

Farmer Intention Survey 2023: Inception Report

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Executive Summary

Introduction

The Farmer Intention Survey (FIS) is a large-scale representative survey of Scottish farmers, repeated every five years since 2013. The FIS aims to better understand farmer intentions for the future, as well as understanding past management decisions.

This inception report provides a preliminary descriptive analysis of data from the 2023 survey, focusing on the FIS ‘bridging questions’ – those questions that have been asked across the three waves of the survey since 2013 (see Figure A). The purpose of the report is to give a broad overview of the present state of Scottish farming in 2023, complementing data from the June Agricultural Census, and highlight some longer- term trends that can be observed by looking across the survey waves.



Figure A: FIS modules

Method

A total of 13,652 of Scottish farm holdings, aiming to represent Scottish farms overall, were contacted by post and invited to take part in the FIS 2023. Those who did not explicitly opt out by returning an opt out letter were then contacted by phone and asked to take part. The telephone survey took around 30 minutes to complete, with respondents asked to answer at the business level where possible, and if not at the holding level. Overall, 2,029 survey responses were received, resulting in a response rate of around 15%.

The FIS is a repeated cross-sectional survey. This means that at each wave, we seek to recruit a new representative sample of farmers in Scotland who will reply to a number of core questions repeated in each wave, as well as wave-specific modules. Each wave therefore provides a ‘snapshot’ of the current state of farming in Scotland, and together the waves provide a time series to track change at the farm population level. Bias is minimised through careful survey design and consistency of sampling methods across the waves (stratified sampling). However, as with all surveys, self-selection bias remains a risk and it is possible that different factors could shape self-selection at each wave. This should be taken into consideration when generalising findings to the whole population of Scottish farmers and interpreting changes over time.

Key findings

The profile of Scottish farmers is becoming older, and more educated, but not more female

- The profile of respondents across the three FIS waves reflects an aging demographic in Scottish farming, with less than a third of respondents in 2023 aged below 55, (31.4%, down from 43.7% in 2013).
- Farming is as male dominated in 2023 as it was in 2013, with only 19% of respondents being female.
- Educational level has been increasing over time – in 2023 almost 1/3 of respondents were university educated.

Fewer farms report making a profit, and the share of household income coming from the farm itself has reduced

- The proportion of farmers reporting making a profit from their farm has reduced across the FIS waves from 2013 to 2023. In 2023 only 59% report making a profit, compared to 83% in 2013.
- The contribution of the farm business to farmers' overall household income has fallen over time. In 2023 less than a third (31%) of farmers reported that the farm makes up >75% of their household income, compared to around half of farmers (49%) in 2013.

Market factors have been a primary driver of change over the past 5 years

- In 2023, the majority of farmers reported that changes in prices for fertiliser, feed, energy and commodities are all driving change on their farm to some degree. Almost half of farmers reported that fertiliser price changes significantly affected the way they managed their farm.
- Market factors outside of the UK such as changes in exchange rates and export markets have been a less significant driver.
- Labour availability remains an important driver of change and appears to have increased in influence between 2018 and 2023.
- FIS survey respondents have become less likely over time to report changes in regulations as a driver of significant change on their farm. Similarly, the proportion indicating that changes in subsidies have driven change in management practices reduced slightly between 2018 and 2023. This might be due to stability in the Common Agricultural Policy (CAP) between 2018 and 2023.
- Around 58% of respondents reported that the EU exit has not led to significant change on their farm. These findings may reflect relative stability in the immediate wake of Brexit whilst post-CAP agricultural policy development remains underway.

In the past 5 years, the most common changes made by farmers were increases in capital investment and investment in new technology

- For all questions about changes occurring in the last 5 years, the most common response from FIS 2023 respondents was 'no change'.
- The attributes that were most likely to have stayed stable were the mix of agricultural commodities produced (74% reported no change), the area of trees on farm (71% reported no change), amount of employed labour (67.4% reported no change), and the amount of agri-environmental activity (65% reported no change).
- The most commonly reported changes in the past 5 years were increases in the level of capital investment (45%), increases in new technology investment (35%), and increases in the size of the holding (34%).

- Other commonly reported changes included increases in profitability (29%), agri-environmental activity (27%) and use of social media (27%).
- Very few respondents *decreased* levels of technology investment, diversification or agri-environmental activities.
- A sizeable minority of respondents reported a decrease in profitability (24%, compared to 29% reporting an increase), or a decrease in production intensity (15.6%, compared to 22% reporting an increase).

The most common changes farmers intend to make in the next 5 years are increasing agri-environmental activities and investment in new technology

- Few farmers intend to sell up or decrease the size of their farm in the next 5 years.
- As with past changes, the most common response to questions about future intended changes was 'no change' throughout.
- The intended changes most commonly reported were increasing agri-environmental activity (38%), increasing investment in new technology (36%), increasing diversification (30%) and increasing capital investment (30%).
- Those asked about the type of agri-environmental activities they plan to change were most likely to plan to increase activities in unproductive field margins.
- Looking across the three waves of the FIS from 2013 to 2023 there is a clear trend towards growing intentions to increase agri-environmental activity.

Next steps

Further analysis of the FIS 2023 will be planned in discussion with RESAS colleagues. This could include examining how future intentions and past changes vary according to factors such as farm size, type, farmer age, and succession plans. Future analysis will also capitalise on linkage of the FIS 2023 data to other agricultural datasets.

Contents

1. Introduction	6
2. Methodology.....	7
3. Sample description	10
4. Factors driving change over the past 5 years	16
5. Farm management changes over the past 5 years (2018-2023).....	20
6. Intended changes in the next 5 years (2023-2028)	26
7. Key findings and next steps	31
8. References	33
Appendix A: Farmer Intentions Survey 2023 Questionnaire	34
Appendix B: Participant Information sheet	69
Appendix C: Opt-out letter	73

1. Introduction

The Farmer Intention Survey (FIS) is a large-scale survey of approximately 2,500 Scottish farmers, repeated every five years since 2013. During this time, the farming industry in Scotland had to adapt circumstances such as Brexit, Covid-19, and a growing response to the climate crisis. As such the industry faces several challenges. These include market volatility, changing food preferences, population growth and biodiversity loss.

The overall aim of the Farmer Intention Survey is to better understand farmer intentions toward future planning and activity. This inception report offers a preliminary analysis of the 2023 survey data and compares findings to shared questions with the 2013 and 2018 versions of the survey. These shared, or *bridging*, questions are primarily concerned with the actual changes implemented in the past 5 years, the intended changes to be made in the next 5 years, and the factors which influence these decisions to change. This report therefore offers insight into the present state of Scottish farming, and the longer-term trends of the industry in Scotland.

2. Methodology

2.1 Survey design and structure

The survey was structured around 10 modules, exploring the following topics:

Table 1. FIS Modules and corresponding section in report

Module	Topic	Inception report section
Module 1	Background (farm and farmer characteristics, advice and farmer groups)	3
Module 2	Factors driving change over the past 5 years	4
Module 3	Farm management changes over the past 5 years	5
Module 4	Intended changes in the next 5 years	6
Module 5	Regulatory responsibilities, voluntary agri-environmental measures and agency	Not covered
Module 6	Animal health and climate risk perception	Not covered
Module 7	Diversification	Not covered
Module 8	Bio-energy	Not covered
Module 9	ADOPT – adoption of farming practices	Not covered
Module 10	RISK: Risk perception and resistance to change	Not covered

The current report focuses on responses from Modules 1 to 4. These modules are repeated from previous versions of the Farmer Intention Survey and thus allow for comparison over time. Modules 5-10 are specific to the 2023 version of the survey and will be analysed subsequently with additional publications produced.

Proposed questions were circulated to relevant policy teams for feedback. The survey received ethical approval from The James Hutton Institute Research Ethics Committee, SRUC's Research Ethics Committee as well as RESAS social research approval.

The survey was piloted on 39 Scottish farmers between 31st May and 2nd June. Revisions were made based on feedback from these pilot interviews, to produce a final version of the 2023 Farmer Intentions Survey (see Appendix A).

2.2 Sampling frame

The sampling frame (list of farmers to be contacted for the FIS) was provided by the June Agricultural Census team in The Scottish Government. In the case of multiple holdings belonging to a same business, only 1 of the holdings was included in the sampling frame to avoid duplication. A stratified sampling technique was applied to ensure that the sampling frame was representative of commercial Scottish farms on farm size, completion of a Single Application Form (SAF)¹, farm type and region. Specifically, the following criteria were applied:

- Small farms² should not exceed 25% of the sampling frame,
- No more than 25% of holdings that have not filled in a Single Application Form (SAF) in 2022 in the sampling frame,
- Holdings should remain representative by “Robust Farm Type” and region within each [farm size; SAF/non-SAF] strata.

An initial sampling frame of 12,000 holdings was selected from the 38,509 eligible holdings present in the June 2021 Agricultural Census. Once this initial sampling frame was exhausted, 3,000 additional holdings were added. The constraint on small farms had to be softened, and small farms represent 28% of the final sampling frame, slightly above the initial constraint of 25% of sampling frame. The final sampling frame included **all medium and large holdings** (Standard Labour Requirement above 0.5) present in the 2021 Scottish June Agricultural Census **and 15% of all small holdings** (SLR below 0.5).

Table 2. Farms in sampling frame by Farm size (based on Standard Labour Requirement (SLR)) and whether they had submitted a Single Application Form (SAF) in 2022

		SAF 2022			
		No	Yes	Total	
SLR	Small	2321	1,820	4,141	28%
	Medium	743	5,577	6,320	42%
	Large	686	3,853	4,539	30%
	TOTAL	3,750	11,250	15,000	
	%	25%	75%		

The sampling frame was cleaned, so that duplicates and holdings with missing contact information were deleted. The total number of useable contacts was 13,652.

2.3 Data collection

Each holding in the sampling frame was sent an information package, which included an information sheet and opt-out letter with a pre-paid return envelope for the opt-out letter. Of these, 666 holdings and related contacts were no longer farming, or had moved away, etc. A further 11 of the total

¹ The Single Application Form (SAF) is the form that needs to be filled in for each farm holding to claim payments under the main agricultural public funding schemes in Scotland (e.g. the Basic Payment Scheme, LFA support scheme, Agri-Environment Climate Scheme amongst others).

² We use 3 strata based on farm size, as indicated by Standard Labour Requirement (SLR): SMALL (SLR <0.5), medium (0.5 <= SLR <= 3), LARGE (SLR > 3). SLR stands for Standard Labour Requirement and reflects the theoretical number of workers required by a holding each year to carry out its agricultural activities. <https://www.gov.scot/publications/economic-report-scottish-agriculture-2016/pages/43/>

participants who received a letter were found to be duplicates missed in the initial cleaning. The final size of the eligible sampling frame was therefore 12,975 holdings.

The information sheet (see Appendix B) contained details on the survey and the types of data collected, the use of the data, the risks and utility of participation, and a clarification of participants' rights, including what would be expected following informed consent.

The opt-out letter (see Appendix C) provided potential participants the opportunity to decline survey participation. These farmers were asked to send the opt-out letter back to the market research company within 2 weeks, using the pre-paid envelope provided, so that they could be removed from the list of farmers to be contacted. A total of 2,628 farmers opted out at this stage.

Following this, a sample of the remaining farmers who had not opted out were contacted by phone and asked for their consent before beginning the survey. Respondents were given the opportunity to decline participation when called, or to arrange a more suitable time.

2,029 farmers participated in the survey, corresponding to a response rate of approximately 15%. Surveys took approximately 30 minutes to complete, and respondents were asked to answer at the business level where possible. If not, responses were collected with the holding level in mind. A screener question was applied to ensure that all respondents were the main decision maker for the business/holding. On June 13th 2023, during data collection, a press release (see [Farmers invited to take part in longest running, large-scale survey | The James Hutton Institute](#)) was issued as a call for participants. A full breakdown of the outcomes of those contacted for the survey can be seen in Appendix C.

2.4 Previous FIS waves

Results from the 2023 FIS were analysed alongside data from the two previous FIS waves, carried out in 2013 (N=2,416) and 2018 (N=2,494). Details of the methodology and findings from these previous waves can be found on the COMBINE (Co-designing and implementing best-fit farming practices) [project website](#)³.

³ <https://combine.hutton.ac.uk/workpackages/work-package-1/publications-linked-farmer-intentions-survey>

3. Sample description

In this section, we start by providing an overview of the 2023 FIS sample characteristics, including respondents' socio-demographic and their farm characteristics, and how these compare to previous waves (2018 and 2013) of the FIS.

3.1 Socio-demographic characteristics

Figures 1-3 show the average age, the gender split and the education levels of respondents across the three waves of the FIS, with corresponding percentages shown in Table 3. The profile of the sample is older in 2023 than it was in 2013 or 2018. In 2023, 31.4% of those surveyed were younger than 55. In 2018, this was 37.5% and 43.7% in 2013. Further, 36.2% were aged 65+ in 2023, compared to 32.2% in 2018 and 25.7% in 2013 (Figure 1 and Table 3).

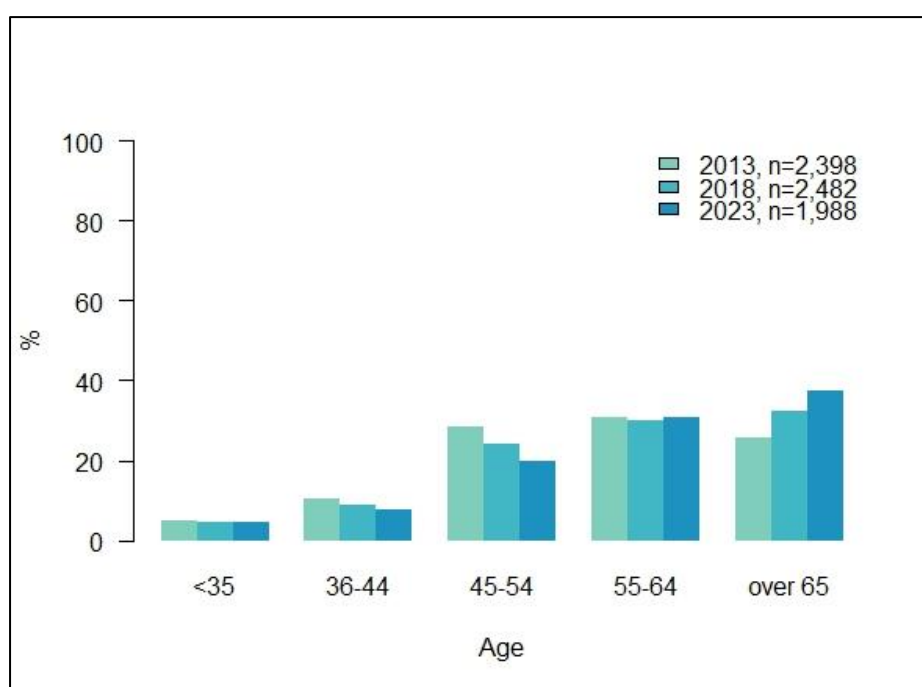


Figure 1. Age distribution across waves.

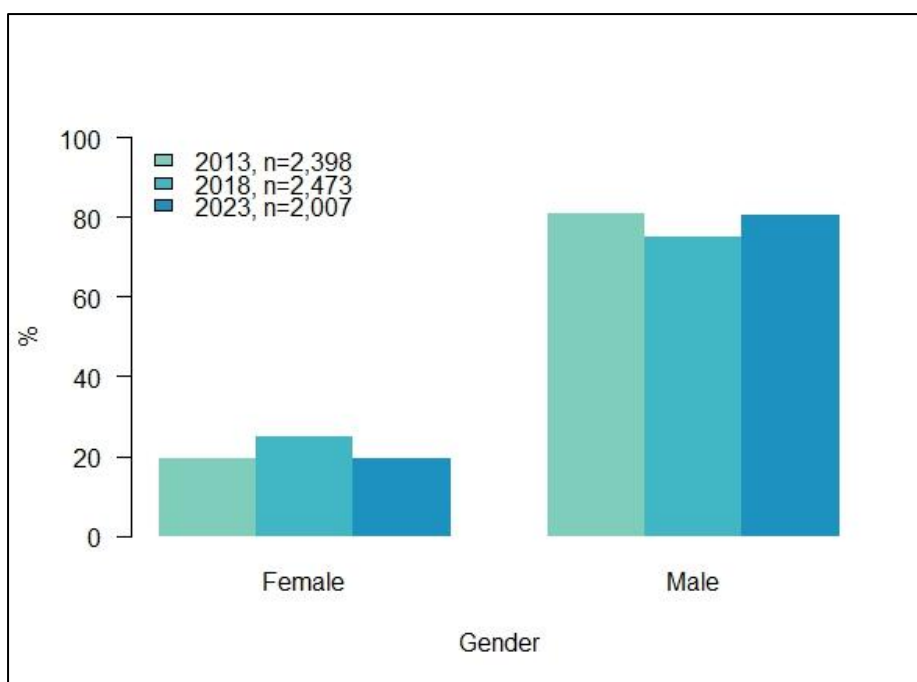


Figure 2. Gender distribution across waves.

