Department for Environment Food & Rural Affairs

Published 30 May 2013

Greenhouse gas mitigation practices - England
Farm Practices Survey 2013 and Farm Business Survey 2011/12

This release contains the results from the February 2013 Farm Practices Survey which focused on practices relating to greenhouse gas mitigation. A second FPS will run in the autumn of 2013 and will collect data covering water related topics. Results are also included in this release from the 2011/2012 Farm Business Survey, which included a module on climate change mitigation and adaptation practices. The key results from these surveys are given below.

Nutrient management (section 1)

Nutrient Management Plans help farmers and growers to plan the use of fertilisers and manures, meet regulatory demands and protect the environment. The proportion of holdings with a nutrient management plan has increased steadily from 46% in 2006 to 57% in 2013. Although this is slightly lower than in 2012 (62%), the difference is not statistically significant. Those holdings with nutrient management plans in 2013 accounted for 73% of the farmed area.

In 2013, almost three quarters of these plans were created by the farmer themselves either with or without professional advice; 79% of plans are updated annually. Over the past three years those reporting either a financial or environmental benefit from having such a plan has remained stable at 43% and 30% respectively. Of those without a plan, 24% would not be motivated to create one.

Anaerobic digestion (section 2)

Anaerobic digestion is a treatment that composts waste in the absence of oxygen, producing a biogas that can be used to generate electricity and heat. Less than 2% of holdings currently process slurries, crops or other feedstocks by anaerobic digestion either on their farm or elsewhere.

Emissions (section 3)

In 2013, almost half of farmers (47%) attached some importance to considering greenhouse gases (GHGs) when taking decisions about their land, crops and livestock. Almost 40% of farmers agreed or strongly agreed that reducing GHG emissions from their farm would contribute to improving their overall profitability.

Fertiliser, manure and slurry spreaders (section 4)

In 2013, 76% of farmers spread manure or slurry on their grassland or arable crops either themselves or hiring a contractor to do so. Of those farmers spreading some or all of the manure themselves, 58% never calibrate their spreader.

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Note: The results in sections 5 to 8 relate only to holdings with livestock.

Manure and slurry storage (section 5)

In 2013 almost two thirds of holdings with livestock had storage facilities for solid manure in temporary heaps in fields and just under a half could store it on a solid base. These figures are almost unchanged from 2011 and 2012. The proportions of holdings with the facilities to store slurry in a tank or a lagoon are very similar at 16% and 15% respectively. The majority of manure and slurry stores are uncovered.

Farm health planning and biosecurity (section 6)

Almost three quarters (72%) of livestock holdings had a farm health plan in 2013. Of those holdings with a plan, 63% completed it with the assistance of a vet or adviser and 79% use their plan either routinely or when possible during the year to inform decisions on disease management. Of those holdings without a plan 11% said that they planned to create one within the next 12 months.

Grassland (section 7)

In some situations sowing grassland with a clover mix or high sugar grasses can be a cost-effective method of increasing production and improving environmental protection. In 2013, 79% of livestock holdings had sown some or all of their temporary grassland with a clover mix and 63% have sown their temporary grassland with high sugar grasses. These proportions are almost unchanged since 2011 and 2012. Approximately half of farmers reseed their clover or high sugar grasses every three to five years.

Cattle and sheep feeding regimes and breeding practices (section 8)

In 2013, 53% of livestock farmers indicated they use a ration formulation programme or expert nutritional advice when planning the feeding regime of their livestock at least some of the time. This is a decrease compared to 2012 (63%).

Estimated Breeding Values (EBV) provide an estimate of the genetic worth of animals using desirable traits such as meat production. The proportion of holdings using bulls or rams with a high EBV when breeding beef cattle or lambs in 2013 is 62% and 59% respectively. These holdings accounted for 69% of beef cattle and 69% of lambs at June 2012.

Climate change mitigation and adaptation (section 9)

16% of farm businesses are currently undertaking energy generation practices. Solar panels were the most common practice (by 10% of farm businesses).

Overall, 64% of farm businesses were undertaking at least one of the listed practices to adapt to climate change. The most common practice was soil management, by 43% of farm businesses.

Farm Practices Survey – Greenhouse Gas Mitigation Practices

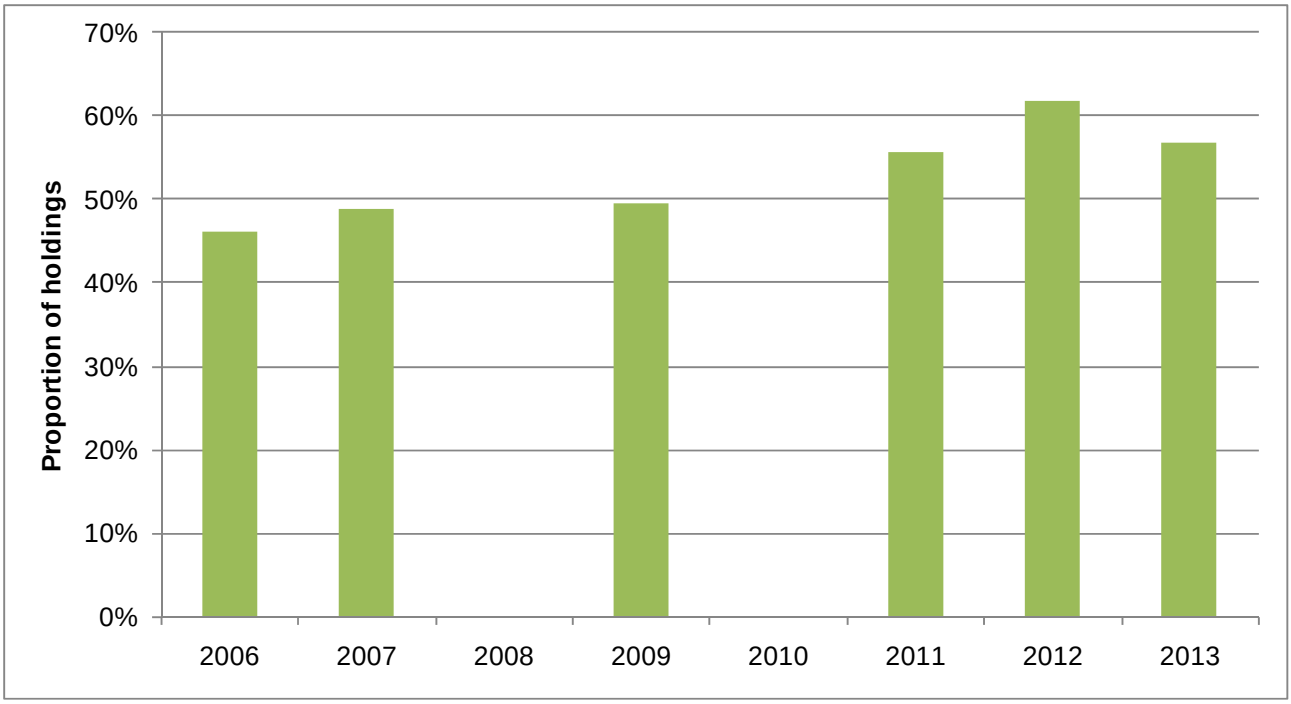
1 Nutrient management

Here we consider how farmers manage the application of fertilisers and manures. Effective nutrient management provides sufficient nutrients to crops and grassland whilst managing environmental impacts. This section looks at the use of nutrient management plans, how nutrient requirements are calculated and whether farmers have seen any financial or environmental benefits.

Key findings

- In 2013, 57% of holdings had a nutrient management plan, these holdings accounted for 73% of the farmed area covered by this survey. Although lower than in 2012, the reduction is not statistically significant.
- In 2013, 25% of nutrient management plans were created by the farmer without professional advice, 48% were created by the farmer with the help of a professional while the remaining 27% were created by an adviser or contractor. This is little changed from 2011 and 2012.
- About 43% of farms with nutrient management plans reported a financial benefit, while 30% report an environmental benefit. These findings are similar to 2011 and 2012.
- Some 71% of holdings have a manure management plan for their farm. Although lower than in 2012, the reduction is not statistically significant.
- In 2013, 57% of farmers assess or calculate the nutrient content of manure, whilst 24% test the nutrient content by taking samples, little changed since 2009.

Figure 1.1: Proportion of holdings with a nutrient management plan: 2006 to 2013

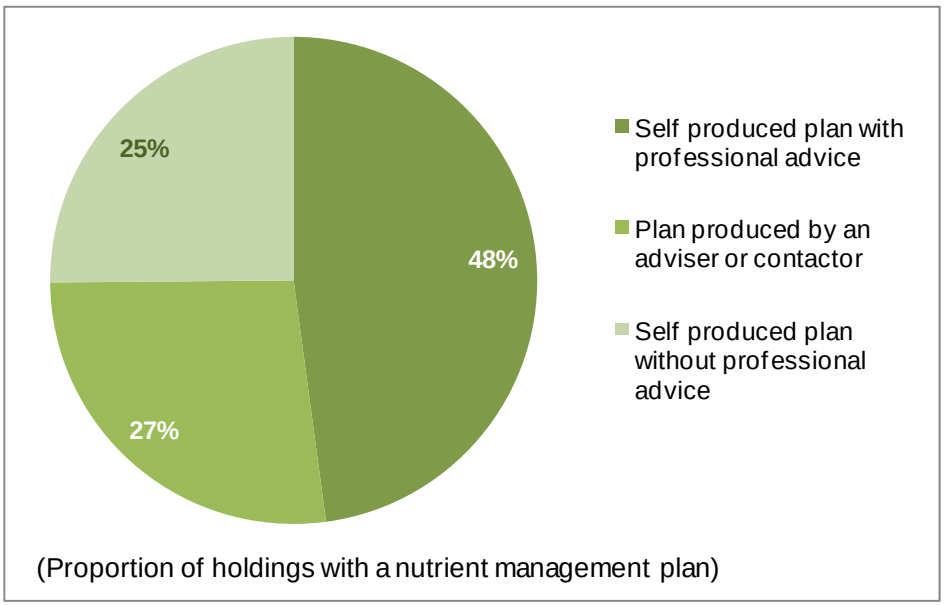


Results are not available for 2008 and 2010.

The proportion of applicable farms with a nutrient management plan (NMP) has increased from 46% in 2006 to 57% in 2013 (Figure 1.1). This could be due to a mixture of regulation and increasing environmental awareness. In 2013, those holdings with nutrient management plans

accounted for 73% of the farmed area. Around 10% of holdings each year (accounting for 6% of the farmed area in 2013) indicate that a NMP is not applicable. In 2013, a third of pig/poultry farms, 20% of LFA grazing livestock farms, 13% of lowland grazing livestock farms indicated that a NMP was not applicable compared to less than 5% of cereal, general cropping and dairy farms.

Figure 1.2: Preparation of nutrient management plans: 2013

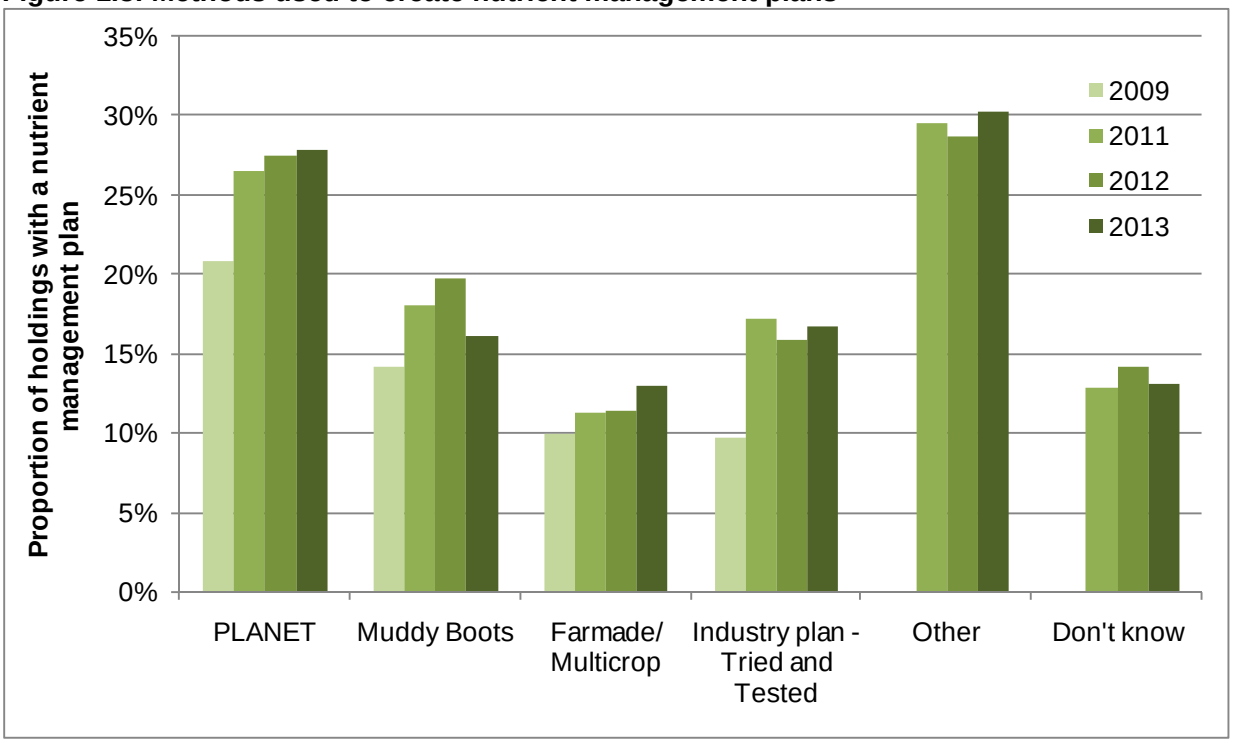


(Proportion of holdings with a nutrient management plan)

Approximately half of those with a nutrient management plan in 2013 created it themselves with the help of an adviser (Figure 1.2). Roughly a quarter completed the plan on their own without advice, whilst for the remaining quarter, the plan was produced by a contractor or adviser. These findings are similar to 2011 and 2012 (Table 1.2).

Of those that sought professional advice, the majority (86%) did so from fertiliser advisers or agronomists (Table 1.3). Most of those with a nutrient management plan update it every year (79%) and almost all (94%) refer to it at least once each year (Tables 1.4 and 1.5).

