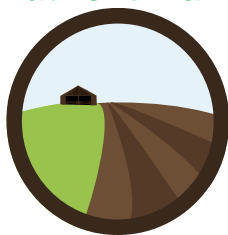




Greenhouse gas mitigation practices - England Farm Practices Survey 2018

This release contains the results from the February 2018 Farm Practices Survey which focused on practices relating to greenhouse gas mitigation. The key results for 2018 are given below.

Nutrient Management ([Section 1](#))



56%

of holdings have a nutrient management plan.

Anaerobic Digestion ([Section 2](#))



5.4%

of farmers process waste by anaerobic digestion.

Emissions ([Section 3](#))



58%

of farmers are currently taking action to reduce GHG emissions from their farm.

Fertiliser, Manure and Slurry Spreaders ([Section 4](#))



75%

of holdings spread manure or slurry on grass or arable land.

Manure and Slurry Storage ([Section 5](#))



67%

of livestock farmers store solid manure in temporary heaps in fields.

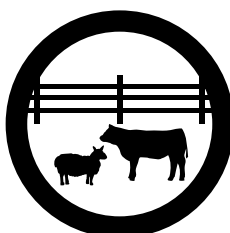
Farm Health Planning and Biosecurity ([Section 6](#))



75%

of livestock farmers have a Farm Health Plan.

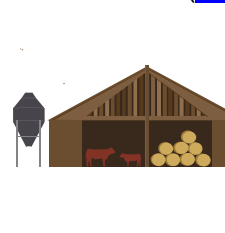
Grassland and Grazing ([Section 7](#))



74%

of livestock holdings sow some or all of their temporary grassland with a clover mix.

Livestock Feeding & Breeding Practices ([Section 8](#))



73%

of holdings with livestock use a ration formulation programme or nutritional advice.

Enquiries on this publication to: Farm Practices Survey – Janine Horsfall, Farming Statistics, Department for Environment, Food and Rural Affairs. Tel: 020 802 66279 email: farming-statistics@defra.gsi.gov.uk.

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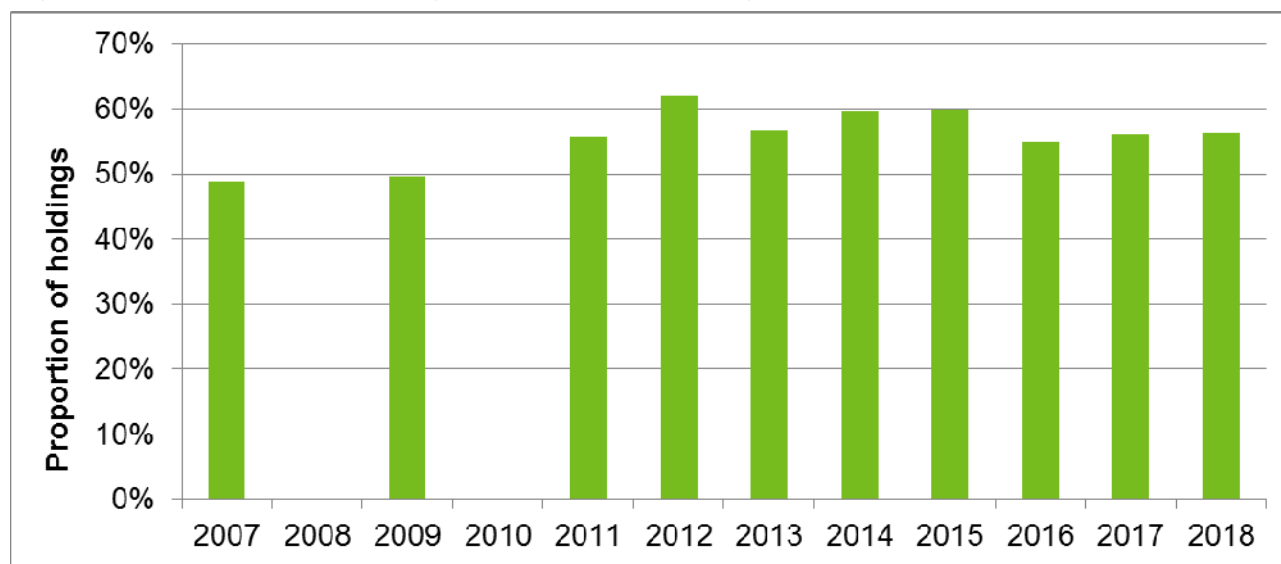
Section 1. Nutrient management

Effective nutrient management provides sufficient nutrients to meet the growth requirements of crops and grassland whilst managing environmental impacts; it can help minimise GHG emissions, reduce the incidence of diffuse water pollution and increase productivity by reducing input costs. Here we consider how farmers manage the application of fertilisers and manures, the use of nutrient management plans and how nutrient requirements are calculated and monitored.