The gender split in the 2023 sample confirms that the majority of main decision makers on farms are male. While females accounted for 24.6% of respondents in 2018 (an increase on 2013), this had decreased to 19.1% in 2023 (Figure 2 and Table 3).

The highest educational level attained has increased across FIS waves. In 2013, 45.9% of farmers were educated to secondary school level only, which has decreased over time to only 27.4% in 2023. Whilst college-level education has increased slightly within the sample, the largest increase is in university-educated farmers (from 20.2% in 2013 to 31.3% in 2023, see Figure 3 and Table 3). Further analysis might explore this change in the context of the ageing farmer population, to identify whether increasing levels of education can be observed across age groups, or whether this is predominantly driven by education levels of younger farmers or newer entrants to farming.

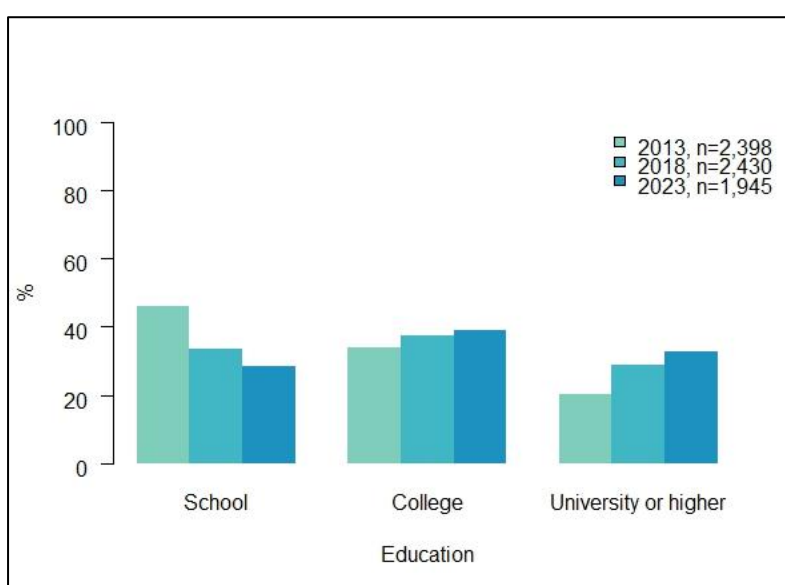


Figure 3. Comparison of highest level of education across waves.

Table 3: Socio-demographic characteristics of respondents

Variable	2013 (%)	2018 (%)	2023 (%)
<i>Age</i>			
35 and under	5.1	4.7	4.4
36-44	10.3	8.8	7.7
45-54	28.3	23.8	19.3
55-64	30.7	30.0	30.0
65 and over	25.7	32.2	36.6
65-74	-	23.0	24.8
75 and over	-	9.2	11.8
Prefer not to say	-	0.5	2.0
<i>Gender</i>			
Male	80.8	74.6	79.8
Female	19.2	24.6	19.1
Prefer not to say	-	0.8	1.1
<i>Highest level of education</i>			
School	45.9	32.8	27.4
College	33.9	36.4	37.3
University	20.23	28.2	31.3
Prefer not to say	5.1	2.6	4.1

3.2 Farm incomes

The proportion of farmers' household income arising from the farm business appears to be reducing across FIS waves (Table 4). In 2013, 49.0% of farmers surveyed indicated that over 75% of their income results from the farm business, which fell to 41.2% in 2018 and 30.7% in 2023. Similarly, in 2013 only 21.1% of participants indicated that between 0 and 25% of their household income from the farm business. This proportion increased to 31.1% in 2018, and increased again to 36.8% in 2023.

The proportion of farmers surveyed in 2023 who report typically making a profit from their farm is lower than in previous waves (58.9% compared to 68.5% in 2018 and 82.8% in 2013) (Table 4). Similarly, a higher proportion of farmers surveyed in 2023 report typically making a loss from their farm business (9.6%) than in 2013 (4.8%) although this has remained relatively stable between 2018 and 2023.

Table 4: Farm income characteristics of FIS 2023 sample, compared to previous waves.

Variable	2013 (%)	2018 (%)	2023 (%)
<i>Household income from farm business</i>			
Zero	9.1	13.4	13.7
Less than 25%	12.0	17.8	23.1
Around 25% to 50%	14.1	13.5	15.2
Around 50% to 75%	15.9	12.0	12.1
Over 75%	49.0	41.2	30.7
Prefer not to say	-	2.2	5.3
<i>Typical profit</i>			
Make a loss (< £0)	4.8	10.3	9.6
Break even (~ £0)	12.4	17.8	20.7
£1 up to £25,000/£30,000 ^a	82.8 ^b	36.4	33.7
Over £25,000/£30,000 ^a but under £100,000		32.1	19.7
More than £100,000			5.5

Prefer not to say	-	3.5	6.8
Don't know	-	-	4.2

^a The question on profit was asked slightly differently in each wave. In 2018 £25,000 was applied as a threshold value, with this increased to £30,000 in 2023.

^b In 2013 respondents were not asked about the size of profit made.

3.3 Farming experience and prospects

Respondents were asked to indicate approximately how many years they had been involved in the management of the business/holding. The distribution of responses for 2023, 2018 and 2013 is shown in Table 5. There has been little change in farmers' level of experience across the FIS waves.

Table 5. Years involved in managing farm.

Variable	2013 (%) n=2,398	2018 (%) n=2,494	2023 (%) n=2,029
<i>Years managing farm</i>			
Less than 5 years	5.1	5.5	4.4
Around 5 to 10 years	6.9	7.8	9.0
Around 10 to 20 years	15.0	15.4	15.2
More than 20 years	73.1	71.3	71.4
Prefer not to say	-	0.04	-

Table 6. Farm succession characteristics.

Variable	2013 (%) n=2,398	2018 (%) n=2,494	2023 (%) n=2,029
<i>Inherited farm</i>			
Yes	65.0	62.6	60.7
No	35.0	37.2	39.3
Prefer not to say	-	0.2	-
<i>Plan to continue farming (next 5 years)</i>			
Yes	88.1	86.8	84.7
No	11.9	5.9	5.2
Unsure	-	7.1	10.1
Prefer not to say	-	0.2	-
<i>Identified potential successor</i>			
Yes	48.4	49.6	48.3
No	22.6	30.4	28.8
Too early to say	29.0	19.8	22.9
Prefer not to say	-	0.3	-

Across FIS waves there has been a small reduction in the proportion of farmers having inherited the business or holding from the previous generation (Table 6). In 2023, 60.7% reported that they had, compared to 65% in 2013. There has also been a slight decrease in the proportion of respondents reporting that they plan to continue farming for the next five years – with 84.7% of respondents in 2023 intending to, compared to 88.1% in 2013. The proportion of respondents indicating that they have identified a potential successor for their farm has stayed relatively stable across the three waves (Table 6).

3.4 Farm Characteristics

This section summarises the distribution of the sample in terms of farm size, farm type and region. As farm size, farm type and region were used to determine the sampling frame (see section 2.2), these

data are presented to provide characterisation of the FIS 2023 sample only. Data from the June Agricultural Census, on which the FIS sampling strategy draws, gives insight into the current state of Scottish farming in relation to these characteristics.

Small farms (Standard Labour Requirement, SLR < 0.5) represent a larger share of the sample in 2023 compared to 2018, but similar to 2013 (see Figure 4 and Table 7). The largest share of the sample are medium-sized farms with an SLR between 0.5 and 3 (46.8%, up from 38.9% in 2018 and 41.2% in 2013). Large farms (SLR > 3) represent 32.2% of the sample, down from 2018 (45.2%) and 2013 (37.8%). Note that these are the sizes of the contacted holding, while the business may include several holdings. Business sizes will be available in future publications when analysing the FIS data alongside June Agricultural Census (JAC) and Rural Payments and Inspections Division (RPID) data.

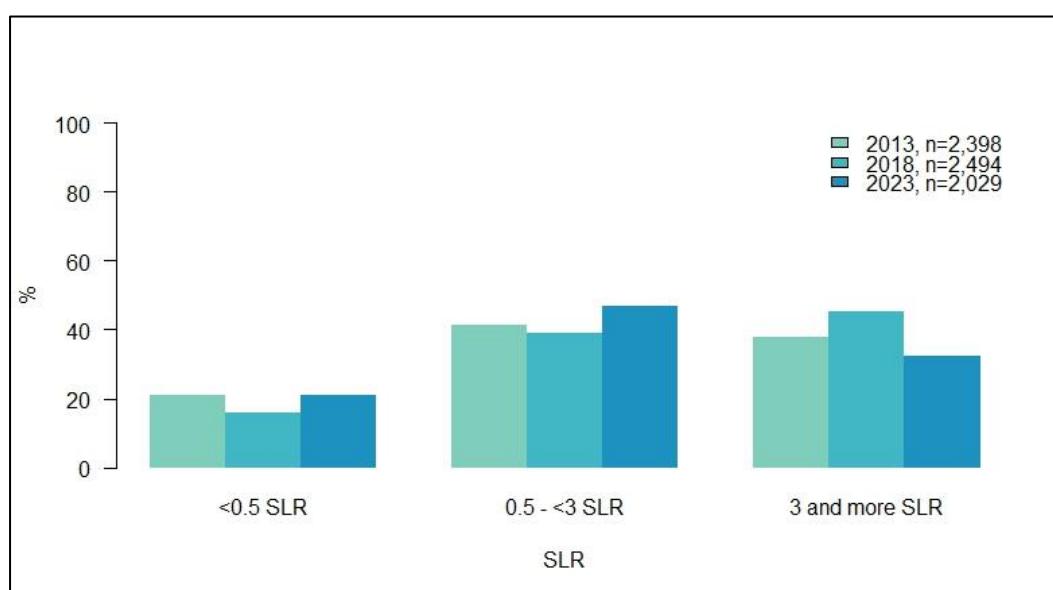


Figure 4. Farm size (SLR) distribution across waves.

In terms of farm type (Table 7), the majority of respondents in the 2023 sample were LFA cattle and sheep farmers (54.3%). The second most prevalent farm type in the sample was mixed holdings (11.7%). These farm types represent the largest shares of the sample across the three FIS waves, although the percentage of the sample made up of LFA cattle and sheep farms has reduced somewhat from 59.7% in 2013 to 54.3% in 2023. At the same time, there has been an increase in non-LFA cattle and sheep farms in the sample – from 3.0% in 2013 to 8.6% in 2023.

The regional profile of respondents has remained similar across the 2013, 2018 and 2023 waves, although the proportion of the sample from Dumfries and Galloway has reduced and the proportion from Highland increased slightly (Table 7).

Table 7: Farm characteristics of FIS 2023 sample, compared to previous waves

Variable	2013 (%)	2018 (%)	2023 (%)
<i>Farm size (SLR)^a</i>			
<0.5 SLR	21.1	15.9	21.0
0.5-<3 SLR	41.2	38.9	46.8
3 or more SLR	37.8	45.2	32.2
<i>Farm type (RFT)^b</i>			
General cropping	5.3	6.9	7.0
General cropping: forage	7.3	7.3	8.3
LFA Cattle & Sheep	59.7	54.9	54.3
Mixed holdings	10.5	10.3	11.7
Non-LFA Cattle & Sheep	3.0	6.8	8.6
Specialist cereals	5.3	5.1	4.3
Specialist dairy	4.5	4.5	2.7
Specialist horticulture & permanent crops	1.5	1.5	1.7
Specialist pigs	0.8	0.6	0.4
Specialist poultry	1.4	1.4	0.9
Unclassified/other	0.6	0.7	0.2
<i>Agricultural region</i>			
Argyll & Bute	4.1	4.8	4.7
Ayrshire	7.2	6.8	6.1
Clyde Valley	6.7	5.7	5.5
Dumfries & Galloway	14.0	12.2	10.4
East Central	2.4	3.6	3.2
Eileanan an Iar	5.4	3.6	3.6
Fife	2.1	3.1	4.5
Highland	14.0	15.6	17.2
Lothian	2.6	3.0	3.2
NE Scotland	17.2	16.0	16.7
Orkney	4.8	4.9	4.9
Scottish Borders	7.5	7.8	6.5
Shetland	3.7	3.3	4.0
Tayside	8.3	9.7	9.9

^a Standard Labour Requirement (SLR) is the number of workers required each year to run the farm business, based on cropping and livestock activities.

^b Robust Farm Type (RFT) classification

4. Factors driving change over the past 5 years

In this section we report the factors that farmers identified as drivers of change in the way they managed their business/holding over the past 5 years.

Key findings:

- Market factors, such as changes in prices for fertiliser, feed, energy and commodities, have been a primary driver of change over the past 5 years
- Changes in regulations and subsidies have been less important drivers of change, likely due to policy stability.

4.1 Policy/political changes

In 2023, the majority of farmers stated that changes in the general policy context (changes in subsidies, changes to regulations and EU Exit) have not changed the way they have managed their business over the past 5 years (Table 8, Figures 6 and 7). Amongst the policy changes which were proposed as a possible driver of change in the survey, changes to regulations have been most frequently stated to affect farm management (slightly for 31.9% of respondents, significantly for 13.4%), followed by EU exit (slightly for 20.8% of respondents, significantly for 21.3%). Changes in subsidies were least likely to be identified as a driver of change (slightly for 23.4%, significantly for 11.1%). The subsidy landscape has remained globally stable overall between 2018 and 2023 in Scotland, with the general structure and schemes of the CAP maintained. It is interesting to note that EU exit has been the political/policy change most likely to drive **significant** change in farm businesses, however the majority of respondents (57.9%) reported no changes as a result of the EU exit.

Table 8: Changes in policy environment in the last five years as drivers of changes in farm management (2023). Respondents were asked: *In the past 5 years, have any of the following changed the way you manage your business/holding...*

Political/policy changes	No (%)	Slightly (%)	Significantly (%)
Changes in subsidies, <i>n</i> = 2,025	65.5	23.4	11.1
Changes to regulations, <i>n</i> = 2,025	54.8	31.9	13.4
EU exit, <i>n</i> =2,019	57.9	20.8	21.3

Comparing the influence of changes in regulations as a driver of change across the 2013, 2018 and 2023 waves (Figure 5), we can see that regulations have become less likely to be reported as a significant driver of change (13.4% in 2023, compared to 25.7% in 2013), and correspondingly more likely to be reported as not having changed the way farmers managed their business over the 5-year reference period (54.8% in 2023, compared to 42.5% in 2013).



Figure 5. Extent to which changes in regulations have driven change in farm business over past 5 years

Questions on the influence of changing subsidies were worded slightly differently across FIS waves, according to the subsidy landscape at the time, making it more difficult to make direct cross-wave comparisons. Figure 6 does, however, show that a previously observed increase in the influence of subsidy changes between the 2013 and 2018 waves does not appear to have continued since 2018.

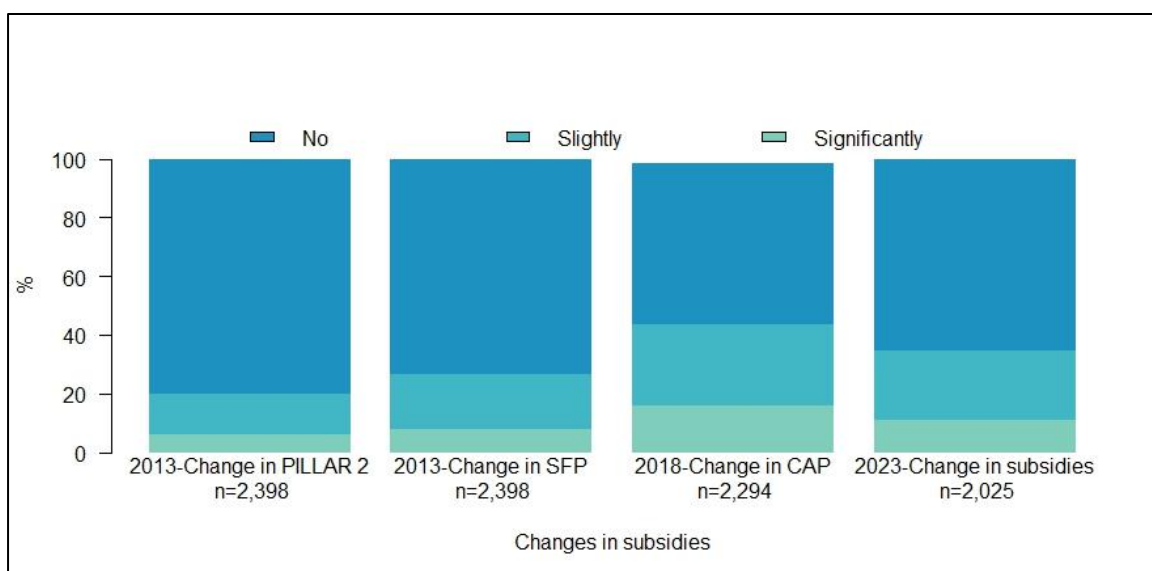


Figure 6. Extent to which changes in subsidies have driven change in farm business over past 5 years. Note the wording of questions varied across waves according to subsidy landscape at the time. Note: SFP stands for Single Farm Payment.