Figure 1.3: Methods used to create nutrient management plans[(a)]

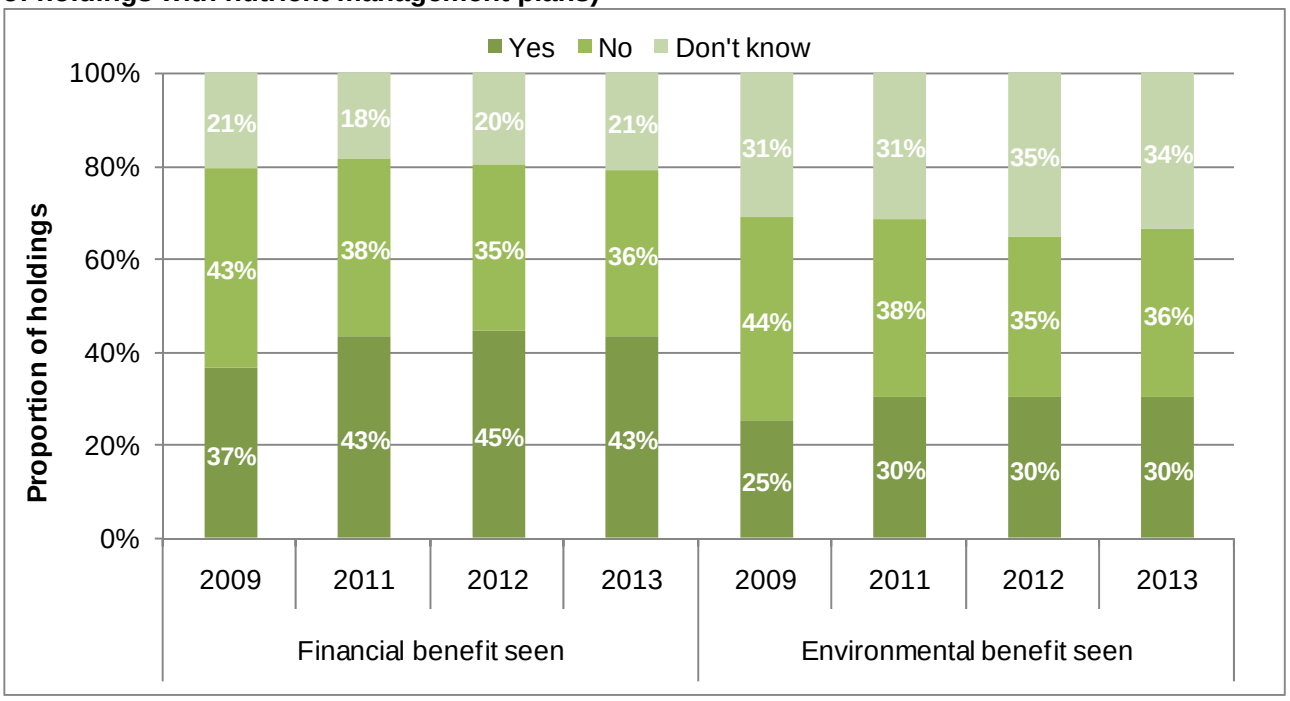


(a) "Don't know" was not included as an option on the 2009 form and the "other" option is not directly comparable to the more recent results.

PLANET, Muddy Boots, Farmade/Multicrop and Tried & Tested are methods for creating nutrient management plans. PLANET has been the most popular of these four methods (Figure 1.3), although in each of the last three years, around 30% of farmers have used other methods not listed

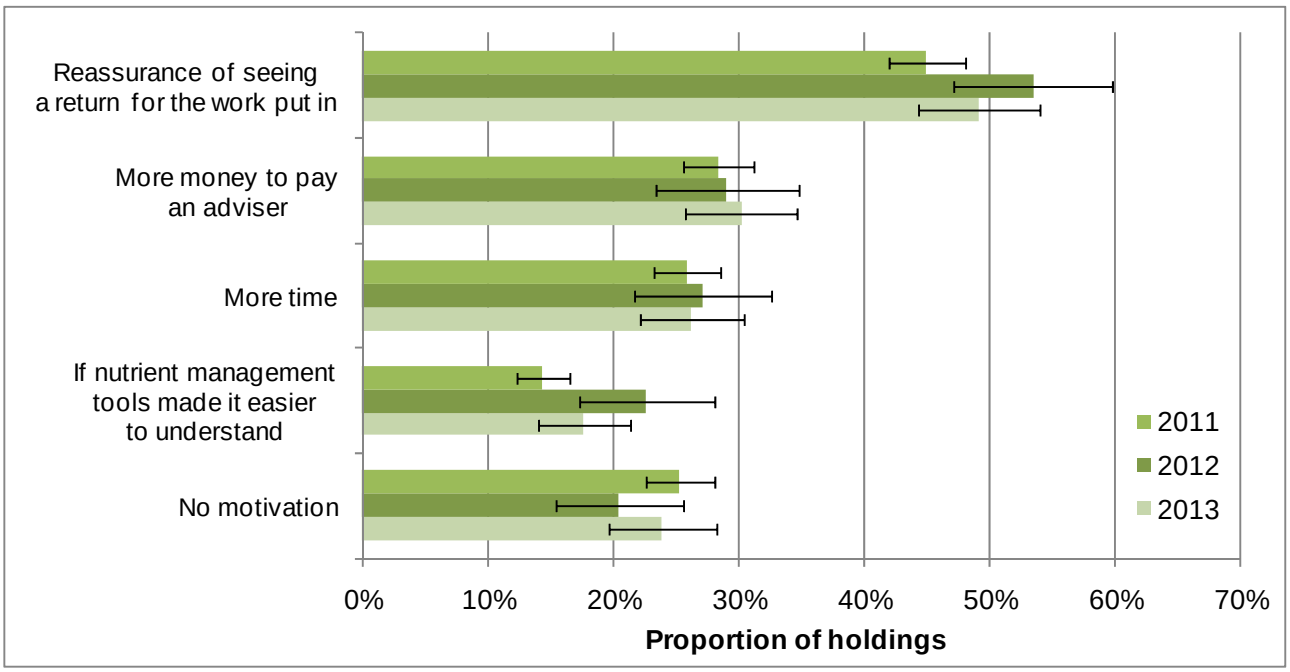
on the survey form to create their plans (Table 1.6). 'Defra recommendations (RB209)' was the most commonly reported source of nutrient recommendations for plans (Table 1.7).

Figure 1.4: Reported benefits from having a nutrient management plan: 2009 – 2013 (proportion of holdings with nutrient management plans)



In each year, a higher proportion of farmers have seen a financial benefit from having a nutrient management plan than an environmental benefit (Figure 1.4). Although there appears to have been an increase in the proportion of farmers seeing financial and environmental benefits between 2009 and 2013, the change is not statistically significant (Table 1.8).

Figure 1.5: Reasons that would motivate farmers to create a nutrient management plan: 2011 – 2013 [(a)]



(a) For applicable holdings without a nutrient management plan.

Of those farmers that considered it applicable, around a third (37%) did not have a nutrient management plan in 2013. For around half of these farmers, the most common motivator to create one would be reassurance of a return for the work they'd put in. Having more money to pay an adviser and more time were also common motivators. However, for around a quarter of farmers without a nutrient management plan there remains no motivation to create one (Figure 1.5).

The percentages of farmers undertaking some form of nutrient testing on soil or manure have remained similar between 2009 and 2013. The largest change was an increase in holdings regularly testing the pH of their soil, which rose from 75% in 2011 to 80% in 2013 (Table 1.10). Approximately 71% of farms have a manure management plan, almost unchanged from 70% in 2009. The majority of farmers (87%) use nutrient recommendations for manure management plans from Defra recommendations (RB209, CoGAP).

Table 1.1: Uptake of nutrient management plans: 2007 – 2013 (proportion of holdings and farmed area)

	2007		2009		2011		2012		2013	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
% of holdings										
Yes	49	*±2*	50	*±3*	56	*±1*	62	*±3*	57	*±2*
No	51	*±2*	41	*±3*	34	*±2*	29	*±3*	33	*±2*
Not applicable			10	*±2*	10	*±1*	9	*±2*	10	*±2*
% of farmed area										
Yes					71	*±2*	78	*±3*	73	*±2*
No					24	*±2*	18	*±2*	21	*±2*
Not applicable					5	*±1*	5	*±2*	6	*±1*
Number of responses	2 518		1 504		3 436		1 146		2 058	

Table 1.2: Use of advisers/professional advice to create nutrient management plans: 2011 – 2013 (proportion of farmers with nutrient management plans)

	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Self produced plan without professional advice	23	*±2*	19	*±3*	25	*±3*
Self produced plan with professional advice	49	*±2*	50	*±4*	48	*±3*
Plan produced by an adviser or contractor	27	*±2*	31	*±4*	27	*±3*

Based on 2 096 responses in 2011, 792 in 2012 and 1 348 in 2013 from holdings with a nutrient management plan.

Table 1.3: Use of advisers and contractors for completion of nutrient management plans: 2013

	Those who sought an adviser's help to create the plan themselves [(a)]		Those whose plan was created by an adviser or contractor [(b)]	
Type of adviser	% of holdings	95% CI	% of holdings	95% CI
Fertiliser adviser / agronomist	86	*±3*	78	*±5*
Animal nutritionist	8	*±2*	2	*±1*
FWAG [(c)]	4	*±2*	2	*±2*
Other	9	*±2*	22	*±5*

(a) Based on 686 responses from those who created the nutrient management plan themselves with advice.
(b) Based on 345 responses from those whose nutrient management plan was created by an adviser or contractor.
(c) FWAG: Farming and Wildlife Advisory Group.

Table 1.4: Frequency with which the nutrient management plan is updated: 2011 – 2013

	2011		2012		2013	
Frequency of update	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Every year	77	*±2*	76	*±3*	79	*±3*
Every 2 years	11	*±1*	11	*±2*	10	*±2*
Every 3 years or longer	12	*±1*	13	*±3*	11	*±2*

Based on 2 094 responses in 2011, 792 in 2012 and 1 346 in 2013 from holdings with a nutrient management plan.

Table 1.5: Frequency with which the nutrient management plan is referred to in a year: 2011 – 2013

	2011		2012		2013	
Frequency of use	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
More than 10 times	9	*±1*	9	*±2*	8	*±1*
5 to 10 times	34	*±2*	21	*±3*	18	*±2*
Less than 5 times	51	*±2*	64	*±4*	67	*±3*
Never	5	*±1*	5	*±2*	6	*±1*

Based on 2 096 responses in 2011, 792 in 2012 and 1 345 in 2013 from holdings with a nutrient management plan.

Table 1.6: Methods used to create nutrient management plans: 2011 – 2013

Method	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
PLANET	26	*±2*	28	*±3*	28	*±3*
Muddy Boots	18	*±2*	20	*±3*	16	*±2*
Farmade / Multicrop	11	*±1*	11	*±2*	13	*±2*
Industry plan – 'Tried and Tested'	17	*±2*	16	*±3*	17	*±2*
Other	30	*±2*	29	*±3*	30	*±3*
Don't know	13	*±1*	14	*±3*	13	*±2*

Based on 2 096 responses in 2011, 791 in 2012 and 1 348 in 2013 from holdings with a nutrient management plan.

Table 1.7: Sources of nutrient recommendations for nutrient management plans: 2011 – 2013

Source	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Defra recommendations / manual (RB209)	65	*±2*	68	*±4*	70	*±3*
An adviser's or industry note	39	*±2*	39	*±4*	38	*±3*
Personal experience	42	*±2*	41	*±4*	43	*±3*
Other	5	*±1*	4	*±2*	4	*±1*
Don't know	4	*±1*	4	*±2*	4	*±1*

Based on 2 096 responses in 2011, 792 in 2012 and 1 348 in 2013 from holdings with a nutrient management plan.

Table 1.8: Proportion of holdings that have seen financial and/or environmental benefits from having a nutrient management plan: 2011 – 2013

Benefit		2011		2012		2013	
		% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings seeing a financial benefit	Yes	43	*±2*	45	*±4*	43	*±3*
	No	38	*±2*	35	*±4*	36	*±3*
	Don't know	18	*±2*	20	*±3*	21	*±2*
Holdings seeing an environmental benefit	Yes	30	*±2*	30	*±4*	30	*±3*
	No	38	*±2*	35	*±4*	36	*±3*
	Don't know	31	*±2*	35	*±4*	34	*±3*

Based on 2 096 responses in 2011, 790 in 2012 and 1 347 in 2013 from holdings with a nutrient management plan.

Table 1.9: Motivations to create a nutrient management plan for those without one: 2011 – 2013

Source	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
More time	26	±3	27	±6	26	±4
More money to pay an adviser	28	±3	29	±6	30	±4
If nutrient management tools made it easier to understand	14	±2	23	±5	18	±4
Reassurance of seeing a return for the work put in	45	±3	53	±6	49	±5
No motivation	25	±3	20	±5	24	±4

Based on 1 044 responses in 2011, 277 in 2012 and 549 in 2013 from holdings without a nutrient management plan.

Table 1.10: Nutrient testing of soil and manure: 2011 – 2013

		2011		2012		2013	
		Proportion	95% CI	Proportion	95% CI	Proportion	95% CI
Regularly test (at least every 5 years) the nutrient content (indices) of the soil	% of holdings	70	±1	74	±3	73	±2
	% of farmed area	82	±2	86	±2	85	±2
Regularly test (at least every 5 years) the pH of the soil	% of holdings	75	±1	81	±3	80	±2
	% of farmed area	85	±2	90	±2	89	±2
Test (by taking samples) the nutrient content of manure	% of holdings	22	±1	23	±3	24	±2
	% of farmed area	32	±3	40	±4	36	±3
Assess/calculate the nutrient content of manure	% of holdings	53	±2	57	±3	57	±3
	% of farmed area	64	±2	72	±4	69	±3

Based on responses from holdings considering the questions applicable. Minimum numbers of responses used: 2 545 in 2011, 859 in 2012 and 1 573 in 2013.

Table 1.11: Uptake of manure management plans: 2011 – 2013

	2011		2012		2013	
	Proportion	95% CI	Proportion	95% CI	Proportion	95% CI
% of holdings	67	*±2*	76	*±3*	71	*±3*
% of farmed area	79	*±2*	86	*±3*	82	*±2*

Based on 2 566 responses in 2011, 847 in 2012 and 1 570 in 2013 from holdings for which the question was applicable.

Table 1.12: Source of nutrient recommendations for manure management plans: 2011 – 2013

	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Defra recommendations / manual (RB209), CoGAP	87	*±2*	90	*±3*	87	*±2*
Other	15	*±2*	13	*±3*	16	*±2*

Based on 1 742 responses in 2011, 660 in 2012 and 1 206 in 2013 from holdings with a manure management plan.

2 Anaerobic digestion

Anaerobic digestion is a natural process in which plant and animal materials are broken down by micro-organisms in the absence of oxygen, producing a biogas that can be used to generate electricity and heat. The remaining digestate is rich in nutrients and can be used as fertiliser. This section looks at the proportion of farmers who are currently processing, or intending to process, any waste in this way.

Key findings

- Less than 2% of farmers already process waste by anaerobic digestion, little changed from 2011 and 2012.
- A slightly higher proportion of farmers are planning to process waste by anaerobic digestion in the future. However this is still a low figure with crops being the most common waste type considered by 2.4% of farmers.

The majority of farms do not currently process slurries, crops or other feedstocks by anaerobic digestion with less than 2% of holdings doing so in 2013. 2% of holdings are planning to process crops by anaerobic digestion in the future and 1% plan to process slurries or feedstocks from on or outside the holding. More detailed figures for 2013 can be found in table 2.1 along with results from 2011 and 2012.

Table 2.1: Proportion of holdings processing waste by anaerobic digestion: 2011 – 2013

Waste type		% of holdings			95% CI
		2011	2012	2013	2013
Slurries	Already processing	0.6	0.4	0.6	*±0.4*
	Plan to process in future	3.1	1.9	1.4	*±0.5*
Crops	Already processing	:	0.4	0.6	*±0.3*
	Plan to process in future	:	2.1	2.4	*±0.6*
Other feedstocks from the holding	Already processing	0.8	0.5	0.5	*±0.3*
	Plan to process in future	3.1	1.6	1.4	*±0.5*
Other feedstocks from outside the holding	Already processing	0.3	0.6	0.1	*±0.1*
	Plan to process in future	2.2	1.1	1.2	*±0.5*
Any of the above	Already processing	1.4	1.4	1.3	*±0.5*
	Plan to process in future	4.8	3.4	3.3	*±0.8*

Based on no fewer than 2 547 responses in 2011, 1 114 in 2012 from holdings who had heard of anaerobic digestion and 2 049 responses from all holdings in 2013.
: data not collected.

