditions of holding or not holding insurance; the premium cost was shown for each scenario. The survey results were used to construct logit models to estimate the probability of insurance uptake. The findings demonstrated that farmers who had previously not held insurance, were less likely to do so in the future, and were characterised by having both higher yields and less variable yields than farmers who had previously held insurance. The authors noted that this reinforced findings from other studies in relation to the problem of adverse selection, in that those farmers less likely to draw on the insurance will chose not to purchase, leaving the insurance market exposed to a greater risk of payout, and consequently greater premiums than would be the case under wide spread insurance take up. In summary, Vandever and Loehman (1994) noted that area based yield insurance products bring particular challenges of both increased cost for governments, and for farmer uptake. In recent work focusing upon India, Mohanapriya and Senthilkumar (2017) undertook interviews with 300 farmers using a pre-defined questionnaire. They identified that barriers to uptake include delay in insurance payouts, coverage restrictions, and the premium required; significant differences in farmer characteristic and actions towards insurance products were also identified. In relation to wider insurance needs, Inwood (2017) explored attitudes towards, and uptake of, health insurance in the US, drawing upon interviews with 90 farmers for qualitative data capture, and a wider 6540 responses in relation to quantitative analysis. The results shows some statistical differences between farmer age and health insurance uptake existed, alongside stage of their business; typically younger farmers who were starting out in their agricultural business career recognised the value of holding health insurance, in part due to their inability to financially cope with the risks that would flow from not holding health insurance.

In the case of family farming in particular, authors have recognised that farm decision making is often associated with tradition, family values and long-term family as well as business goals, for example retaining traditional farming activities despite more lucrative alternative enterprises, or strategic longer term expansion (land purchase) at the detriment of current profit. A combination that can result in decisions not easily predicted by neo-classical economics. Some researchers have therefore drawn upon behaviour theory to explain changes in farmer actions. Hansson et al. (2012) drew upon theory of planned behaviour (TPB) approaches to explore farmer behaviour towards business strategies for specialisation or diversification. Using participants from the Swedish Farm Economic Survey, Hansson et al. found that attitudes and subjective norms strongly influence decision making. Bergevoet et al. (2004) also used survey approaches to explore attitudes and actions of Dutch dairy producers, and seek responses to statements about goals, attitudes, subjective norms and behavioural control. They found that goals were strongly linked to business outcomes, and that these goals were strengthened when social norms and perceived behavioural controls were accounted for. Rehman et al. (2007) drew upon a survey of dairy farmers in the South West of England exploring technology uptake through the theory of reasoned action (TORA) to examine behavioural change towards technology uptake. They found that technology uptake is facilitated by cost effectiveness and positive impacts on production, while barriers to uptake include technology that was perceived to demean the knowledge and skills of the farmer.

## *Combining Quantitative and Qualitative Research Approaches to Understand Farmer Behaviour*

Research that has sought to combine quantitative and qualitative approaches has led to insightful findings in relation to farmer behavioural strategies and farm business performance levels. For example, drawing upon results derived from the combination of Farm Business Survey (FBS) data and in-depth semi-structured case-study interviews with 24 FBS co-operators in England, Wilson (2014) identified that the behavioural characteristics of farmers and managers that operate high and improving farm businesses (with respect to profit) include focusing on cost control, attention to detail and enterprise margins. Wilson identified that high and improving farm businesses were operated by farmers with agricultural qualifications, who have low business debt, access a range of information sources and channels in their input sourcing and product marketing. Wilson et al. (2014) also combined FBS data with semi-structured in-depth interviews to identify farmer attitudes towards cooperation and innovation. Drawing on data from, and interviews with, 60 FBS co-operators, they identified lack of capital, risk aversion and life cycle considerations as barriers to innovation. Drivers of innovation included cost and labour saving technologies, and observing innovation success from other farmers within enterprise and geographic-specific contexts. The semi-structured interviews also identified that production related co-operation activities were often initiated and facilitated through informal networks drawing on mutual trust and financial benefits of co-operation. Barriers to co-operation included previous bad experiences, biosecurity concerns and lack of interest from neighbours. Drawing upon a similar mixed-method quantitative-qualitative approach, Wilson et al. (2013) drew upon the previously defined Defra farmer behavioural segmentation model (Defra, 2008) to undertake interviews with 750 FBS farmers in England which led to self-categorisation of farmers into one of five segmentation groups, flowing from a discursive interview approach with FBS co-operators. This self-categorisation led to analysis of farm business performance against segmentation grouping, including the identification that Modern Family Businesses (MFB) typically derived greater income from diversified activities. An example insight from this approach being the self-identity of farmers and managers of MFBs as managers of businesses that extend beyond traditional agriculture. These insights highlight the research advantages gained from in-depth semi-structured approaches to data collection in order to better understand farmer decision making.

The literature above demonstrates the importance of understanding insurance products and possibilities available to farmers, the context in which these are used, and importantly the driving motivations of farmers in different production activities. Behavioural drivers influence decision making in addition to economic drivers.. Whilst understanding barriers derived from behavioural drivers can bring potential challenges towards the expansion of insurance uptake, they are also potentially modifiable; hence an understanding of how behaviours are influenced by, and affect outcomes in relation to, decision making are important to capture.

### **1.2 Aims and Objectives**

Given the above context and understanding of behavioural theory, the aim of this project is to provide a greater depth of understanding of the relative importance of different insurance products to farmers, how farmers' attitudes and actions towards these products are influenced and modified.

Specifically the objectives of this research project are to:

- I. Understand and detail why farmers do, and do not use insurance and price mitigation products to identify the extent to which use and attitudes towards these products relates to active decisions to not use such products, or to other reasons such as lack of information.

- II. Understand and detail the relative importance of different driving factors affecting the use and uptake of insurance products, to establish the importance of policy, market and social drivers as they affect uptake of insurance products.
- III. Understand what the barriers to the use of insurance uptake are, and consequently identify any factors that could potentially overcome these barriers, including how attitudes towards, and uptake of, these products would potentially change in the light of policy or regulatory change, farm income levels, or greater or lower uptake of insurance products by other farmers.
- IV. Explain the extent to which the factors identified in i) to iii) above apply equally to all farm types, sizes, business and farmer characteristics.
- V. To identify from i) to iv) above the factors that could potentially change behaviour towards, and uptake of, insurance products, in particular to identify potentially modifiable behaviours and outcomes that could be delivered.

## 2.0 Methodology

### 2.1 Initiation Meeting

A research initiation meeting was held on the 28 November 2017 between core members of the research team and Defra. At this meeting the overall aims and objectives were discussed in relation to the focus of the research. In particular that the focus of the research should be on: i) animal disease outbreak insurance; ii) growing crop insurance; iii) use of price risk management tools, all focusing upon farms in England.

The sample framework was refined at this meeting to ensure farm size categorisation was defined in relation to Standard Labour Requirement (SLR) for each participating farm business. The sample framework for the stakeholder interviews was also refined and agreed, with the final sample being representative of the farm businesses that take part in the FBS, within each farm type, by three broad size classification [see section 2.4, Table 1].

### 2.2 Data Requirements and Sources: Farmer Participants

This research combines data previously captured from the 2016/17 FBS with new data collected specifically for this research project (as outlined in section 2.3). This approach provided substantial data capture advantages because the data capture outlined in section 2.3 focused entirely on the subject of risk management tools, negating the need to capture data about the farm business, cropping, livestock, land use and the farmer biographical details.

The data obtained from the 2016.17 FBS included the following summary data variables for each farm. Detailed information about the FBS data capture approaches and definitions can be found at: <https://www.gov.uk/guidance/farm-business-survey-technical-notes-and-guidance#fbs-documents>

- Farm type
- Government Office Region
- Standard Labour Requirement (SLR) Group
- Metrics of farm business performance: Farm Business Income, Net Farm Income, Performance Ratios (calculated as Agricultural Output divided by Agricultural Input)
- Utilised Agricultural Area (UAA)
- Business Assets and Liabilities (on landlord and tenanted basis)
- Farmer Year of Birth
- Farmer Education Level
- Farm Tenure data (proportion of the UAA owned and on different tenancy agreements)

### 2.3 Semi Structured Data Capture Tool: Farmer Participants

Drawing upon previous bespoke research in relation to farm business case-study approaches [Wilson 2014; Wilson et al. 2014] appropriate data capture techniques were devised in order to obtain data from FBS participants.

A semi-structured farmer interview data capture technique was devised to capture a series of quantitative attitudinal responses from a random selection of participants within each strata that participated in the 2016/17 FBS. This data capture tool consisted of three main sections on farmer actions and attitudes towards:

- i) Animal disease outbreak insurance;
- ii) Growing crop insurance;
- iii) Use of price risk management tools.

The semi-structured format of the interviews facilitates discussion between the Research Officer (RO) and the farmer to fully understand their active and passive farm-level

decision-making in relation to risk management and insurance uptake. Specifically this focuses upon understanding the rationale for and barriers to use of insurance, including an understanding of preferred methods of risk management and how attitudes towards risk management are influenced by the presence / absence of policy support (Direct Payments) and government underwriting animal disease outbreak or wide-spread growing crop destruction. A structured approach to the interviews was followed to concentrate on understanding attitudes, behaviours and actions around:

- i) Loss/damage to crops;
- ii) Loss of livestock;
- iii) Consequential losses;
- iv) Price change.

Within each of these categories the interviews investigated behavior and actions in relation to the purchase of insurance and / or futures price fixing [output and input].

The semi-structured component of the interviews explored reasons for the decision being made – with respect to:

- i) Deliberate financial based decision;
- ii) Active / passive non-financial decision making influenced by external and internal factors;
- iii) Decision making inhibited by lack of information on which to make informed decisions;
- iv) Decision making inhibited by inability to use information appropriately to inform decisions;
- v) Decision making inhibited by behavioural barriers.

The identification of barriers to the use of these insurance products, together with the identification of factors that could positively modify behavior and actions towards the use of such products, was expected to be an important outcome of the interviews.

The semi-structured recording form draws on the use of a range of pre-determined possible answers, to facilitate unique data capture in an easily retrievable manner. Additional comments not covered by the pre-defined answers were also recorded in order to capture the richness of the qualitative responses provided. Specifically the data capture tool was designed to identify reasons and rationale for both uptake, and lack of uptake, of insurance products and risk management tools, adopting a purposeful random sampling approach to ensure that the sample recruited explicitly for this survey was not biased towards those farmers / farm businesses with an interest in the topic. The farmer participant recording form is embedded in Appendix 1.

To accompany this data capture tool, researcher briefing notes were produced, and training on these briefing notes was held at each of six Rural Business Research<sup>1</sup> (RBR) units across England that undertake the FBS; these guidance notes are included in Appendix 1. The data capture tool was developed by the core research team, with feedback from Defra colleagues. In addition, a consent form was developed in conjunction with Defra to ensure compliance with research ethics and General Data Protection Regulations. This form indicated the purpose of the research, the manner in which the data would be collected and the use of data for the current research, that these data would be linked to the participant's FBS record for 2016/17, and that these data may be used in future analysis. A copy of the consent form is included in Appendix 1.

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<sup>1</sup> See [www.ruralbusinessresearch.co.uk](http://www.ruralbusinessresearch.co.uk)

**Additional data employed:**

Because our sampling approach draws upon FBS co-operators, we draw upon the structural, characteristic and performance data currently held for each participating FBS farmer, and combined this with the new data captured by the semi-structured tool in order to undertake analysis for this report. This allowed the semi-structured interviews carried out for this research to focus on the topics of importance to risk management decisions; i.e. the financial, information-related, social and behaviour aspects that may influence attitudes and behaviours towards the use of risk management tools, and removed the need to also capture data from the interview about the characteristics of the farm and farmer. The semi-structured approach of this new survey, combined with the pre-existing FBS data, will allow us to explore the extent of, and reasons for farmers responding to risk outcomes via, diversification of enterprise, capital / savings / balance sheet position, emergency or planned overdraft or loan facilities, use of support payments to minimise risk, or other means.

**2.4 Farmer Sample Recruitment from FBS and Farmer Surveys**

The semi-structured interviews took place with 81 FBS farmers, divided across eight farm types and size groupings (see Table 1 below), across England. The interviews were undertaken by a team of experienced Research Officers (ROs). The semi-structured surveys were primarily conducted on-farm, given the involved nature of the research, at a time to meet with the preference of the farmer/farm manager taking part in the survey.

**Table 1: Total Number of Farmers identified to be interviewed by Main Farm Type (MFT) and Standard Labour Requirement (SLR) Size Group, by Farm Type/Farm Size Group, with final number surveyed [in parentheses].**

MFT / Size Group	Small	Medium	Large	TOTAL
Cereals	4 [4]	3 [3]	3 [3]	10 [10]
General Cropping	3 [3]	3 [3]	4 [4]	10 [10]
Dairy	3 [3]	3 [3]	4 [4]	10 [10]
Grazing Livestock	4 [3]	3 [3]	3 [5]	10 [11]
Horticulture	3 [3]	3 [3]	4 [3]	10 [9]
Mixed	3 [4]	3 [3]	4 [4]	10 [11]
Pigs	3 [3]	0 [0]	7 [7]	10 [10]
Poultry	3 [3]	3 [3]	4 [4]	10 [10]
TOTAL	26 [26]	21 [21]	33 [34]	80 [81]

Note: Farms selected for interview were approximately mapped onto the FBS sample as distributed across England. The FBS sample is based upon Defra June Survey data: <https://www.gov.uk/agricultural-survey>

Farm Size is classified by the Standard Labour Requirement (SLR) required for the farm's cropping, land use and livestock. For this research "Small" includes part-time, spare-time and small; "Large" includes large and very large. See further details at [http://farmbusinesssurvey.co.uk/DataBuilder/defra-stats-foodfarm-farmmanage-fbs-UK\\_Farm\\_Classification.pdf](http://farmbusinesssurvey.co.uk/DataBuilder/defra-stats-foodfarm-farmmanage-fbs-UK_Farm_Classification.pdf)

**2.5 Stakeholder Recruitment and Surveys**

Within the interviews across 20 key stakeholders (See Table 2) we sought to gain insights as to the different levels of engagement with insurance uptake, across different farm types and sizes in particular. Data capture techniques for the stakeholder interviews were based around fewer quantitative responses than for the farmer interviews. Structurally, data was captured via voice recordings or extensive notes (depending upon participant preferences). Insights gained from stakeholder interviews explored stakeholders' knowledge, experience and views in relation to why farmers do / do not hold insurance for animal disease outbreak and growing crop insurance, and do / do not use price risk management tools. The stakeholder recording form is embedded in Appendix 1.