4.2 Changes in markets

Market prices, both for agricultural inputs and outputs have seen great variations between 2018 and 2023, leading to significant management changes in many of the surveyed businesses. Figure 7 shows

that changes fertiliser prices (across farm types) and feed prices (for farms with livestock) in particular have had significant impacts on the way many farm businesses have been managed over the past 5 years. Over two thirds (67.7%) of farmers adjusted their farm management, either slightly (20.1%) or significantly (47.6%), as a result of changes in fertiliser prices.

Changes in feed prices have been a key driver of change in livestock farms' management practices, with 71.3% reporting changes to farm management (significant or slight) as a result of feed price changes.

After fertiliser and feed price changes, changes in energy and commodity prices were also important drivers of change to management practices. The majority of respondents reported changes in the way they managed their farm over the past 5 years as a result of changing energy prices (57.7%) and commodity prices (60.1%). Changes in energy prices were responsible for more 'significant' changes than commodity prices.

Changes in labour availability have impacted farm management for around 1/3 of the sample, with 16% stating these changes have been significant. Further analysis by farm type and farm size could help shed light on the type of farm that have been particularly affected by changes in labour availability. Changes in land availability has impacted just under 1/4 of the sample.

Changes in international export markets and in exchange rates have been less significant drivers of change on farms in the 5 years preceding the survey. Less than one quarter of respondents reported significant or slight changes because of changing export markets (22.3%) and exchange rates (21.1%).

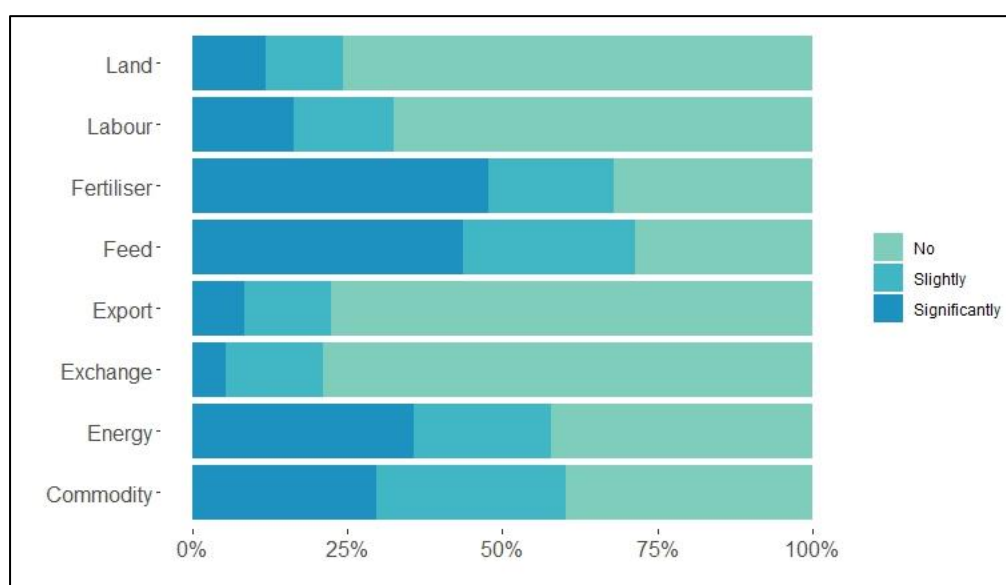


Figure 7. Changes in markets as drivers of changes in farm management over past 5 years (2023). Note that only respondents with livestock were asked about the influence of changes in feed prices.

Looking back across the three waves of the FIS (Figure 8) we can see that the influence of commodity prices, labour availability and land availability as drivers of changes in management have all grown significantly over time. Cross-wave data was not available for other market variables, restricting opportunities to compare the influence of different drivers over time.



Figure 8. Changes in commodities, labour and land availability as drivers of changes in farm management. (non-response varied between variables), $n(2013)=2,398$, $n(2018)=2,276$, $2,274$, $2,266$, and $n(2023)=2,020$.

4.3 Other

As well as asking about the influence of policy and market changes on management practices, we were also interested in whether succession planning featured as a driver of change. Whilst, in 2023, only 10.9% reported significant changes as a result of planning for succession, this appears to have increased somewhat over time across the FIS waves (Figure 9).

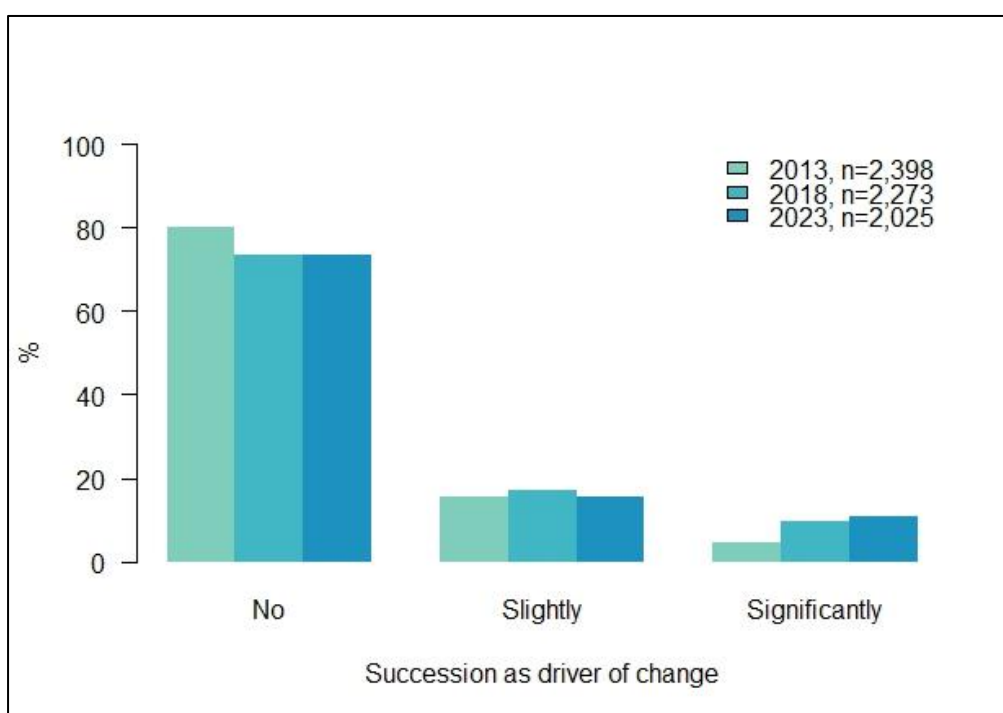


Figure 9. Planning for succession as a driver of change in farm management over the past 5 years.

5. Farm management changes over the past 5 years (2018-2023)

This section reports the main changes farmers have made to the way they manage their business in the past 5 years (2018-2023).

Key findings:

- For all questions asking about changes to management practices in the past five years, the most common response was 'no change'
- In the past five years, the most common changes made by farmers were increases in capital investment and investment in new technology

5.1 Structural changes

A large majority of farmers in the 2023 survey (84.1%) have made investments in buildings and machinery in the past 5 years, while 8.2% have sold land (Figure 10). Land was fairly equally likely to be sold to other farmers, developers or other UK based entities (Table 9). No respondents reported selling land to overseas buyers.

While the majority of businesses have been stable in size (51.6%), the trend amongst those whose size changed is towards increasing the size of the business (33.8%), with fewer (12.6%) who have seen their business' size decrease over the past 5 years (Table 10).

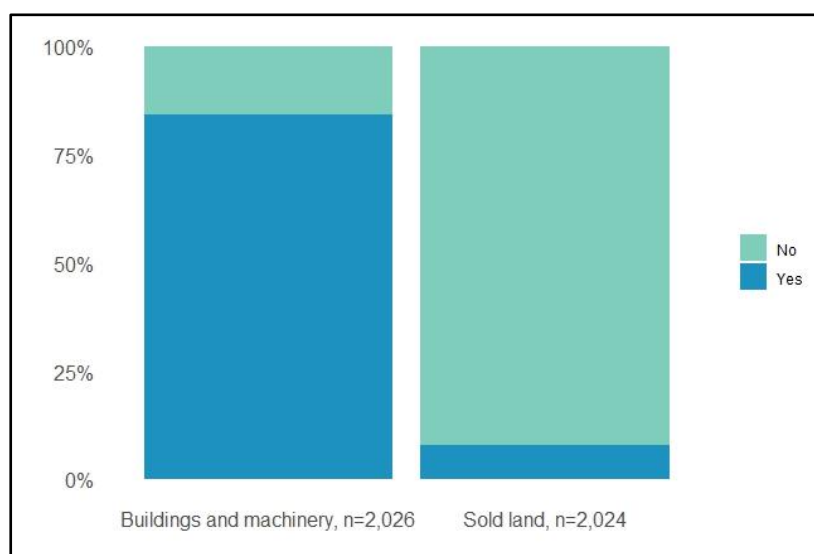


Figure 10. Structural changes made in the past 5 years (2023).

Table 9. Buyers of land sold. More than one type of buyer could be reported, so percentages total more than 100.

	Yes, to other farmers	Yes, to family	Yes, to developers	Yes, to others (UK based)	Yes, to others (non-UK based)
Sold land (n=156)	48 (30.8%)	12 (7.7%)	49 (31.4%)	57 (36.5%)	0

Table 10. Change in size of the business/holding

	Decreased	No change	Increased	NA
Change in size of the business/holding	255 (12.6%)	1048 (51.6%)	686 (33.8%)	22 (2.0%)

5.2 Changes in farm finances

For most farmers, their businesses' profitability has either remained the same (42.3%) or increased (29.0%), but around 24% have seen their farm profitability decrease over the past 5 years (Figure 11, Table 11).

A significant proportion of farmers have increased their level of capital investment over the past 5 years (45.0%). A similar number have made no change (45.5%), with only 8.1% decreasing their level of capital investment (Figure 11, Table 12).



Figure 11. Changes in farm finances over the past 5 years (2023)

Table 11. Change in profitability

	Decreased	No change	Increased	Prefer not to say
Change in profitability of business/holding (n=2,029)	485 (23.9%)	858 (42.3%)	588 (29.0%)	98 (4.8%)

Table 12. Change in level of capital investment

	Decreased	No change	Increased	Not applicable

Change in level of capital investment (n=2,011)	162 (8.1%)	915 (45.5%)	906 (45.0%)	28 (1.4%)
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5.3 Changes in production system

Most farmers report no change in the amount of employed labour (67.4%) or the mix of agricultural commodities produced throughout the past 5 years (74.0%) (Figure 12, Table 13). Where changes to the amount of employed labour have been made, a decrease in labour (10.3%) was equally likely as an increase (10.8%). Where changes to the mix of agricultural commodities produced throughout the past 5 years were reported, almost double the amount have increased the mix produced (15.0%) than decreased (8.1%).

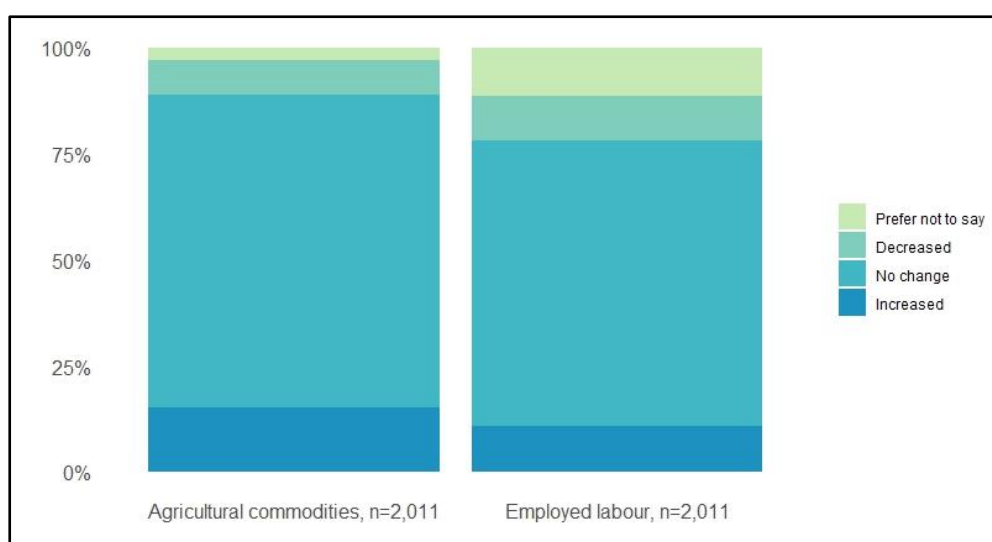


Figure 12. Changes in production system over the past 5 years (2023).

Table 13. Changes in production systems

2023		Decreased	No change	Increased	NA
Change in amount of employed labour (n=2,011)	Freq	208	1356	217	230
	%	10.3	67.4	10.8	11.4
Change of mix of agricultural commodities you produce (n=2,011)	Freq	162	1,489	302	58
	%	8.1	74.0	15.0	2.9

5.4 Technology and diversification

In FIS 2023, some questions were asked only to approximately half of participants. This was implemented to allow for a wider variety of questions to be asked, while balancing sample size and

participant fatigue. These include questions on the change in diversification and time using social media for the farm within the last 5 years, amongst others. In such instances, the total number of participants asked will be indicated, but figures will reflect the percentage of the participants asked a given question, not of the overall sample. This may be important to bear in mind while extrapolating these findings.

All farmers were asked whether they had made changes in the amount invested in new technologies over the past 5 years. Most reported no change (56.6%), however over 1/3 (34.9%) reported increased investment. Very few (3.8%) decreased their investment in new technologies (Table 14).

A subsample of respondents (n=995) were asked about changes to level of diversification and time using social media for the farm. Of these, almost 2/3 (65.1%) reported no change to the level of diversification, with 18.7% reporting increased diversification and only 2.0% decreased diversification. Of those providing information on changes to social media use, again the largest share reported no change (51.7%) or an increase (26.6%).

Table 14. Changes in technology and diversification

2023		Decreased	No change	Increased	NA
Change in amount invested in new technologies (n=2,010)	Freq	77	1,138	702	93
	%	3.8	56.6	34.9	4.6
Change in level of diversification (n=995)	Freq	20	648	186	141
	%	2.0	65.1	18.7	14.2
Change in amount of time using social media for the farm (n=995)	Freq	13	514	265	203
	%	1.3	51.7	26.6	20.4

Looking at changes to levels of technology investment and diversification across FIS waves (Figure 13), we can see that there has been relatively little change in the likelihood of farmers reporting these changes over time. No time series was available for social media usage as this was a new question in 2023.

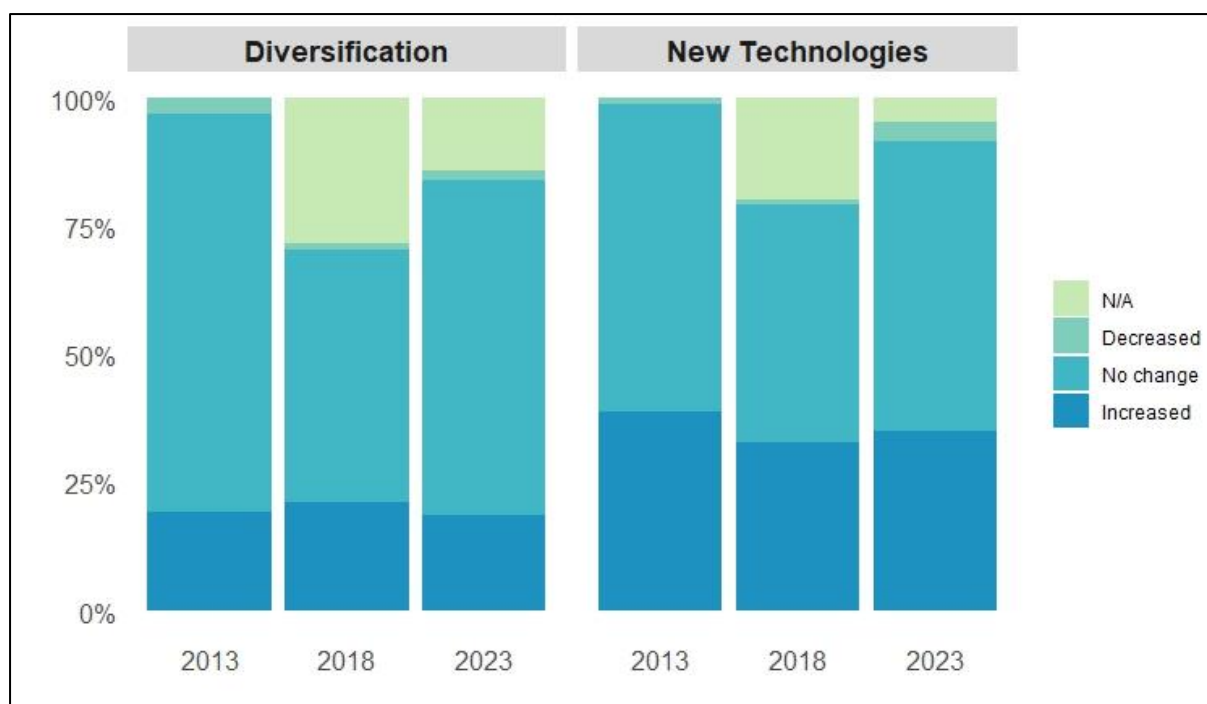


Figure 13. Changes in technology and diversification across waves. $n(2013)=2,258, 2,034$, $n(2018)=2,486, 2,491$, and $n(2023)=2,010, 995$.