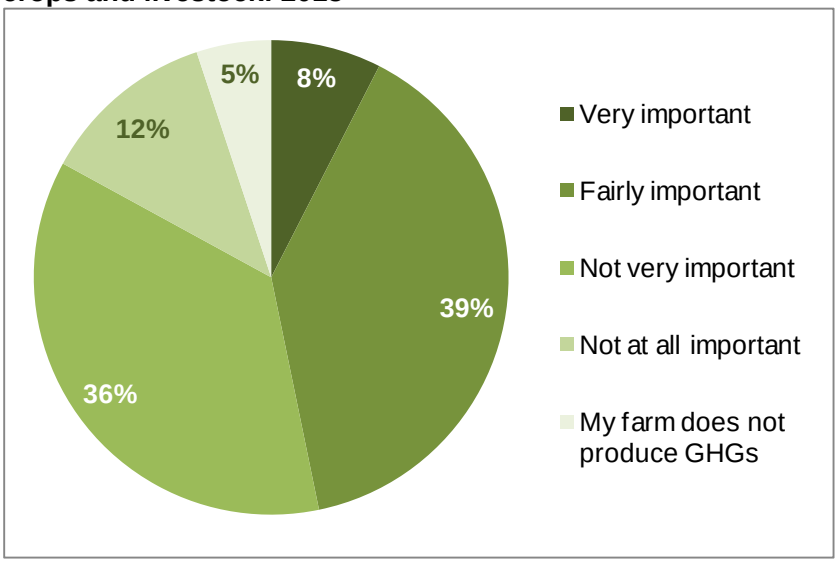
3 Emissions

This section looks at the importance farmers place on greenhouse gas (GHG) emissions and their understanding of where these gases are produced on the farm. It also focuses on the actions that farmers are currently taking to reduce emissions and their motivations for doing so. In contrast we also look at the reasons that prevent farmers from taking action.

Key findings

- Just under half of farms (47%) considered it fairly or very important to consider greenhouse gases (GHG) when taking decisions about their land, crops and livestock.
- Almost two thirds (62%) of farmers reported that they were currently taking action to reduce greenhouse gas emissions from their farm. The most common actions taken by this group were recycling of waste materials from the farm (87%) and improving nitrogen fertiliser application accuracy (75%).
- The most common motivation for taking any action was that it was considered to be good business practice to do so.
- For those not taking action to reduce GHG emissions the most common reason preventing them was that it was not necessary because their farm did not produce many emissions.

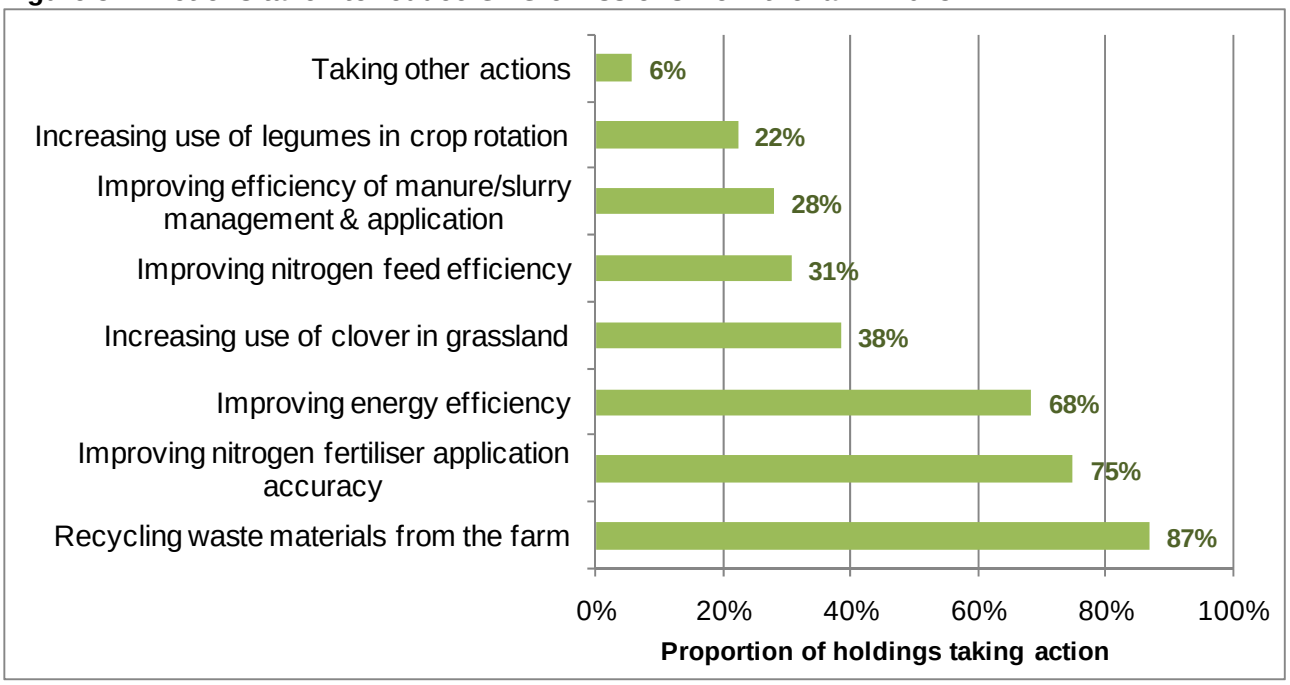
Figure 3.1: Importance placed on GHGs by farmers when taking decisions about their land, crops and livestock: 2013



Just under half of farms (47%) considered it fairly or very important to consider greenhouse gases (GHG) when taking decisions about their land, crops and livestock. There were 5% of farms that believed that their farm did not produce any GHGs. Those farmers that considered GHGs important were more likely to agree that reducing GHG emissions would contribute to the overall profitability of their farm.

62% of farmers said that they were currently taking action to reduce GHG emissions from their farm. Of those taking action (Figure 3.2 and Table 3.3) the three most common actions are recycling waste materials from the farm (87%), improving nitrogen fertiliser application accuracy (75%) and improving energy efficiency (68%).

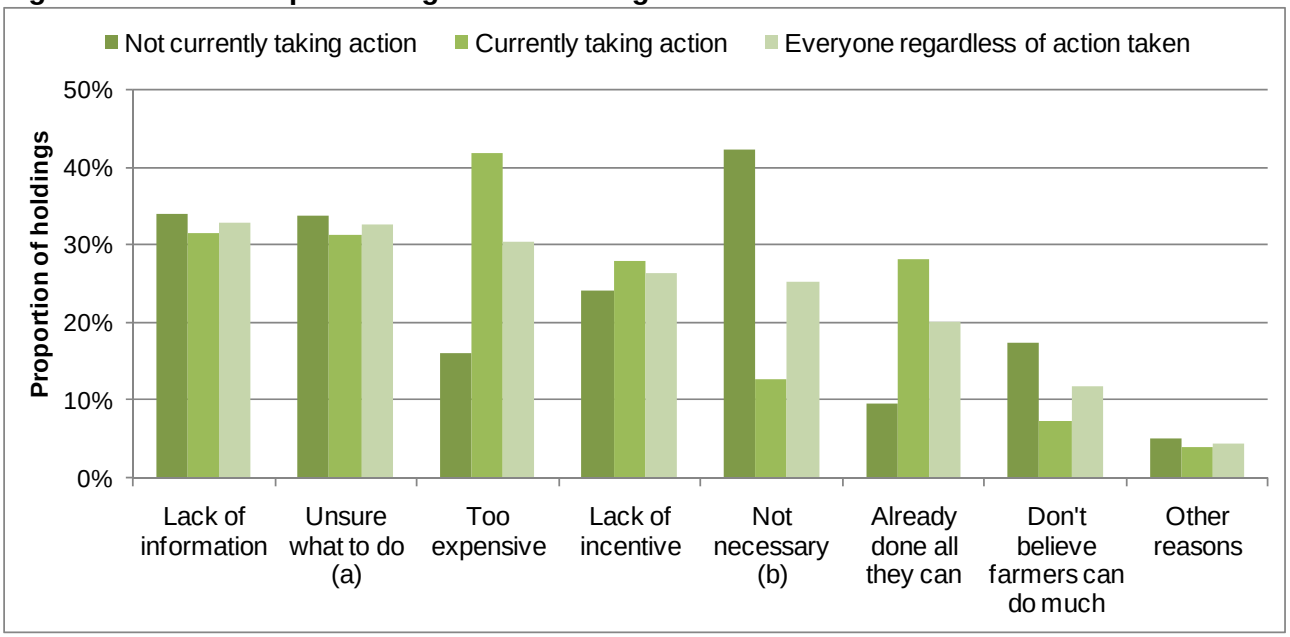
Figure 3.2: Actions taken to reduce GHG emissions from the farm: 2013[(a)]



(a) Figures relate only to those holdings currently taking action to reduce GHG emissions from their farm.

For those farmers currently taking action to reduce their farm's GHG emissions the most common motivation for doing so was that it was considered to be good business practice (selected by 78% of holdings) followed by concern for the environment (selected by 67%) (see table 3.4).

Figure 3.3: Reasons preventing farmers taking action to reduce GHG emissions: 2013



(a) Unsure what to do - too many conflicting views on the issue
(b) Not necessary - don't believe farm produces many emissions

"Lack of information" and "being unsure what to do due to conflicting views" were the most commonly cited reasons for not taking action (Figure 3.3). However, as might be expected, the reasons given varied depending on whether farmers were currently taking action or not. For those not currently taking action, the most commonly quoted reason was that they did not think it was necessary to do so as the farm did not produce many emissions. For those who were already taking action expense was the most commonly quoted reason.

Table 3.1: Importance placed on GHGs by farmers when taking decisions about their land crops and livestock: 2013

	% of holdings	95% CI
Very important	8	*±1*
Fairly important	39	*±2*
Not very important	36	*±2*
Not at all important	12	*±2*
Do not believe farm produces GHGs	5	*±1*

Based on responses from 2 048 holdings.

Table 3.2: Belief that reducing GHG emissions from the farm will contribute to improving the overall profitability: 2013

	% of holdings	95% CI
Strongly agree	2	*±1*
Agree	36	*±2*
Disagree	53	*±2*
Strongly disagree	9	*±1*

Based on responses from 2 038 holdings.

Table 3.3: Actions being taken to reduce GHG emissions from farms: 2013

Actions	**% of holdings**	**95% CI**
Taking action[(a)]	62	*±2*
Of those taking action, the actions were[(b)]		
Recycling of waste materials from the farm (e.g. tyres, plastics)	87	*±2*
Improving nitrogen fertiliser application accuracy	75	*±3*
Improving energy efficiency (e.g. reducing fuel use, producing own energy)	68	*±3*
Increasing use of clover in grassland	38	*±3*
Improving nitrogen feed efficiency, livestock diets	31	*±3*
Improving efficiency in manure and slurry management and application	28	*±3*
Increasing use of legumes in arable rotation	22	*±2*
Other actions	6	*±1*

(a) Based on responses from 2 035 holdings.
(b) Based on responses from 1 361 holdings who are taking action to reduce GHG emissions.

Table 3.4: Main motivations for those taking action to reduce GHG emissions: 2013

Motivations	% of holdings	95% CI
Consider it good business practice	78	±3
Concern for the environment	67	±3
To improve profitability	58	±3
Regulation	50	±3
To meet market demands	20	±2
Other motivation	1	±1

Based on 1 353 responses from holdings who are taking action to reduce GHG emissions.

Table 3.5: Reasons preventing farmers from taking action to reduce GHG emissions from their farm: 2013

	For those not taking action[(a)]		For those already taking action[(b)]		For all holdings[(c)]	
	% of holdings	95% CI	% of holdings	95% CI	% of holding	95% CI
Lack of information	34	±4	32	±3	33	±3
Too expensive	16	±3	42	±3	30	±2
Lack of incentive	24	±3	28	±3	26	±2
Already done all they can	10	±3	28	±3	20	±2
Don't believe farmers can do much	17	±3	7	±2	12	±2
Not necessary - don't believe farm produces many emissions	42	±4	13	±3	25	±2
Unsure what to do - too many conflicting views on the issue	34	±4	31	±3	33	±3
Other reasons	5	±2	4	±1	5	±1

(a) Based on responses from 651 holdings who are not taking action to reduce GHG emissions.
(b) Based on responses from 1 001 holdings who are currently taking action to reduce GHG emissions.
(c) Based on responses from 1 658 holdings regardless of whether or not they are taking action to reduce GHG emissions.

Table 3.6: Farmers' views on the sources producing greenhouse gases on their farm: 2013

Source of greenhouse gases	Carbon dioxide		Methane		Nitrous oxide		Don't know	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Vehicles and machinery	85	*±2*	1	*±1*	18	*±2*	12	*±2*
Energy use (e.g. heating)	78	*±2*	3	*±1*	7	*±1*	20	*±2*
Livestock (direct from the animal)	16	*±2*	84	*±2*	4	*±1*	12	*±2*
Manure and slurry (storage or spreading)	10	*±2*	75	*±2*	23	*±2*	15	*±2*
Bagged or manufactured nitrogen fertiliser	11	*±2*	3	*±1*	70	*±3*	26	*±3*
Cultivation of crops or plants	46	*±3*	8	*±2*	19	*±2*	40	*±3*
Ploughing, ploughed land or soil	45	*±3*	5	*±1*	19	*±2*	44	*±3*
Anaerobic digestion	9	*±2*	49	*±3*	6	*±1*	47	*±3*
Compost, breakdown or crops or silage	23	*±2*	51	*±3*	16	*±2*	32	*±3*

Based on responses from no fewer than 452 holdings.

4 Fertiliser, manure and slurry spreaders

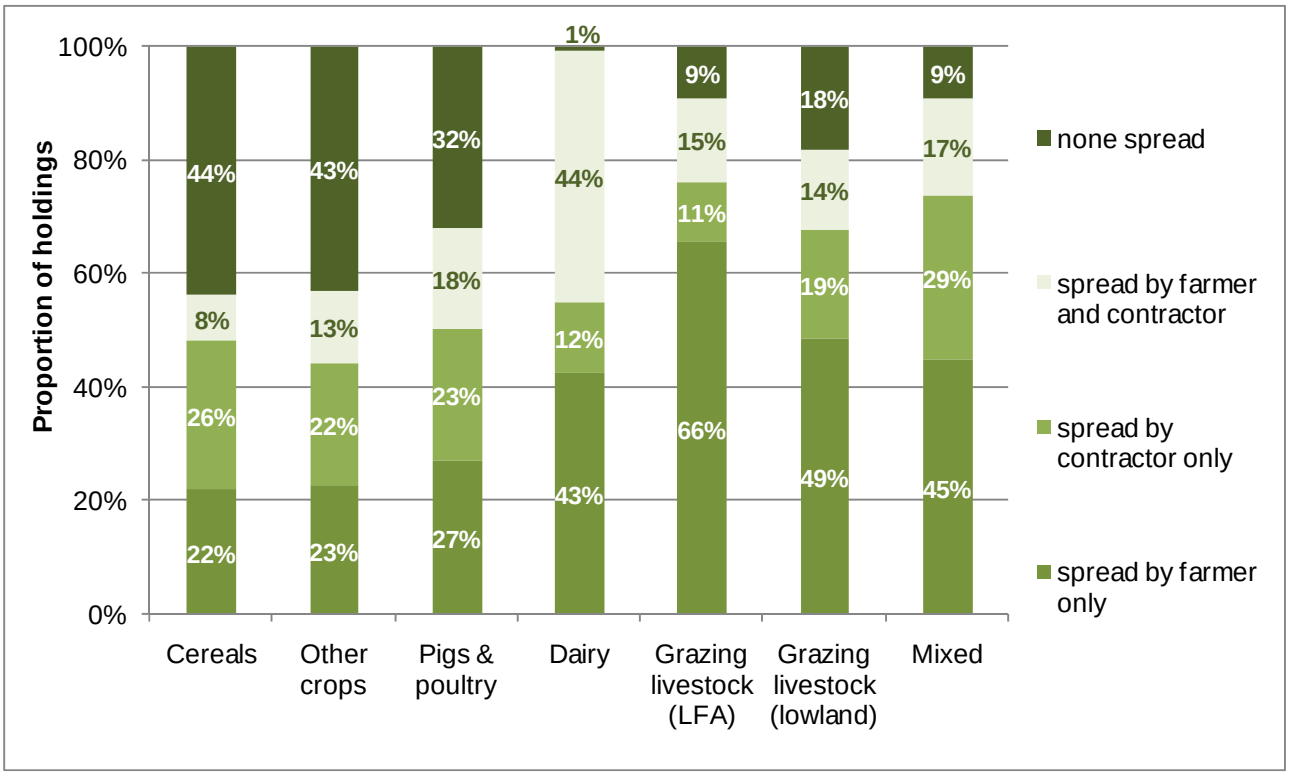
This section focuses specifically on farmers who spread manure, slurry and fertiliser.