Key findings

- In 2018, 56% of holdings had a nutrient management plan which has shown little change since 2016. These holdings accounted for 74% of the farmed area covered by this survey.
- The largest proportion of nutrient management plans were created by farmers themselves either with the help of a professional (43%) or without advice (24%). The remaining 33% were created by an adviser or contractor.
- In 2018, 69% of farmers have a programme of soil testing for nutrient indices and 73% for pH. Of these holdings almost all were testing at least some of their fields every five years.
- Some 63% of holdings have a manure management plan for their farm, similar to 62% in 2017
- 35% of farmers keep track of soil organic matter and 74% of farmers know the soil types for each field on their farm.

Figure 1.1: Proportion of holdings with a nutrient management plan: 2007 – 2018

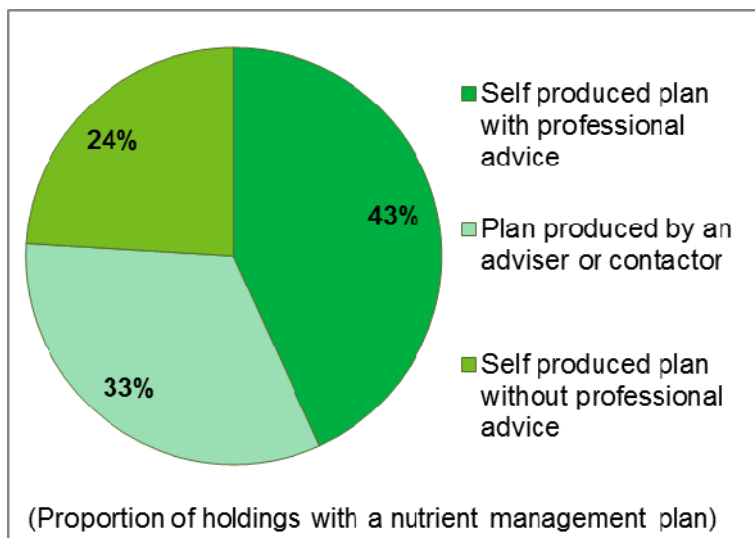


This question was not asked in 2008 and 2010, therefore results are not available for these years.

The proportion of farms with a nutrient management plan (NMP) was 56% in 2018, almost unchanged since 2016 (Figure 1.1). In 2018, those holdings with nutrient management plans accounted for 74% of the farmed area covered by this survey.

Around 12% of holdings (accounting for 6% of the farmed area) indicated that a NMP is not applicable. This figure varied by farm type with 29% of pig/poultry farms, 20% of lowland grazing livestock farms and 19% of LFA grazing livestock farms indicating that a NMP was not applicable compared to 6% of cereal farms, 4% of other general cropping farms and 2% of dairy farms.