5.5 Agri-environmental activities

In 2023, most of the respondents (71.1%) indicated that they had made no changes to the **area of trees** on farm in the past 5 years. Very few decreased the area of trees (1.9%) whereas 16.8% reported an increase in trees (Table 15).

In terms of changes to **production intensity**, most farmers in the 2023 survey reported no change in the past 5 years (60.4%). Increases in production intensity (22.4%) were more prevalent than decreases (15.6%) (Table 15). This pattern has remained relatively stable across FIS waves (Figure 14).

When asked about changes to levels of **agri-environmental activity**, the largest proportion of farmers surveyed indicated that they made no changes in the last 5 years (64.7%). Where changes were made, increases in agri-environmental activity were much more prevalent than decreases (26.8% vs. 3.5%) (Table 15). Of those that made changes to the amount of agri-environmental activity in the 5 years prior to 2023, and who were selected to answer a question about what type of changes had been made ($n=293$), most increased the amount of agri-environmental activities in unproductive field margins (58.4%). Almost half made increases within productive fields (45.4%) (Table 15). Looking across the FIS waves, the proportion of farmers reporting increases in agri-environmental activities has increased over time (Figure 14). Notably, in the FIS 2018, 26% of farmers indicated that a question on agri-environmental activity was not applicable. In comparison, only 5.0% indicated this in 2023. It is not clear why the level of 'not applicable' response varied greatly across the FIS waves.

Table 15. 2023 Changes in agri-environment and renewables

2023		Decreased	No change	Increased	NA
Change in area of trees on farm (not within commercial forestry) (n=2,010)	Freq	39	1,429	337	205
	%	1.9	71.1	16.8	10.2
Change in intensity of production* (n=2,010)	Freq	314	1,214	451	31
	%	15.6	60.4	22.4	1.5
Change in amount of agri-environmental activity (n=2,010)	Freq	71	1,301	539	99
	%	3.5	64.7	26.8	5.0
Change in amount of agri-environmental activities in unproductive field margins and edges (n=293)*	Freq	18	92	171	12
	%	6.1	31.4	58.4	4.10
Change in amount of agri-environmental activities in within productive fields (n=293)*	Freq	16	134	133	10
	%	5.5	45.7	45.4	3.4

*A further question about the type of agri-environmental changes made was asked only of a subsample of respondents due to routing of modules to minimise participant burden.

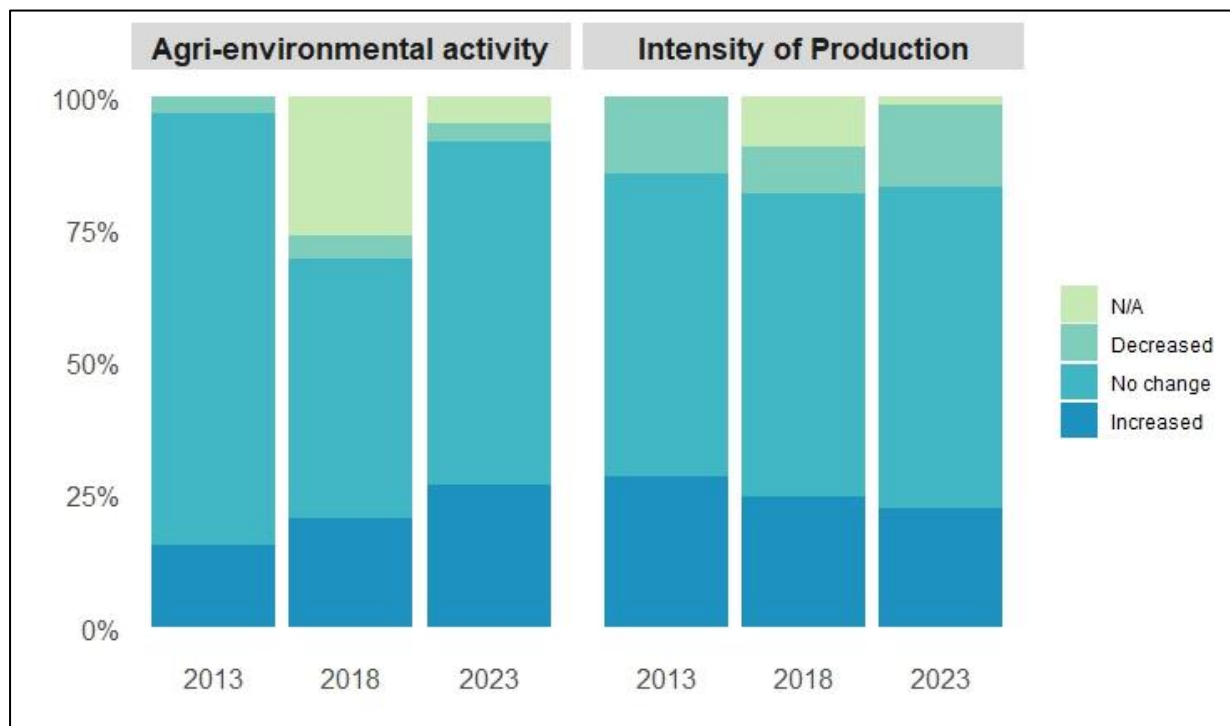


Figure 14. Changes in agri-environmental activities across waves. n(2013)=2,328, 2,130; n(2018)=2,490, 2,479; n(2023)=2,010. Note it is not possible to compare reported changes to the area of trees due to differences in question wording across the FIS waves.

6. Intended changes in the next 5 years (2023-2028)

The following section explores the changes that farmers intend to make in the next 5 years (from 2023-2028), ranging from changing the size of their farm to the amount of social media used for the farm. In each case, the highest proportion of farmers indicate that they do not intend to make a given change. Previous research based on the FIS 2013 and 2018 data has, however, indicated that farmers tend to underestimate future changes (Hopkins et al., 2021). Moreover, of the farmers that do intend to make changes, there is a trend towards making increases, as opposed to decreases.

Key findings:

- As with past changes, the most common response to questions about intended future changes in the next five years was 'no change'
- The most common changes farmers intend to make in the next five years are increasing agri-environmental activities and investment in new technology

6.1 Structural changes

The highest proportion of farmers surveyed do not intend to change the size of their business/holding (48.9%) over the next 5 years. Few intend to decrease the size (7.7%), or sell their farm (2.8%), with considerably more intending to increase their farm size (20.5%) (Table 16). A considerable proportion of farmers report that they are unsure on whether they intend to change the size of their farm (20.2%).

Table 16. Structural changes anticipated in the next 5 years

Intended size of the business/holding		Sell up	Decrease		No change	Increase		Unsure
2023 n=2,005	Freq	56	154		981	410		404
	%	2.8	7.7		48.9	20.5		20.2
2018 n=2,362	Freq	108	163		1604	487		
	%	4.6	6.9		67.9	20.6		
2013 n=2,398		Sell up	Big decrease	Small decrease	No change	Small increase	Big increase	
	Freq	115	30	91	1,599	437	126	
	%	4.8	1.3	3.8	66.7	18.2	5.3	

Wording of the question on anticipated changes to size of business/holding changed between the FIS waves, making direct comparisons difficult. However, Table 16 shows that a smaller proportion of the sample in 2023 intends to sell up in the next 5 years than was the case in previous waves. However, this may be linked to the inclusion of a new response option 'unsure' in 2023. Similarly, the decrease in the 'no change' response in 2023 compared to 2018 and 2013 may in part be due to the inclusion of the 'unsure' category.

6.2 Changes in farm finances

In 2023, the majority (53.8%) of respondents stated that they anticipated no change in their level of capital investment over the next 5 years, with a further 29.8% reporting an intended increase (Table 17). At the same time, 11.9% intended to decrease their level of capital investment over the next 5 years. This contrasts with the findings of the 2018 wave – both the proportion of farmers intending to increase their level of capital investment and the proportion intending to decrease it are higher than previously (Table 17).

Table 17. Intended changes in the level of capital investment. No data available for 2013.

Intended level of capital investment		Decrease	No change	Increase	NA
2023	Freq	241	1,092	604	68
	%	11.9	53.8	29.8	3.4
2018	Freq	149	1463	641	184
	%	6.0	58.7	25.7	7.4

6.3 Changes in production system

In terms of the production system, most farmers indicated that they do not intend to make changes to the amount of employed labour (70.4%) or the mix of agricultural commodities produced (76.4%) in the next 5 years. Across these two potential changes, the proportion of those intending to increase and decrease are very similar (Table 18).

Looking across FIS waves, the proportions of farmers intending to make changes to the amount of employed labour has remained very stable (Figure 15).

Table 18. Intended changes in production system (2023).

2023		Decrease	No change	Increase	N/A
Intended change in amount of employed labour n=2,005	Freq	125	1,411	252	217
	%	6.2	70.4	12.6	10.8
Intended change in the mix of agricultural commodities you produce n=2,005	Freq	137	1,531	260	77
	%	6.8	76.4	13.0	3.8

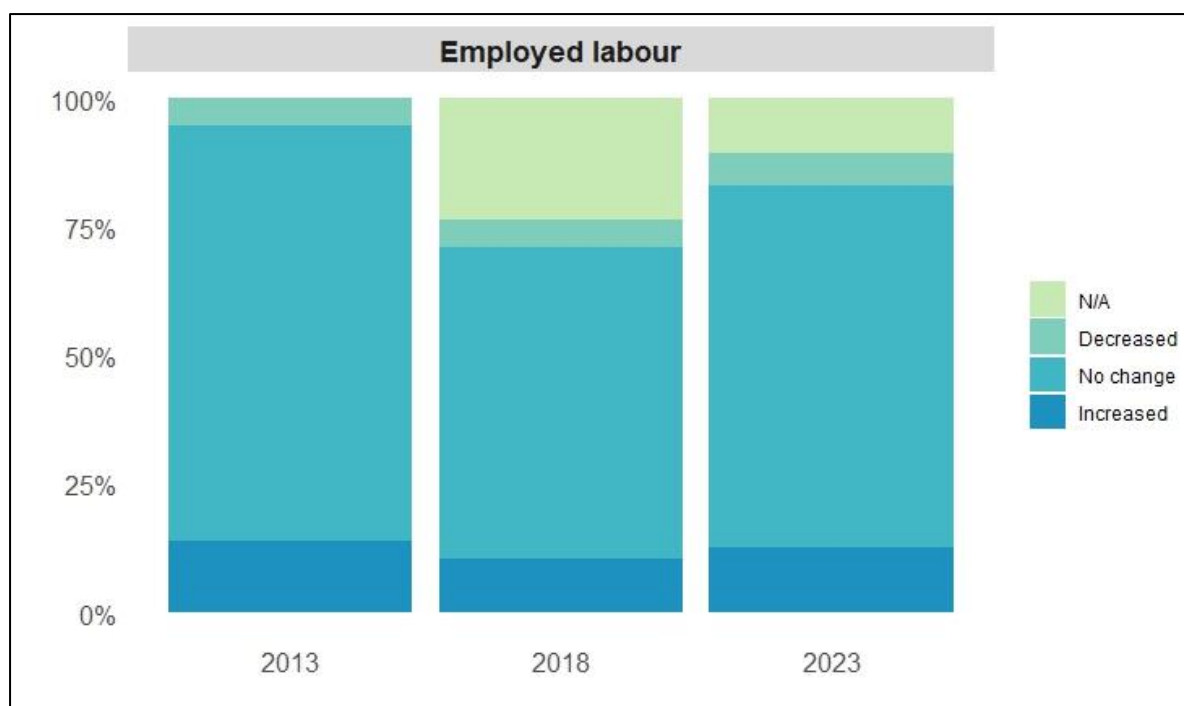


Figure 15. Intended changes in employed labour over the next 5 years. n(2013)=2,017, n(2018)=2,457, n(2023)=2,005.

6.4 Technology and diversification

In the following five years, most farmers do not intend to change the amount invested in new **technologies** (52.3%), the **level of diversification** (56.2%), or the **amount of time using social media** for the farm (57.7%). However, considerable proportions do intend to make increases in these areas (35.6%; 30.3% and 24.3%, respectively), and a small number intend to make decreases (Table 19).

Table 19. Intended changes in technology and diversification over the next 5 years (2023).

2023		Decrease	No change	Increase	NA
Intended change in amount invested in new technologies (n=2,004)	Freq	114	1,061	723	106
	%	5.6	52.3	35.6	5.2
Intended change in level of diversification (n=992)	Freq	20	565	304	103
	%	2.0	56.2	30.3	10.3
Intended change in amount of time using social media for the farm (n=992)	Freq	29	580	244	139
	%	2.9	57.7	24.3	13.8

Looking across the FIS waves, while there is no clear trend in intentions to increase investment in new technologies, it does appear that in 2023 respondents were more likely than in previous waves to indicate an intention to decrease investment in new technologies (Figure 16). At the same time there has been an increase over time in the share of respondents reporting intentions to increase their level of diversification, although this change occurred between the 2013 and 2018 waves, with no notable change between 2018 and 2023 (Figure 16).

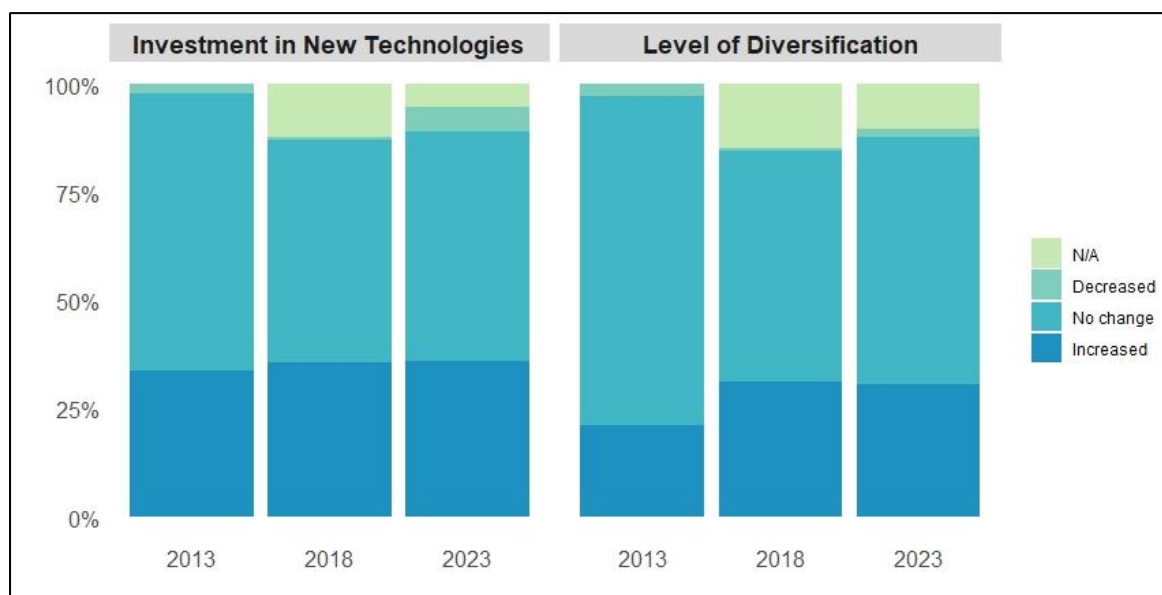


Figure 16. Intended changes in technology (n=2,102; 2,449; 2,004) and diversification (n=1,920; 2,455; 992)

6.5 Agri-environmental activities

For each aspect of agri-environmental activities covered in the survey, the majority of farmers do not intend to make changes in the next 5 years (Table 20). The most frequent intended change for Scottish farmers is to increase the amount of agri-environmental activity overall (37.9%); while only 2.0% intend to decrease this. Of those farmers intending to change the level of agri-environmental activities who were asked a follow up question about the type of activities anticipated (n=389), 65.6% intend to increase the amount of agri-environmental activities in unproductive field margins and edges, and 49.6% within productive fields. More farmers intend to increase the area of trees on farm (27.5%) than decrease (1.2%). Likewise, more intend to increase the intensity of production (17.3%), however a sizable minority intend to decrease production intensity (12.6%).

Looking across FIS waves, intentions to increase agri-environmental activity have increased significantly across the waves between 2013 and 2023 (Figure 17). The trend in intentions to change production intensity is less clear. Between 2013 and 2018, both the proportion of farmers intending to increase and to decrease intensity increased. In 2023, however, more farmers again reported intentions to make no change, and the proportion of farmers intending to increase intensity fell to the lowest level observed throughout the FIS waves (Figure 17).

Table 20. Intended changes in agri-environmental activities over the next 5 years (2023).