More details on nitrogen fertiliser spreading practices are available in the British Survey of Fertiliser Practice at: https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/fertiliser-usage.

Key findings

- Just over three quarters of holdings (76%) spread manure or slurry on their grassland or arable land in 2013.
- On over half of holdings (58%) where the farmer spreads manure or slurry themselves the manure or slurry spreader is never calibrated.

Figure 4.1: Proportion of holdings spreading manure and slurry on grassland and arable land by farm type: 2013



As might be expected there was considerable variation between farm types. Almost all dairy farms spread manures or slurries. Dairy farms are more likely to use contractors than other farm types. Two thirds of LFA grazing livestock farmers spread manure/slurry themselves only (Figure 4.1).

Table 4.1: Spreading of manure and slurry on grassland or arable land: 2013

	% of holdings	95% CI
Spread by farmer only	39	*±2*
Spread by farmer and also contractor	17	*±2*
Spread by contractor only	20	*±2*
None spread	24	*±2*

Based on 2 056 responses in 2013.

Table 4.2: Frequency with which farmers calibrate their manure spreader(s): 2013

Frequency of check	% of holdings	95% CI
Never	58	*±3*
Whenever there is significant change in manure or slurry characteristics	29	*±3*
Whenever manure or slurry is tested	4	*±1*
Other frequency	9	*±2*

Based on 1 167 responses in 2013 on holdings where the farmer spreads some or all of the manure/slurry.

Note: **The results in sections 5 to 8 relate only to holdings with livestock.**

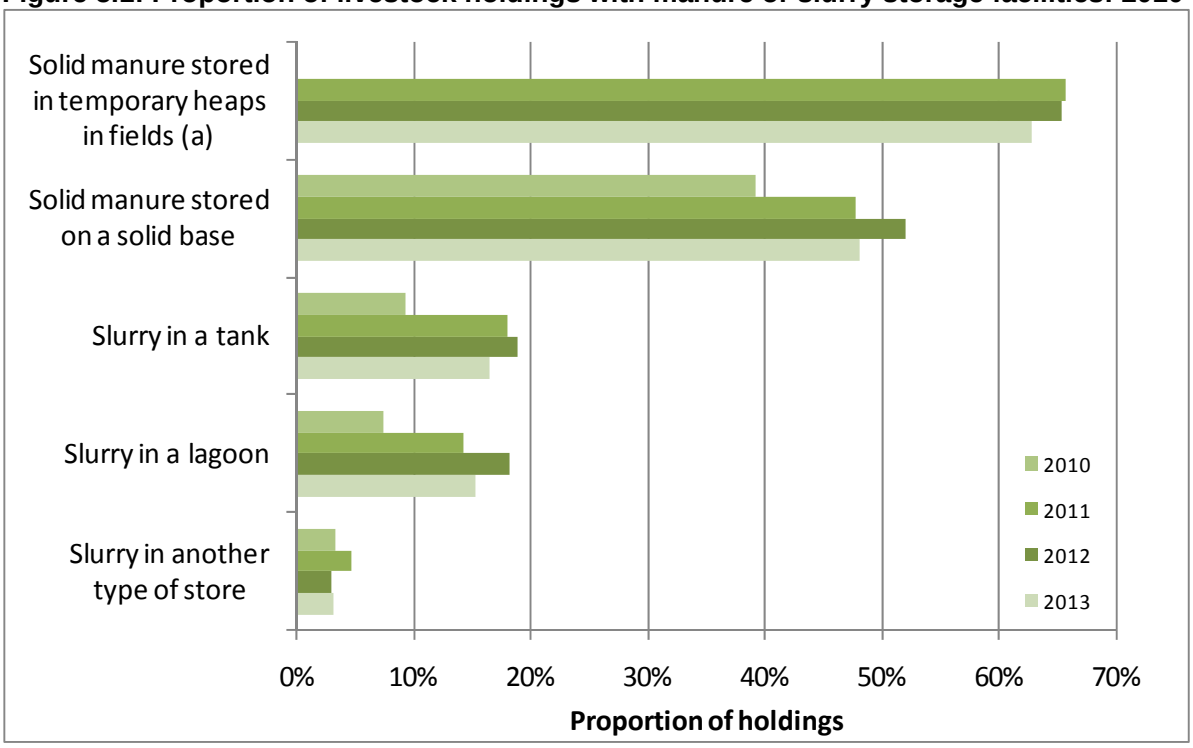
5 Manure and slurry storage

The system of manure and slurry management is relevant to the control of environmental risks to water and air including greenhouse gases and ammonia. This section looks at the types of stores that livestock farmers have, whether or not they are covered and whether the farmer has any plans to upgrade their current facilities. It also looks at whether the farmer has a slurry separator. Separating slurry greatly reduces the storage space needed and spreading liquid slurry can require less energy, time and cost.

Key findings

- Almost two thirds of livestock farmers can store solid manure in temporary heaps in fields, while just under half have storage facilities for solid manure on a solid base.
- The most popular storage facilities for slurry are tanks and lagoons, with 16% and 15% of livestock holdings having these stores respectively.
- Approximately 14% of livestock farmers plan to enlarge, upgrade or reconstruct their storage facilities and of these 89% plan to make these changes within the next 5 years.
- In 2013, just 3% of livestock farmers have a slurry separator, almost unchanged from 2011 and 2012.

Figure 5.1: Proportion of livestock holdings with manure or slurry storage facilities: 2010 - 2013

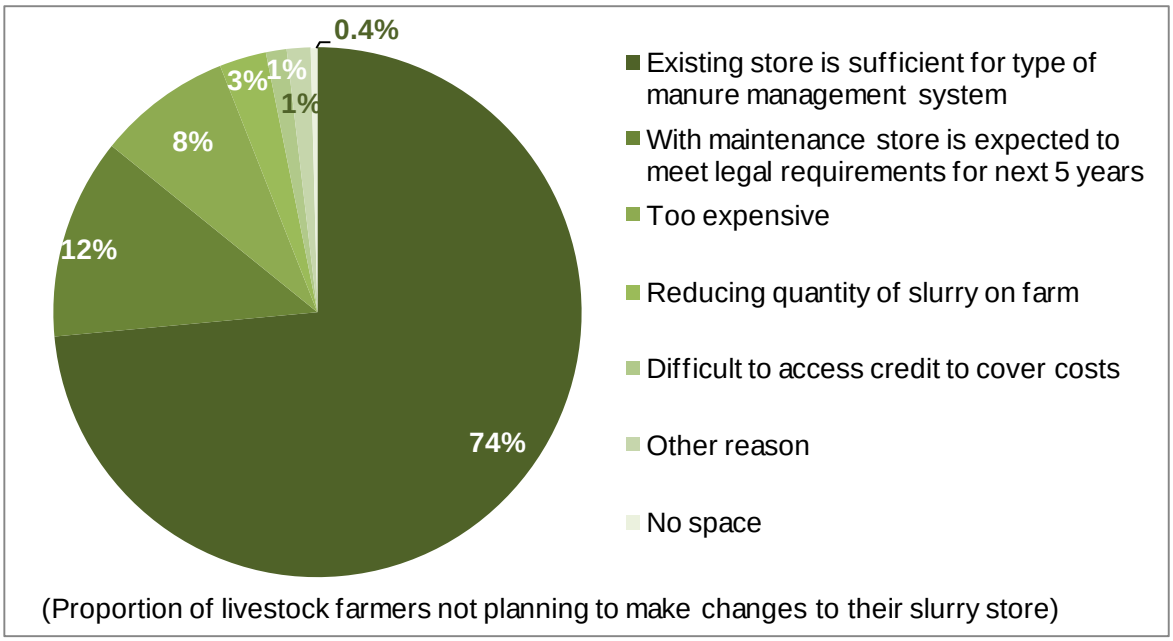


(a) Data not collected in 2010

The most common storage facility for solid manure continues to be temporary heaps in fields. The most common facilities for slurry storage are tanks (16% of farms) closely followed by lagoons (15%). Very few stores are covered (Table 5.2).

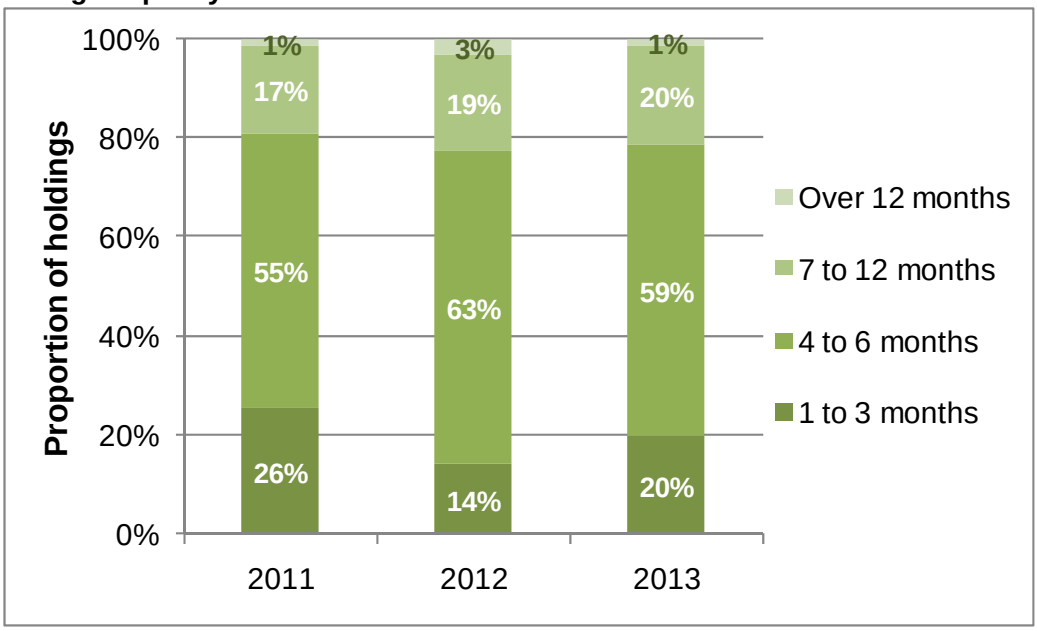
In 2013, 14% of livestock farmers planned to make changes to their manure or slurry storage facilities, similar findings to 2011 and 2012. Of these, 36% planned to make the changes within the next year (Table 5.3).

Figure 5.2: Main reason for not updating slurry storage facilities: 2013



The most common reasons given for not updating manure or slurry facilities (Figure 5.2) were that the existing store was sufficient for the type of manure management system (by 74% of farmers) and that the existing store, with maintenance, is expected to meet legal requirements for the next five years (by 12% of farmers).

Figure 5.3: Proportion of holdings with storage facilities for slurry by number of months of storage capacity: 2011 - 2013



Approximately 80% of holdings with slurry have 6 months storage capacity or less. Almost all of the remaining holdings had between 7 and 12 months capacity with only very few people having more than 12 months storage (Figure 5.3 and Table 5.5).

In 2013 3% of livestock holdings had a slurry separator, little changed since 2011. Of those who don't have a slurry separator, just 1% plan to get one in the future (Table 5.6).

Table 5.1: Proportion of holdings with storage facilities for manure and/or slurry: 2011 - 2013

Storage facility	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Solid manure stored in heaps on a solid base	48	*±2*	52	*±4*	48	*±3*
Solid manure stored in temporary heaps in fields	66	*±2*	65	*±4*	63	*±3*
Slurry in a tank	18	*±1*	19	*±3*	16	*±2*
Slurry in a lagoon	14	*±1*	18	*±3*	15	*±2*
Slurry in another type of store	5	*±1*	3	*±1*	3	*±1*

Based on no fewer than 2 592 responses in 2011, 789 in 2012 and 1 546 in 2013 from livestock holdings.

Table 5.2: Proportion of holdings having storage facilities for manure and/or slurry where the store is covered: 2011 - 2013

Storage facility	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Solid manure stored in heaps on a solid base	6	*±1*	7	*±3*	7	*±2*
Solid manure stored in temporary heaps in fields	1	*±0*	0	*±0*	0	*±0*
Slurry in a tank	15	*±3*	12	*±6*	14	*±4*
Slurry in a lagoon	1	*±1*	0	*±0*	1	*±1*
Slurry in another type of store	12	*±6*	19	*±20*	9	*±6*

Based on no fewer than 137 responses in 2011, 24 in 2012 and 54 in 2013 from livestock holdings that have the storage facilities in question.

Table 5.3: Proportion of holdings planning to enlarge, upgrade or reconstruct their manure and slurry storage facilities: 2011 - 2013

Storage facility	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings planning to make changes to their current facilities [(a)]	14	*±1*	13	*±3*	14	*±2*
Of those planning to make changes, the changes will be made: [(b)]						
In 0 to 6 months	20	*±4*	15	*±7*	16	*±5*
In 7 to 11 months	22	*±4*	12	*±7*	19	*±7*
In 1 to less than 3 years	42	*±5*	52	*±11*	44	*±7*
In 3 to less than 5 years	10	*±3*	13	*±7*	10	*±4*
In 5 years or more	6	*±2*	9	*±7*	11	*±4*

(a) Based on 2 347 responses in 2011, 718 in 2012 and 1 424 in 2013 from livestock holdings that have manure or slurry storage facilities.
(b) Based on 373 responses in 2011, 98 in 2012 and 219 in 2013 from livestock holdings that are planning to make changes.

Table 5.4: Main reason for not enlarging, upgrading or reconstructing slurry storage facilities: 2013

Reasons	2013	
	% of holding	95% CI
Existing store is sufficient for type of manure management system	74	*±5*
Existing store, with maintenance, is expected to meet legal requirements for the next 5 years	12	*±4*
Too expensive	8	*±3*
Reducing quantity of slurry on farm	3	*±2*
Difficult to access credit to cover cost	1	*±1*
Other reasons	1	*±1*
No space	0.4	*±1*

Based on 326 responses in 2013 from livestock holdings that are not planning to enlarge, upgrade or reconstruct their slurry storage facilities.

Table 5.5: Proportion of holdings with manure or slurry stores by storage capacity: 2011 - 2013

Storage capacity	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 3 months	26	*±3*	14	*±4*	20	*±4*
4 to 6 months	55	*±3*	63	*±6*	59	*±5*
7 to 12 months	17	*±3*	19	*±5*	20	*±4*
Over 12 months	1	*±1*	3	*±2*	1	*±1*

Based on 894 responses in 2011, 279 in 2012 and 518 in 2013 from livestock holdings that have slurry storage facilities.