To accompany this data capture tool, researcher briefing notes were produced, and training on these briefing notes was held at each of six RBR units; these guidance notes are included in Appendix 1. The data capture tool was developed by the core research team, based on the approach taken for the farmer participant data capture tool. In addition, the consent form used for the farmer participants was adjusted as appropriate for the stakeholder participants to ensure compliance with research ethics and General Data Protection Regulations. This form indicated the purpose of the research, the manner in which the data would be collected and the use of data for the current research, and that these data may be used in future analysis. A copy of the consent form is included in Appendix 1.

**Table 2: Stakeholders interviewed by Organisation Type and Arable / Livestock business dominance**

<b>Group</b>	<b>Indicative Organisations to be Interviewed</b>	<b>TOTAL</b>
Advisers	Agricultural Business Consultant [ <i>predominantly livestock</i> ] Agricultural Business Consultant [ <i>predominantly arable</i> ] Accountant [ <i>predominantly livestock</i> ] Agronomist [ <i>predominantly arable</i> ]	4
Banks	Agricultural bank manager [ <i>predominantly livestock x 2</i> ] Agricultural bank manager [ <i>predominantly arable x 2</i> ]	4
Producer and Policy Organisations	NFU [local policy; <i>predominantly livestock</i> ] NFU [local policy; <i>predominantly arable</i> ] AHDB [ <i>predominantly arable</i> ] AHDB [ <i>predominantly livestock</i> ]	4
Insurance providers	NFU National Policy [ <i>predominantly livestock</i> ] NFU Local Insurance [ <i>predominantly livestock</i> ] Local Insurance provider [ <i>predominantly arable</i> ]	3
Other	Retailer (buyer) Milk Buyers Feed Supplier Producer Co-operative Grain Buyer	5
TOTAL		20

## 2.6 Quantitative Overview Analysis

The farmer surveys represent only small sample sizes per farm type or farm size grouping and hence the results generated must be read in relation to this caveat. While the results below provide useful insights to farmer attitudes and behaviours with respect to the use of risk management tools, the results are not necessarily representative of the whole agricultural and horticultural sector, nor the sub-sectors within this industry. The farm responses received were captured in the recording form in Appendix 1. For the majority of responses received this allowed the researcher to populate the data capture tool with an indication of the areas that the respondent mentioned during the interview, and additionally to provide further comments made by the respondent in a structured data capture format. This structure facilitated the calculation of the numbers of farmer responses per farm type group to be calculated as these relate to reasons for the use and non-use of ADOI, GCI and PRMT. These data presented by farm type grouping provide a structured mechanism to explore the differences in the reasons for use and non-use of different risk management tools. The findings drawn from these data presented in section 3.1.

## 2.7 Qualitative Overview Analysis

In addition to the quantitative data outlined in 2.6 above, the farmer responses provided a range of qualitative findings, as captured by farmer respondent comments relating to individual sections of the data collection form. These qualitative data provide a greater depth of understanding for the reasons for use and non-use of risk management tools, and the results are presented in section 3.2. Appendix 2 also provides a range of farmer quotes as detailed against individual questions and areas in the recording form.

Data capture from the 20 stakeholders largely took the form of qualitative results. The range of comments and quotes derived from these interviews are presented in Appendix 3 as example quotes against each of the five objectives of this research project. The analysis of these qualitative data captured, which explores the reasons for use and non-use of risk management tools from the perspective of the range of stakeholders interviewed, are provided in section 3.2.

## 2.8 Statistical Analysis Linked to Farm Business Survey Data

In addition to the direct quantitative and qualitative data capture outlined above, data from the 81 farmer responses were linked to data relating to the individual farm business as drawn from data already held within the Farm Business Survey 2016/17, providing potential advantages of depth of analysis. The methodology relating to this analysis is outlined below.

### 2.8.1 Calculating Indices of Risk Management Attitude

An issue with a relatively small sample survey covering a variety of different but related factors, is that it is difficult to get an overall statistical insight because many questions are only relevant to a subset of responses. In response to this data analysis challenge, a number of indices were created from the response data to facilitate statistical analysis.

Firstly scores were calculated reflecting the attitude of each farm to animal disease outbreak insurance (ADOI) and growing crop insurance (GCI). These were on a 10 point scale running from 0 for a farm totally uninterested in the insurance through to 10 for one with insurance for both direct and consequential losses. Up to 5 points were available for responses indicating that the farm had either researched the insurance (section A2 or B2 of the recording form), or would be willing to consider it should circumstances change (section A3 or B3 of the recording form). The scale derived was therefore:

- 0: no interest in such insurance
- 1-4: no insurance taken out but some positive responses indicating they had considered it, or might do so in the future.
- 5: one type of insurance taken out (direct or consequential), but no positive responses on the other type
- 6-9: one type (direct or consequential) taken out and positive responses on the other type
- 10: both direct and consequential taken out

Similarly 10 point scores were calculated to reflect the attitude to price risk management tools (PRMT) for animals and crops. Five points were allocated for the first tool used and two for each subsequent one, up to a maximum score of 10. For those not implementing any tools, up to five points were available on the basis of positive responses in section C3 of the recording form.

An overall index was constructed by taking the mean of the insurance and price risk management scores for animals or crops, as appropriate. Where a farm had both crops and animals the **maximum** of the two values was taken to ensure that each farm had a maximum score out of 10. Finally a separate index was created to indicate whether a farm was influenced solely by financial considerations or by a mix of financial and non-financial considerations. Each of the questions that a farm gave was classified as financial or non-financial; for example, rejecting insurance because of the cost is a financial

decision, whereas rejecting it because the farmer did not believe in buying insurance is non-financial. If all responses were to questions classified as non-financial the farm scored zero, increasing to a maximum of 10 if all responses were to financial questions.

### *2.8.2 Analysis of Indices of Risk Management Attitude in relation to Farm Business Survey Metrics*

A range of metrics and indicators relating to each of the 81 farm businesses surveyed were obtained from the England Farm Business Survey (FBS) for 2016/17. These data were selected to provide a broad series of potential metrics and indicators as identified to be of potential interest as factors that may affect attitudes and actions towards the use of risk management tools. The list of metrics selected is detailed in table A.2.1. in Appendix 2. Following this selection of metrics and indicators from the FBS a range of statistical models were explored to identify the influence of these metrics and indicators from the FBS. The results of these models are provided in section 3.3.1.

## 3.0 Results

### 3.1 Results Overview: Quantitative

In the results presented below, farm type specific results are presented where five or more farm businesses mentioned a particular aspect in relation to the use of, or attitudes towards the use of risk management tools. For other responses, when fewer than five respondents noted a particular aspect, the results are presented as part of a wider merged group of farm types, or comments are provided by farm type without quantification.

#### *3.1.1 Farmer Responses: Reasons for using Animal Disease Outbreak Insurance, Growing Crop Insurance and Price Risk Management Tools*

This section summarises the results presented in Table 3 relating to the use of Animal Disease Outbreak Insurance (**ADOI**), Growing Crop Insurance (**GCI**) and Price Risk Management Tools (**PRMT**) by the two broad farm type groupings of **Crop Farms** (Cereals, General Cropping, Horticulture and Mixed) and **Livestock Farms** (Dairy, Grazing Livestock, Pigs, Poultry).

With respect Livestock farms, 11/41 hold ADOI with more specialised or intensive livestock (specifically Poultry and Dairy) farms being more likely to hold ADOI. The main reasons for holding ADOI included:

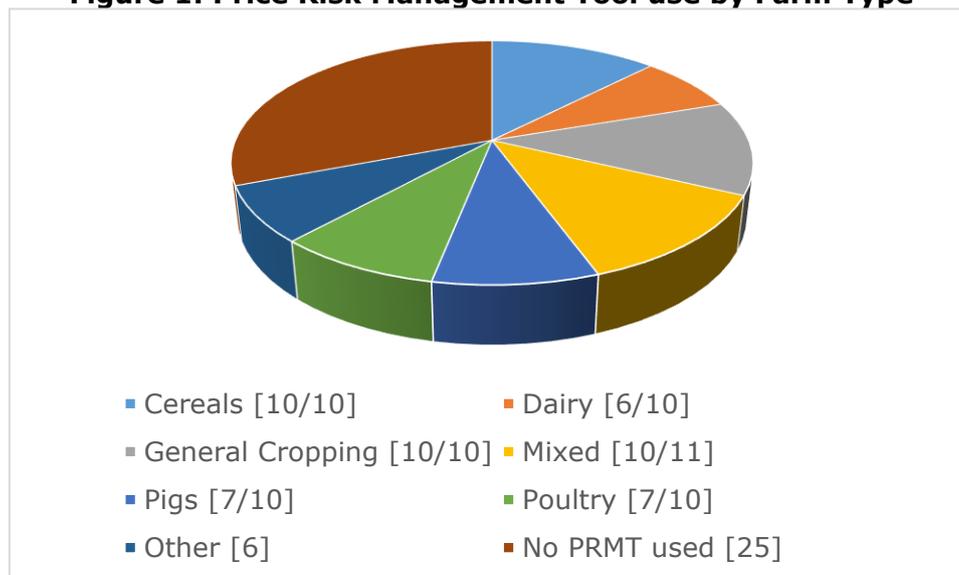
- Essential to business survival in the event of ADO
- Highly specialised and thus less diversified business
- High value of individual animals

With respect to Crop farms, 12/40 hold GCI (or business interruption / glasshouse insurance that provides similar insurance protection), with farms holding this insurance typically spread across Cereal, General Cropping and Horticulture farms. Main reasons cited for holding GCI included:

- Specialist crops produced, or businesses reliant on a small number of crops
- Cover provided via glasshouse insurance cover
- Business interruption insurance taken out to cover crop loss

Use of some form of **PRMT** / Price Risk Management Activity was common across the whole sample with 56/81 farms using some form of price risk management activity. Across the broad farm groupings, 33/40 **Crop Farms**, and 23/41 **Livestock Farms** undertook some form of price risk management activity as shown in Figure 1.

**Figure 1: Price Risk Management Tool use by Farm Type**



PRMTs typically used included:

- Marketing *some* commodities forward on agreed price, in particular General Cropping farms [8/10], but also on some Cereals and Mixed farms
- Using selling groups to market *some* commodities was cited [Cereals, 6/10; General Cropping, 5/10].
- Marketing *some* commodities forward following planned storage and sale on spot market was noted [Cereals, 7/10; General Cropping, 8/10]
- Purchase of some key inputs on contract with agreed prices was noted on some Dairy and Pig farms, but more frequently on Cereals [7/10] and General Cropping farm [8/10].

Example indicative quotes that expressed the opinions of farmer responses towards reasons for using ADOI, GCI and PRMT are detailed below in section 3.2 where the qualitative results are presented.

### 3.1.2 Farmer Responses: Reasons for not using Animal Disease Outbreak Insurance.

This section summarises the reasons for not using Animal Disease Outbreak Insurance (ADOI), across the **Livestock Farm** grouping (Dairy, Grazing Livestock, Pigs, Poultry) in addition to providing specific farm type findings.

**Table 3: Reason for NOT holding Animal Disease Outbreak Insurance on Livestock Farms**

Reason Cited	
Government covered Animal Disease Outbreaks	18/41
Premium is too expensive	16/41
Have a good relationship with buyer of produce	13/41
Have a strong balance sheet, so can cope with loss	12/41
Never been offered Animal Disease Outbreak Insurance	12/41
Have good biosecurity	12/41

With respect to the reason presented in Table 3, the following points were noted:

- Major animal disease outbreaks would be covered by Government, so there was no need to take out ADOI [Dairy, 6/10; Grazing Livestock, 7/11; Pigs, 5/10]; a

separate note linked to this was that “Government would provide compensation” cited on some Dairy, Grazing Livestock, Mixed and Pig farms.

- That the farmer had never had the insurance offered to them was also a key feature on some farms, for example on some Grazing Livestock and Pig farms. The premium for insurance being too expensive was noted across many farm types, in particular on Grazing Livestock [7/11] and some Pig and Poultry farms, albeit that comments indicated that many respondents did not know the current price of insurance, in particular for ADOI.
- On some Pig farms, the points that money would be better spent elsewhere in the business, that they were unlikely to see a return to ADOI, or the relative risk of an outbreak was low, were noted.
- Moreover, on some Pig farms, having contract reared livestock, and not believing in insurance, were also cited.
- That the farm business had always managed without insurance was noted on 5/10 of Pig farms  
The Basic/Single Payment Scheme providing a buffer against loss from ADO was also cited on some Grazing Livestock farms.
- A lack of trust in insurance companies and having looked into insurance and no cover being available for what the farmer wanted were noted on some Grazing Livestock farms
- Having never been offered ADOI was noted on some Grazing Livestock and Pig farms.
- Strict biosecurity to minimise risk was also noted on some Grazing Livestock farms and 5/10 Pig farms.
- A strong balance sheet enabling the business to cope with loss was noted on some Dairy farms, and on 9/11 Grazing Livestock farms
- A good relationship with the buyer, thus enabling the business to cope with loss, was noted on some Grazing Livestock and on 7/10 Pig farms.