2023		Decrease	No change	Increase	NA
Intended change in area of trees on farm (not within commercial forestry)	Freq	24	1,240	557	183
	%	1.2	61.1	27.5	9.0
Intended change in intensity of production	Freq	256	1,337	350	61
	%	12.6	65.9	17.3	3.0
Intended change in amount of agri-environmental activity	Freq	40	1,053	769	142
	%	2.0	51.9	37.9	7.0
Intended change in amount of agri-environmental activities in unproductive field margins and edges (n= 389)	Freq	9	111	255	14
	%	2.3	28.5	65.6	3.6
Intended change in amount of agri-environmental activities within productive fields (n=389)	Freq	21	164	193	11
	%	5.4	42.2	49.6	2.8

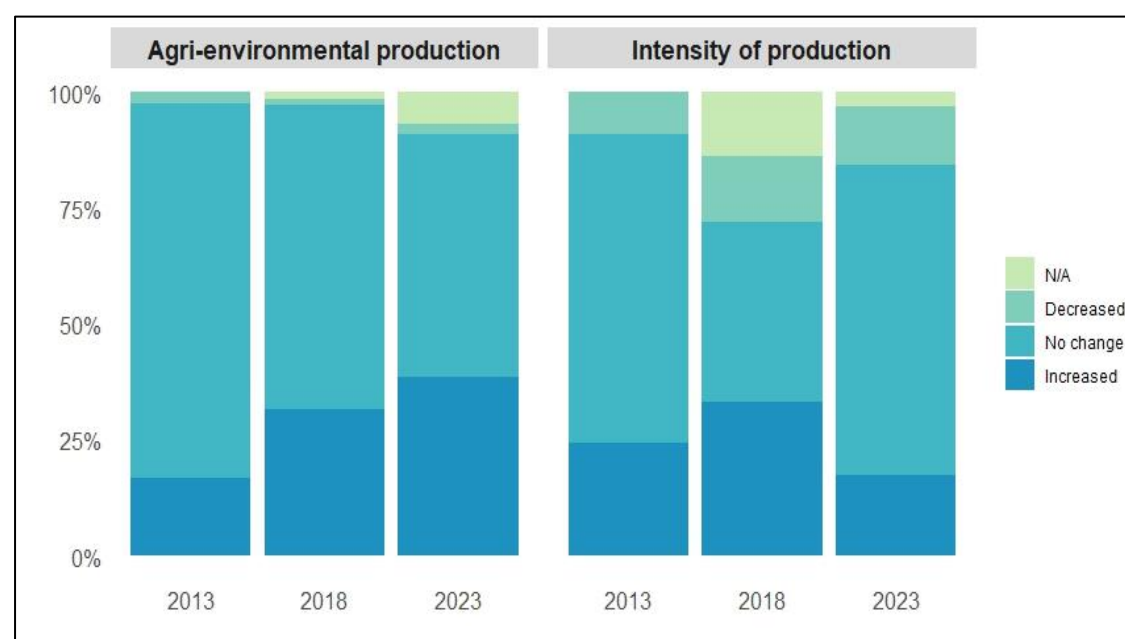


Figure 17. Intended changes in agri-environmental activities over the next 5 years. Intensity of production (n=2,165; 587; 2,004) and Agri-environmental activity (n=2,032; 2,435; 2,004).

7. Key findings and next steps

7.1 Key findings

The profile of Scottish farmers is becoming older, and more educated, but not less male

The profile of FIS survey respondents across the three waves (2013, 2018, 2023) reflects an aging profile of Scottish farmers with less than a third of respondents in 2023 aged below 55. The findings also show that farming is as male dominated in 2023 as it was in 2013. The increase in female respondents between the 2013 and 2018 waves was not maintained in 2023. Educational level has been increasing over time – in 2023 almost 1/3 of respondents were university educated.

Fewer farms report making a profit, meaning most farming households have to rely on diverse sources of income

The proportion of farmers reporting making a profit from their farm has reduced across the FIS waves from 2013 to 2023. In line with this, the contribution of the farm business to farmers' overall household income has fallen over time.

Market factors have been a primary driver of change over the past 5 years

Markets are the current most significant driver of change in the way that Scottish farms are managed. In 2023, the majority of farmers surveyed reported that changes in prices for fertiliser, feed, energy and commodities are all driving change on their farm to some degree. Almost half of farmers reported that fertiliser prices changes have resulted in significant change to the way they manage their farm over the past 5 years. Market factors outside of the UK such as changes in exchange rates and export markets have been a less significant driver of change. Changes in labour availability, however, remains a major driver of change and appears to have increased in influence between 2018 and 2023. We do not have information from the FIS on the relative influence of domestic vs. international labour market factors.

In contrast, the regulatory and policy landscape (including changes in subsidies) have not been consistently increasing in influence over time. Whilst continuing to be an important driver of change for many, FIS survey respondents have become less likely to report changes in regulations as a driver of significant change on their farm, perhaps indicating stability in the regulatory landscape, despite significant political change in recent years. Similarly, the proportion indicating that changes in subsidies have driven change in management practices reduced slightly between 2018 and 2023. The majority of respondents reported that the EU exit has not influenced change on their farm. These findings may reflect relative stability in the immediate wake of Brexit whilst post-CAP agricultural policy development remains underway.

In the past 5 years, the most common changes made by farmers were increases in capital investment and investment in new technology

For all questions about changes that had occurred in the last 5 years, the most common response from FIS 2023 respondents was 'no change'. The attributes that were most likely to have stayed stable were the mix of agricultural commodities produced (74% reported no change), the area of trees on farm (71% reported no change), amount of employed labour (67.4% reported no change), and the amount of agri-environmental activity (65% reported no change).

The most commonly reported changes in the past 5 years were increases in the level of capital investment (45%), increases in new technology investment (35%), and increases in the size of the holding (34%). Other commonly reported changes included increases in profitability (29%), agri-environmental activity (27%) and use of social media (27%).

Very few respondents reported decreasing their levels of technology and diversification or agri-environmental activities. A sizeable minority of respondents did, however, report a decrease in profitability (24%, compared to 29% reporting an increase), or a decrease in production intensity (15.6%, compared to 22% reporting an increase). Respondents were as likely to report a decrease in employed labour as an increase (10% vs. 11%).

The most common changes farmers intend to make in the next 5 years are increasing agri-environmental activities and investment in new technology

As with past changes, the most common response to questions about future intended changes was 'no change' throughout. The attributes that farmers were least likely to intend to change were: the mix of agricultural commodities produced (76%), amount of employed labour (70%), intensity of production (66%) and area of trees (61%).

The intended changes most commonly reported were increasing agri-environmental activity (38%), increasing investment in new technology (36%), increasing diversification (30%) and increasing capital investment (30%). Those asked about the type of agri-environmental activities they plan to change were most likely to plan to increase activities in unproductive field margins. Looking across the three waves of the FIS from 2013 to 2023 there is a clear trend towards growing intentions to increase agri-environmental activity.

7.2 Study limitations

It is important to note that as the FIS is a repeated cross-sectional study, comparisons across waves are made between independent samples rather than the same sample of farmers in each wave. This means that it is not possible to track e.g. planned changes reported in 2018 with past changes reported in 2023 at the farm level. Rather we can only compare 'snapshots' at each wave.

Regarding the representativeness of the FIS 2023 sample, small farms were somewhat more represented in the sampling frame taken from the June Agricultural Census than the initial constraint for small farms being at most 25% of the sample, due to challenges in recruitment. However, small farms remained below 25% in the final sample. Due to unavoidable delays in data collection and data management processes we have not yet been able to systematically compare the profile of FIS 2023 respondents against data from the JAC to allow further assessment of the representativeness of the survey sample.

7.3 Next steps

Further analysis of the FIS 2023 will be planned in discussion with RESAS and policy colleagues. This could include examining how future intentions and past changes vary according to factors such as farm size, type, farmer age, and succession plans. Future analysis will also capitalise on linkage of the FIS 2023 data to June Agricultural Census and RPID datasets, and examine data from additional modules not included in this inception report analysis.

8. References

Hopkins, J., Thomson, S., Miller, D., Sutherland, L-A., Barlagne, C., Wardell-Johnson, D., Barnes, A. and McMillan, J. (2021) How often does intended farm management behaviour match ‘actual’ behaviour. Insights for thirteen farm activities (2013-2018). Farmer Intentions Survey Briefing Note, March 2021. The James Hutton Institute. [Available online at: https://www.hutton.ac.uk/sites/default/files/files/research/srp2016-21/rd242outputs/Comparing_stated_intentions_and_behaviour_RD242_published.pdf]

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Project website:

Co-designing and implementing best-fit farming practices (COMBINE): <https://combine.hutton.ac.uk/>

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Appendix A: Farmer Intentions Survey 2023 Questionnaire

Introduction

Good morning/afternoon, I am _____ calling from Progressive, an independent market research company. Recently you received a letter about a survey we are conducting for the James Hutton Institute and Scotland's Rural College (SRUC) on behalf of the Scottish Government. The purpose of the survey is to understand the responses of agricultural land managers to on-going changes in the agricultural industry.

Participation in the survey is voluntary and should take about 20-25 minutes. Most questions ask only if you agree or disagree with a statement made, or if you have or will change your farm activities.

Are you the main decision maker on the farm and would you like to take part?

SINGLE CODE	Code	Route
Effective	1	Continue
Not the main decision-maker on the farm	2	Get details of main decision-maker & Recall
Ineligible (not farming any more/retired)	3	Get details of new contact & Recall
Engaged	4	Recall
Hard call back	5	Recall
Soft call back	6	Recall
Answer machine	7	Recall
No reply	8	Recall
Refused (personally refused)	9	Close
Refused (not allowed to speak to respondent)	10	Close
Number not available	11	Close
Wrong number	12	Close
Not available during fieldwork	13	Close
Other, please specify _____	14	Close

All information given will be totally anonymous in any subsequent reports or publications: you and your farm will never be individually identifiable, any personal identifiers will be deleted after use, unless you agree to participate in further research. You do not have to answer any questions you do not wish to, and you can withdraw from the survey at any point of the interview, without having to give a reason. There is no wrong answer to any of the questions we ask you. For quality control reasons, this interview is being recorded.

Please confirm that you agree with the following:

- You understand that your participation in the Farmer Intention Survey 2023 is voluntary, and you are free to withdraw at any time until the end of the interview, without providing any reason and without your legal rights being affected
- You understand that confidentiality and anonymity will be maintained at all times and it will not be possible to identify you from any publications/outputs
- You understand that the study is being conducted by researchers from The James Hutton Institute and Scotland's Rural College at the request of the Scottish Government Strategic Research Programme
- You are aware of the privacy notice we sent you
- You understand the call is being recorded for quality control purposes and will not be shared outside our organisation.
- You agree to take part in this survey?

DIRECT TO PRIVACY NOTICES IF REQUIRED:

PRIVACY NOTICES ARE AVAILABLE AT:

James Hutton Institute: <https://www.hutton.ac.uk/terms>

SRUC: <https://www.sruc.ac.uk/connect/about-sruc/policies-compliance/compliance/privacy-policy-gdpr-cookies/>

Progressive: <https://www.progressivepartnership.co.uk/privacy-data-collection/>

SINGLE CODE	Code	Route
Yes	1	Continue
No	2	Close

ASK IF SEVERAL HOLDINGS IN BUSINESS (SEE SAMPLE)

S1. Our records show you have more than one holding as part of the business. Are you happy to answer this survey for the whole business? PROBE TO PRE-CODES. INTERVIEWER NOTE: MUST SELECT WHOLE BUSINESS OR HOLDING TO CONTINUE

SINGLE CODE	Code	
Yes – can answer for the whole business	1	
No – but can answer for this holding	2	
No – cannot answer for either	3	Screen out

ASK ALL (UNLESS S1=3 IN WHICH CASE SCREEN OUT FROM NOW ON)

SEED FROM SAMPLE:

SINGLE CODE	Code
Specialist cereals	1
General cropping	2
Specialist horticulture & permanent crops	3
Specialist pigs	4
Specialist poultry	5
Specialist dairy	6
LFA Cattle & Sheep	7
Non-LFA Cattle & Sheep	8
Mixed holdings	9
General cropping: forage	10
Unclassified/other	11

ASK IF SAMPLE = 1~10

S2a. We have your farm holding recorded as ***[INSERT FROM SAMPLE]***. Would you agree with that?

SINGLE CODE	Code
Yes	1
No	2

ASK IF S2a=NO, OR SAMPLE = 11

S2b. Which of the following would best describe your main farm activity? READ OUT, SINGLE CODE

SINGLE CODE	Code
Specialist livestock: cattle and/or sheep (including dairy)	1
Specialist cereals, general cropping (including forage)	2
Mixed farm	3
Specialist horticulture and permanent crops	4
Specialist pigs	5
Other (specify)	6

DERIVED VARIABLES FOR ROUTING/SCRIPTING:

- **TEXT SUBSTITUTION: REFER TO FARMS AS 'BUSINESS' OR 'HOLDING' BASED ON S1**
- **SAMPLE (BASED ON SAMPLE IF S2a=YES, OR S2b) – DETERMINES ROUTING THROUGH MODULES**

SINGLE CODE	Code	Sample definition
Specialist cereals	1	S2a=1 AND SAMPLE=1, OR S2b=2
General cropping	2	S2a=1 AND SAMPLE=2
Specialist horticulture & permanent crops	3	S2a=1 AND SAMPLE=3, OR S2b=4
Specialist pigs	4	S2a=1 AND SAMPLE=4 OR S2b=5
Specialist poultry	5	S2a=1 AND SAMPLE=5
Specialist dairy	6	S2a=1 AND SAMPLE=6, OR S2b=1
LFA Cattle & Sheep	7	S2a=1 AND SAMPLE=7
Non-LFA Cattle & Sheep	8	S2a=1 AND SAMPLE=8
Mixed holdings	9	S2a=1 AND SAMPLE=9, OR S2b=3
General cropping: forage	10	S2a=1 AND SAMPLE=10
Unclassified/other	11	S2b=6

- **RANDOM ROUTE ALLOCATION – MODULE 7 = 25%, MODULE 8 = 25%, MODULE 9 = 50%**

MODULE 1: BACKGROUND – ALL FARM TYPES

ASK ALL

Q1.1. How old are you?

SINGLE CODE	Code
35 and under	1
36-40	2
41-44	3
45-54	4
55-64	5
65-74	6
75 and over	7
Prefer not to say	8

Q1.2. Do you identify as... READ OUT

SINGLE CODE	Code
Male	1
Female	2
Other	3
Prefer not to say [DO NOT READ OUT]	4

Q1.3. What is your highest level of education achievement?

SINGLE CODE	Code
School	1
College	2
University	3
Prefer not to say	4

Q1.4. Approximately how many years have you been involved in the management of the business/holding? QUANTITY VARIABLE: ____

ASK IF ROUTED TO MODULE 7 (DIVERSIFICATION) OR 8 (BIOENERGY)

Q1.5. Do you belong to... READ OUT, MULTICODE ALLOWED

MULTI CODE	Code
A farmers' union	1
A farmers' association	2
A farmers' cooperative	3
Other forms of farmers' formal or informal groups/networks	4
None of the above – do not belong to any kind of farmer group	5
Prefer not to say [DO NOT READ OUT]	6

ASK IF Q1.5=1~4

Q1.5a. How often do you attend meetings or events from these groups?

SINGLE CODE	Code
Weekly	1
Monthly	2
Annually	3
Less than annually	4
Prefer not to say	5

Q1.5b. What benefits do you see in belonging to these groups? MULTICODE ALLOWED

MULTI CODE	Code
Peer support	1
Technical knowledge sharing / advice	2
Financial knowledge sharing or advice	3
Sharing machinery	4
Marketing advice	5
Collaborate with other farmers in the area around land use and land management decisions	6
Lobbying	7
Other benefits (specify)	8
None of the above	9

ASK ALL OTHERS NOT ROUTED TO MODULE 7 OR 8

Q1.5c. In 2022, did you participate in any formal or informal farmer discussion group to talk about farm management?

SINGLE CODE	Code
Yes	1
No	2

ASK IF SAMPLE=1~3, 9~11

Q1.6 Do you get advice for agronomic / crop management?

SINGLE CODE	Code
Yes	1
No	2
Not applicable	3

ASK IF Q1.6=1 (YES)

Q1.7a. Do you get this advice from any of the following advisory services? READ OUT, MULTICODE ALLOWED

MULTI CODE	Code
Farm Advisory Services (FAS, delivered by SAC consulting and Ricardo Energy and Environment)	1
Independent agronomists	2
Agronomists from Input Providers	3
Agronomists from cooperative	4
Agronomists from buyers	5
Other	6

ASK ALL

Q1.7b. Please rate your 3 preferred ways of getting advice, 1 being your most preferred. READ OUT, PROBE TO PRE-CODES. INTERVIEWER NOTE – COULD BE ANY ADVICE ABOUT RUNNING THEIR FARM/BUSINESS, E.G. APPLYING FOR GRANTS AND PAYMENTS, ANIMAL HEALTH ADVICE, ENVIRONMENTAL PLANNING ETC

SINGLE CODE – RATE UP TO 3	Code
One-to-one advice from adviser	1
One-to-many advice from adviser	2
TV / videos	3
Technical notes	4
Podcasts	5
Farm visits	6
Webinars	7
Not applicable – I do not want/need advice	8

ASK ALL

Q1.8. Do you consider yourself to be a... READ OUT

SINGLE CODE	Code
Farmer	1
Crofter	2
Hobbyist	3
Smallholder	4
Business person	5
Contractor	6

Q1.9. Was this business/holding inherited from a previous generation?