Table 5.6: Proportion of holdings that have a slurry separator or plan to get one in the future: 2011 - 2013

	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings who have a slurry separator [(a)]	3	*±1*	4	*±2*	3	*±1*
Holdings who do not have a slurry separator but plan to get one in the future [(b)]	2	*±1*	3	*±2*	1	*±1*

(a) Based on 2 152 responses in 2011, 631 in 2012 and 1 219 in 2013 from livestock holdings.
(b) Based on 1 913 responses in 2011, 563 in 2012 and 1 057 in 2013 from livestock holdings without a slurry separator.

6 Farm health planning and biosecurity

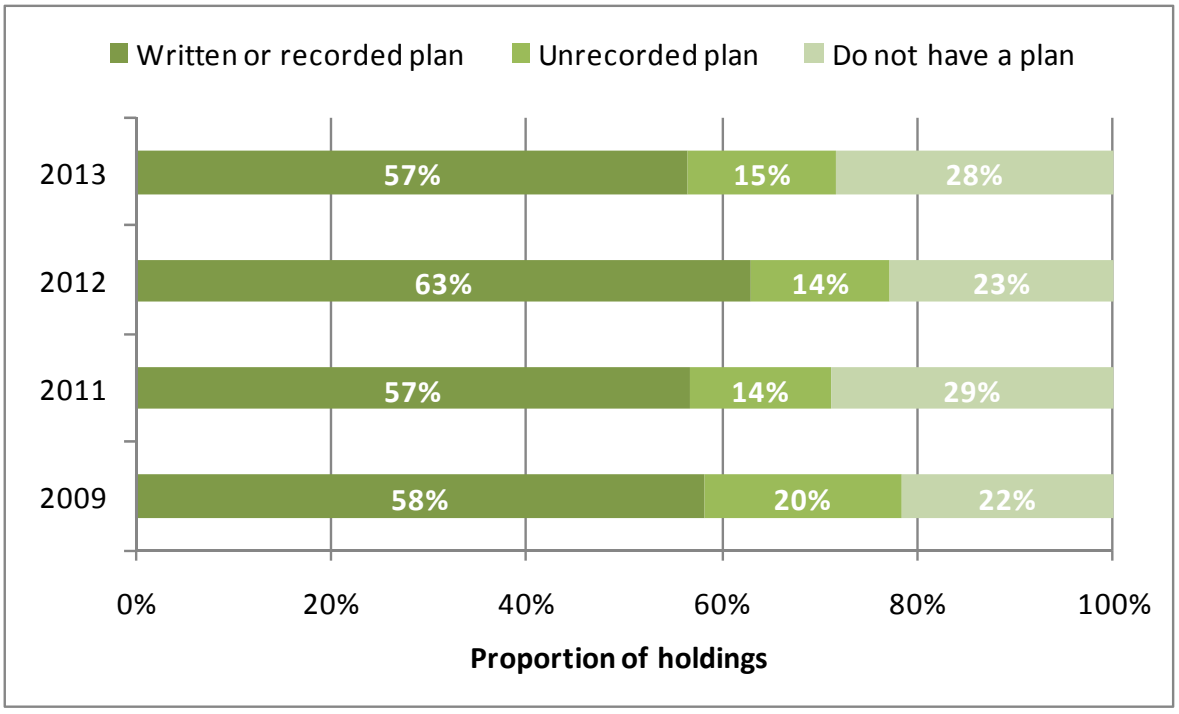
Farm health planning is a Defra initiative which benefits farmers by helping to prevent disease and improve the performance of their livestock. It is about farmers working closely with their vets or other advisers to set targets for their animals' health and welfare and take steps to measure, manage and monitor productivity.

Key findings

- In 2013, 72% of livestock farmers had a Farm Health Plan (FHP). Although lower than in 2011 and 2012, the reduction is not statistically significant.
- Around 63% of FHPs in 2013 were completed with the help of a vet or adviser. This remains similar to 2011 and 2012.
- Of those who have a FHP in 2013, 36% use it on a routine basis to inform disease management decisions and a further 43% use the plan when possible.

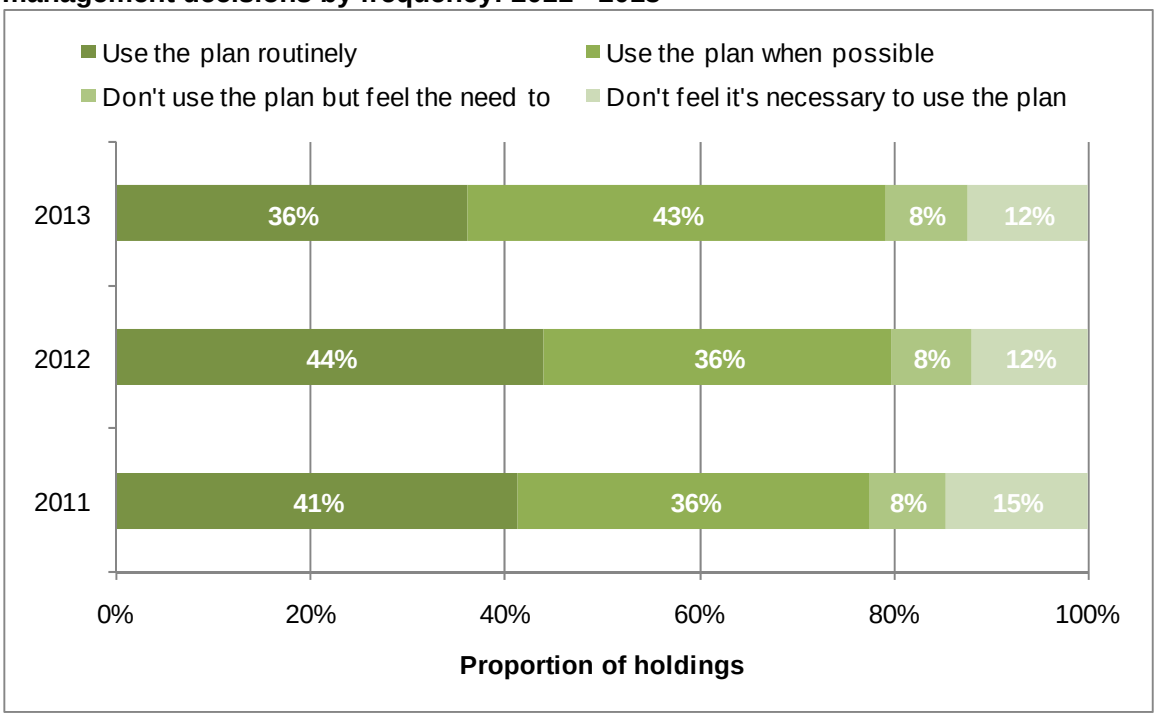
In 2013, 72% of livestock farms had a Farm Health Plan. The majority of livestock farmers have a written or recorded plan (57%) and 15% had a plan that was not recorded (Figure 6.1). Of those holdings with a FHP in 2013, 63% had created the plan with assistance from a vet or advisor. Of those currently without a FHP, 11% planed to complete one in the next 12 months with some assistance (Table 6.4).

Figure 6.1: Proportion of livestock holdings with a farm health plan: 2009 - 2013



Of those with a FHP, 79% were using it routinely or when they could. However, a further 8% felt that they should be doing so (Figure 6.2).

Figure 6.2: Proportion of livestock holdings using their farm health plan to inform disease management decisions by frequency: 2011 - 2013



Just over half of livestock farmers undertake training for animal health and welfare and disease management (Table 6.5).

Table 6.1: Proportion of livestock holdings with a farm health plan: 2009 - 2013

	% of holdings				95% CI
	2009	2011	2012	2013	2013
Written or recorded plan	58	57	63	57	±3
Unrecorded plan	20	14	14	15	±2
No plan	22	29	23	28	±3

Based on 1 032 responses in 2009, 2 607 in 2011, 812 in 2012 and 1 588 in 2013 from livestock holdings.

Table 6.2: Proportion of holdings who completed their farm health plan with the assistance of a vet or adviser: 2009 - 2013

	% of holdings				95% CI
	2009	2011	2012	2013	2013
Assistance from vet / adviser	60	65	65	63	± 3

Based on 813 responses in 2009, 1 948 in 2011, 634 in 2012 and 1 230 in 2013 from holdings with livestock.

Table 6.3: Proportion of holdings using their farm health plan to inform disease management decisions by frequency of use: 2011 - 2013

Frequency of use	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Use plan routinely	41	*±2*	44	*±4*	36	*±3*
Use plan when possible	36	*±2*	36	*±4*	43	*±3*
Don't use plan but feel the need to	8	*±1*	8	*±2*	8	*±2*
Don't feel it's necessary to use plan	15	*±2*	12	*±3*	12	*±2*

Based on 1 948 responses in 2011, 634 in 2012 and 1 228 in 2013 from livestock holdings with a farm health plan.

Table 6.4: Proportion of livestock holdings who intend to complete a FHP with assistance within the next 12 months: 2011 - 2013

	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings who currently have a FHP	44	*±2*	62	*± 4*	60	*±3*
Holdings who do not currently have a FHP	14	*±3*	14	*±6*	11	*±4*
All holdings regardless of whether they have a farm health plan	36	*±2*	51	*±4*	47	*±3*

Based on no fewer than 658 responses in 2011, 176 in 2012 and 353 in 2013 from livestock holdings.

Table 6.5: Proportion of holdings undertaking animal health and welfare and disease management training by frequency of training: 2011 - 2013

Frequency of training	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Undertake training routinely	16	*±1*	17	*±3*	14	*±2*
Undertake training when possible	34	*±2*	36	*±4*	36	*±3*
Don't undertake training but feel the need to	14	*±1*	14	*±3*	15	*±2*
Don't feel training is necessary	36	*±2*	33	*±3*	35	*±3*

Based on 2 607 responses in 2011, 810 in 2012 and 1 585 in 2013 from livestock holdings.

7 Grassland

In some situations sowing grassland with a clover mix or high sugar grasses can be a cost-effective method of increasing production and improving environmental protection.

Key findings

- In 2013, 79% of livestock holdings indicated that a proportion of their temporary grassland had been sown with a clover mix: 32% had sown all of their temporary grassland with a clover mix, little changed from 2012.
- High sugar grasses were sown on 63% of livestock holdings with temporary grassland, little changed from 2011 and 2012.
- The most common frequency for reseeding clover or high sugar grass swards was 3 to 5 years.

Table 7.1: Proportion of livestock holdings that have sown their temporary grassland with a clover mix by proportion of grassland: 2011 - 2013

Proportion of temporary grassland (%)	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
100	33	*±3*	33	*±5*	32	*±4*
81-99	6	*±1*	7	*±3*	7	*±2*
61-80	8	*±2*	8	*±3*	7	*±2*
41-60	9	*±2*	9	*±3*	11	*±2*
21-40	8	*±2*	8	*±3*	10	*±3*
1-20	12	*±2*	14	*±4*	12	*±3*
0	24	*±3*	21	*±4*	21	*±3*

Based on 1 149 responses in 2011, 407 in 2012 and 775 in 2013 from livestock holdings with temporary grass.

Table 7.2: Proportion of livestock holdings that have sown their temporary grassland with high sugar grasses by proportion of grassland: 2011 - 2013

Proportion of temporary grassland (%)	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
100	18	*±2*	20	*±4*	17	*±3*
81-99	7	*±1*	7	*±3*	6	*±2*
61-80	9	*±2*	7	*±3*	11	*±2*
41-60	11	*±2*	10	*±3*	9	*±2*
21-40	6	*±1*	8	*±3*	10	*±2*
1-20	9	*±2*	9	*±3*	10	*±3*
0	40	*±3*	38	*±5*	37	*±4*

Based on 1 149 responses in 2011, 407 in 2012 and 775 in 2013 from livestock holdings with temporary grass.

Table 7.3: Proportion of holdings by the frequency with which holders reseed their clover sward: 2011 - 2013

Frequency of reseeding	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 12 months	3	*±1*	1	*±1*	1	*±1*
1 to 2 years	5	*±2*	4	*±3*	5	*±2*
2 to 3 years	9	*±2*	6	*±3*	10	*±3*
3 to 5 years	42	*±3*	47	*±6*	50	*±5*
5 to 10 years	35	*±3*	32	*±6*	32	*±4*
10 to 20 years	3	*±1*	2	*±2*	1	*±1*
Never	4	*±1*	7	*±3*	1	*±1*

Based on 862 responses in 2011, 315 in 2012 and 586 in 2013 from livestock holdings with temporary grass.

Table 7.4: Proportion of holdings by the frequency with which holders reseed their high sugar grass sward: 2011 - 2013

Frequency of reseeding	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 12 months	3	*±1*	1	*±1*	1	*±1*
1 to 2 years	7	*±2*	7	*±4*	7	*±2*
2 to 3 years	16	*±3*	16	*±5*	15	*±3*
3 to 5 years	40	*±4*	42	*±7*	43	*±5*
5 to 10 years	30	*±3*	29	*±6*	32	*±4*
10 to 20 years	2	*±1*	1	*±1*	1	*±1*
Never	2	*±1*	4	*±3*	1	*±1*

Based on 709 responses in 2011, 254 in 2012 and 504 in 2013 from livestock holdings with temporary grass.

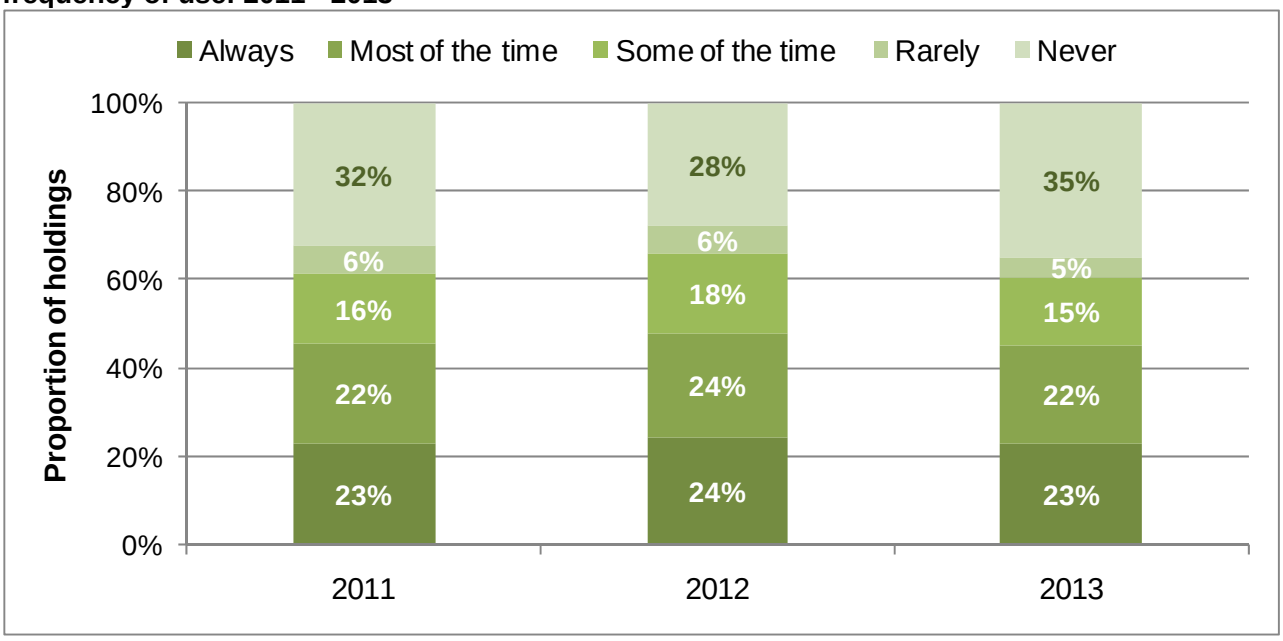
8 Cattle and sheep feeding regimes and breeding practices

Key findings

- Around three quarters (73%) of holdings used a ration formulation programme or nutritional advice in 2013.
- In 2013, 23% of holdings breeding dairy cows always used bulls with a high Profitable Lifetime Index (PLI).
- Bulls and rams with high Estimated Breeding Values (EBV) were always used by 16% of holdings breeding beef cattle and 10% of those breeding lambs in 2013. These holdings accounted for 24% of beef cattle and 11% of lambs at June 2012.