### 3.1.3 Farmer Responses: Reasons for not using Growing Crop Insurance

This section summarises the reasons farmers cited for not using Growing Crop Insurance (GCI) across the **Crop Farms** grouping (Cereals, General Cropping, Horticulture and Mixed).

**Table 4: Reason for NOT holding Growing Crop Insurance on Crop Farms**

Reason Cited	
Always managed without this insurance	15/40
Premium is too expensive	13/40
Never been offered Growing Crop Insurance	12/40
Basic/Single Payment Scheme provides a buffer	12/40
Unlikely to see a return on Growing Crop Insurance	11/40
Not aware of any insurance that will cover growing crop loss	11/40

In relation to farm type specific finding, the following were observed.

- In relation to GCI, “unlikely to see a return on insurance” was noted on some Cereals and General Cropping farms, while the issue of money being better spent elsewhere in the business was cited on some General Cropping and Mixed farms.
- That the farm business had always managed without insurance was noted on Cereals [5/10] and some Mixed farms.
- The Basic/Single Payment Scheme providing a buffer against loss from GCD was noted on some Cereals, General Cropping and Mixed farms.
- Having never been offered GCI was also noted on some Cereals, Horticulture and Mixed farms.

- Enterprise and business mix were viewed as ways to spread risk from GCD by some Cereals and mixed farms, and 5/10 General Cropping farms. Having non-agricultural income enabling the business to cope with loss was noted on some Cereals and General Cropping farms.
- Strict biosecurity to minimise risk was noted on some Cereals farms
- A strong balance sheet enabling the business to cope with loss was noted on Cereals [5/10] and some Mixed farms.
- Growing crop loss not being likely on the farm was noted by Cereals [5/10] and some Mixed farms; the relative risk of crop loss being low was cited on Cereals [5/10] and some General Cropping farms.
- Not being aware of insurance that will cover crop loss was cited on some General Cropping and Mixed farms.
- Difficulty in judging the risk of crop loss and thus the effectiveness of insurance was cited on some Cereals and Mixed farms.

### 3.1.4 Farmer Responses: Reasons for not using Price Risk Management Tools

This section summarises the reasons for not using Price Risk Management Tools (**PRMT**) by the two broad farm type groupings of **Crop Farms** (Cereals, General Cropping, Horticulture and Mixed) and **Livestock Farms** (Dairy, Grazing Livestock, Pigs, Poultry). In addition farm type specific findings are presented where data permits.

In relation to **Livestock Farms**, the main reason cited for not using PRMT was a preference to market products / commodities themselves (16/41) while for **Crop Farms** this preference to market products / commodities themselves was cited slightly more frequently (19/40). In relation to farm type specific findings, the following were observed as displayed in Table 5.

**Table 5: Two main reasons for not using Price Risk Management Tools by Farm Type**

Farm Type	Preference to market commodities or products myself	Use existing enterprises to spread risk
Cereals	5/10	6/10
Dairy	6/10	-
General Cropping	9/10	5/10
Grazing Livestock	8/11	-
Horticulture	5/9	-
Mixed	9/11	6/11
Pigs	-	-
Poultry	-	-

Key: - = fewer than five positive responses indicating this as a reason for not using Price Risk Management Tools.

In addition to the reasons noted in Table 5, futures / options being too expensive was noted on 8/20 Cereals and General Cropping farms (combined group). Not being aware of any futures or fixed term markets for products was noted on some Dairy and

Horticulture farms, and on 6/11 Grazing Livestock farms. That the Basic/Single Payment Scheme provides a buffer against risk was cited on some Cereals and Grazing Livestock farms.

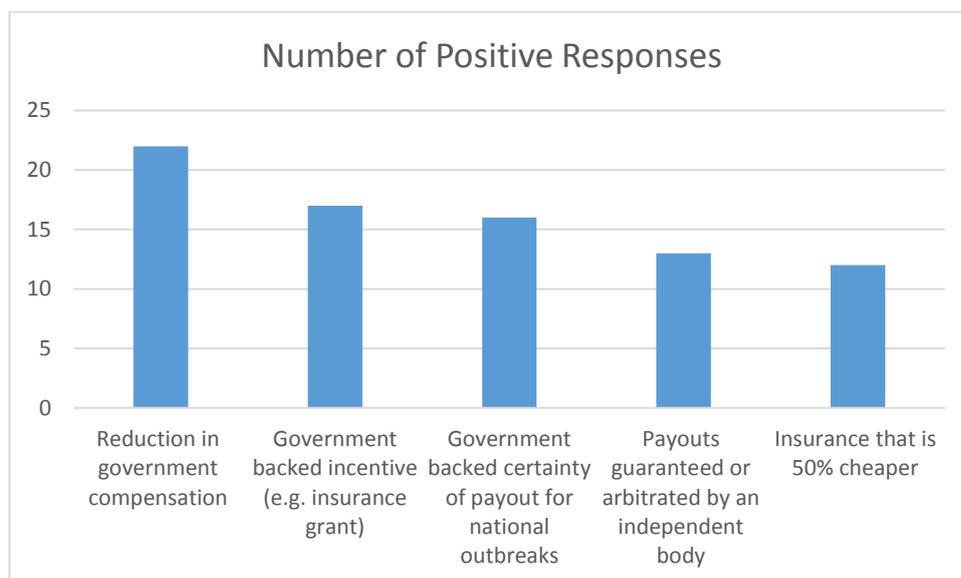
Business ability to cope financially because of strong balance sheet position was noted across a number of farm types [Cereals, 5/10; and on some Dairy, Horticulture, and Mixed farms]. That the business can cope financially because of diversity of agricultural enterprises was also cited across farm types, in particular on 6/10 Cereals farms and on some General Cropping, Grazing Livestock and Mixed farms. In addition, that the business can cope financially because of non-agricultural diversification or off farm income was cited on some Cereals and Grazing Livestock farms.

Some General Cropping farms noted that the business can cope with price risk because of a good relationship(s) with buyer, and a good relationship(s) with input supplier.

### 3.1.5 Farmer Responses: Factors that would increase likelihood of uptake of Animal Disease Outbreak Insurance

Across Livestock farms, the main reasons cited that would increase, or potentially increase, use of ADOI are shown in Figure 2.

**Figure 2: Number of Positive Responses from Comments in relation to factors that would increase, or potentially increase, uptake of Animal Disease Outbreak Insurance across 41 Livestock Farms**



Factors that would increase likelihood of uptake of Animal Disease Outbreak Insurance in relation to farm type specific points included the following as displayed in Table 6.

**Table 6: Factors that would potentially increase uptake of, or increase an exploration of uptake of, Animal Disease Outbreak Insurance (ADOI) by Livestock Farm Type**

Farm Type	Reduction in Government compensation available for ADO	ADOI that is 33% cheaper	Non-profit or Government backed <i>certainty</i> of payouts or incentives	Products that are simpler to understand
Dairy	6/10	-	-	-
Grazing Livestock	9/11	-	7/11	5/11
Pigs	6/10	5/10	5/10	-
Poultry	-	-	5/10	-

Key: - = fewer than 5 positive responses indicating this as a reason for not using Price Risk Management Tools.

An increase in available information about insurance products available were noted on some Dairy farms, which would also require an increase in information available about the relative risk of ADO.

The social / information aspect of advice from other farmers was noted in some cases as potential modifying ADOI uptake [Grazing Livestock, 5/11 and some Pig farms], albeit that the use of these products by other farmers was not in itself identified as a positive modifying factor for livestock farms.

### 3.1.6 Farmer Responses: Factors that would increase likelihood of uptake of Growing Crop Insurance

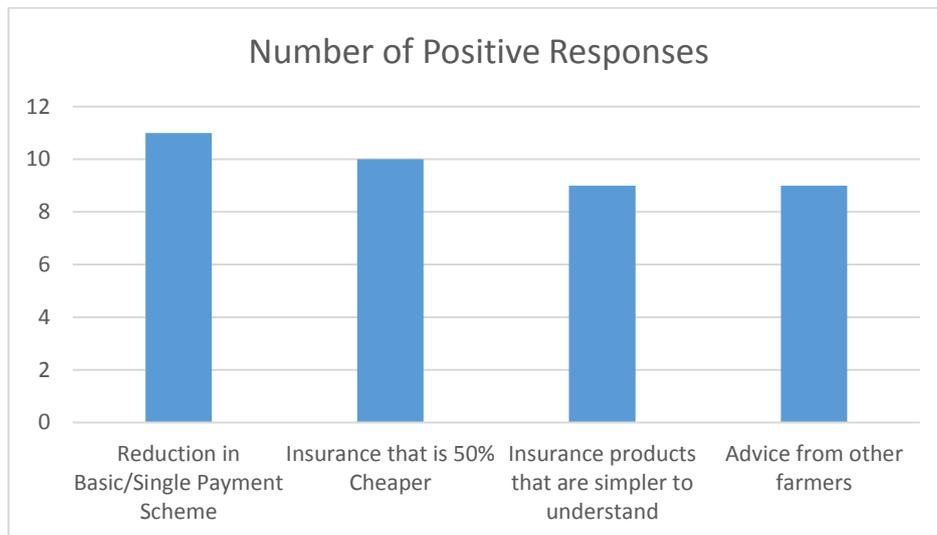
In relation to **Crop Farms**, the main reasons cited that would increase, or *potentially increase*, use of GCI are displayed in Figure 3.

Factors that would increase likelihood of uptake of GCI in relation to farm type specific points included insurance that is 50% cheaper, cited on some Cereals and Mixed farms, while non-profit-organisation or Government backed incentives (e.g. grants) for GCI was noted on some Mixed, Cereals, and General Cropping farms.

An increase in available information about insurance products available was also noted on some Mixed, Cereals, and General Cropping farms, insurance products that are simpler to understand was noted as a potentially positive modifying factor on some Cereals farms. Some Cereals farms also noted that financial insurance *payouts* that were guaranteed / arbitrated by independent body were a potential modifying factor.

The social / information aspect of advice from other farmers was noted on some Cereals and General Cropping farms as a potential modifying factor towards GCI uptake.

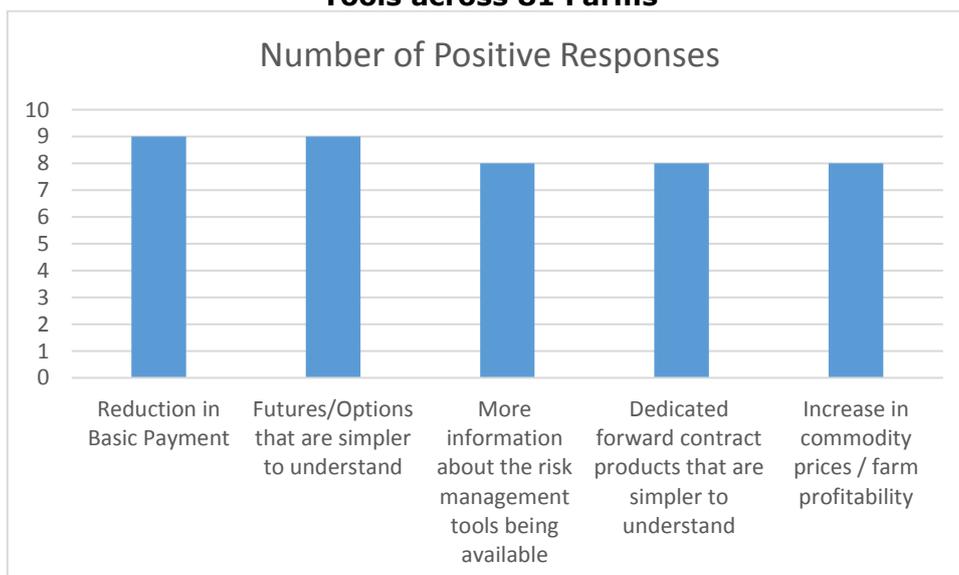
**Figure 3: Number of Positive Responses from Comments in relation to factors that would increase, or potentially increase, uptake of Growing Crop Insurance across 40 Crop Farms**



*3.1.7 Farmer Responses: Factors that would increase likelihood of uptake of Price Risk Management Tools*

Across Livestock farms, the main reasons cited that would increase, or potentially increase, use of PRMT were related to more information about the risk management tools available (5/41) and government backed risk management tools (e.g. underwritten contracts with suppliers) on some Livestock farms. With respect to Crop farms, the main reasons cited for enhanced use of PRMT are show in Figure 4 below.

**Figure 4: Number of Positive Responses from Comments in relation to factors that would increase, or potentially increase, uptake of Price Risk Management Tools across 81 Farms**



Factors that would increase likelihood of uptake of Price Risk Management Tools in relation to farm type specific points included:

- For **Cereals** farms, the main factors that would increase uptake of PRMT were: Futures/Options that are simpler [5/10] and a reduction in in the Basic/Single Payment Scheme [5/10]. Other factors noted on some Cereals farms were: forward contracts that are simpler; an increase in commodity prices / farm profitability; Government backed risk management tools (underwriting); advice from other farmers; and Government no longer paying out for losses after a crisis or low market prices.
- For **General Cropping** farms, factors that would increase uptake of PRMT on some farms were noted as: an increase in commodity prices / farm profitability; a decrease in commodity prices / farm profitability; Government backed risk management tools (underwriting); advice from other farmers [3/10] and a reduction in the Basic/Single Payment Scheme.
- For some **Mixed** farms, an increase in commodity prices / farm profitability would increase uptake of PRMT

### 3.2 Results Overview: Qualitative

#### 3.2.1 Reasons for use and non-use of Animal Disease Outbreak Insurance, and Factors that would potentially increase use of Animal Disease Outbreak Insurance: Farmer and Stakeholder Responses

The following sections summarise farmer and stakeholder responses in relation to reasons for holding ADOI, reasons for not holding ADOI, and factors that would potentially increase use of ADOI. Example quotes from farmers and stakeholders are provided in Table 7 below.