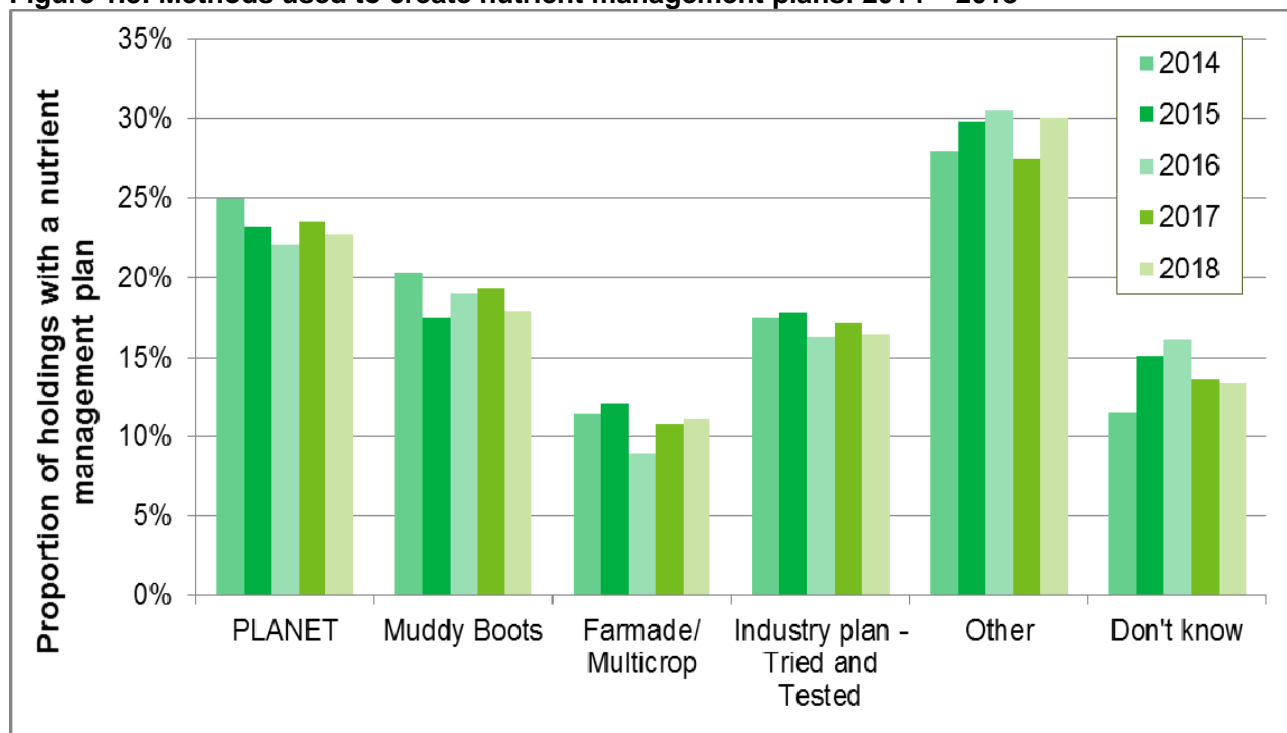
Figure 1.2: Preparation of nutrient management plans: 2018



In 2018, 24% of those with a nutrient management plan completed the plan on their own without advice, whilst a further 43% created it themselves with the help of an adviser (Figure 1.2). The remaining 33% had the plan produced by a contractor or adviser.

Of those that sought professional advice, the majority (87%) did so from fertiliser advisers or agronomists (Table 1.3). Most of those with a nutrient management plan update it every year (74%) and almost all (95%) refer to it at least once each year (Tables 1.4 and 1.5).

Figure 1.3: Methods used to create nutrient management plans: 2014 – 2018



PLANET, Muddy Boots, Farmade/Multicrop and Tried & Tested are methods for creating nutrient management plans. PLANET has remained the most popular of these four methods (Figure 1.3), although in each of the last five years the largest proportion of farmers (30% in 2018) 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).

The percentage of farmers undertaking some form of nutrient testing on soil has remained similar between 2009 and 2018. Results for the past three years can be found in table 1.8. Approximately 63% of farms have a manure management plan in 2018, showing little change over the past 4 years. The majority of farmers (89%) use nutrient recommendations for manure management plans from Defra recommendations (RB209, CoGAP).

Soil Monitoring looks at the use of soil organic matter and whether this is being recorded. Organic matter helps to retain nutrients and water in soil. Benefits include reduced compaction and surface crusting, plus improved water infiltration into the soil.

In 2018, 35% of farmers kept track of soil organic matter on their farm. Of those not keeping track 36% provided the main reason as not important enough to test for (Table 1.13 and 1.14).