A Profitable Lifetime Index (PLI) is a scoring system to identify cattle with the best 'genetic merit' used when choosing bulls to breed with dairy cattle. The PLI uses a combination of attributes including life expectancy, health, fertility and milk production Figure 8.1 shows that the frequency with which farmers are using bulls with a high PLI has remained almost unchanged between 2011, 2012 and 2013.

Figure 8.1: Proportion of holdings using bulls with a high PLI when breeding dairy cows by frequency of use: 2011 - 2013 [(a)]

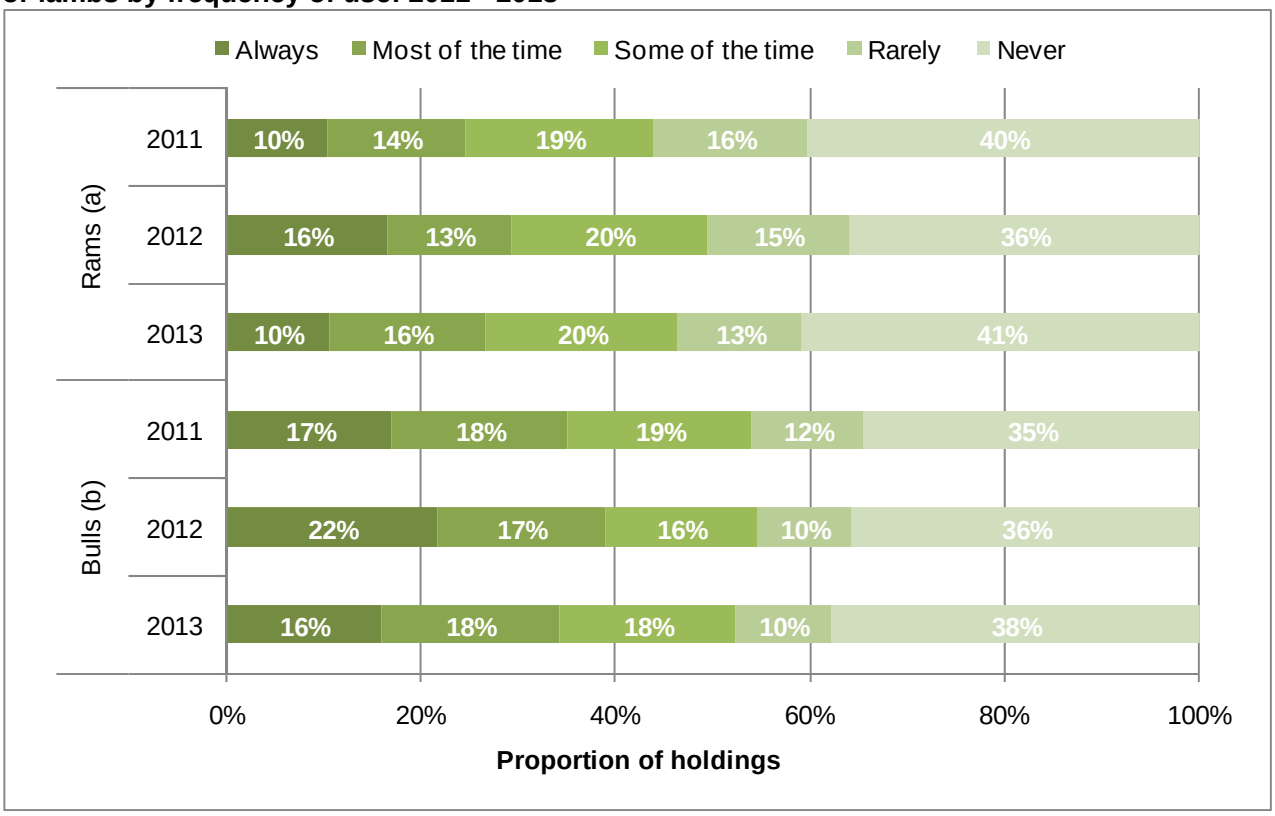


(a) For holdings with dairy cattle

Estimated Breeding Values (EBV) estimate the genetic worth of animals using desirable traits such as meat production. Tables 8.3-8.4 and Figure 8.2 show the proportion of holdings using bulls or rams with high EBVs when breeding beef cattle or lambs and the frequency with which these are used.

Just over half of holdings used bulls with a high EBV at least some of the time in 2013 (Figure 8.2). This is little changed from 2011 and 2012. The equivalent proportion for rams was 46%. These holdings accounted for 60% of beef cattle and 54% of lambs at June 2012.

Figure 8.2: Proportion of holdings using bulls or rams with high EBVs when breeding beef cattle or lambs by frequency of use: 2011 - 2013



(a) For holdings with lambs
(b) For holdings with beef cattle

In addition to the proportion of holdings using bulls and rams with high EBVs (Table 8.3 and 8.4) the proportion of beef cattle and lambs that this figure relates to has also been calculated (Table 8.5). By using responses from the 2012 June survey we are able to give an indication of the proportion of animals that are covered by this practice.

Table 8.1: Proportion of holdings using a ration formulation programme when planning livestock feeding regimes by frequency of use: 2011 - 2013

	2011		2012		2013	
Frequency of use	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	24	*±2*	26	*±3*	22	*±2*
Most of the time	15	*±2*	18	*±3*	14	*±2*
Some of the time	19	*±2*	19	*±3*	17	*±2*
Rarely	16	*±2*	13	*±3*	21	*±3*
Never	25	*±2*	25	*±3*	27	*±3*

Based on 2 164 responses in 2011, 704 in 2012 and 1 333 in 2013 from holdings with cattle or sheep.

Table 8.2: Proportion of holdings using bulls with a high Profitable Lifetime Index (PLI) when breeding dairy cows by frequency of use: 2011 - 2013

Frequency of use	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	23	±3	24	±5	23	±4
Most of the time	22	±3	24	±5	22	±4
Some of the time	16	±2	18	±5	15	±3
Rarely	6	±2	6	±3	5	±2
Never	32	±3	28	±6	35	±5

Based on 809 responses in 2011, 263 in 2012 and 505 in 2013 from holdings with cattle or sheep.

Table 8.3: Proportion of holdings using bulls with a high Estimated Breeding Value (EBV) when breeding beef cattle by frequency of use: 2011 - 2013

Frequency of use	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	17	±2	22	±4	16	±3
Most of the time	18	±2	17	±4	18	±3
Some of the time	19	±2	16	±4	18	±3
Rarely	12	±2	10	±3	10	±2
Never	35	±3	36	±5	38	±4

Based on 1 332 responses in 2011, 416 in 2012 and 822 in 2013 from holdings with beef cattle.

Table 8.4: Proportion of holdings using rams with a high Estimated Breeding Value (EBV) when breeding lambs by frequency of use: 2011 - 2013

Frequency of use	2011		2012		2013	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	10	±2	16	±4	10	±3
Most of the time	14	±2	13	±4	16	±3
Some of the time	19	±2	20	±5	20	±4
Rarely	16	±2	15	±4	13	±3
Never	40	±3	36	±6	41	±5

Based on 954 responses in 2011, 313 in 2012 and 612 in 2013 from holdings with lambs.

Table 8.5: Proportion of beef cattle and lambs on holdings using bulls and rams with a high Estimated Breeding Value (EBV) by frequency of use: 2013

Frequency of use	Beef cattle		Lambs	
	% of animals	95% CI	% of animals	95% CI
Always	24	±6	11	±3
Most of the time	19	±4	19	±4
Some of the time	17	±4	25	±5
Rarely	9	±2	14	±3
Never	31	±5	31	±5

Based on responses from 822 holdings with beef cattle and 612 holdings with lambs.

9 Climate change mitigation and adaptation

Energy generation practices

Farmers were asked to identify energy generation practices currently being carried out and those additional practices they intended to carry out in the next 2 years.

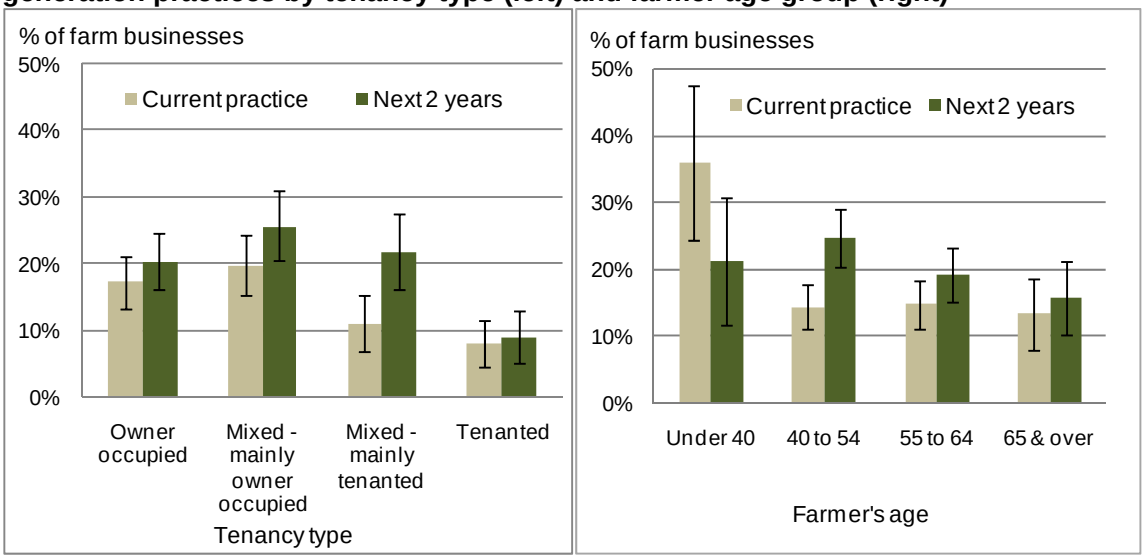
Table 9.1: Proportion of farm businesses currently undertaking each energy generation practice or planning to carry out in next 2 years

	Current practice		Next 2 years	
	% of farms	95% CI	% of farms	95% CI
None identified	84%	± 2%	79%	± 3%
Solar panels	10%	± 2%	12%	± 2%
Biomass fuelled heating boilers	3%	± 1%	3%	± 1%
Exporting of slurry / grass / manure / miscanthus / biomass	2%	± 1%	1%	± 0.5%
Wind turbines	2%	± 1%	6%	± 1%
Other	1%	± 1%	0.4%	± 0.3%
Other renewable energy technology	0.4%	± 0.2%	1%	± 1%
Anaerobic digestion	0.1%	± 0.1%	1%	± 1%

Based on responses from 1357 farm businesses.

16% of farm businesses were currently undertaking energy generation practices. Farm type, farmer's age, tenancy status, agri-environment scheme participation and economic performance were all significant factors[1] influencing uptake. Solar panels were the most common practice (by 10% of farm businesses) with uptake greatest by younger farmers (26%) and on poultry farms (24%).

Figure 9.1: Proportion of farm businesses carrying out and intending to carry out energy generation practices by tenancy type (left) and farmer age group (right)



[1] Poultry farms, those farms with a farmer aged under 40, owner occupied/mainly owner occupied farms, those in agri-environment schemes and high performing farms were more likely to be undertaking energy generation practices.

21% of farm businesses indicated that they intended to carry out additional energy generation practices in the next two years. Those with a current energy generation practice were more likely to be planning further energy generation in the next 2 years (29%) than those without (19%). For the former group, interest was greatest in solar panels (12%), wind turbines (9%) and biomass fuelled boilers (8%). For the latter group, interest was greatest in solar panels (12%) followed by wind turbines (5%).

Practices to reduce greenhouse gas (GHG) emissions

Farmers were asked to identify practices currently being carried out to reduce GHG emissions and those additional practices they intended to carry out in the next 2 years.

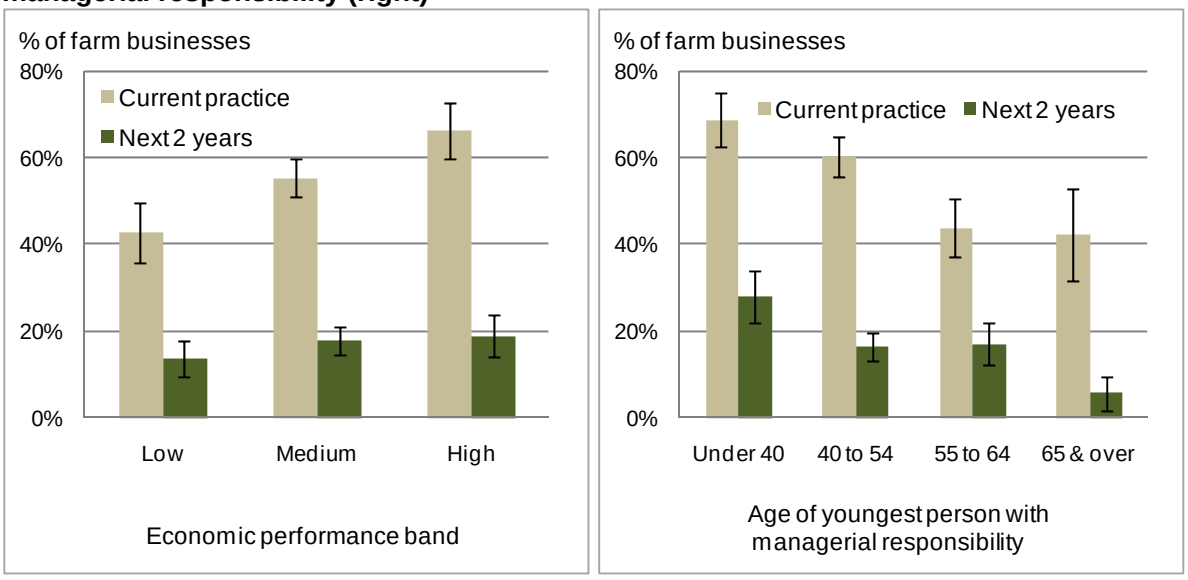
Table 9.2: Proportion of farm businesses currently undertaking / planning to undertake each practice to reduce GHG emissions

	Current practice		Next 2 years	
	% of farms	95% CI	% of farms	95% CI
None identified	45%	± 3%	83%	± 2%
Improved nutrient management	32%	± 3%	6%	± 1%
Improved soil drainage	25%	± 3%	4%	± 1%
Improved slurry / manure management	22%	± 2%	5%	± 1%
Fuel efficient / low emission tractors	20%	± 2%	6%	± 1%
Livestock health & adjustments to diet	10%	± 2%	2%	± 1%
Other	3%	± 1%	1%	± 0.4%

Based on responses from 1357 farm businesses.

More than half of farm businesses (55%) were undertaking practices to reduce GHG emissions. Improving nutrient management was the most common practice identified (by 32% of farm businesses) with improved soil drainage, improved slurry/manure management and fuel efficient/low emission tractors each being undertaken by 20-25% of businesses.