##### *Reasons for Using Animal Disease Outbreak Insurance*

From the Farmer responses, examples of farms covered for Animal Disease Outbreaks (**ADO**) [specifically Foot and Mouth Disease, FMD] were observed, but that coverage for more common diseases (e.g. blue tongue) was not on offer from insurance companies, hence restricting uptake of Animal Disease Outbreak Insurance (ADOI). Additionally reasons for holding ADOI included as a “top up” for bovine Tuberculosis (bTB) compensation from Government, and holding ADOI for high value animals only (e.g. high value male breeding stock). Other reasons noted included as a condition of taking out a loan or mortgage for the farm, or as a condition of the contract with a buyer. Typically livestock farmers holding ADOI were not influenced by other farmers in their choice of holding ADOI.

The majority of stakeholders commenting on ADOI, stated that the insurance most likely taken out by farmers is that which provides cover for loss (death or destruction) to breeding and / or trading livestock as a result of animal disease outbreak (including loss to unborn animals).

According to the perceptions of a variety of stakeholders, none of which showed any significant variation in responses between stakeholder type, the principal motivations for taking out ADOI amongst farmers were identified as follows: i) the high value of individual livestock (including pedigree stock) justifying the insurance premium on some farms and ii) insurance being essential to the survival of businesses in the event of animal disease outbreak. Other answers provided by stakeholders reflected perceptions that the main reason for taking up ADOI is to ensure general financial protection against the need for replacement or loss of profits.

Stakeholders were split in their opinions towards ADOI uptake in relation to farm size. Typically, respondents noted that there was either no link between farm size and the use of ADOI, or that there is a positive correlation between ADOI uptake and farm size. Some stakeholders perceive the type of farm as playing a larger role, specifically those with high value pedigree stock. Of those believing that larger farms are more likely to take out ADOI, a few noted the importance of the business approach, and personal characteristics and outlook of the farmer, as being more important than the scale or size of the business.

#### *Reasons for Not Using Animal Disease Outbreak Insurance*

In relation to **not holding** ADOI, a number of farmers noted that they had never been offered the product, nor had they looked into holding this insurance; some farmers noted that they *assumed* ADOI would be too expensive. Equally those farmers that had been offered ADOI typically noted that the insurance was expensive, or too restrictive in coverage. The common theme of Government compensation for notifiable disease was observed.

Active management of livestock for positive biosecurity typically related to operating a closed herd, or being very selective where livestock were sourced from. Decisions to not hold ADOI were typically not influenced by other farmers. Farm enterprise diversification and the strong financial asset position of the farm business were frequently noted as reasons to not hold ADOI, alongside the lack of margins / profit in a number of enterprises which meant there was no money available for the purchase of ADOI.

Farms undertaking contract rearing of livestock noted that the risk lay with the owner of the livestock, and in some cases these contract rearers had been informed by their insurance broker or agent that only livestock owned by the farmer (i.e. the contract rearer) could be covered by ADOI. Trading relationships (with buyers / inputs suppliers) were not noted as a reason to actively not hold ADOI.

A theme of farmers being unable to appropriately judge the risk of ADO emerged, and consequently farmers could not accurately judge the relative risk-return relationship involved in holding ADOI. However, many farmers noted that they had never held ADOI in the past, and that there were greater perceived threats to their business, albeit should an ADO occur some farmers noted that without compensation or insurance the business could not cope with the loss.

Of the stakeholders commenting on ADOI, a few cited cost as being a potential reason that farmers do not have ADOI. Other possible reasons cited by these stakeholders included: i) a reliance on government compensation schemes, ii) poor risk assessment or overall perceptions of animal disease outbreak as being 'low risk', iii) lack of product availability and iv) poor awareness or understanding of the products on offer.

#### *Factors that would potentially increase use of Animal Disease Outbreak Insurance*

In relation to factors that would potentially increase the use of **ADOI**, the removal or reduction of Government support for ADO via compensation for notifiable diseases, was noted as a reason that would lead some farmers to explore ADOI uptake. An observed, but also perceived, high cost of ADOI were also noted as a driver lowering ADOI uptake, and hence cheaper insurance would increase uptake. Farmers typically noted that the risk of an ADO was small or difficult to quantify, and hence providing farmers with more information about the risks faced would enable them to make more of an informed decision in relation to holding ADOI. Often farmers had not been offered ADOI, nor had they actively researched ADOI and hence the provision of more, and simplified information about ADOI products would potentially increase uptake. Active decisions to not hold ADOI were a relatively common theme, driven by a lack of profitability in the sector, strong balance sheet position, and an active decision to take the risk, in recognition that other

factors posed greater risks to the business. Hence these aspects are likely to remain as factors that would dampen any potential uptake. The social influence of other farmers was not noted as a reason to hold or not hold ADOI, and hence is unlikely to be a potentially positive modifying factor.

Responses from stakeholders in relation to drivers that would increase use of insurance products were largely confined to financial factors that related to the level of diversification or specialisation within a business, i.e. where the diversity of a business is limited, farmers require greater financial stability due to the specialised nature of their business.

Social and managerial factors were also noted as of importance such as: the level of business awareness or profit orientated nature of the farmers and employees, the levels of education/understanding regarding the tools or products, the use of advisors or consultants for support, positive trading relationships and high levels of trust. Some respondents also suggested that younger entrants to the industry who are looking to become established might be more likely to participate in forward contracts than the more established businesses. Membership of cooperatives or groups can act as both a financial or social driver, as membership can minimise a farmer’s exposure to risk, giving them greater collective bargaining power, as well as proving a significant site of exchange for advice, knowledge or experience.

Specifically in relation to ADOI, the premium cost was cited as one of the key barriers to its use, followed by lack of farmer expertise, poor risk assessment and lack of incentives. Overall, almost all stakeholders believed that a change in premium price could potentially affect farmer's uptake of these products, but that price is much less likely to play a role in comparison to the potential role that might be played by knowledge extension to the farmer

Several stakeholders suggested that a reduction in government compensation available for animal disease outbreaks would increase insurance use, whilst others believed that farmers’ reliance on the Basic/Single Payment Scheme prevented them from using insurance products.

**Table 7: Indicative Quotes from Farmers and Stakeholder with respect to Animal Disease Outbreak Insurance**

	<b>Reasons for use of ADOI</b>	<b>Reason for not using ADOI</b>	<b>Factors that would potentially increase use of ADOI</b>
Farmer Responses	<p><i>"Makes up for inadequate Government bTB Compensation"</i> [Dairy]</p> <p><i>"Cattle are worth more than the government bTB compensation"</i> [Dairy]</p>	<p><i>"If there was a foot and mouth outbreak the government would cover the value of animals culled."</i> [Dairy]</p>	<p><i>"Would only potentially consider it if all government support for disease was to be withdrawn"</i> [Diary]</p> <p><i>"Would consider insuring if government backed the schemes, however I would still be sceptical and find it hard to assess potential disease risks. It is likely you will insure for everything but the disease that you end up getting!"</i> [LFA Grazing Livestock]</p>
	<p><i>"If I did get a disease outbreak which meant I lost sows this would impact on the loss of the sows value plus consequential loss of having no pigs coming through"</i> [Pig]</p>	<p><i>"Insurance to cover for disease is very expensive relative to insurance cover for things like "mysterious disappearance", "fatal injury whilst straying", "electrocution", "transit of</i></p>	<p><i>"Not interested in this type of insurance cover"</i> [LFA Grazing Livestock]</p> <p><i>"Would be unlikely to purchase animal health insurance if the BPS was reduced because I wouldn't be</i></p>

	<p>"Decision only influenced by [my]self and in part due to farm mortgage" [Poultry]</p>	<p>livestock" and "fire, lightning" [Dairy]</p> <p>"No one has money to waste and [I] don't think this insurance is necessary" [Pigs]</p>	<p>able to afford to".. "If an element of an increase in BPS was to pay for animal health insurance then I would go for that" [Dairy]</p>
	<p>"It provides cover for swine fever, foot and mouth etc. Yes also provides consequential loss for not having any pigs coming through the system if the sows were culled" [Pigs]</p>	<p>"Owner of the animals has disease insurance, which covers him, my business cannot get insurance for disease, also in a bTB 1 area so affordable insurance of any kind is not available." [Lowland Grazing Livestock] (rearing livestock on contract)</p>	<p>"If the value of the stock rose we might look at insuring against some diseases. If bTB came closer we might look to insure against it - if it's possible? If we didn't have such conscientious neighbours we might consider some disease policies." [LFA Grazing Livestock]</p>
	<p>"Only one enterprise so important that we have animal insurance" [Pig]</p> <p>"Poultry is 3/4 of the business so worth insuring due to potential impact on whole business" [Poultry]</p> <p>"It is very important that the poultry has cover, as whole business survival would be threatened if there were a problem with the poultry enterprise" [Poultry]</p>	<p>"The business has very little borrowings so is reasonably robust but the loss of a significant number of cows would cause medium term problems" [Dairy]</p> <p>"Financially the business could stand a partial disease hit - reason why I do not take out disease insurance" [LFA Grazing Livestock]</p>	<p>"Really comes down to how profitable the business is overall and how affordable the premiums are" [Lowland Grazing Livestock]</p>
	<p>"I am influenced by the provider through the price of the premium. Other farmers have no influence on the choice of disease insurance but have some influence on the choice of "all risk" policies for high value stock" [LFA Grazing Livestock]</p>	<p>"I have never been offered this insurance, or looked into it myself" [Dairy]</p> <p>"As far as I'm aware it is not available with my insurer." [Lowland Grazing Livestock]</p>	<p>"Clearer language and honesty about what is and isn't covered would be helpful" [Lowland Grazing Livestock]</p> <p>"More information available the better, always willing to learn &amp; listen from advice" [Pigs]</p>
		<p>"Have a closed herd, so risk of disease etc. is reduced and taking out insurance is not justifiable" [Dairy]</p> <p>"Have not looked into it as disease risk is low on my farm and I'm not interested in disease insurance" [LFA Grazing Livestock]</p> <p>"We are a closed herd so minimise risk here" [Pigs]</p>	<p>"I'm currently quite negative in my opinion of insurance companies, if they could change my view I would be more interested in disease insurance" [Lowland Grazing Livestock]</p>
Stakeholder Responses	<p>"Very often certain diseases can be massively catastrophic, whereas a lot of the other issues that affect the livestock sector, whether they are just slight illness related or weather related or whatever, tend to have a fairly small impact. Some diseases can quickly go through an entire herd or a flock, so that will be a driver</p>	<p>"I think in a lot of cases, they think they have it as part of a general insurance policy. There is a bit of ignorance about what they have actually got, and that's probably about spending a bit of time understanding what their insurance policies cover. I don't think it's because they don't think they need it. I would be surprised if a farmer said,</p>	<p>"A change in Basic Payment levels would not affect the uptake of insurance. The only way would be for the government to change their stance in terms of Foot and Mouth and bTB. If the Government worked together with insurance companies then this would increase the uptake." [Bank Manager]</p>

	<i>in taking out insurance" [NFU Local Policy]</i>	<i>'oh I don't need that'. I think it's more likely they would say, 'I think I'm covered anyway'. But they might not realise that they haven't got enough cover" [Bank Manager]</i>	
		<i>"Partly they think it won't happen to them. And there is usually some kind of risk analysis so with things like airborne diseases, you can look at prevailing winds and where disease is in Europe. But with things like foot and mouth, and things like that, it's easy once you've had a decade with no outbreak to think, well, I need to reduce costs a little bit, I won't perhaps go with that one. So it's very much risk and cost based" [NFU Local Policy]</i>	<i>"If policies were written and communicated clearly that would make it worthwhile for farmers. However if policies were more restrictive then it doesn't matter what the premium price would be, it might not be worthwhile farmers paying out premiums for insurance" [Policy Organisation]</i>
			<i>"It would need a lot of publicity and information that is easy to understand and digest in order to reach out to everyone regardless of what media source is used" [Policy Organisation]</i>
			<i>"We are not culturally used to using insurance in this country, particularly in livestock. We need more transparent, trustworthy data of price and availability of agricultural products, so the industry can be more informed and so the insurance sector can offer tailored and reliable products" [NFU Mutual National]</i>

*3.2.2 Reasons for use and non-use of Growing Crop Insurance, and Factors that would potentially increase use of Growing Crop Insurance: Farmer and Stakeholder Responses*

The following sections summarise farmer and stakeholder responses in relation to reasons for holding GCI, reasons for not holding GCI, and factors that would potentially increase use of GCI. Example quotes from farmers and stakeholders are provided in Table 8 below.

*Reasons for Using Growing Crop Insurance*

In relation to Growing Crop Insurance (**GCI**), some Cereals farms noted that their insurance broker had convinced them to take out the insurance. On General Cropping and Horticulture farms, specific comments about insurance held included having 'business interruption' insurance or insurance for glass houses that covered the growing plants inside should damage to the glasshouse occur. Where outdoor growing crops were insured this included fire damage; on many farms holding GCI it was noted that damage from hail was not covered, typically because this was too expensive.

The majority of respondents across the stakeholder types revealed that GCI is taken up by very few farmers in the United Kingdom. However, under those circumstances where farmers do use GCI, the perceived reasons for use cited include: i) the protection of income; ii) risk management; iii) the high value of crops grown justifies the insurance premium on some farms; and/or iv) to deal with price volatility rather than diseases.