SINGLE CODE	Code
Yes	1
No	2

Q1.10. Do you plan to continue farming for the next five years?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

Q1.11. Have you identified a potential successor for your farm business/holding?

SINGLE CODE	Code
Yes	1
No	2
Too early to say	3

Q1.12. In the last 5 years, have you invested in buildings and machinery?

SINGLE CODE	Code
Yes	1
No	2
Prefer not to say	3

Q1.13. In the last 5 years, have you sold land? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
No	1
Yes, to other farmers	2
Yes, to family	3
Yes, to developers	4
Yes, to others (UK based)	5
Yes, to others (non-UK based)	6
Prefer not to say	7

Q1.14. In the past 5 years has the profitability of your business/holding... READ OUT

SINGLE CODE	Code
Increased	1
Stayed the same	2
Decreased	3
Prefer not to say	4

Q1.15. Approximately what percentage of your household income comes from the farm business?

SINGLE CODE	Code
Zero	1
Less than 25%	2
Around 25% to 50%	3
Around 50% to 75%	4
Over 75%	5
Prefer not to say	6

ASK IF ROUTED TO MODULE 7 (DIVERSIFICATION) OR 8 (BIOENERGY)

Q1.16. Taking **all** your sources of income into account, is making a profit the primary aim of this business/holding? PROBE TO PRE-CODES

SINGLE CODE	Code
Yes	1
No, but it is important that it breaks even	2
No, making a profit is not the primary aim of this farm	3

ASK ALL

Q1.17. Approximately, what is the total turnover (including subsidies) of your business/holding from farming activity? PROBE TO PRE-CODES

SINGLE CODE	Code
Under £25,000	1
£25,000 - £99,999	2
£100,000 - £249,999	3
£250,000 - £999,999	4
£1 million or more	5
Don't know	6
Prefer not to say	7

Q1.18. What is the typical annual profit generated by the farming activity of your business/holding? PROBE TO PRE-CODES.

SINGLE CODE	Code
Make a loss (< £0)	1
Break even (~ £0)	2
£1 up to £30,000	3
Over £30,000 but under £100,000	4
More than £100,000	5
Don't know	6
Prefer not to say	7

MODULE 2: PAST INFLUENCE – ALL FARM TYPES**ASK ALL**

Q2. In the last 5 years, have any of the following changed the way you manage your business/holding? READ OUT, PROBE TO PRE-CODES

			No	Slightly	Significantly
Q2.a		Changes in subsidies	1	2	3
Q2.b		Changes to regulations	1	2	3
Q2.c		Changes in fertiliser prices	1	2	3
Q2.d	ASK IF SAMPLE=4~9	Changes in feed prices	1	2	3
Q2.e		Changes in energy prices	1	2	3
Q2.f		Changes in commodity prices	1	2	3
Q2.g		Changes in export markets	1	2	3
Q2.h		Changes in exchange rates	1	2	3
Q2.i		Changes in labour availability	1	2	3
Q2.j		Changes in land availability	1	2	3
Q2.k		Planning for succession	1	2	3
Q2.m		EU exit	1	2	3

MODULE 3: <5 YEARS – ALL FARM TYPES

ASK ALL

For the next few questions, please think about the last five years – since 2018.

Q3. In the last 5 years, have you increased, decreased or made no change to... READ OUT, PROBE TO PRE-CODES

			Decreased	No change	Increased	N/A
Q3.1		Size of the business/holding	1	2	3	4
Q3.2		The level of capital investment	1	2	3	4
Q3.3		The amount of <u>employed</u> labour	1	2	3	4
Q3.4		The mix of agricultural commodities you produce	1	2	3	4
Q3.5		The intensity of production	1	2	3	4
Q3.6		The amount invested in new technologies	1	2	3	4
Q3.7	ASK IF ROUTED TO M7/M8	The level of diversification in addition to agricultural production (e.g. agri-tourism, farm shop)	1	2	3	4
Q3.9	ASK IF ROUTED TO M7/M8	The amount of time using social media for the farm	1	2	3	4
Q3.12		The area of trees on farm (not within commercial forestry)	1	2	3	4
Q3.13		The amount of agri-environmental activity	1	2	3	4
Q3.13a	ASK IF ROUTED TO M7/M8 AND Q3.13=1,3	More precisely, how has the amount of agri-environmental activities in unproductive areas of the farm such as field margins & edges changed?	1	2	3	4
Q3.13b	ASK IF ROUTED TO M7/M8 AND Q3.13=1,3	More precisely, how has the amount of agri-environmental activities within productive fields changed?	1	2	3	4

ASK IF Q3.5=1 (DECREASED)

Q3.5a. You mentioned that the intensity of production has decreased. In which way has the intensity of production decreased? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Decrease in fertiliser used	1
Increase in land area left out of production	2
Increase in rotation length	3
Decrease in use of machinery	4
Other (specify)	5

ASK IF Q3.5=3 (INCREASED)

Q3.5b. You mentioned that the intensity of production has increased. In which way has the intensity of production increased? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Increase in fertiliser used	1
Reduction in land area left out of production	2
Decrease in rotation length	3
Increase in use of machinery	4
Other (specify)	5

ASK IF ROUTED TO MODULE 7 (DIVERSIFICATION) OR 8 (BIOENERGY)

Q3.14b. In comparison with 5 years ago, do you feel that the state of nature in your local area has...
READ OUT, SINGLE CODE

SINGLE CODE	Code
Degraded	1
Not changed	2
Improved	3
N/A [DO NOT READ OUT]	4

Q3.14c. In comparison with 5 years ago, do you feel that the satisfaction you get out of farming has...
READ OUT, SINGLE CODE

SINGLE CODE	Code
Decreased	1
Not changed	2
Increased	3
N/A [DO NOT READ OUT]	4

MODULE 4: >5 YEARS – ALL FARM TYPES

ASK ALL

For the next few questions, please think about your plans for the next five years – until 2028.

Q4.1. During the next five years, do you intend to change the size of the business/holding? PROBE TO PRE-CODES

SINGLE CODE	Code
Sell up	1
Decrease	2
No change	3
Increase	4
Unsure	5

Q4. And during the next five years, do you intend to increase, decrease or make no change to... READ OUT, PROBE TO PRE-CODES

			Decrease	No change	Increase	N/A
Q4.2		The level of capital investment	1	2	3	4
Q4.3		The amount of <u>employed</u> labour	1	2	3	4
Q4.4		The mix of agricultural commodities you produce	1	2	3	4
Q4.5		The intensity of production	1	2	3	4
Q4.6		The amount invested in new technologies	1	2	3	4
Q4.7	ASK IF ROUTED TO M7/M8	The level of diversification in addition to agricultural production (e.g. agri-tourism, farm shop)	1	2	3	4
Q4.9	ASK IF ROUTED TO M7/M8	The amount of time using social media for the farm	1	2	3	4
Q4.12		The area of trees on farm (not within commercial forestry)	1	2	3	4
Q4.13		The amount of agri-environmental activity	1	2	3	4
Q4.13a	ASK IF ROUTED TO M7/M8 AND Q4.13=1,3	More precisely, do you expect the amount of agri-environmental activities in unproductive areas of the farm (such as field margins & edges) to decrease, not change or increase over next 5 years?	1	2	3	4
Q4.13b	ASK IF ROUTED TO M7/M8 AND Q4.13=1,3	More precisely, do you expect the amount of agri-environmental activities within productive fields to decrease, not change or increase over next 5 years?	1	2	3	4

ASK IF Q4.5=1 (DECREASE)

Q4.5a. You mentioned that the intensity of production is expected to decrease. In which way is the intensity of production expected to decrease? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Decrease in fertiliser used	1
Increase in land area left out of production	2
Increase in rotation length	3
Decrease in use of machinery	4
Other (specify)	5

ASK IF Q4.5=3 (INCREASE)

Q4.5b. You mentioned that the intensity of production is expected to increase. In which way is the intensity of production expected to increase? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Increase in fertiliser used	1
Reduction in land area left out of production	2
Decrease in rotation length	3
Increase in use of machinery	4
Other (specify)	5

MODULE 5: REGULATION – FARMERS WITH ARABLE LAND, TARGET N~875**ASK MODULE 5 IF SAMPLE=1,2,3,9,10**

Q5.1. Have you done a carbon audit in the past 5 years? A carbon audit is an assessment of your farm's greenhouse gas emissions.

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q5.1=1 (YES)

Q5.1a. Why did you do a carbon audit? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
A requirement from the buyer	1
Requirement for assurance scheme	2
Good practice	3
Improving efficiency	4
Other (specify)	5

ASK IF Q5.1=2 (NO)

Q5.1b. Why haven't you done a carbon audit? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Not aware	1
Not useful	2
Need training	3
Other (specify)	4

Q5.1c. In the next five years do you plan to do a carbon audit?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

ASK ALL IN THIS MODULE

Q5.2. Have you used a Nutrient Management Plan in 2022? This is a formal plan to manage nutrients on the farm.

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q5.2=1 (YES)

Q5.2a. Why did you use a Nutrient Management Plan? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
A requirement from the buyer	1
Requirement for assurance scheme	2
Good practice	3
Improving efficiency	4
Regulatory requirements	5
Other (specify)	6

Q5.2aa. Has your Nutrient Management Plan been created or updated within the past 5 years?

	Code
Yes	1
No	2

ASK IF Q5.2=2 (NO)

Q5.2b. Why did you not use a Nutrient Management Plan? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Not aware	1
Not useful	2
Need training	3

Other (specify)	4
-----------------	---

Q5.2c. In the next five years do you plan to start using a Nutrient Management Plan?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

ASK ALL IN THIS MODULE

Q5.3. Have you increased your Integrated Pest Management activity in the last five years? This means applying an optimal mix of pest control tools.

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q5.3=1 (YES)

Q5.3a. Why did you increase your activity on integrated pest management? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
A requirement from the buyer	1
Requirement for assurance scheme	2
Good practice	3
Improving efficiency	4
Reducing environmental impacts	5
Other (specify)	6

ASK IF Q5.3=2 (NO)

Q5.3b. Why did you not change your activity on integrated pest management? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Not aware	1
Not useful	2
Need training	3
Other (specify)	

Q5.3c. In the next five years do you plan to do more on integrated pest management?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

ASK ALL IN THIS MODULE

Q5.4. Do you use bench marking standards for your main production activity?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q5.4=1 (YES)

Q5.4a. Why do you do this? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
A requirement from the buyer	1
Requirement for assurance scheme	2
Good practice	3
Improving efficiency	4
Other (specify)	5

ASK ALL IN THIS MODULE

Q5.5. How important are the following when you make decisions about the farming practices you use?

	<i>RANDOMISE STATEMENTS</i>	Not at all important	Not very important	Neither important nor unimportant	Quite important	Very important
Q5.5a	Seeing that the practice has been successfully implemented on another farm	1	2	3	4	5
Q5.5c	Knowing that the practice is new on farms like yours	1	2	3	4	5
Q5.5d	Knowing that the practice may influence the way you sell your products	1	2	3	4	5
Q5.5e	Knowing that the practice will benefit your farm's profitability	1	2	3	4	5
Q5.5f	Knowing that implementing the practice will also benefit other farms	1	2	3	4	5
Q5.5g	Knowing that the practice will benefit local biodiversity	1	2	3	4	5
Q5.5h	Knowing that the practice will help reduce greenhouse gas emissions	1	2	3	4	5

Q5.7a. Is your farm located in a Nitrate Vulnerable Zone?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

Q5.7b. The next questions concern the use of synthetic nitrogen fertilisers. Have you reduced your use of synthetic nitrogen fertilisers over the past 5 years?

SINGLE CODE	Code
Yes	1
No	2
I do not use any synthetic nitrogen fertiliser	3
Prefer not to say	4

ASK UNLESS Q5.7b=3 (DO NOT USE IT – SKIP TO Q5.9)

Q5.7c. Have other farmers you know reduced their use of such fertilisers over the past 5 years?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

FOR ALL IN THIS MODULE, UNLESS Q5.7b=3

ADDITIONAL ROUTING: WITHIN THIS MODULE, EACH RESPONDENT TO BE ROUTED TO ONE OF FOUR QUESTION SETS, T0~T3 (INCLUDING THOSE SAYING Q5.7b=3)

IF T0, GO DIRECTLY TO Q5.7d.

READ OUT IF T1:

Application of nitrogen fertiliser leads to the emission of nitrous oxide emissions from soils, a greenhouse gas causing climate change. Reducing synthetic nitrogen fertiliser application can therefore contribute to addressing climate change.

READ OUT IF T2:

Nitrogen runoff to field edges and margins negatively affects plant species diversity in those areas, because high nutrient levels favour only certain annual plants. Reducing synthetic nitrogen fertiliser applications is therefore one way to contribute to supporting local biodiversity.

READ OUT IF T3:

Accompanied with soil testing, it can pay off to reduce synthetic nitrogen fertiliser amounts to optimal levels. It can bring costs down while maintaining income, thus resulting in a net increase in profit.

ASK ALL IN THIS MODULE, UNLESS Q5.7b=3

Q5.7d. If an event on nitrogen fertilisers, their efficient use and alternatives to them, was organised in your area, would you be interested in attending? PROBE TO PRE-CODES

SINGLE CODE	Code
Not at all interested	1
Not very interested	2
Quite interested	3
Very interested	4
Don't know	5

Q5.7e. How likely are you to reduce nitrogen fertilisation on your farm over the next 5 years? PROBE TO PRE-CODES

SINGLE CODE	Code
Very unlikely	1
Unlikely	2
Likely	3
Very likely	4
Don't know	5

Q5.8. Please state your level of agreement or disagreement with the following statements about the use of synthetic nitrogen fertilisers. PROBE TO PRE-CODES

		<i>RANDOMISE STATEMENTS</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q5.8a		Your farm would benefit from a reduction in the use of nitrogen fertilisers by other farmers	1	2	3	4	5
Q5.8b		You would be able to reduce your use of nitrogen fertilisers in the next 5 years if you wanted to	1	2	3	4	5
Q5.8c		Adequate advice is available to support you in reducing your use of nitrogen fertilisers	1	2	3	4	5
Q5.8d		Reducing your use of nitrogen fertilisers would put your farm's profitability at risk	1	2	3	4	5
Q5.8e	ASK IF T0 OR T3	If farmers reduce their use of nitrogen fertilisers, the environment will benefit	1	2	3	4	5
Q5.8f	ASK IF T2	If farmers reduce their use of nitrogen fertilisers, local biodiversity will benefit	1	2	3	4	5
Q5.8g	ASK IF T1	Farmers reducing their use of nitrogen fertilisers will help reduce climate change	1	2	3	4	5

ASK ALL IN THIS MODULE

Q5.9. Please state your level of agreement or disagreement with the following statements which are more generally about farming and the natural environment. PROBE TO PRE-CODES

	<i>RANDOMISE STATEMENTS</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q5.9a	Farmers have to do their bit to address [T0 and T3: environmental pollution; T1: climate change; T2: biodiversity losses]	1	2	3	4	5
Q5.9b	Environmental regulations increase the workload of farmers	1	2	3	4	5
Q5.9c	Adapting to environmental regulations reduces your income	1	2	3	4	5
Q5.9e	Environmental efforts of farmers should be recognised by the consumer	1	2	3	4	5

Q5.9f	The cost of meeting new environmental regulations would be too great for the farmer to bear alone	1	2	3	4	5
Q5.9g	Other industries affect [T0 and T3 the environment / T2 biodiversity / T1 the climate] more than farmers	1	2	3	4	5
Q5.9h	Information on environmental regulations is hard to understand	1	2	3	4	5
Q5.9i	The current monitoring and inspection measures are adequate	1	2	3	4	5
Q5.9j	The current compliance standards for direct payments are appropriate	1	2	3	4	5
Q5.9l	Remote sensing and satellites should be more widely used to monitor and report agricultural activities	1	2	3	4	5
Q5.9m	Consumers and buyers have a right to demand high standards of agricultural practice	1	2	3	4	5
Q5.9n	It is important to regularly monitor the environmental and social impact of my farm	1	2	3	4	5
Q5.9q	I tend to only plan in response to the current farming season and not further ahead	1	2	3	4	5
Q5.9r	I often don't expect to see the results from my activity for a number of years	1	2	3	4	5

MODULE 6: ANIMAL HEALTH – SPECIALIST LIVESTOCK (CATTLE AND/OR SHEEP) FARMS – NO PIGS/POULTRY, TARGET N~1375

ASK MODULE 6 IF SAMPLE=6,7,8

Q6. The next questions are about your perceptions of animal health and disease, also in relation to the prospect of a changing climate. Over the past 5 years have the following decreased, not changed or increased? READ OUT, PROBE TO PRE-CODES

		Decreased	No change	Increased	N/A
Q6.1	The disease prevention measures you apply to animals on your farm	1	2	3	4
Q6.2	The quarantine measures you use when introducing new or returning livestock	1	2	3	4
Q6.3	Your use of monitoring and/or diagnostics tools when making decisions on disease control	1	2	3	4

Q6. During the next five years, do you intend to decrease, not change or increase the following? READ OUT, PROBE TO PRE-CODES

		Decrease	No change	Increase	Don't know	N/A
Q6.4	The disease prevention measures you apply to animals on your farm	1	2	3	4	5
Q6.5	The quarantine measures you use when introducing new or returning livestock	1	2	3	4	5
Q6.6	Your use of monitoring and/or diagnostics tools when making decisions on disease control	1	2	3	4	5

Q6. During the next five years, do you intend to... READ OUT, PROBE TO PRE-CODES

		Yes	No	Already introduced/can't do more	Don't know
Q6.7	... use alternative roundworm control options with or without wormer usage, for example grazing management or selective breeding	1	2	3	4
Q6.8	...reduce veterinary medicines use for livestock disease management	1	2	3	4
Q6.9	...increase the number of vaccinations into your routine for disease control	1	2	3	4

Q6.10. In the past 5 years since 2018, have you adopted an animal health and welfare plan, e.g. as part of joining a farm assurance scheme such as QMS or by requirement of a buyer? *[INTERVIEWER NOTE: QMS=Quality Meat Scotland]*

SINGLE CODE	Code
Yes	1
No	2
Already had one before 2018	3

ASK IF Q6.10=1 (YES)

Q6.10a. Why did you adopt an animal health and welfare plan? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
A requirement from the buyer	1
Requirement for assurance scheme	2
Good practice	3
Improving efficiency	4
Other (specify)	5

ASK IF Q6.10=2 (NO)

Q6.10b. Why did you not adopt an animal health and welfare plan? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Not aware	1
Not useful	2
Need training	3
Other (specify)	

Q6.11. Do you intend to adopt an animal health and welfare plan in the next 5 years?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

ASK ALL IN THIS MODULE

6.13a. On a scale from 0 to 10, how bad or good do you think the impacts of climate change will be for the world as a whole? 0 means extremely bad, 5 means neither bad nor good, 10 means extremely good.