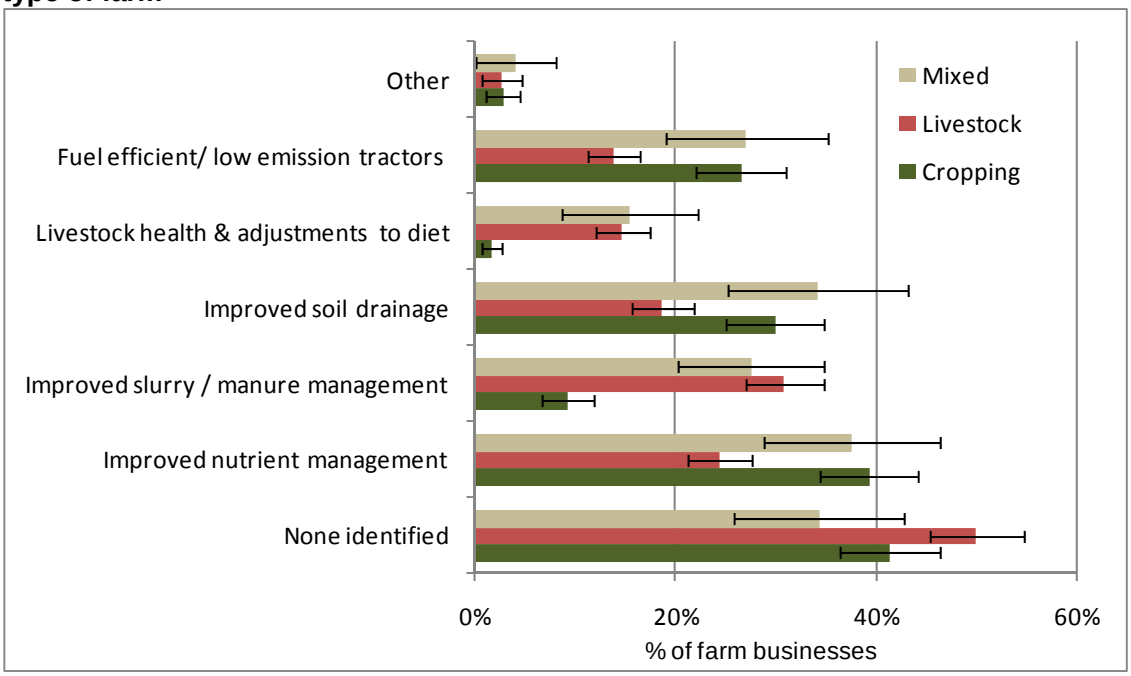
Figure 9.2: Proportion of farm businesses carrying out and intending to carry out practices to reduce GHG emissions by economic performance band (left) and age of youngest person with managerial responsibility (right)



Compared to other farm types, dairy farms were more likely to have at least one GHG mitigation practice (74%) with 58% having 'improved slurry and manure management' and 43% 'improved

nutrient management'. Overall uptake of mitigation measures increased by economic performance group but was not found to be a significant factor influencing overall uptake after allowing for other factors. There were significant differences between regions ranging from 31% of farms undertaking at least one mitigation practice in Yorkshire and the Humber to 72% of farms in the North East and East Midlands. Those farms where the youngest person with managerial input was aged less than 55 were significantly more likely to be undertaking at least one mitigation practice.

Figure 9.3: Proportion of farm businesses carrying out practices to reduce GHG emissions by type of farm



Note: Cropping farms include cereals, general cropping and horticulture robust farm types. Livestock farms include pig, poultry, dairy and grazing livestock robust farm types.

Just 17% of farm businesses indicated that they would undertake additional mitigation measures in the next two years. There was no significant difference in overall intention or in the type of measure between those already undertaking mitigation measures and those not currently doing so.

Practices to adapt to climate change

Farmers were asked to identify practices currently being carried out to adapt to climate change and those additional practices they intended to carry out in the next 2 years.

Overall, 64% of farm businesses were undertaking at least one of the listed practices to adapt to climate change (Table 3). These farms were more likely to be cropping than livestock farms, to be larger farms, to be in an agri-environment scheme and to be undertaking risk management practices[2]. Whilst low performing farms were less likely to be undertaking any of these practices than better performing farms[3] the difference was not significant after allowing for other factors.

Uptake of water efficiency measures was greatest on horticulture (55%) and dairy (51%) farm businesses compared to less than a third of other farm types.

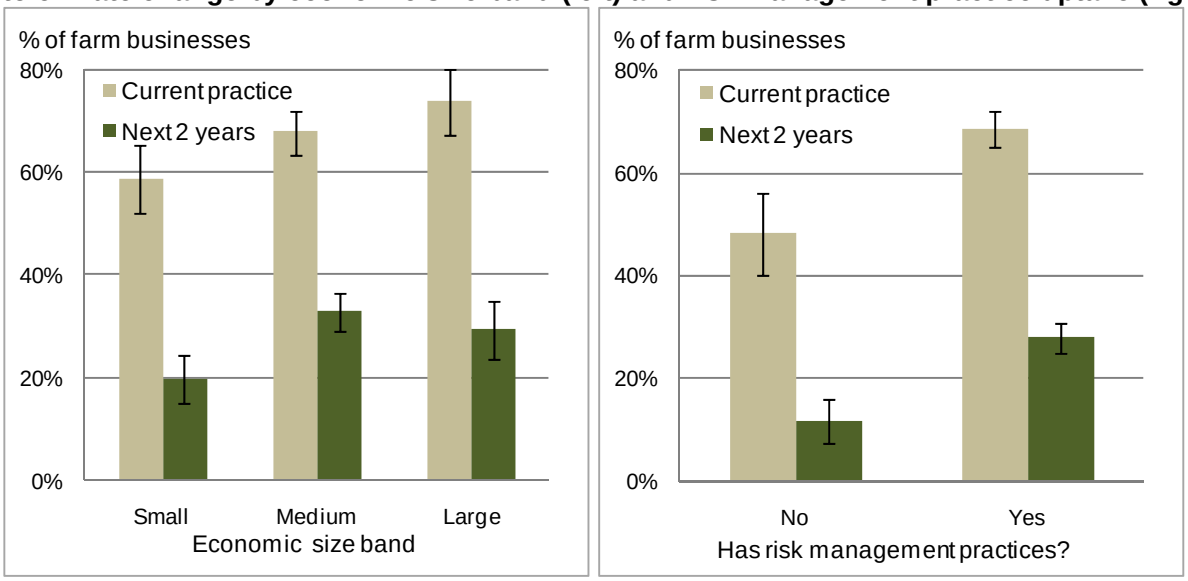
[2] Defined as undertaking at least one of the following: animal health or crop protection insurance, using bio-security measures, markets or purchases some commodities on contract basis with agreed price, uses selling groups and pools to market commodities, making use of 'options'.
[3] 54% of low performing farms were undertaking at least one of the listed adaptation practices compared to 67% of medium and 70% of high performing farms.

Table 9.3: Proportion of farm businesses currently undertaking / planning to undertake each practice to adapt to climate change

	Current practice		Next 2 years	
	% of farms	95% CI	% of farms	95% CI
Soil management	43%	± 3%	4%	± 1%
None identified	36%	± 3%	75%	± 3%
Water efficiency	28%	± 3%	8%	± 1%
Livestock sustainability	21%	± 3%	2%	± 1%
Water quality	21%	± 3%	3%	± 1%
Land use change & environmental protection	20%	± 3%	3%	± 1%
Crop sustainability	19%	± 2%	5%	± 1%
Seeking advice	13%	± 2%	8%	± 2%
Sharing knowledge	11%	± 2%	2%	± 1%

Based on responses from 1357 farm businesses.

Figure 9.4: Proportion of farm businesses carrying out / planning to carry out practices to adapt to climate change by economic size band (left) and risk management practice uptake (right)



Survey details

Survey content

Farm Practices Survey

The Farm Practices Survey (FPS) is usually run annually and collects information on a diverse range of topics usually related to the impact of farming practices on the environment. Each year, stakeholders are invited to request new questions to help inform policy decisions and provide evidence on progress towards agricultural and environmental sustainability. However, in 2013 two surveys will be run to meet our data users' requirements.

This release includes the results from the first FPS in February 2013. The survey largely focused on practices relating to greenhouse gas mitigation, similar in content to February 2012 FPS and 2011 FPS. Topics covered include nutrient and manure management plans, uptake of anaerobic digestion, manure and slurry storage, fertiliser, manure & slurry spreaders, farm health plans and cattle and sheep breeding and feeding practices. Where comparisons with earlier years are possible, the results are displayed alongside those from previous years.

The results provided in this release are based on questions sent to approximately 5,500 holdings in England. These holdings were targeted by farm type and size to ensure a representative sample. The survey was voluntary and the response rate was 37%. Thank you to all of the farmers who completed a survey form.

Thresholds were applied to ensure that very small holdings with little agricultural activity were not included in the survey. To be included in the main sample, holdings had to have at least 50 cattle, 100 sheep, 100 pigs, 1,000 poultry or 20 hectares of arable crops or orchards. Therefore, all results given in this statistical release reflect only the 61 thousand holdings that exceed these thresholds out of the total English population of 104 thousand commercial holdings.

A breakdown of the number of holdings within the population and the sample are shown below.

Farm type	Number of eligible holdings in England	Number of holdings sampled	Response rate %
Cereals	15 245	1 168	46
Other crops	6 635	725	41
Pigs & poultry	3 419	467	24
Dairy	7 260	1 046	36
Grazing livestock (less favoured areas)	8 150	602	37
Grazing livestock (lowland)	14 370	994	32
Mixed	5 704	498	39
All farms	**60 783**	**5 500**	**37**

Farm Business Survey

The Farm Business Survey (FBS) is an annual survey providing information on the financial position and physical and economic performance of farm businesses in England. The sample of around 1,900 farm businesses covers all regions of England and all types of farming with the data being collected by face to face interview with the farmer. Results are weighted to represent the whole population of farm businesses that have at least 25 thousand Euros of standard output[4] as

[4] For a definition of standard output please see the UK classification document available via the National archive at: https://www.gov.uk/farm-business-survey-technical-notes-and-guidance

recorded in the annual June Survey of Agriculture and Horticulture. In 2011 there were just over 56 thousand farm businesses meeting this criteria[5].

In the 2011/12 survey, an additional module was included to collect information on business management practices from a sub-sample of farm businesses. Interviewers collected responses between January and October 2012 for usage relating to the 2011/12 accounting year (generally ending around February 2012). The information collected covered:

(i) business management practices such as benchmarking, risk management, IT usage and management accounting,
(ii) practices specific to animal health and welfare e.g. biosecurity, veterinary strategy, animal health plans,
(iii) the environmental footprint of farming, GHG abatement, energy use and
(iv) climate change adaptation.

When combined with other data from the survey this helps to explain farm businesses' behaviour and how this varies with parameters such as farm type, farm size and performance.

This release includes the results for IT usage from the business management practices module. The results for other topics covered by the module will be published in a separate release at a later date. Comparisons to results from the previous business management practices module conducted in 2007/08 will, where possible, be included in this later publication.

Completion of the business management practices module was voluntary with a response rate of 71% in 2011/12. The farms that responded to the business management practices module had similar characteristics to those farms in the main FBS in terms of farm type and geographical location. There was a smaller proportion of large and very large farms in the module subset than in the main FBS. Full details of the characteristic of responding farms can be found at Appendix A.

For further information about the Farm Business Survey please see:
https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/farm-business-survey

Data analysis

Farm Practices Survey
Results have been analysed using a standard methodology for stratified random surveys to produce national estimates. With this method, all of the data are weighted according to the inverse sampling fraction.

Farm Business Survey
The results from the FBS relate to farms which have a standard output of at least 25,000 Euros. Initial weights are applied to the FBS records based on the inverse sampling fraction for each design stratum (farm type by farm size). These weights are then adjusted (calibration weighting[6]) so that they can produce unbiased estimators of a number of different target variables. Completion of the business management practices module was voluntary and a sample of around 1,350 farms was achieved. In order to take account of non-response, the results have been reweighted using a

[5] Prior to the 2010/11 campaign, the coverage of the FBS was restricted to those farms of size ½ Standard Labour Requirement (SLR) or more. For a definition of SLR please see the UK classification document available at: https://www.gov.uk/farm-business-survey-technical-notes-and-guidance via the National Archive.
[6] Further information on calibration weighting can be found in the 'Statistical Issues' document available at: https://www.gov.uk/farm-business-survey-technical-notes-and-guidance via the National Archive.

method that preserves marginal totals for populations according to farm type and farm size[7] groups. As such, farm population totals for other classifications (e.g. regions) will not be in-line with results using the main FBS weights, nor will any results produced for variables derived from the rest of the FBS (e.g. farm business income).

3.3 Accuracy and reliability of the results

We show 95% confidence intervals against the results. These show the range of values that may apply to the figures. They mean that we are 95% confident that this range contains the true value. They are calculated as the standard errors (se) multiplied by 1.96 to give the 95% confidence interval (95% CI). The standard errors only give an indication of the sampling error. They do not reflect any other sources of survey errors, such as non-response bias. For the Farm Business Survey, the confidence limits shown are appropriate for comparing groups within the same year only; they should not be used for comparing with previous years since they do not allow for the fact that many of the same farms will have contributed to the Farm Business Survey in both years.

We have also shown error bars on the figures in this notice. These error bars represent the 95% confidence intervals (as defined above).

3.4 Definitions

Where reference is made to the *type of farm* in this document, this refers to the 'robust type', which is a standardised farm classification system. *Farm sizes* are based on the estimated labour requirements for the holding, rather than its land area. The farm size bands used within the detailed results tables which accompany this publication are shown in the table below. Standard Labour Requirement (SLR) is defined as the theoretical number of workers required each year to run a holding, based on its cropping and livestock activities.

Farm size	Definition
Small	Less than 2 SLR
Medium	2 to less than 3 SLR
Large	3 or more SLR

The *Severely Disadvantaged Areas* (SDA) are more environmentally challenging areas. They are largely upland in character and together with Disadvantaged Areas (DA) form the Less Favoured Areas (LFA) classification established[8] in 1975 as a means to provide support to mountainous and hill farming areas. A map showing the SDA can be found at Appendix B.

Economic performance for each farm is measured as the ratio between economic output (mainly sales revenue) and inputs (costs+ unpaid labour). The higher the ratio, the higher the economic efficiency and performance. Performance bands based on economic performance percentiles are as follows:

- **Low performers** - farmers who took part in the Business Management Practices survey and were in the bottom 25% of economic performers in this sample
- **Medium performers** - farmers who took part in the Business Management Practices survey and were in the middle 50% of performers in this sample
- **High performers** - farmers who took part in the Business Management Practices survey and were in the top 25% of performers in this sample.

These are based on economic performance in 2011/12.

[7] The UK classification document provides details of how farm type and farm size groups are derived. This document is available at: https://www.gov.uk/farm-business-survey-technical-notes-and-guidance via the National Archive.
[8] Council Directive 75/268/EEC.

Availability of results
This release contains headline results for each section. The full breakdown of results, by region, farm type and farm size, will be available on 18 June 2013 at:
https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/farm-practices-survey.

Other Defra statistical notices can be viewed on the Defra website at:
https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics .

Closing points and additional information

- For more information on how the data was collected you can view the questions asked on our survey form in Annex I over the page.
- Finally we are keen to hear your thoughts on this statistical release. If you found the data useful or if you have any other comments please let us know. You can contact us via the phone number on the front page or alternatively email us at farming-statistics@defra.gsi.gov.uk quoting 'Farm Practices Survey 2013' in the subject line of your email.