Only a few respondents perceive farm size as being an indicator of GCI uptake, believing that insurance for growing crops increases with farm size. However, the majority of respondents believe that typically insurance for growing crops occurs more on farms with high value field crops (e.g. potatoes, field scale vegetable and salads). The most common reference was to the uptake of hail insurance. Mixed farms or larger businesses with an income from diversified, non-agricultural activities, were mentioned by respondents as being considered more 'low risk' with regards to crop damage, as income from the other sources could help to offset any losses to crops. These farms were thus regarded as being less likely to take out crop insurance due to their strength from diversification.

#### *Reasons for Not Using Growing Crop Insurance*

In relation to **not holding** GCI, the relative low risk of GCD from the benign growing environment in England was cited as an active reason against having GCI. A preference for risk taking was also cited, alongside a spread of crops or enterprises that in themselves provides some risk mitigation, it being unlikely that all crops would be affected in any one year. Farmers citing active exploration of GCI costs were more frequently observed than for ADOI, with an active decision to not take out GCI due to the relative cost-return of holding these products, sometimes coupled with perceived or observed restrictions on what would be covered (e.g. no cover for flood damage in a flood prone area). On farms with field scale cropping, the level of the Basic Payment was sometimes cited as providing mitigation against GCD, reducing the need to hold GCI. Some farmers said that the removal or reduction of the Basic/Single Payment Scheme would lead them to explore more fully the possibility of having GCI. However, on Horticulture farms the common theme of low or non-existent Basic/Single Payment meant that this had no influence on decision making.

In relation to insurance choices being influenced by farmers or insurance brokers / agents, there was some evidence of farmers being influenced by other farmers. This influence was noted as both potentially positive towards holding GCI (i.e. if other farmers held the insurance, then they would consider it themselves), but also negative towards holding GCI as they had observed other farmers holding this insurance, and having bad experiences.

Cropping practices and plant biosecurity were noted as reasons for not holding GCI, alongside the money being better spent on crop protection products to ensure good crop outcomes, rather than spending money on GCI. Typically, relationships with traders (buyers/sellers) had no influence on uptake of GCI.

The key reasons suggested by the majority of stakeholders for farmers not taking out GCI include cost, low perceived risk of crop failure (making the insurance premium not good value for money), the use of informal insurance measures, such as diversification of the farm business, past experience, and poor understanding or awareness of the products on offer. Several different types of stakeholder also referred to the lack of availability of certain types of growing crop insurance, namely weather insurance that is not related to hail damage.

#### *Factors that would potentially increase use of Growing Crop Insurance*

With respect to **holding GCI**, business specialisation, including cover for glasshouses and insurance for business interruption were noted as drivers. In relation to not holding CGI, the low risk of GCD was a key theme, reducing the financial value of holding GCI. Strong

balance sheet positions were noted on some occasions. The benign growing environment was a key theme that actively reduced the need for GCI. More crop based farmers had actively explored GCI and decided to not use it than was the case for animal based enterprises where ADOI was not taken. The Basic/Single Payment Scheme was noted as providing some risk mitigation against GCD. The social influence of other farmers holding GCI insurance was noted as an actual and potential modifier of behaviour, both positively and negatively with respect to GCI uptake.

With respect to GCI, the majority of the stakeholder respondents commenting on farmer uptake of crop insurance, suggested that cheaper insurance would increase the use of growing crop insurance, but with some of these claiming that the increase would be minor (e.g. fewer than 10% more farmers taking out this insurance). A limited number of stakeholder respondents commented on the specificity of the insurance, for example, noting that more variable options in the insurance product offering might prove more appealing to farmers. Several stakeholder respondents implied that behavioural characteristics act as a barrier to farmer uptake of PMRTs, including the tendency to mistrust other actors in the system, such as processors, abattoirs, or ‘the big grain boys’ [Grain Buyer]. The willingness to assimilate new information or learn was also described by several respondents as lacking in many farmers, and the tendency to be sceptical of products or tools on offer. Only a few stakeholders believed that a reduction in the Basic/Single Payment Scheme would increase CGI use.

**Table 8: Indicative Quotes from Farmers and Stakeholder with respect to Growing Crop Insurance**

	<b>Reasons for use of GCI</b>	<b>Reason for not using GCI</b>	<b>Factors that would potentially increase use of GCI</b>
Farmer Responses	<p><i>"Everything is integral - can't risk one crop e.g. bedding crops, as output from other outside crops wouldn't cover loss"</i> [Mixed]</p> <p><i>"All growing crops are covered by revenue insurance"</i> [General Cropping]</p> <p><i>"All arable crops are covered - presently grow winter wheat, spring and winter barley, beans and oilseed rape. The insurance does not cover hail damage in the rape"</i> [Cereals]</p>	<p><i>"No, I've not had a problem over the years so I've not needed to. We've never had hail damage to crops on the farm."</i> [Cereals]</p> <p><i>"It's just a risk that I'm willing to take, for the few times that it might happen there's more that it won't".</i> [Cereals]</p>	<p><i>"If the Government said they were never going to compensate for anything then I would have to consider it but it also depends where you are and what the risks are".</i> [General Cropping]</p>
	<p><i>"The plants in themselves are not insured but if they are damaged as a result of, for example, damage to a glasshouse/polytunnel then their loss would be covered as a consequence of the damage to the building"</i> [Horticulture]</p>	<p><i>"Not good value for money, only a small scale producer, I would need extensive cover and feel they try to wriggle out of claims. I don't hold insurers in high regard. The policies are very restrictive e.g. only covered if you lock everything away every night"</i> [Horticulture]</p> <p><i>"My glasshouses are too old and I cannot get insurance on them If the glass isn't insured then the crop inside can't be"</i> [Horticulture]</p> <p><i>"I talked to the insurer, considered it and decided</i></p>	<p><i>"Would consider growing crop insurance in the future if climate change were to have a significant impact on output."</i> [Cereals]</p> <p><i>"If there was a change of climate with heavier rainfall and drier summers it may increase our use"</i> [Mixed]</p>

		<i>that it wasn't financially viable". [General Cropping]</i>	
	<i>"Crops are covered for both direct and consequential loss for everything bar hail damage" [General Cropping]</i>	<i>"Maybe if they became popular then it is something I would consider" [Mixed]</i>  <i>"My business is now only small and I just think the insurance premium would be too expensive - I pay enough on other business insurance as it is". [Horticulture]</i>	<i>"Currently doubtful whether insurers would be willing to pay out in full, so this would need to be changed" [General Cropping]</i>
	<i>"Product liability insurance - for example, growing seed oats - if there was a problem in future crops that was traced back to the seed grown on the farm it could become a very costly liability" [General Cropping]</i>	<i>"I never really thought about it, haven't considered it. If there was no subsidy then I would maybe start to consider insurance" [General Cropping]</i>  <i>"No support received in my business, don't believe there should be any support for farm businesses" [Horticulture]</i>	<i>"It's difficult to say as I don't really know how much it would be. Grants get too complicated so I don't think that would help". [Cereals]</i>
	<i>"Loss of crop - only real reason for insuring - hail is not relevant in the UK" [Cereals]</i>	<i>"I weighed up the likelihood of having any problem and decided it's not worth it, my money is better spent elsewhere". [Cereals]</i>  <i>"It is all about risk versus reward and I feel the risk is not great enough compared to the reward on my farm" [Mixed]</i>	<i>"If we were at a different stage of life then would consider it - in current stage of life, slowing down so don't consider it a priority to safeguard the future". [Mixed]</i>
		<i>"Live in flood prone area, so that is the only that we may possibly want to insure for, but wouldn't be able to get". [Mixed]</i>	
Stakeholder Responses	<i>"Trigger to taking out insurance is experience of crop loss e.g. Pod shatter in oilseed rape due to thunder or hail. Potato growers may insure against bad potato blight" [Business Advisor]</i>	<i>"No current insurance available for storm or flooding of land, even if wanted it. In this area more reliance on diversity of income to cover losses. Farmers are gamblers and with low returns can't afford high premiums" [Local Insurance Broker]</i>	<i>"Farmers access information in new ways, so need appropriate sources of information, e.g. Built into Gatekeeper crop records program. Or from an independent information hub. A compulsory approach, such as making insurance a prerequisite for receipt of Government payments would increase uptake" [Advisor]</i>
	<i>"We used to offer hail insurance, but never had a claim" [Local Insurance Broker]</i>	<i>"The cost of the insurance in comparison to the risks associated with the loss of crop is a big reason why insurance is not taken out. In recent times, developments in technology in agriculture</i>	<i>"Some illustrated examples of the premiums paid out by a selection of producers and the claim payments that they have received would put into context the possible benefit" [Bank Manager]</i>

		<i>have allowed the crop to be at less risk from the weather of crop loss” [Business Advisor]</i>	
		<i>“UK weather is relatively benign. Farmers like to look to their own diversification plans for risk management. Why pay an insurer for financial protection for a crop when actually the chances of you getting a significant loss are relatively modest if you can diversify your income in some way, and of course there are some opportunities to forward sell fixed prices in any event if you particularly want to” [NFU Mutual Local Insurance]</i>	<i>“Perhaps the only way to do it would be to make it compulsory, perhaps via a levy, so that all farmers contributed to it. That way the premium could be reduced to an affordable level” [Local Insurance Broker]</i>
		<i>“Lack of understanding. I suspect a lot of farmers wouldn’t know that they could insure against these things, and then there is the more traditional view that we wouldn’t do that anyway, because we have always lived without it. For owned farms, they’ve got collateral when things go wrong. They can go to the bank and borrow against that asset fairly easily. Most cereal farmers think in longer terms - 7-8 year rotations, so see bad times as part of the up and down and that will be levelled out in time” [Policy Organisation]</i>	

*3.2.3 Reasons for use and non-use of Price Risk Management Tools, and Factors that would potentially increase use of Price Risk Management Tools: Farmer and Stakeholder Responses*

The following sections summarise farmer and stakeholder responses in relation to reasons for holding PRMT, reasons for not holding PRMT, and factors that would potentially increase use of PRMT. Example quotes from farmers and stakeholders are provided in Table 9 below.

*Reasons for use of Price Risk Management Tools*

With respect to **use of** Price Risk Management Tools (PRMT), many farmers operated some form of price risk management activity. Reasons for not using more PRMT included a strong preference for self-marketing of products, PRMT being too expensive (both known to be too expensive and perceived to be) and these tools being too complex. Frequently farmers noted a lack of PRMT that were available for their products or business activities. The level of the Basic/Singe Payment Scheme was observed to provide a level of risk mitigation for some farmers. Equally farmers noted a preference for taking the risks, and potential rewards, associated with market volatility.

Other points noted in relation to PRMT were buying inputs forward, in bulk, to secure a better price, having (pig price) contracts that are linked via a formula to input prices, or prices based on across-year averaging [Horticulture], or buying energy on contract [Poultry].

A majority of stakeholder respondents suggested that the principal reason that farmers use PRMT is to ensure that they receive a guaranteed market price for some of their production, while some of these stakeholders suggested that a key reason for their use is to ensure that they have a guaranteed market outlet for some of their production. Some of these respondents overlap, proposing that both factors play an equal role in the decision-making process of the farmer. Some stakeholders (mixed stakeholder types) also mentioned that PRMT use allows farmers to ensure that they can buy inputs at an agreed price to minimise input price risk. Risk management was also mentioned more generally by just over a quarter of respondents as a driver in the use of PMRTs. Cooperatives/Producer organisations and farmer groups (buying or otherwise) were referred to by half of the respondents as playing a significant role in farmer uptake of PRMT use.

A majority of stakeholder respondents said that typically, the use of price risk management tools or dedicated contracts increases with farm size. One hypothesis for this observations is the potential for larger farms to have the managerial time and capacity to research such tools. No correlation between response and the type of stakeholder was observed.

Stakeholder feedback suggest that arable/cereal farmers were perceived as those most likely to use PRMTs, due to having more periods during the year where more time is available for looking into such tools, or because economies of scale allow the employment of specialists to deal with options and futures. A few stakeholder respondents stated that PMRTs are also likely in specialised livestock farms, such as pigs or poultry, while some other respondents stated that typically the use of price risk management tools, such as Options and Futures is linked to whether or not the farmer uses, or is part of, a larger organisation such as a grain co-op or milk co-op. Bank managers overall saw no connection between the use of insurance or PRMTs and farm size.

#### *Reasons for Not Using Price Risk Management Tools*

Reasons to **not use** PRMT typically included the cost of using these tools, a strong preference to undertake, and hence control, marketing / sale of products by the farmer, and a common theme of lack of understanding of PRMT. No suitable PRMT being available was often cited, in particular by more specialised crop producers, and on livestock farms. Active decision making to market produce over a long period of time (e.g. throughout the year) was observed as a way to spread risk. It was also noted that using PRMT can also introduce rather than remove risk within the business, with some farmers noting that they had observed other farmers not benefiting financially from these tools, or that they had themselves previous used or explored them and actively decided to not use them. Active recognition of the risk and rewards available to farmers were noted.

Government policies typically do not influence farmers' use of PRMT, with the limited exception of some farmers noting the need to sell crops and buy inputs at specific times of year to manage cash flow, in particular in relation to when the Basic/Single Payment Scheme is received. Other points noted for not using PRMT included not being worth it for the scale of the enterprise, the time required to become involved in these tools, and a preference for actively not engaging in these tools flowing from a self-perception of their role and occupation as a farmer rather than as a trader.

Over half of all stakeholders interviewed believe that the main reason farmers do not use PRMTs is due to a lack of knowledge/understanding/skills regarding these tools and

contracts. Other reasons include farmer independence, previous negative experiences, lack of time or resources, lack of faith or trust in the process, the fear of selling their product too cheaply and the tradition/culture of deal-making and marketing own products. However, a number of respondents state that they have witnessed a gradual increase overall in levels of understanding regarding these tools.