SINGLE CODE	Code
0 – extremely bad	1
1	2
2	3
3	4
4	5
5 – neither bad nor good	6
6	7
7	8
8	9
9	10
10 – extremely good	11
Don't know	12

Q6.13b. On a scale from 0 to 10, how bad or good do you think the impacts of climate change will be for Scotland? 0 means extremely bad, 5 means neither bad nor good, 10 means extremely good.

SINGLE CODE	Code
0 – extremely bad	1
1	2
2	3
3	4
4	5
5 – neither bad nor good	6
6	7
7	8
8	9
9	10
10 – extremely good	11
Don't know	12

Q6.14. Tackling animal health is important in supporting the productivity of Scottish agriculture, and Scottish Government support animal health planning. The following statements are based on discussions with farmers around whether the climate is changing and the effects this may have on animal health and welfare planning. Please state your level of agreement or disagreement with the following statements. PROBE TO PRE-CODES

	<i>RANDOMISE STATEMENTS</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
6.14_S1	Climate change will lead to severe losses in productivity due to diseases and pests	1	2	3	4	5
6.14_S2	My vet and med costs will greatly increase due to the changes in climate	1	2	3	4	5
6.14_S3	My livestock and my profits are at great risk from animal diseases getting worse under climate change	1	2	3	4	5

6.14_V2	It is likely that more animal disease due to climate change will increase my animal health costs	1	2	3	4	5
6.14_V3	Climate change will likely make a difference to the level of disease I will see in my herd	1	2	3	4	5
6.14_V4	It is very likely that animal health problems will increase as a result of climate change	1	2	3	4	5
6.14_MR1	Climate change may bring down other costs of the business, for example through improved growth of grass and feed	1	2	3	4	5
6.14_MR2	Climate change also represents an opportunity, for example to benefit from carbon credits	1	2	3	4	5
6.14_MR3	Scotland is a cool country. Farming can only benefit from a changing climate	1	2	3	4	5
6.14_RE1	The effectiveness of treatments will be improved with animal health planning	1	2	3	4	5
6.14_RE3	Advances in vaccination and epidemiology will be effective in dealing with any future animal disease outbreak	1	2	3	4	5
6.14_RE4	I expect Government eradication programmes will reduce the threat of animal disease outbreaks	1	2	3	4	5
6.14_SE2	Quarantining newly purchased animals before mixing with the resident herd/flock will reduce risk of introducing disease	1	2	3	4	5
6.14_SE3	I can effectively address future challenges to animal health through more active herd management	1	2	3	4	5
6.14_SE4	I feel well prepared for challenges regarding animal disease that climate change may bring	1	2	3	4	5
6.14_RC1	It is too expensive to plan for climate related changes in animal disease	1	2	3	4	5
6.14_RC4	I do not have the time and labour to implement animal health plans which address threats due to climate change	1	2	3	4	5
6.14_RC3	The advantages of animal health planning to tackle animal disease issues in the future greatly outweigh the cost	1	2	3	4	5

MODULE 7: DIVERSIFICATION – 25% OF SAMPLE

BASE ON RANDOM ROUTE ALLOCATION

Q7.1. Are there diversification enterprises (such as agri-tourism (including accommodation, café, farm attraction) or renewable energy production) operated on the farm?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q7.1=2 (NO)

Q7.2. Please state your level of agreement or disagreement with the following statements. PROBE TO PRE-CODES

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	N/A
Q7.2a	There is no financial need to diversify the farm	1	2	3	4	5	
Q7.2b	New activities are unlikely to be profitable	1	2	3	4	5	
Q7.2c	I do not have the time to diversify the business	1	2	3	4	5	
Q7.2d	I do not have the resources to set up other activities on-farm	1	2	3	4	5	
Q7.2e	I do not have access to good advice or information on diversification	1	2	3	4	5	
Q7.2f	I do not have access to finance	1	2	3	4	5	
Q7.2g	I am not interested in diversifying the business	1	2	3	4	5	
Q7.2i	I am unable to diversify into certain activities due to the terms of my agricultural lease	1	2	3	4	5	6

ASK IF Q7.1=1 (YES)

Q7.3a Does this enterprise produce renewable energy? PROBE TO PRE-CODES

SINGLE CODE	Code
Yes	1
Yes, and I rent land to others for renewable production	2
No, but I rent land to others for renewable energy production	3
No	4

Q7.3b. Is agri-tourism operated on the farm?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q7.3b=1 (YES)

Q7.3c What type of agri-tourism enterprise operates on the farm? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Accommodation	1
Café	2
Farm attraction	3
Food/drinks outlet	4
Alternative food production	5
Other (specify)	6

ASK IF Q7.1=1 (YES)

Q7.3d. Are diversification enterprises other than renewable energy or agri-tourism operated on the farm? (e.g. forestry)

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q7.3d=1 (YES)

Q7.3e. Please specify the other types of diversification enterprises operated on the farm _____

ASK ALL IN THIS MODULE

Q7.4. The next few questions are about the internet, social media and digital platforms. Please state your level of agreement or disagreement with the following statements.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q7.4a	Low internet speed has been a problem for diversifying	1	2	3	4	5
Q7.4b	I have access to reliable internet connection	1	2	3	4	5

ASK IF Q7.1=1 (YES)

Q7.4c. Do you use social media for your diversification enterprises?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q7.4c=1 (YES)

Q7.4d. Which social media platforms do you use? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Facebook	1
Twitter	2
Instagram	3
TikTok	4
Other (specify)	5

ASK IF Q7.1=1 (YES)

Q7.4e. Do you use online selling platforms for your diversification enterprises? (e.g. Airbnb, Open Food Network, Visit Scotland etc)

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q7.4e=1 (YES)

Q7.4f. Please specify the online selling platforms you use _____

ASK IF Q7.1=1 (YES)

Q7.4g. Post-Brexit, have economic opportunities for diversification increased, not changed, or decreased?

SINGLE CODE	Code
Increased	1
Not changed	2
Decreased	3

Q7.4h. To what extent do you agree or disagree that Covid-19 provided an opportunity to explore digital options for selling and marketing?

SINGLE CODE	Code
Strongly disagree	1
Disagree	2
Neither agree nor disagree	3
Agree	4
Strongly agree	5

MODULE 8: BIOENERGY – 25% OF SAMPLE

BASE ON RANDOM ROUTE ALLOCATION

Q8.1. The next questions are about farm fed biogas plants in Scotland. Please state your level of agreement or disagreement with the following statements. PROBE TO PRE-CODES

INTERVIEWER NOTE: IF RESPONDENT UNSURE WHAT BIOGAS PLANTS ARE, EXPLAIN:

A biogas plant is a facility where biomass is converted into biogas that is used for energy purposes. Farm fed biogas plants are on-farm located and use predominantly agricultural feedstock such as manures, slurries, crops and crop residues.

	RANDOMISE STATEMENTS	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know
Q8.1a	They produce clean and renewable energy	1	2	3	4	5	6
Q8.1b	They contribute to environmental protection and help mitigate climate change by reducing methane emissions	1	2	3	4	5	6
Q8.1c	They utilise materials and wastes that would stay unused otherwise	1	2	3	4	5	6
Q8.1d	They create new jobs in local communities and additional income for farmers	1	2	3	4	5	6
Q8.1e	They bring economic benefits to the community (e.g., lower costs for heating, production of organic fertiliser)	1	2	3	4	5	6
Q8.1g	They make our community visible and help to promote the farm	1	2	3	4	5	6
Q8.1i	They are not economically viable without external subsidies	1	2	3	4	5	6
Q8.1j	They negatively affect the local environment	1	2	3	4	5	6
Q8.1k	They visually disturb the character of the local landscape	1	2	3	4	5	6
Q8.1l	They worsen quality of life in the local community (odour, dirt, increased traffic)	1	2	3	4	5	6
Q8.1n	They discourage tourists from visiting our community	1	2	3	4	5	6
Q8.1o	They cause conflicts and disruption in our community	1	2	3	4	5	6
Q8.1p	They decrease real estate prices in our community	1	2	3	4	5	6

Q8.2. Would you consider planting energy crops such as Short Rotation Forestry (SRF), Short Rotation Coppice (SRC) or miscanthus?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

ASK IF Q8.2=2 (NO)

Q8.2b. Why would you not consider this? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
It wouldn't be profitable for me	1
I have no experience with energy crops	2
I wouldn't be able to find the necessary inputs	3
I wouldn't be able to sell energy crops	4
Crops should be grown for food	5
There are not enough successful examples of energy crop production around me	6
Energy crops can be planted elsewhere, but not here in my region	7
Other (specify)	8
Don't know/not sure	9

ASK ALL IN THIS MODULE

Q8.3 What, if anything, would encourage you to plant energy crops such as Short Rotation Forestry (SRF), Short Rotation Coppice (SRC) or miscanthus? PROBE TO PRE-CODES, MULTICODE ALLOWED

MULTI CODE	Code
Financial support from Scottish Government	1
If other farmers advise me to plant energy crops	2
Technical advice and training	3
Other (specify)	4
Nothing	5
Don't know/not sure	6

MODULE 9: ADOPT – 50% OF SAMPLE (SAME GROUP AS MODULE 10)**BASE ON RANDOM ROUTE ALLOCATION****BUT SKIP IF SAMPLE=5,11****Q9.1a~Q9.2b FEED INTO ROUTING FOR THIS SECTION****ASK IF SAMPLE=9,3,10 (MIXED HOLDINGS/SPECIALIST HORTICULTURE & PERMANENT CROPS/GENERAL CROPPING: FORAGE)**

Q9. The next questions are about specific farm practices. To make sure we ask you about a practice that is relevant to you, we have a couple of initial questions.

ASK IF SAMPLE=9 (MIXED HOLDINGS)

Q9.1a. Do you have 10 ewes or more?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.1a=2 (NO)

Q9.1b. Do you have 5 cows or more?

SINGLE CODE	Code
Yes	1
No	2

AUTOCODE Q9.2a BASED ON RESPONSES TO MODULE 5, Q5.7b

Q9.2a. Use of synthetic nitrogen fertiliser

SINGLE CODE	Code
Yes – autofill Q5.7b=1,2	1
No – autofill Q5.7b=3,4	2

ASK IF SAMPLE=9,3,10 (MIXED HOLDINGS/SPECIALIST HORTICULTURE & PERMANENT CROPS/GENERAL CROPPING: FORAGE)

Q9.2b Did you grow any annual crops in the last season?

SINGLE CODE	Code
Yes	1
No	2

ROUTING INSTRUCTIONS FOR THE REST OF THIS MODULE:

ELIGIBLE PRACTICES (WHO CAN GET ALLOCATED A QUESTION ON A PRACTICE P1-P5):

P1, P2

- SAMPLE=6 (SPECIALIST DAIRY)
- SAMPLE=7 (LFA CATTLE & SHEEP)
- SAMPLE=8 (NON-LFA CATTLE & SHEEP)
- SAMPLE=9 (MIXED HOLDINGS), IF Q9.1a=1 (YES) OR Q9.1b=1 (YES)

P3

- SAMPLE = 4 (SPECIALIST PIGS)

P4

- SAMPLE=1 (SPECIALIST CEREALS)
- SAMPLE=2 (GENERAL CROPPING)
- SAMPLE=3 (SPECIALIST HORTICULTURE & PERMANENT CROPS)
- SAMPLE=9 (MIXED HOLDINGS)
- SAMPLE=10 (GENERAL CROPPING: FORAGE)
- AND WHO AUTOFILL 'YES' AT Q9.2a

P5

- SAMPLE=1 (SPECIALIST CEREALS)
- SAMPLE=2 (GENERAL CROPPING)
- SAMPLE=3 (SPECIALIST HORTICULTURE & PERMANENT CROPS) AND Q9.2b=1 (YES)
- SAMPLE=9 (MIXED HOLDINGS) AND Q9.2b=1 (YES)
- SAMPLE=10 (GENERAL CROPPING: FORAGE) AND Q9.2b=1 (YES)

ALL ELSE – SKIP REST OF MODULE**ROUTING TO ALLOCATE PRACTICES BY FARM TYPE – MAX 2 PRACTICES PER RESPONDENT:**

	SAMPLE	PRACTICES (MAX 2)
1	SPECIALIST CEREALS	P4 & P5 IF APPLICABLE (RANDOM ORDER IF ALL 2 PRACTICES)
2	GENERAL CROPPING	P4 & P5 IF APPLICABLE (RANDOM ORDER IF ALL 2 PRACTICES)
3	SPECIALIST HORTICULTURE & PERMANENT CROPS	P4 & P5 IF APPLICABLE (RANDOM ORDER IF ALL 2 PRACTICES)
4	SPECIALIST PIGS	P3
5	SPECIALIST POULTRY	NONE
6	SPECIALIST DAIRY	P1, P2 (RANDOM ORDER)
7	LFA CATTLE & SHEEP	P1, P2 (RANDOM ORDER)
8	NON-LFA CATTLE & SHEEP	P1, P2 (RANDOM ORDER)
9	MIXED HOLDINGS	ANY 2 APPLICABLE PRACTICES OF P1, P2, P4, P5 (RANDOM ORDER IF 2 PRACTICES OR MORE ARE APPLICABLE)
10	GENERAL CROPPING: FORAGE	P4 & P5 IF APPLICABLE (RANDOM ORDER IF ALL 2 PRACTICES)
11	UNCLASSIFIED/OTHER	NONE

P1 – FEED ADDITIVES**ASK IF SAMPLE=6,7,8, OR SAMPLE=9 AND Q91a=1 OR Q91b=1**

Q9.3. Certain feed additives can reduce methane emissions of cattle and sheep. One such additive is 3-NOP [READ “three NOP”], which is for example available in some countries under the brand name Bovaer®. Another example is Mootral Ruminant, which is a blend of garlic powder and citrus extract. On your farm, do you use any feed additive that aims to reduce methane?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.3=1 (YES)

Q9.3aa. Which methane reducing feed additives do you use? [ASK FOR NAMES OF PRODUCTS OR DESCRIPTIONS] _____

Q9.3a. What proportion of the animals receive methane reducing additives? _____
[TYPE IN % OR IF RESPONDENT STATES SHARE THAT ISN'T EASILY TRANSFERABLE TO % NOTE WHAT IS SAID AND CONVERT AFTER INTERVIEW]

Q9.3b. Are these animals receiving these feed additives all year round?

SINGLE CODE	Code
Yes	1
No	2

ASK ALL IN THIS SECTION

Q9.3c. Are you aware of other farmers using methane reducing feed additives on their farm?

SINGLE CODE	Code
Yes	1
No	2

Unsure	3
--------	---

ASK IF Q9.3=2 (NO)

Q9.3d. Consider you were to try using methane reducing feed additives next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need?
PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5

P2 – LEGUMES

ASK IF SAMPLE=6,7,8, OR SAMPLE=9 AND Q91a=1 OR Q91b=1

Q9.4. Having legumes (for example clover) growing in your grass reduces the need for nitrogen fertilisation. If the clover content is as high as 30% of the grass in mid-season, it can provide up to 180 kg nitrogen per hectare. The next few questions are about grass-clover leys. Do you have legume-grass mixed grassland?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.4=1 (YES)

Q9.4a. What is your total grassland area? This is the area of temporary and permanent grass together, but excluding rough grazing.