ANNEX 1

Protect Commercial

Department for Environment Food & Rural Affairs

If there are any amendments or corrections to details opposite, please write them in this box

Name:
Address:

Postcode:
Tel. no. (incl. Nat. dialling code)

Farm Practices Survey - February 2013

Dear Sir/Madam

You are invited to participate in the February 2013 Farm Practices Survey. This survey aims to assess how farming practices are affected by current agricultural and environmental issues. We have tried to make the form as straightforward as possible and most of the questions can be answered using tick boxes.

Please note that this is a voluntary survey. Any information you supply on this form will not be used to assess cross-compliance on your holding and will not affect your Single Payment Scheme payment. The aim of these questions is to ensure that those making decisions affecting farmers know what really happens on farms.

The results from the survey are important and will be used widely within Defra, its agencies and other external bodies. We can use some information from the June Survey of Agriculture and Horticulture or from other national surveys, but there are important gaps which this survey will help to fill. Results from this survey will be available from the end of May 2013 on the following website: http://www.defra.gov.uk/statistics/foodfarm/enviro/farmpractice/.

I would be very grateful if you would take the time to complete this form and return it in the enclosed pre-paid envelope. If you could complete and return it within 2 weeks of receipt, this will avoid the need for reminder letters. This survey form has been sent to a randomly selected sample of 5,500 holdings and a good response will improve the reliability of the results. For guidance on completing the form, please telephone or email using the details below.

Data Protection
Any information you provide to us is treated in confidence. Defra is the Data Controller in respect of the Data Protection Act 1998. The purposes for which it is used are set out in full in a data protection statement which can be found at http://www.defra.gov.uk/statistics/national-statistics/confidentiality/. Alternatively we can send you a copy if you call 01904 455284 or email surveys@defra.gsi.gov.uk.

We greatly appreciate the time and effort you spend completing our survey forms. Thank you for your assistance.

Jennie Blackburn
Farming Statistics Team

Official Use Only

Name/Address	
Comments in box	
Comments elsewhere	

If you require a large print form please contact us on 01904 455284

For help with completion of the form contact us at:

Helpline: 01904 455284 Mon-Fri 8.30am to 4.30pm

Email: surveys@defra.gsi.gov.uk

Section 1. Nutrient Management

(i) Nutrient management plans

1. Have you completed a nutrient management plan for your farm?

Yes ☐ 1 No ☐ 2 Not applicable ☐ 3 C68

If No, please go to question 8. If Not applicable, please go to question 9

2. If yes, did you create the plan yourself or was it created by an adviser or contractor?

I created the plan myself **without** professional advice ☐ C4 → **If ticked, please go to question 3**

	Fertiliser adviser/ agronomist	Animal nutritionist	FWAG	Other	
I created the plan myself **with** professional advice from:	☐ 1	☐ 2	☐ 3	☐ 4	C125
OR					
The plan was created by the following type of adviser or contractor:	☐ 1	☐ 2	☐ 3	☐ 4	C6

3. How often do you update your nutrient management plan? Please tick **one** box

Every year ☐ 1 Every 2 years ☐ 2 Every 3 years or more ☐ 3 C82

4. How often do you refer to your nutrient management plan in a year? Please tick **one** box

More than 10 times ☐ 1 6 to 10 times ☐ 2 1 to 5 times ☐ 3 Never ☐ 4 C7

5. How did you or your adviser/contractor create the nutrient management plan?

Tick **all** that apply

PLANET	☐ C69
Muddy Boots	☐ C70
Farmade/Multicrop	☐ C71
Industry plan - Tried and Tested	☐ C72
Other	☐ C74
I don't know	☐ C8

6. Are the nutrient recommendations for your nutrient management plan based on:

Tick **all** that apply

Defra Recommendations/Manual (RB209)	☐ C75
An adviser's or industry note	☐ C9
Personal experience	☐ C10
Other	☐ C76
I don't know	☐ C86

7. With regard to having a nutrient management plan:

Tick **one** box in each row

	Yes	No	Don't know	
Have you seen any financial benefit?	☐ 1	☐ 2	☐ 3	C83
Have you seen any environmental benefit?	☐ 1	☐ 2	☐ 3	C84

8. If you do not have a nutrient management plan, what would motivate you to create one?

Tick **all** that apply

If I had more time	☐	C87
If I had more money to pay an adviser	☐	C88
If nutrient management tools made it easier to understand	☐	C89
If I knew I would see a return for the work I'd put in	☐	C90
Nothing	☐	C91

(ii) Nutrient testing

Tick **one** box in each row

	Yes	No	Not applicable		
9. Do you regularly test (at least every 5 years) the nutrient content (indices) of your soil?	☐ 1	☐ 2	☐ 3	C63	
10. Do you regularly test (at least every 5 years) the pH of your soil?	☐ 1	☐ 2	☐ 3	C92	
11. Do you test (by taking samples) the nutrient content of manure?	☐ 1	☐ 2	☐ 3	C64	**If Not applicable, please go to Section 2**
12. Do you assess/calculate the nutrient content of manure?	☐ 1	☐ 2	☐ 3	C85	

(iii) Manure management plans

	Yes	No	Not applicable		
13. Have you completed a manure management plan for your farm?	☐ 1	☐ 2	☐ 3	C65	**If No or Not applicable, please go to Section 2**

14. If yes, are the nutrient recommendations for this plan based on:

Defra Recommendations/Manual (RB209), CoGAP	☐	C66
Other (please specify)	☐	C67

Section 2. Anaerobic Digestion

15. Do you already process, or intend to process in the next 2 years, any of the following by anaerobic digestion either on your farm or elsewhere?

Tick **one** box in each row

	Already process	Plan for the future	No	
Slurries	☐ 1	☐ 2	☐ 3	A19
Crops	☐ 1	☐ 2	☐ 3	A52
Other feedstocks from your farm	☐ 1	☐ 2	☐ 3	A20
Other feedstocks from outside your farm	☐ 1	☐ 2	☐ 3	A21

Section 3. Emissions

16. How important do you feel it is to consider greenhouse gases (GHGs) when taking decisions about your land, crops and livestock? Please tick **one** box only

Very important	Fairly important	Not very important	Not at all important	My farm does not produce GHGs	
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	D51

17. To what extent do you agree that reducing your farm's greenhouse gas emissions will contribute to improving your overall profitability? Please tick **one** box only

Strongly agree	Agree	Disagree	Strongly disagree	
☐ 1	☐ 2	☐ 3	☐ 4	D52

18. The three greenhouse gases produced on farms are carbon dioxide, methane and nitrous oxide. Where on your farm do you think these greenhouse gases come from?

Please tick the gases and any sources that you think are relevant	Carbon dioxide	Methane	Nitrous oxide	Don't know	
Vehicles and machinery	☐ 1	☐ 2	☐ 3	☐ 4	D53
Energy use (e.g. heating)	☐ 1	☐ 2	☐ 3	☐ 4	D54
Livestock (directly from the animal rather than their manure)	☐ 1	☐ 2	☐ 3	☐ 4	D55
Manure and slurry (storage and spreading)	☐ 1	☐ 2	☐ 3	☐ 4	D56
Bagged or manufactured nitrogen fertiliser	☐ 1	☐ 2	☐ 3	☐ 4	D57
From cultivation of crops or plants	☐ 1	☐ 2	☐ 3	☐ 4	D58
Ploughing, ploughed land or soil	☐ 1	☐ 2	☐ 3	☐ 4	D59
Anaerobic digestion	☐ 1	☐ 2	☐ 3	☐ 4	D60
Compost, breakdown of crops or silage	☐ 1	☐ 2	☐ 3	☐ 4	D61
Other source, please tick and then specify below	☐ 1	☐ 2	☐ 3	☐ 4	D62

D63

19. Are you currently taking any action to reduce greenhouse gas emissions from your farm? Yes ☐ 1 No ☐ 2 D64 **If No, please go to question 22**

20. What actions are you taking to reduce greenhouse gas emissions from your farm? Tick **all** that apply

Improving energy efficiency (e.g. reducing fuel use, producing own energy)	☐ D65
Recycling of waste materials from the farm (e.g. tyres, plastics)	☐ D66
Improving nitrogen feed efficiency, livestock diets (e.g. using a ration formulation programme)	☐ D67
Improving efficiency in manure and slurry management and application (e.g. covering stores)	☐ D68
Improving nitrogen fertiliser application accuracy (e.g. using a fertiliser recommendation system, regularly checking and calibrating fertiliser spreaders)	☐ D69
Increasing use of legumes in arable rotation	☐ D70
Increasing use of clover in grassland	☐ D71
Other, please specify	D72

21. What are your main motivations for taking these actions? Tick **all** that apply

I consider it good business practice	D73
Regulation	D74
To improve profitability	D75
Concern for the environment	D76
To meet market demands	D77
Other, please specify	D78

22. What are the reasons stopping you taking action to reduce greenhouse gas emissions from your farm?

Tick **all** that apply

Lack of information	D79
Too expensive	D80
Lack of incentive	D81
I've already done all I can	D82
I don't believe there is much farmers can do	D83
It's not necessary as I don't think my farm produces many emissions	D84
I'm unsure what to do as there are too many conflicting views on the issue	D85
Other, please specify	D86

Section 4. Fertiliser, manure and slurry spreaders

23. Do you or contractors spread solid manure or slurry on your grassland or arable land?

Tick **one** box only

Yes, I spread it myself	C132	
Yes, I spread some myself and also use a contractor	C133	
Yes, a contractor spreads it	C134	**Please go to question 26**
No	C135	**Please go to question 26**

24. On average, how often is your manure (solid manure or slurry) spreader calibrated?

Tick **one** box only

Never	C136
Whenever there is significant change in manure or slurry characteristics	C137
Whenever manure or slurry is tested	C138
Other, please specify	C139

25. Are any of the manure, slurry or fertiliser spreaders on your farm computer controlled with variable rate application?

Yes, all of them 1 Yes, some of them 2 No, none of them 3 C104

Section 5. Attitudes to farming

26. In this section, please indicate to what extent you agree or disagree with the following statements. Please tick only **one** option in each row.

	Strongly agree	Agree	Disagree	Strongly disagree	
Farming gives self-respect for doing a worthwhile job	☐ 1	☐ 2	☐ 3	☐ 4	M50
Paying attention to details is crucial in making a success of running a farm	☐ 1	☐ 2	☐ 3	☐ 4	M51
Farmers should provide congenial working conditions, hours, security and surroundings for themselves and their staff	☐ 1	☐ 2	☐ 3	☐ 4	M52
Local authorities do not understand farmers and their needs	☐ 1	☐ 2	☐ 3	☐ 4	M53
I want to pass on a viable business to the next generation	☐ 1	☐ 2	☐ 3	☐ 4	M54
Accessing information on-line is too complicated	☐ 1	☐ 2	☐ 3	☐ 4	M55
The internet saves time and effort	☐ 1	☐ 2	☐ 3	☐ 4	M56

Note **27. The following sections relate to holdings with cattle, sheep, pigs or poultry. If you do not have these livestock, please tick this box and go to section 10 at the end of the form** ☐ T94

Section 6. Farm Health Planning and Biosecurity

28. Do you have a Farm Health Plan (FHP)? Tick **one** box only

No	☐ T90	→ **If No, please go to question 31**
Yes, but not written/recorded	☐ T91	
Yes, and written/recorded	☐ T92	

29. If yes, did you complete the FHP with the assistance of a vet or other adviser? Yes ☐ 1 No ☐ 2 T93

30. Do you review and use your FHP to inform disease management decisions? Please tick **one** box

Yes, routinely	Yes, when I can	No, but I feel I should	No, I don't feel the need	
☐ 1	☐ 2	☐ 3	☐ 4	T130

31. Do you intend to complete or update a Farm Health Plan with the assistance of a vet or other adviser within the next 12 months? Yes ☐ 1 No ☐ 2 T131

32. Do you or your staff undertake training on animal health & welfare and disease management? Please tick **one** box

Yes, routinely	Yes, when I/ my staff can	No, but feel I should	No, I don't feel the need	
☐ 1	☐ 2	☐ 3	☐ 4	T135

Section 7. Manure and slurry storage

33. Do you have any storage facilities for:

	Yes	No	Please tick below if the store is covered
Solid manure stored in heaps on a solid base	☐ 1	☐ 2 P50	☐ P54
Solid manure stored in temporary heaps in fields	☐ 1	☐ 2 P60	☐ P61
Slurry in a tank	☐ 1	☐ 2 P51	☐ P55
Slurry in a lagoon	☐ 1	☐ 2 P52	☐ P56
Slurry in another type of store, please specify ☐ P106	☐ 1	☐ 2 P53	☐ P57

34. Are you planning to enlarge, upgrade or reconstruct any of your manure or slurry storage facilities? Yes ☐ 1 No ☐ 2 P67 → **If No, please go to question 36**

35. If yes, when are you planning to make the majority of these changes? Please tick **one** box

	In 0 to 6 months	In 7 to 11 months	In 1 to less than 3 years	In 3 to less than 5 years	In 5 to less than 10 years	In more than 10 years	
Changes planned:	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	P68

36. If you are not planning to enlarge, upgrade or reconstruct your slurry stores please indicate the main reason why? Tick **one** box only

Existing store is sufficient for type of manure management system	☐ P200
Existing store, with maintenance, is expected to meet legal requirements for the next 5 years	☐ P201
Too expensive	☐ P202
Difficult to access credit to cover the cost	☐ P203
No space	☐ P204
Reducing quantity of slurry on the farm	☐ P205
Other, please specify ☐	P206

37. How many months storage capacity do you have for slurry? ☐ months P69

38. Do you have a slurry separator? Yes ☐ 1 No ☐ 2 P70 → **If Yes, please go to Question 40**

39. If you do not have a slurry separator, do you plan to get one in the future? Yes ☐ 1 No ☐ 2 P71

Section 8. Grassland

40. This section relates to temporary grassland. If you do not have any temporary grassland, please tick this box and go to section 9 over the page ☐ K95

41. What percentage of your temporary grassland has been sown with a clover mix or high sugar grasses?

	100%	81-99%	61-80%	41-60%	21-40%	1-20%	0%	
Clover	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	K96
High sugar grasses	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	K97

42. Please state the frequency (in months) with which you reseed your sward.

Clover ☐ months K98 High sugar grasses ☐ months K99

Section 9. Ruminant livestock

43. How often do you or your adviser use a ration formulation programme or nutritional advice from an expert when planning the feeding regime for your livestock?

Tick **one** box only

Always	☐	C105
Most of the time	☐	C106
Some of the time	☐	C107
Rarely	☐	C108
Never	☐	C109

44. How often do you or your adviser use bulls with a high Profitable Lifetime Index (PLI) when breeding dairy cows?

Tick **one** box only

Always	☐	C110
Most of the time	☐	C111
Some of the time	☐	C112
Rarely	☐	C113
Never	☐	C114

45. How often do you or your adviser use bulls or rams with a high Estimated Breeding Value (EBV) when breeding beef cattle or lambs? Tick **one** box in each column, if relevant.

	Bulls		**Rams**	
Always	☐	C115	☐	C120
Most of the time	☐	C116	☐	C121
Some of the time	☐	C117	☐	C122
Rarely	☐	C118	☐	C123
Never	☐	C119	☐	C124

Section 10. Declaration

Signature ☐ V3 Date ☐

Name (please print) ☐ Telephone number ☐

Time taken to complete this form ☐ minutes V1

E-mail address ☐ V5

*We would like to share your e-mail address with other members of the Defra family (including the RPA) to update our customer registers. Please tick the box if you **do not** want us to do this.* ☐ V6

Please enter any comments you may have on the figures provided. This may remove the need for us to contact you. ☐

Thank you for taking the time to complete the form.

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