*Factors that would potentially increase use of Price Risk Management Tools*

Farmer responses in respect to factors that would increase use were very limited. Many farmer respondents noted that nothing would increase their use of PRMT, either due to no interest, specific business circumstances that mean that PRMT are not available to their business, or a preference for undertaking their own marketing and buying activities. A limited number of responses noted a potential increase in exploring PRMT if the Basic/Single Payment Scheme was reduced or removed in value.

Several stakeholders interviewed suggested that an increase in advice or information would be unlikely to have any effect on the uptake of PRMTs. A few stakeholders stated that one of the biggest problems with regards to PRMTs uptake is the lack of trust in the system, bad experiences, or the complexity of the products on offer.

**Table 9: Indicative Quotes from Farmers and Stakeholder with respect to Animal Disease Outbreak Insurance**

	Reasons for use of PRMT	Reason for not using PRMT	Factors that would potentially increase use of PRMT
Farmer Responses		<p><i>"I'm not going to use them [Options/Futures] because I don't understand them".</i> [General Cropping]</p> <p><i>"I don't know enough about them [Futures/Options] and don't know what to do".</i> [General Cropping]</p> <p><i>"Prefer to trust my own judgement and my business will depend on my own skills"</i> [General Cropping]</p>	<p><i>"I might do many of these things, I know about them, but so far they are not suitable or cost effective. It's impossible to say yes or no on such little information".</i> [Cereals]</p>
		<p><i>"There is no suitable alternatives for fat lambs"</i> [LFA Grazing Livestock]</p> <p><i>"There are still auction marts and I prefer to market my livestock that way"</i> [LFA Grazing Livestock]</p> <p><i>I do not like the idea of contracts for sale of livestock as I don't know year to year what I can commit too, e.g. I can not lock into a contract to sell 400 lambs fat because the weather may be bad, they will need more feed and I wouldn't be able to fulfil the contract"</i> [LFA Grazing Livestock]</p> <p><i>"I'm aware of what exists - it just doesn't fit our system and scale"</i> [LFA Grazing Livestock]</p>	<p><i>"I buy and sell many different products and the quantities concerned are relatively small and do not warrant these types of risk management measures. Therefore none of the above would influence my decisions. I know my business very well and take my own risk management measures".</i> [Horticulture]</p> <p><i>"A reduction in the farm profitability through reduction in BFP may force us to look at how we market our produce, but we are generally selling into premium breeding stock markets or high quality beef, so achieve relatively high prices"</i> [Lowland Grazing Livestock]</p>
		<p><i>"Contract rearing is my main enterprise, for which I set the</i></p>	<p><i>"Packer doesn't offer forward price – [supermarket] offers</i></p>

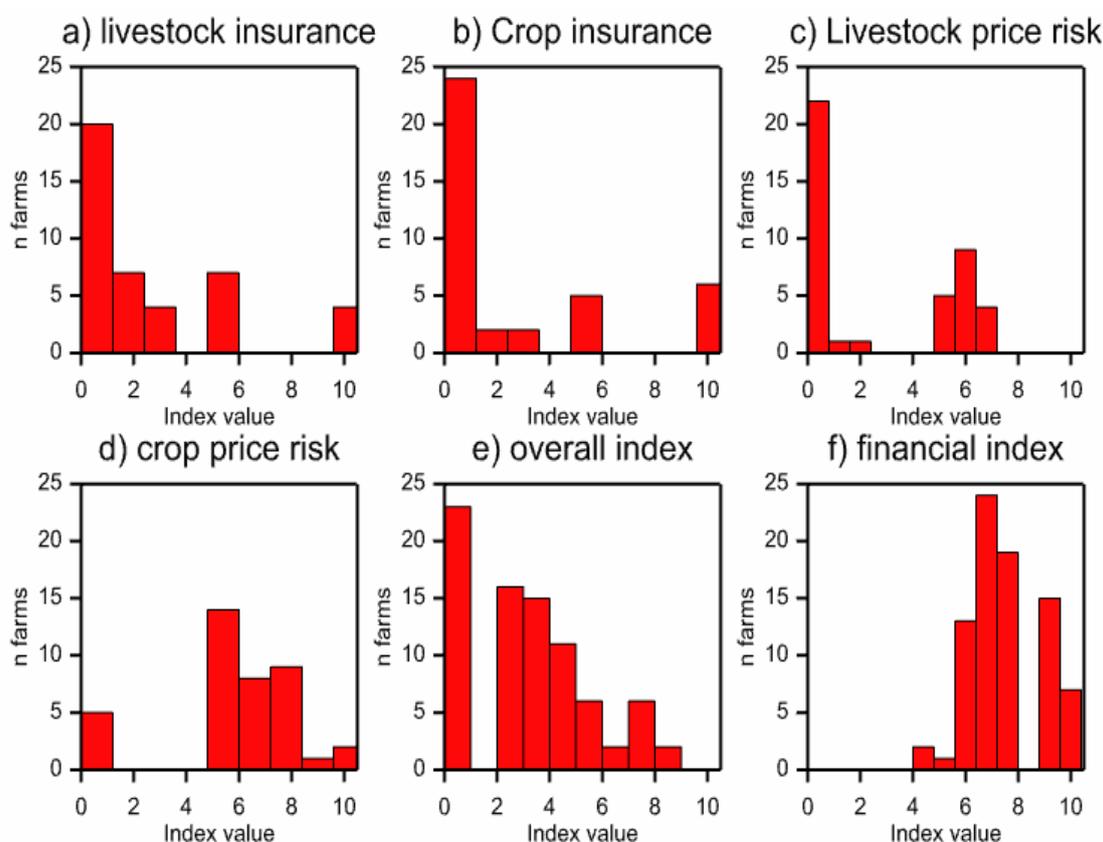
		<p>price and have control of the income it generates" [Lowland Grazing Livestock]</p> <p>"Mix of enterprises allows risk to be spread" [LFA Grazing Livestock]</p>	<p>tracker price, but we'd rather not use these options" [Pigs]</p>
		<p>"Not many options and tools available for small dairy farmers to see much of a benefit" [Dairy]</p> <p>"I'm a farmer" [Dairy]</p>	
		<p>"I buy and sell many different products and the quantities concerned are relatively small and do not warrant these types of risk management measures". [Horticulture]</p> <p>"Volatility is opportunity". [Mixed]</p>	
Stakeholder Responses	<p>"Increasingly farmers are looking to secure a predictable margin, rather than risk boom and bust associated with price volatility. Allows for stable re-investment programme, rather than only replacing machinery / equipment / infrastructure etc when prices are good which has a knock on on the whole supply chain" [Fruit Marketing Cooperative]</p>	<p>"To an extent they maybe have been happy enough if they feel they're producing good stock that they feel they are being rewarded at the livestock marts. Tradition comes into it as well, there's a lot of loyalty, right down to an individual mart" [Business Consultant]</p>	<p>"What's missing currently is, there's an absence of training schemes out there for farmers to actually help them understand their finances and the risks involved etc. There is nothing. There are colleges but they're just doing their bit with the young people, but there's nothing for those thousands of farmers out there that, with a bit of extra knowledge, could prepare better for the changes that are coming" [Milk Buyer]</p>
	<p>"The majority are so influenced by market price that they sometimes sign up but then they jump ship if the price went up in market by tuppence and I think that's down to the skills of the farmer in being able to judge what the right options are. They do tend to go for day to day, rather than looking longer time in terms of price of product" [Milk Buyer]</p>	<p>"Ironically uncertainty - "the sale price might go up therefore I don't want to fix", seems to be said more often than "the price might come down so I should fix" Farmers tend to be more hopeful on output prices and more pessimistic about input prices" [Bank Manager]</p>	<p>"A national campaign that involves everyone with an interest such as NFU, AHDB would likely increase farmers use of price risk management tools. If it's not carried out using a coordinated approach then uptake will not be good" [Policy Organisation]</p> <p>"Farmers with family members following on are usually more receptive to new ideas (so interested in trying the contracts), and I suppose that's always been the case. Typically it is newer/younger farmers who prefer the contracts, though not many younger people are coming into the livestock sector." [Business Consultant]</p>
	<p>"I think there's possibly a difference between livestock farmers and arable farmers in that I think that arable farmers perhaps have an easier understanding of their input costs, and their input costs are more measurable than in a stock system. So if they know what their input costs are, then they're told they can get a</p>	<p>"Sometimes farmers have been caught out before by signing up to something and then the market has either moved against them and they feel they've lost out, or the farmer has felt they've been had from a specification angle, or whoever they've contracted with has managed to worm their way out of a commitment</p>	<p>"There is very little trust in the system. Farmers don't trust processors, abattoirs, the big grain boys. They all think everybody is out for their own. So perhaps a bit more sharing of intelligence between the different stages of the chain would help, because you always hear farmers saying all the time, 'oh, those abattoirs are</p>

<p>contract to sell grain at a certain price per tonne, they know that this covers their input costs and rent etc. and leaves them with a margin, and then they're quite willing to do that rather than taking the risk of the market price at the time. I think with stock, as the market price is so volatile there is a tendency to think that if the marketing period is so long (for example selling prime lambs over the summer months), then you will take the rough with the smooth, and it will balance out" [Business Consultant]</p>	<p>and feel hard done by, and then wonder what the value is of entering into these contracts. They lose a bit of faith in the system. You've seen that just now in the potato trade because a business is contracted at higher levels than the free-buy price at the moment, and we're getting a lot of queries around specification and quality and processors trying to knock down prices closer to the free-market price. So farmers do lose a bit of faith when that comes along and they'll think I'll take the risk next time rather than locking myself in" [Bank Manager]</p>	<p>making a load of money, look at the amount of money they're making out of our animals'. Well, if you actually looked at their accounts, you'd actually see that they aren't making any money. A lot of it is perception about who is making the money. And if we can break down those barriers in terms of perception of who is making money, then perhaps things would be more open and would work better" [Milk Buyer]</p>
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### 3.3 Statistical Analysis Linked to Farm Business Survey Data

Results relating the construction of an overall index of risk management as described in section 2.7, with the distribution of different indices shown in Figure 5, and against various explanatory variables are shown in Table A.2.1. The strongest relationship is with type<sup>2</sup> and this is displayed in Figure 6. Cereals and General Cropping farms show the greatest interest in risk management tools, although it should be noted that comparisons between cropping and livestock farms may be somewhat distorted by the different questions asked. Grazing livestock farms show the lowest levels of interest.

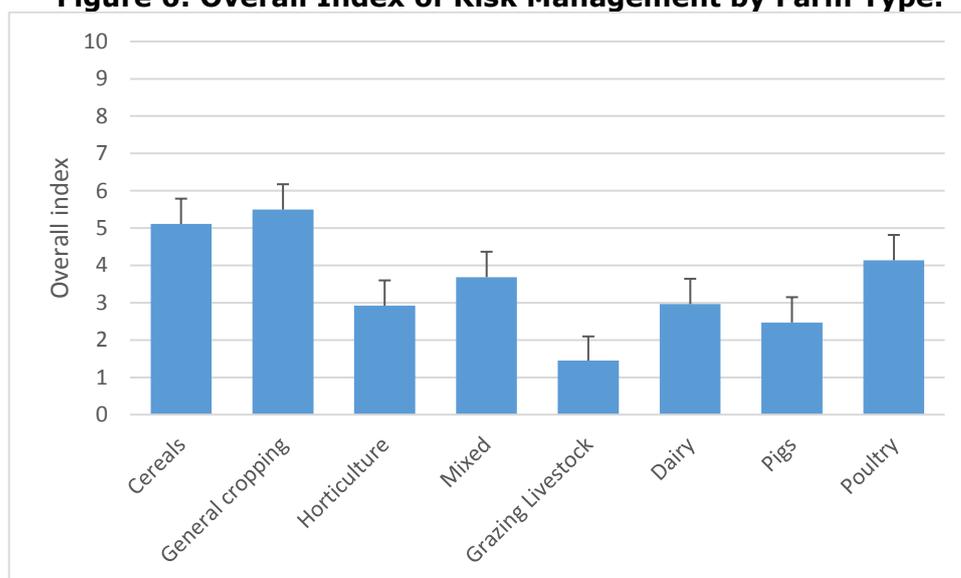
**Figure 5: Distribution of the Different Indices**



<sup>2</sup> 'Robust type'; see [http://farmbusinesssurvey.co.uk/DataBuilder/defra-stats-foodfarm-farmmanage-fbs-UK\\_Farm\\_Classification.pdf](http://farmbusinesssurvey.co.uk/DataBuilder/defra-stats-foodfarm-farmmanage-fbs-UK_Farm_Classification.pdf) for a detailed explanation

The asset band is significant before fitting the farm type variable to the analysis (Table A.2.1 in the Appendix). To partially remove size effects, this variable was formed by grouping into the bottom, middle and top thirds within each economic size band. The relationship is illustrated in Figure 7; perhaps surprisingly, the farms with the highest assets show the greatest interest in risk management tools. After fitting the Farm Type variable, asset band is not significant (see right hand side of Table A.2.1). This does not mean that the relationship is not important, but may indicate that it is being driven by other characteristics of the different farm types, rather than by the level of assets *per se*.