_____ [ENTER NUMBER OF HECTARES]

Q9.4b. On how many hectares do you have a legume-grass mix?

_____ [ENTER NUMBER OF HECTARES]

Q9.4c. What is your synthetic nitrogen fertiliser application rate on these mixed legume-grass pastures?

SINGLE CODE	Code
0-50 kg N/ha	1
51-100 kg N/ha	2
101-200 kg N/ha	3
above 200 kg N/ha	4
Don't know	5
Not applicable – I don't use synthetic nitrogen fertiliser	6

ASK ALL IN THIS SECTION

Q9.4d. Do you know of other farmers using grass-legume swards on their farm?

SINGLE CODE	Code
Yes	1
No	2
Unsure	3

ASK IF Q9.4=2 (NO)

Q9.4e. Consider that you were to establish a grass-clover sward next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need? PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5
Not applicable – I do not have or manage any grassland	6

P3 – SLURRY PH**ASK IF SAMPLE=4 (SPECIALIST PIGS)**

Q9.5. Adding acid to slurry reduces its pH, which in turn reduces ammonia and methane emissions. Aiming for a pH of 6, a strong acid is mixed into the slurry, sometimes repeatedly. The next few questions are about acidifying the slurry. Do you acidify the slurry in your slurry tank?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.5=1 (YES)

Q9.5a. What is the pH of the slurry after addition of acid?

_____ [ENTER NUMBER – EXPECTED BETWEEN 2 AND 8, TWO DIGITS E.G. 4.6 or 6.2]

ASK ALL IN THIS SECTION

Q9.5b. Do you know of other farmers using slurry acidification on their farm?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

ASK IF Q9.5=2 (NO)

Q9.5c. Consider that you were to acidify the slurry next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need? PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5

P4 – NITRIFICATION INHIBITORS AND UREASE INHIBITORS

ASK IF SAMPLE=1,2,3,9,10 AND WHO AUTOFILL Q9.2a=1 (YES)

Q9.6. Some fertiliser additives can reduce losses of nitrogen in the form of ammonia and other emissions, so that more nitrogen in the fertiliser is available for the plants. For nitrate-based fertiliser, nitrification inhibitors can be used. For urea-based fertiliser, urease inhibitors can be used. The next few questions are about these fertiliser additives. Do you use nitrate as nitrogen fertiliser?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.6=1 (YES)

Q9.7. Do you use a nitrification inhibitor with your nitrate fertiliser? Example products are N-Lock Max and N-Serve®.

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.7=1 (YES)

Q9.8a. Approximately to what proportion of your nitrate fertiliser application do you add nitrification inhibitor? _____

[TYPE IN % OR IF RESPONDENT STATES SHARE THAT ISN'T EASILY TRANSFERABLE TO % NOTE WHAT IS SAID AND CONVERT AFTER INTERVIEW]

ASK ALL IN THIS SECTION

Q9.8b. Do you know of other farmers using nitrification inhibitor on their farm?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

ASK IF Q9.7=2 (NO)

Q9.8c. Consider that you were to use nitrification inhibitors next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need? PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5

ASK ALL IN THIS SECTION

Q9.9. Do you use urea as nitrogen fertiliser?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.9=1 (YES)

Q9.10. Urease inhibitors are also called protected, or stabilised, urea, and products are for example BASF's Limus® and YaraVera AMIPLUS. Do you use protected urea?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.10=1 (YES)

Q9.11a. Approximately what proportion of the urea you use is protected urea? _____

[TYPE IN % OR IF RESPONDENT STATES SHARE THAT ISN'T EASILY TRANSFERABLE TO % NOTE WHAT IS SAID AND CONVERT AFTER INTERVIEW]

ASK ALL IN THIS SECTION

Q9.11b. Do you know of other farmers using protected urea on their farm?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

ASK IF Q9.10=2 (NO)

Q9.11c. Consider that you were to use protected urea next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need? PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5

P5 – COVER CROPS

ASK IF SAMPLE=1,2

ASK IF SAMPLE= 3,9,10 AND Q9.2b=1 (YES)

Q9.12. Establishing cover crops for the winter and ploughing them in before the main crop can increase the carbon content of the soil. The next few questions will be about using cover crops. Do you have cover crops on your farm in the winter?

SINGLE CODE	Code
Yes	1
No	2

ASK IF Q9.12=1 (YES)

Q9.13a. How many hectares of cropping area do you have?

_____ [ENTER NUMBER OF HECTARES]

Q9.13b. How many hectares of your cropping area had cover crops in the past winter?

_____ [ENTER NUMBER OF HECTARES]

ASK ALL IN THIS SECTION

Q9.13c. Do you know of other farmers using cover crops on their farm?

SINGLE CODE	Code
Yes	1
No	2
Don't know	3

ASK IF Q9.12=2 (NO)

Q9.13d. Consider that you were to establish cover crops next year. On a scale where 1 is none and 5 is a lot, how much additional knowledge and advice do you think you would need? PROBE TO PRE-CODES

SINGLE CODE	Code
1 - No additional knowledge and advice	1
2 - Little additional knowledge and advice	2
3 - Some additional knowledge and advice	3
4 - A good amount of additional knowledge and advice	4
5 - A lot of additional knowledge and detailed advice	5

MODULE 10: RISK – 50% OF SAMPLE (SAME GROUP AS MODULE 9)

BASE ON RANDOM ROUTE ALLOCATION

Q10. The next questions are about how you respond to changes to normal farm practice, which may affect your established work routines. They do not focus on the careful evaluation of the benefits and the risks that change can bring. Rather they focus on your initial reaction to proposals for change and disruption of routines.

Please state your level of agreement or disagreement with the following statements. Do not think too hard about the response – your first thought is probably the best. PROBE TO PRE-CODES

REASSURE IF NECESSARY (ONLY IF RESPONDENT QUERIES WHY THESE ARE BEING ASKED): Together with other questions in the survey, the responses to these questions can be used to develop better ways to communicate with farmers about new technologies and farming practices and to improve the robustness of the survey analysis.

	<i>RANDOMISE STATEMENTS</i>	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q10a	I generally consider changes to my daily routine on the farm to be a negative thing	1	2	3	4	5
Q10c	I like to continue to manage my farm in a traditional way	1	2	3	4	5
Q10d	I always look for ways to change things on my farm when things start to fall into a routine	1	2	3	4	5
Q10e	I do not like to think about bigger changes to the way I farm	1	2	3	4	5
Q10f	I do not like changes to my plans for the day	1	2	3	4	5
Q10g	When things don't go as planned on the farm, I get stressed	1	2	3	4	5
Q10i	I do not like to change aspects of the farm operation, it always seems like a real hassle to me	1	2	3	4	5
Q10j	I do not like to change my routine even if I know it will be a good idea in the long run	1	2	3	4	5
Q10k	When I am advised to adopt a new farm practice, I tend to resist even if I am convinced that the change may ultimately benefit me	1	2	3	4	5
Q10l	I sometimes avoid changes that I know will be good for my farm	1	2	3	4	5
Q10m	I often change my mind when it comes to decisions about the farm	1	2	3	4	5
Q10o	Once I have come to a conclusion about an aspect of farming, I am not likely to change my mind	1	2	3	4	5
Q10p	My views on how to manage my farm are very consistent over time	1	2	3	4	5
Q10q	I take a lot of time to make decisions before taking actions	1	2	3	4	5
Q10r	I am generally very patient	1	2	3	4	5

GDPR OUTRO – READ OUT TO ALL AFTER THEIR FINAL MODULE

Thank you for taking part in this research survey. You have the right to access the information you have provided in this survey, and to withdraw consent to process this information after taking part. We will only hold your personal details for a limited time, usually a month after the end of the project. Would you like information about how to do this?

IF YES, GIVE WEBSITE INFO:

<https://www.progressivepartnership.co.uk/privacy-data-collection/>

THANK AND CLOSE

Appendix B: Participant Information sheet

Farmer Intention Survey 2023

Information for Participants

In support of the Scottish Government's 2022-2027 Strategic Research Programme, the James Hutton Institute, in collaboration with Scotland's Rural College (SRUC Research), has procured the services of a professional research company, Progressive Partnership, to undertake a telephone survey of Scottish farmers, crofters and smallholders in 2023.

What are the aims of this research project?

The overall aim of the survey is to better understand farmer intentions towards future planning and activity.

The outcomes of the survey will be used to prepare outputs such as policy briefs to inform agricultural policy and support governance and decision making as well as academic publications and reports.

Who is funding the project?

The Scottish Government's 2022-2027 Strategic Research Programme.

Who is involved?

The survey will be completed by 2,500 farmers, across all regions of Scotland. The survey is organised by the James Hutton Institute (JHI) and Scotland's Rural College (SRUC). Both these institutions are well-respected and globally recognised research organisations delivering fundamental and applied science to drive the sustainable use of land and natural resources.

The data is being collected by Progressive Partnership on behalf of the James Hutton Institute and Scotland's Rural College (SRUC).

Why have I been invited to take part?

You have been invited to take part in the survey as a farmer in Scotland. All invited farmers are part of a representative sample of Scottish farmers that was identified by the Scottish Government.

The Agriculture (Retained EU Law and Data) (Scotland) Act 2020 Sections 13 - 18 allows the Scottish Government to process and share addresses of the farmers with authorised research institutes, universities and other government agencies, for research purposes. The Scottish Government routinely provide this data to Scotland's Rural College and The James Hutton Institute to undertake work under the Scottish Government's Strategic Research Programme. With each request to share information, the Scottish Government review the arrangements that the receiving body has to securely hold the data, and the purposes of the research. There are strict criteria used to ensure acceptable conditions are met before data are shared.

What will I be asked to do?

The telephone survey will last for around 20-25 minutes and consist of a set of questions on your future planning for your farm and recent changes on your farm.

We would also like to know about your perception of current challenges and opportunities for the farming sector.

Data will be gathered by a phone call with a trained representative of Progressive Partnership.

Will my taking part in the Farmer Intention Survey 2023 be kept confidential?

All personal information collected about you will be kept strictly confidential. Only the James Hutton Institute, Scotland's Rural College based research teams, and Progressive Partnership will have access to the raw data. This personal data will be kept in a secure folder. The procured research company, Progressive Partnership, will delete the data once delivered to the Hutton and SRUC.

What will happen to the information I provide?

Data will be gathered and safely stored in line with the UK data protection legislation principles (UK GDPR). Your personal data will be deleted upon completion of the data collection (expected March 2024). Until it is deleted your personal data will be kept on secured servers. Aggregated results will be published in academic publications and policy reports.

An anonymised version of responses provided by participants, which will NOT include personal data, will be made accessible under the principles of open science. We can guarantee that anonymity of individual respondents will be strictly kept, and no one will be identifiable.

Do I have to take part?

No, participation is voluntary, and you can withdraw from the study at any point until the end of the interview without giving reasons and without any negative consequences.

How can I withdraw from the study if I wish to?

You can complete and send back an opt-out letter (pre-paid envelope is a part of this package). Opt-outs will be analysed by the research team (Hutton and SRUC) to help inform future survey design.

You will be also asked at the beginning of the phone call if you agree to take part in the survey, and you can decide to withdraw from the survey at any point until the end of the interview.

What are the benefits of taking part?

While there are no immediate benefits for those participating in the survey, it is hoped that the findings of this survey will lead to better-informed agricultural policy in Scotland.

Expenses and payments

There are no payments or incentives associated with participation in the survey.

Personal Risks

No risks associated to taking part in the survey are envisaged.

Ethical Review

The survey has been reviewed by the Research Ethics Committee of the James Hutton Institute and Scotland's Rural College.

Further Information

For further project details, please contact: Laure Kuhfuss (laure.kuhfuss@hutton.ac.uk) of the James Hutton Institute or Klaus Glenk (klaus.glenk@sruc.ac.uk) of Scotland's Rural College.

I am interested in participating in the Farmer Intention Survey. What are the next steps?

If you agree to take part in the Farmer Intention Survey 2023, no further steps are required from you. A trained representative of Progressive Partnership will contact you by phone between March and October 2023.

When the representative of Progressive Partnership calls you, you will be asked to give your consent to participate in this survey. You will also be given the chance to agree on a more convenient day or time. You can opt-out at this stage verbally and at any stage of the phone call. Your verbal consent will be noted by the representative.

THANK YOU

Privacy Notice

The James Hutton Institute and Scotland's Rural College ("Hutton", "SRUC", "us" or "we") will use your personal data for the purposes of the research undertaken in the Farmer Intention Survey 2023 (B3). We are committed to use your personal data in line with the UK data protection laws, including but not limited to the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act (DPA) 2018. We use your information for purposes pursuant of our tasks undertaken in the public interest under the above project which is funded by the Scottish Government (SG).

We routinely receive from the SG data collected from farmers during the June Agricultural Census (JAC) in order to be able to undertake work under the Scottish Government's Strategic Research Programme (RESAS). The SG has set out strict criteria and data sharing arrangements to ensure that we, as receiving bodies, will hold the data securely and for the purposes of research.

We are data processors, i.e. act on behalf and under the instructions of the SG, for any personal data shared with us by the SG for the purposes of the Farmer Intention Survey.

We are joint controllers for any personal data collected via opt-out responses and survey responses in the Farmer Intention Survey. We have hired a third party, Progressive Partnership, to recruit participants and collect survey responses on our behalf. We have an appropriate contract in place with them to ensure your data is kept safe. They are not allowed to use your data for their own purposes. You can read more about how Progressive Partnership use personal information at <https://www.progressivepartnership.co.uk/privacy-data-collection/>.

Our full main privacy notices, (Hutton) <https://www.hutton.ac.uk/terms> and (SRUC) <https://www.sruc.ac.uk/connect/about-sruc/policies-compliance/compliance/privacy-policy-gdpr-cookies/> will explain in more detail what we do with personal data in more detail as well as your rights regarding your personal data. If you have any queries about your personal data, you can contact our Data Protection Officer on dpo@hutton.ac.uk or dpo@sruc.ac.uk.

The Information Commissioner is the regulator for UK GDPR. You have the right to raise concerns with the Commissioner if you are not happy with the way your information is being handled:

Customer Contact; Information Commissioner's Office; Wycliffe House; Water Lane City; Wilmslow; SK9 5AF.

You can also report concerns online. For more information, please see the Contact Us page of their website: <https://ico.org.uk/global/contact-us/>

Appendix C: Opt-out letter

Address 1
Address 2
Address 3

Ref number:

Dear Sir or Madam,

Farmer Intention Survey 2023: Telephone Survey

The James Hutton Institute (JHI) and Scotland's Rural College (SRUC) are conducting the Farmer Intention Survey for the Scottish Government to understand the views and intentions of agricultural land managers in Scotland. The topics covered include, for example, land and commodity prices, availability of agricultural labour, uptake of practices and new technologies, regulations and access to subsidies.

The main aim of this survey is to understand how (and if) you as a farm manager may respond to current challenges for the agricultural industry.

Alternative encouragements were included (each to 1/4th of the sample)

T0: The Farmer Intention Survey happens every 5 years. Now is your chance to have a say!

T1: The Farmer Intention Survey happens every 5 years. Findings from the first two waves have **been used in discussions with Scottish Government to inform agricultural policy and support**. Now is your chance to have a say!

T2: The Farmer Intention Survey happens every 5 years. It can only become a success through the help of farmers like you. We are very grateful if you consider to support us. Now is your chance to have a say!

T3: The Farmer Intention Survey happens every 5 years. Close to **2,500 farmers like you have already participated** in 2013 and then in 2018 and contributed to its success. Now is your chance to have a say!

Participation in the survey is voluntary and the telephone questionnaire should take about **20 to 25 minutes** to complete. The questions are easy to answer. For example, we ask only if you agree or disagree with a statement made, or if you are likely to increase or decrease an activity. If the number of farmers willing to take part in the survey exceeds the number of required responses, we might not need to phone you. We expect the survey to take place between **April and October 2023**.

If you **do not** wish to participate in the survey, please fill-in and return the form below using the prepaid envelope provided **within two weeks of the date of this letter**. The reference number printed on the form will allow us to exclude you from the survey.

All information given will be totally anonymous in any subsequent reports or publications, so that you and your farm will never be individually identifiable. This letter is being sent from Scotland using an address list maintained by the Scottish Government.

Thank you.

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I **do not** wish to participate: ☐

Name:

REF number _ _ _

Privacy notice:

The data you provide through this opt out form will only be used by Progressive Partnership for compiling the list of FIS participants and will be deleted by them upon completion of the data collection (November 2023). Pseudonymized data of opt-out forms will be sent to JHI and SRUC and linked to Census data for a better understanding of sample characteristics and of opt-out rates and will be deleted upon completion of the project (March 2027). More information about how the above research organisations and Progressive Partnership use personal data can be found in the respective privacy statements, as detailed in the information sheet provided.