**Figure 6: Overall Index of Risk Management by Farm Type.**



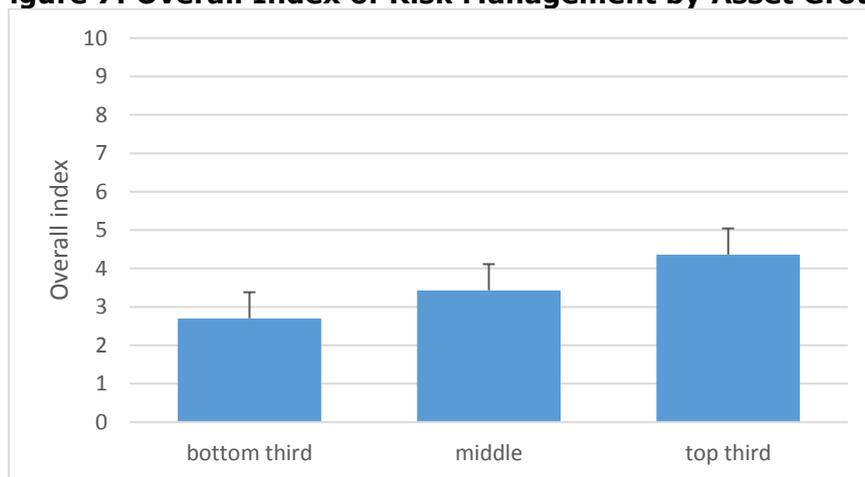
Note: Index values range from 0 (no interest in risk management tools) through to 10 (fully applying them). Comparisons between crop and livestock farms should be treated with caution, due to the slightly different questions asked. Bars are one standard error.

Four other variables are also significant before fitting the Region variable, although none of these are significant afterwards, suggesting that the difference might be driven by geographic effects, or some other factor confounded with geography. These are the performance ratio, Farm Business Income (FBI)<sup>3</sup>, Net Farm Income (NFI) and area, all with a positive relationship (Figure 8).

<sup>3</sup> See

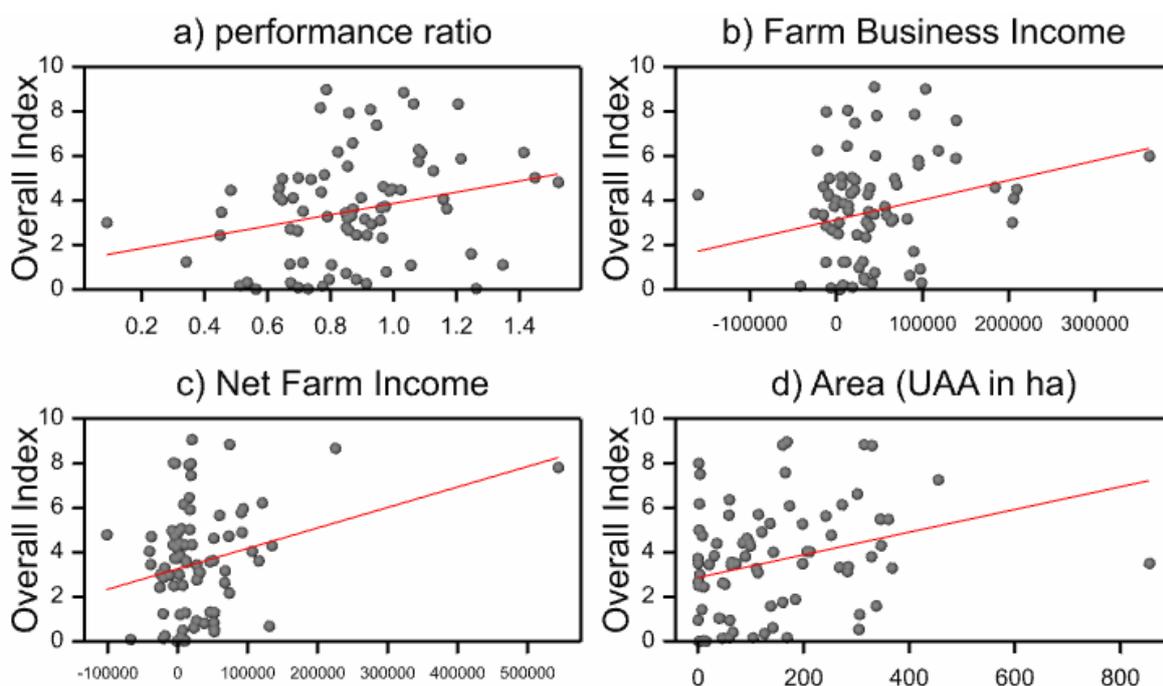
<http://webarchive.nationalarchives.gov.uk/20130124204351/http://www.defra.gov.uk/statistics/files/defra-stats-foodfarm-farmmanage-fbs-definitions-120920.pdf> for definitions of the different measures of farmer income.

**Figure 7: Overall Index of Risk Management by Asset Group**



Note: Index values go from 0 (no interest in risk management tools) through to 10 (fully applying them). Asset bands are defined using separately for each economic size band (i.e. the 'top third' group consists of farms with the highest assets for their size). Bars are one s.e.

**Figure 8: Overall Index of Risk Management against Four Significant Continuous Variables.**



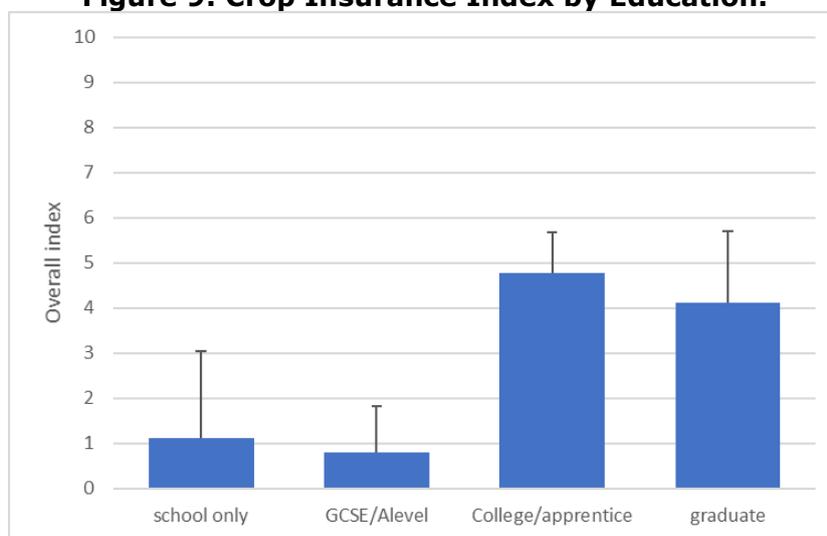
Note: for confidentiality reasons random noise has been added to the horizontal axis, so that the graphs display the relationships without indicating the real values for the farms.

Table A.2.2 in the appendix shows significance test results for the four constituent parts of the overall index. These are shown in abbreviated form only due to the number of tests. There are few significant values in Table A.2.2 for livestock farms. Animal disease insurance is positively related to the two income measures, and there is some indication that the use of price risk management tools is related to age, with farmers under 50 or over 70 making most use of them.

Crop farms show more differences. Regional differences are highly significant for crop insurance, but sample sizes are small and the geographic pattern is not logical, with high

values in the North East (two farms both using it) and the South East (four using it). Educational differences are also statistically significant for insurance, with farmers educated beyond school level having a more positive attitude to crop insurance (Figure 9).

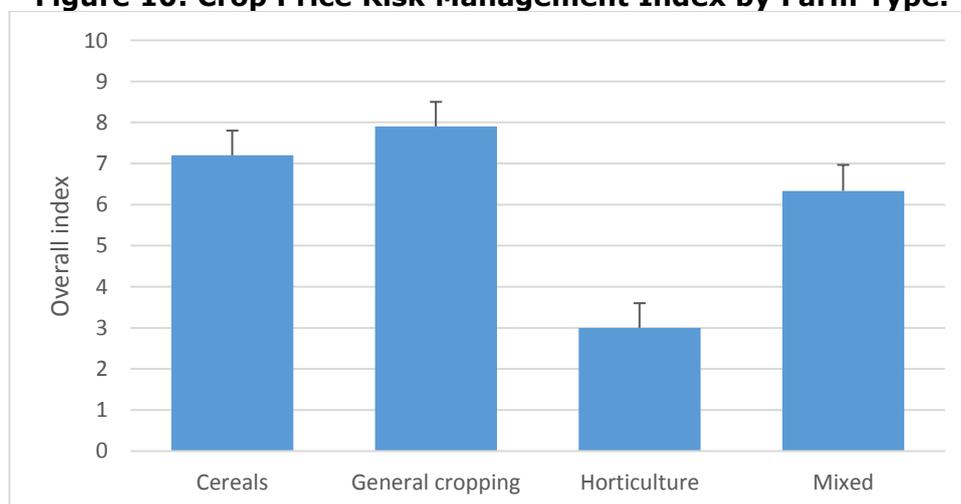
**Figure 9: Crop Insurance Index by Education.**



Bars are one standard error.

The strongest differences in Table A.2.2 relate to price risk management on cropping farms. Differences between farm types are statistically significant ( $F=13.01$  with 3 and 35 d.f.,  $P<0.001$ ), mainly due to low scores for horticultural farms (Figure 10), although mixed farms are also slightly lower. Half of horticultural farms had zero scores, indicating that not only did they not use these tools, but that there were no circumstances in which they might use them.

**Figure 10: Crop Price Risk Management Index by Farm Type.**



Bars are one standard error.

Various other terms are also significant for price risk management on cropping farms; performance ratio (positive relationship, i.e. poor performers have lower average scores), area (positive relationship), owner occupation (owner occupiers have lower scores), asset group (those with high assets have higher scores) and Basic/Single Payment Scheme (claimants have higher scores). However, these relationships are all not significant after fitting the Farm Type variable (right hand side of Table A.2.2); this appears to be because they are largely driven by the group of horticultural farms with zero scores, which are small, poorly performing, owner occupied farms with low assets and which don't claim the Basic/Single Payment Scheme.

Finally, the financial motivation index shows no relationships that are statistically significant at the 5% level, although there is some indication that owner occupied farms are more influenced by the financial drivers ( $F= 3.78$  with 1 and 79 d.f.,  $P=0.055$ ).

In conclusion, these results suggest that Farm Type is by far the strongest influence on uptake of, and attitudes to, risk management tools, because of differences between sectors in the applicability and availability of these tools. The regional differences noted above are representative of these farm type differences, given the strong link between farm types and regions with English agricultural and horticultural production. However, it must be remembered that the relatively small sample size and high diversity of farm types will limit the power of the tests to detect relationships with other variables.

## 4.0 Discussion

This section explores the reasons for use or non-use of risk management tools, detailing the importance of drivers impacting on use across market, social and policy drivers. The section then discusses the barriers towards the use of risk management tools, exploring the influence of farm structural characteristics and managerial attitude, concluding by discussing factors that would potentially modify behaviour towards the greater use of risk management tools. Structurally, this section addresses each of the objectives of the research as detailed in section 1.

### **4.1 Understand and detail why farmers do, and do not use insurance and price mitigation products to identify the extent to which use and attitudes towards these products relates to active decisions to not use such products, or for other reasons, such as lack of information.**

#### *4.1.1 Animal Disease Outbreak Insurance*

Results presented in section 3 demonstrate that the key drivers for use of ADOI relate to business specialisation, leading to a greater reliance upon a single or small number of enterprises for business survival, or relating to the high value of individual animals on the farm; ADOI typically covered death or destruction of the animals. In some cases ADOI uptake was taken out as a top-up to Government compensation, as a condition of borrowing for large projects (e.g. mortgage) or as a condition of a contract to supply to a buyer.

With respect to reasons for not taking up ADOI, the main reasons cited by farmers and stakeholders were that the Government covers losses for notifiable diseases, that the insurance on offer was too expensive (Wang et al, 1998; Mohanapriya and Senthilkumar, 2017), too restrictive, in that diseases that may be more likely to occur would not be covered, and that the farmer had never been offered ADOI. Often both farmers and stakeholders observed that there was a lack of knowledge about the price of ADOI premiums or the level of coverage that would be provided within this, indicating the issue of lack of, or of asymmetric, information in this area (Just et al., 1999). Coupled to this was an uncertainty over the level of risk attached to an ADO occurring on the farm, or that the risk was judged to be low in comparison to other, more urgent or larger, risks to the business that meant that funds would be better spent elsewhere. Structurally, businesses that had a diversified enterprise portfolio, and or non-agricultural enterprises, cited that they could cope with loss occurring from ADO; good biosecurity measures were noted as a strategy to lower ADO. In contrast for other businesses it was noted that cover was not taken out in full knowledge that should an outbreak occur for which there was no Government compensation, that this would be the end of the individual business. A theme of "always managed without such insurance in the past", and observing "no need to take this up now", also emerged, in line with the importance of subjective norms in decision making (Bergevoet et al., 2004). Specialised contract rearers noted there was no need to hold ADOI, and or that they could not hold such insurance for (death) loss of a third party's stock.

#### *4.1.2 Growing Crop Insurance*

Reasons for use and non-use of GCI share similarities with those of ADOI. Results from farmers and stakeholders in relation to use of GCI, show that more specialised, less diversified businesses, more frequently held this type of insurance; for some farms this was held in the form of business interruption insurance, or insurance that covered glasshouses, and within this insurance, the crops growing within these glasshouses. Farmers or growers with high value crops and where business survival was dependent upon specific crop production held GCI more frequently than other farmers.

In relation to not taking out GCI, main drivers noted from farmers and stakeholders were the high cost of insurance (Wang et al, 1998; Mohanapriya and Senthilkumar, 2017),

unknown cost and or insurance cover possibilities and that such cover had never been offered to the business. Farm businesses which were more diversified, agriculturally and across non-agricultural enterprises, cited an ability to cope with loss from GCD, with strong balance sheet positions also reducing the need to hold GCI. The lack of GCI cover, or the restrictive nature of GCI [e.g. exclusion of hail damage] had led to some farmers actively exploring and discounting GCI, noting the low risk of GCD in the benign UK environment, or an inability to appropriately assess the level of risk faced; this finding is in line with issues of coverage restrictions identified by Mohanapriya and Senthilkumar (2017). The Basic/Single Payment Scheme was noted as providing a buffer against GCD, with a lack of profit at enterprise or business level creating a barrier to the uptake of GCI. As with ADOI, the results demonstrated that farmers had always managed without GCI, seeing no reason to change their approach to GCI now (Bergevoet et al., 2004), noting that there were more urgent or important demands on their limited resources. A preference for taking the risk associated with GCD was noted in some cases, citing that there is a net cost of taking out such insurance in the long run. Actively undertaking good crop biosecurity was noted as a mechanism to reduce GCD risk.

#### 4.1.3 Price Risk Management Tools

A relatively high level of use of some form of price risk management activity was observed across the farms, with the main drivers for use identified from the farmers being reinforced by findings from stakeholders. Where use of PRMT occurred, this typically related to the sale of *some* products or commodities, in contrast to the sale of *all* outputs through using such tools. The forward purchase of inputs at fixed prices was observed as a key PRMT, sometimes actively achieving bulk buying cost advantages either individually within a business or as part of a buying group or cooperative. In relation to some products, output prices linked to input costs were observed; this was noted in the contract production of pigs for example, and is embedded in some retailer supply contracts in the milk sector.

The main drivers for non-use of PRMT across both crop and livestock farms related to the independence of the farmer, as expressed as a preference to market products themselves. Both farmers and stakeholders noted the lack of understanding or awareness in the sector in relation to futures or option markets, or that these were too expensive. However, for a large number of farmers, results demonstrate that these PRMT do not exist for their sector (e.g. horticulture, breeding sheep). As with ADOI and GCI, businesses that were more diversified, and had strong balance sheet positions, were less likely to use PRMT. In addition to the independence from marketing produce themselves, farmers noted that the sale of produce over a year minimise risks (effectively achieving price averaging across a year), and that farmers are actively taking the risk associated with the market in order to gain the rewards from this. Good relationships with buyers were noted as a driver towards non-use of PRMT, as were previous bad experiences, that using PRMT can also introduce risk to the business, and that the Basic Payment provided a buffer against market volatility (largely relating to more land based farm types, e.g. Cereals and Grazing Livestock).

## 4.2 Understand and detail the relative importance of different driving factors affecting the use and uptake of insurance products, to establish the importance of policy, market and social drivers as they affect uptake of insurance products

### 4.2.1 Market, Policy and Social Drivers of Animal Disease Outbreak Insurance and Growing Crop Insurance

The main *market* drivers of uptake for both ADOI and GCI relate to the specialisation of the business and the associated exposure to risk that individual businesses face as a function of their reliance upon a single, or main specialised enterprise or sector. This insurance uptake, when it is observed, relates largely to the loss or destruction of animals

or crops, with the latter sometimes covered via business interruption insurance or glasshouse insurance. Hence, these main drivers of uptake relate to market factors.

In contrast, the main drivers for lack of uptake of ADOI and GCI relate to the *market* factors of the high premium cost (Wang et al, 1998; Mohanapriya and Senthilkumar, 2017), for these products, coupled with businesses that are more diversified and thus more able, and willing, to either actively or passively take the risks associated with ADO and GCD. The main *policy* driver affecting uptake of ADO, is that Government coverage is provided for notifiable animal disease outbreaks; albeit that the absence of such policy cover would not relate to a wide-scale uptake of ADOI, but would lead to an increase in farmers **exploring the possibility** of holding ADOI. For GCI (relating to Cereals, General Cropping and Mixed farms) and to a lesser extent for ADOI (in relation to Grazing Livestock farms in particular), the *policy* provision of the Basic/Single Payment Scheme was noted as providing a policy driver that reduced the need to explore or hold these products. *Social* factors (e.g. use of these products by other farmers) were not observed to be key drivers of uptake or lack of uptake of these products, and where such factors were noted, there was no clear indication as to the positive or negative influence of these factors on ADOI or GCI uptake. However, social aspects of lack of awareness of such products and the level of risk associated with ADO and GCD were identified as drivers for lower uptake.

#### 4.2.2 Market, Policy and Social Drivers of Price Risk Management Tools

Many farmers operate some level of price risk management activity, with market activities of the respective sale and purchase of *some* outputs and inputs forward, being observed. Typically, the level of specialisation / diversification of the business is a key *market* driver of the active use of PRMT, while for more specialised sectors (e.g. horticulture) or breeding livestock producers, these market mechanisms do not exist.

The main drivers for lack of uptake of PRMT include the *market* drivers of the cost of using these tools (e.g. Futures/Options) and the lack of availability or awareness of products suited the farm produce. Individual business asset base, a desire to take risks and good market relationships were noted as reasons to not use PRMT. The *policy* driver of the Basic/Single Payment Scheme providing a buffer against market volatility (for more land based businesses) was identified as a driver lowering the need to explore the use of these tools. *Social* drivers of lack of uptake were identified in relation to farmers wishing to have control for marketing activities, associated in part with a preference for marketing own produce which provides social interaction (e.g. livestock markets).

### 4.3 Understand what the barriers to the use of insurance uptake are, and consequently identify any factors that could potentially overcome these barriers, including how attitudes towards, and uptake of, these products would potentially change in the light of policy or regulatory change, farm income levels, or by greater or lower uptake of insurance products by other farmers

#### 4.3.1 Barriers towards, and actions to overcome barriers towards, uptake of Animal Disease Outbreak Insurance and Growing Crop Insurance

Key drivers that have been noted to reduce uptake of ADOI and GCI include the cost of insurance, Government support for compensation of ADO, the Basic Payment providing a buffer against GCD, and lack of awareness of the risk of ADO and GCD, the insurance products available, and restrictive cover of the products on the market. In light of policy change that reduced or removed Government compensation for ADO, there would be an increase in farmers **exploring the possibility** of holding ADOI, but given the cost barrier identified, coupled with the restrictive nature of products, such a policy change would not automatically relate to a wide spread uptake of ADOI. The diversified nature of a number of businesses provides an inherent risk management approach that will, coupled with low

profitability in some sectors, lead to a more muted increase in ADOI than may initially be anticipated in the light of a removal of Government compensation for ADO. Lower farm incomes were noted to lead to a lower likelihood of ADOI uptake due to more limited funds being available to the business and with more urgent, important, or perceived better use of such funds being more effectively used elsewhere in the business. In relation to GCI, a lower Basic/Single Payment Scheme was noted to lead to a greater possible uptake of GCI, however as with ADOI, low enterprise or farm profitability, in conjunction with more diversified farm businesses would dampen uptake of GCI in the absence or lowering of the Basic Payment. With respect to the social drivers of uptake of insurance products by other farmers, it was noted the influence of neighbouring farms actively controlling ADO would *potentially* impact on attitudes towards ADOI. For both ADOI and GCI, the use of such products by other farmers would not actively change farmer attitudes, albeit that increased use amongst peers would be likely to lead to an increase in the *exploration* of such products; farmers did however reinforce the independence of their decision making.

#### *4.3.2 Barriers towards, and actions to overcome barriers towards, uptake of Price Risk Management Tools*

In relation to PRMT, key drivers lowering uptake are product cost, complexity and lack of availability for particular products or commodities. The Basic Payment has been identified as providing a buffer against market volatility, and in the absence of, or reduction to, the Basic Payment, there would be an increase in *exploring* the use of PRMT. However, as with ADOI and GCI, the levels of business diversification and asset base would remain key drivers influencing further uptake of PRMT.

#### **4.4 Explain the extent to which the factors identified in i) to iii) above apply equally to all farm types, sizes, business and farmer characteristics**

The key factors affecting uptake across ADOI, GCI and PRMT relate to the Farm Type characteristics of the business, and specifically within this the degree of specialisation or diversification of the individual business. Farm size does not *per se*. influence uptake of these risk management tools, however the level of education (Wilson, 2014) or professional advice associated with the business is observed to be positively related to the uptake of risk management tools, in particular in relation to farmers who are college or university level educated in contrast to farmers who have obtained lower levels of, or no, qualifications. It is interesting to note that there is a broadly greater increase in the use or attitude towards the use of risk management tools as farm business performance and asset levels increase. However these factors are not significant drivers once farm type is accounted for. This demonstrates that these observed variables are more broadly reflecting that the farm types that have a greater use of, or interest in, risk management tools have relatively greater farm performance metrics than others within the sample. There is some evidence that farm businesses that are less reliant on owned land have a greater use of PRMT.

#### **4.5 To identify from 4.1) to 4.4) the factors that would potentially change behaviour towards, and uptake of, insurance products, and in particular to identify potentially modifiable behaviours and outcomes that could be delivered**

##### *4.5.1 Factors that would potentially change behaviour towards, and uptake of Animal Disease Outbreak Insurance*

The key factors that would *potentially* change behaviour towards the uptake of ADOI relate to the removal or reduction of Government backed compensation for notifiable disease outbreaks, lower insurance costs, and greater and more simplified knowledge about the ADOI products on offer. Potential policy and market drivers include Government backed support for ADOI (e.g. grants to be used for ADOI), government backed or arbitrated ADOI products, and providing farmers with an increased knowledge of the risk faced by ADO in order to assist them in making an informed decision about the merits of holding ADOI.

Greater professionalisation within the sector, either enhancing farmer education or via increased use of professional advisors, or knowledge transfer activities, offer opportunities to modify behaviour towards ADOI uptake; receiving advice from other farmers was more limited as a potential modifier of behaviour. Also of note were the greater likelihood of the need for new entrants to the industry to hold ADOI as they may not have the asset base required to withstand loss, and a greater integration of ADOI use embedded in trading relationships and contracts.

#### *4.5.2 Factors that would potentially change behaviour towards, and uptake of Growing Crop Insurance*

Many of the factors that would potentially change behaviour towards a greater uptake of GCI follow those identified for ADOI. The reduction or removal of the Basic Payment would *potentially* modify behaviour towards GCI uptake, however this will be offset by such a policy change reducing funds available within the business to cover the cost of such insurance; stakeholders in particular noted that the potential increase for GCI would be limited even in the absence of the Basic/Single Payment Scheme. As with ADOI, a greater increase in information available, and a simplification of this information would potentially positively modify behaviour towards uptake of GCI, as would increased information about the level of risks faced by farmers from GCD. A reduced cost of GCI and greater specification of insurance cover would also enhance GCI uptake. Government support (e.g. grants for insurance) and Government or independent body arbitration of GCI outcomes would also potentially modify behaviour towards GCI. Receiving advice in relation to GCI from other farmers was noted to be a *potential* modifier of behaviour, as were the drivers of education and enhanced professional advice flowing to businesses.

#### *4.5.3 Factors that would potentially change behaviour towards, and uptake of, Price Risk Management Tools*

Given the relative greater use of price risk management activity across the sector, in comparison to use of ADOI and GCI, the potential to positively modify behaviour towards PRMT is arguably lower than as identified for ADOI and GCI. However, the findings demonstrate that an increase in, and a simplification of, information relating to PRMT would be a potentially positive modifier of behaviour. Government backed PRMT, in particular in the livestock sector, and reduction in, or removal of the Basic/Single Payment Scheme, would potentially positively modify PRMT exploration and use. A reduced cost of using PRMT represents a key potential modifier, as would an increase in product output prices, allowing farmers to justify the cost of using PRMT that are typically a fixed cost per physical unit of output.

## 5.0 Conclusion

Drawing upon semi-structured interviews with 81 Farm Business Survey (FBS) participants in England across eight farm type groups and three farm size categories, and combining the data obtained with data from the FBS for 2016/17, has identified key reasons for the use and non-use of risk management tools. These data have been complemented by findings from semi-structured interviews with 20 agricultural stakeholders. Key drivers for the use of ADO and GCI are the farm type, level of specialisation and business risk faced by individual businesses. Key drivers for non-use of these tools include the high cost of insurance, restrictive product offering or product knowledge, policy support via compensation for ADO and the Basic Payment providing a buffer against GCD. A large proportion of farm businesses undertake some form of price risk management activity, and where formal PRMT were observed these were typically used for *some* outputs and inputs. Key drivers for non-use of PRMT include the cost and complexity of these tools in addition to farmer preferences for undertaking marketing activities themselves.

*Potential* modifiers of behaviour towards **increased exploration of the possibility of greater uptake** of ADO include the removal of government compensation for notifiable animal diseases, greater product and risk knowledge and coverage, lower product cost and government or independent body backed and arbitrated products. *Potential* modifiers of greater uptake of GCI include lower product cost, government or independent body backed and arbitrated products, the reduction or removal of the Basic/Single Payment Scheme, and more and simpler product information. However, for both ADO and GCI, low profit levels, issues of attitudes and subject norms of behaviour in line with historical approaches to the uptake of these products *are likely to limit any potential increase in ADO and GCI uptake*. *Potential* modifiers of behaviour towards PRMT include lower product cost, simpler products and the reduction or removal of the Basic/Single Payment Scheme.

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## 7.0 Appendix

### **Appendix 1: Recording Forms, Consent Forms and Researcher Guidance**

#### **Risk Management Recording Form: Farmer Participant**



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Recording Form Dra

#### **Risk Management Consent Form: Farmer Participant**



Risk Management  
consent form farmer

#### **Risk Management Researcher Guidance Notes: Farmer Participant**



Risk Management  
Behaviour guidance

#### **Risk Management Recording Form: Stakeholder Participant**



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#### **Risk Management Consent Form: Stakeholder Participant**



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#### **Risk Management Researcher Guidance Notes: Stakeholder Participant**



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### **Appendix 2 – Statistical Table Results**



Appendix 2  
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