Figure 1.4: Reasons preventing monitoring soil organic matter: 2017 - 2018

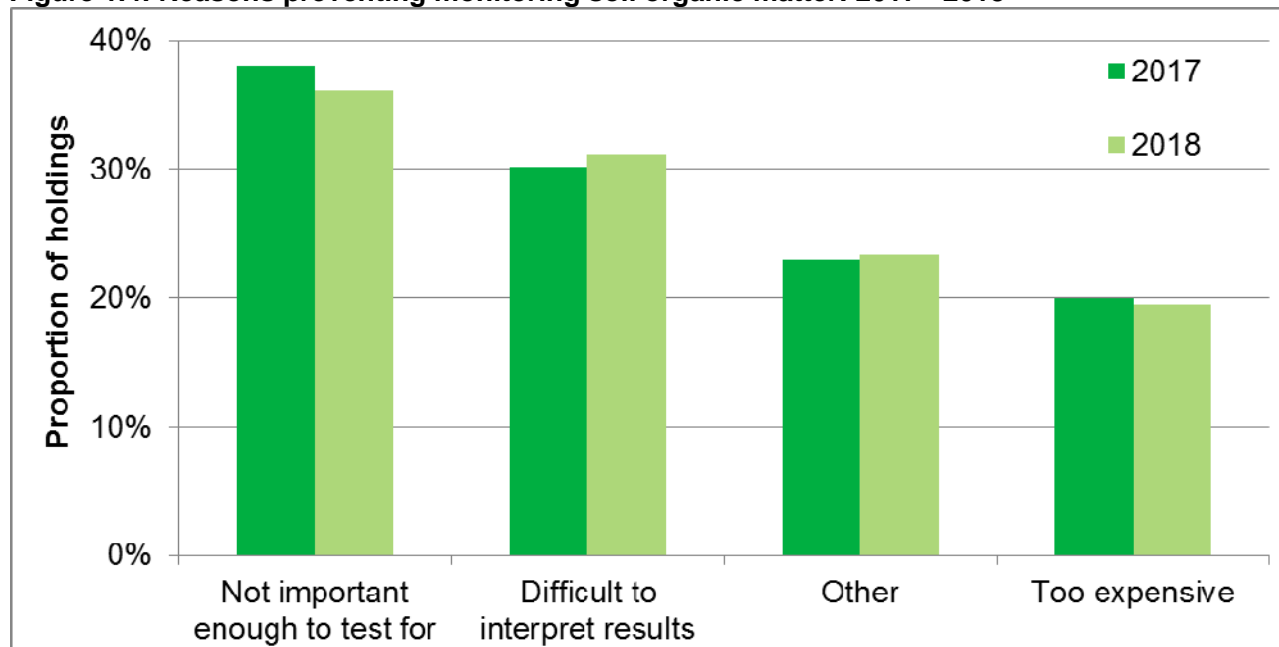


Table 1.1: Uptake of nutrient management plans: 2014 – 2018 (proportion of holdings and farmed area)

	2014		2015		2016		2017		2018	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI
% of holdings										
Yes	60	±2	60	±2	55	±2	56	±2	56	±2
No	32	±2	29	±2	32	±2	34	±2	32	±2
Not applicable	8	±1	11	±1	13	±2	10	±1	12	±2
% of farmed area										
Yes	74	±2	76	±2	72	±2	75	±2	74	±2
No	22	±2	19	±2	20	±2	21	±2	20	±2
Not applicable	4	±1	6	±1	8	±2	4	±1	6	±1

Based on 2 481 responses in 2014, 2 635 in 2015, 2 206 in 2016, 2 304 in 2017 and 2 412 in 2018 from holdings with a nutrient management plan.

Table 1.2: Use of advisers/professional advice to create nutrient management plans: 2015 – 2018 (proportion of farmers with nutrient management plans)

	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Self-produced plan without professional advice	25	±2	23	±2	24	±2	24	±2
Self-produced plan with professional advice	45	±3	46	±3	44	±3	43	±3
Plan produced by an adviser or contractor	30	±2	31	±3	32	±3	33	±3

Based on 1 782 responses in 2015, 1 432 in 2016, 1 486 in 2017 and 1 563 in 2018 from holdings with a nutrient management plan.

Table 1.3: Use of advisers and contractors for completion of nutrient management plans: 2018

Type of adviser	Those who sought an adviser's help to create the plan themselves ^(a)		Those whose plan was created by an adviser or contractor ^(b)	
	% of holdings	95% CI	% of holdings	95% CI
Fertiliser adviser / agronomist	87	±3	85	±3
Animal nutritionist	7	±2	3	±1
FWAG ^(c)	4	±2	3	±1
Other	7	±2	11	±3

(a) Based on 714 responses from those who created the nutrient management plan themselves with advice.

(b) Based on 503 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: 2015 – 2018

Frequency of update	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Every year	75	±2	77	±2	75	±2	74	±2
Every 2 years	11	±2	9	±2	12	±2	12	±2
Every 3 years or longer	14	±2	14	±2	13	±2	14	±2

Based on 1 780 responses in 2015, 1 430 in 2016, 1 485 in 2017 and 1 564 in 2018 from holdings with a nutrient management plan.

Table 1.5: Frequency with which the nutrient management plan is referred to in a year: 2015 – 2018

Frequency of use per year	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
More than 10 times	9	±1	8	±1	8	±1	8	±1
5 to 10 times	16	±2	16	±2	17	±2	20	±2
Less than 5 times	68	±2	70	±3	68	±3	67	±3
Never	6	±1	7	±2	7	±1	5	±1

Based on 1 778 in 2015, 1 428 in 2016, 1 485 in 2017 and 1 564 in 2018 from holdings with a nutrient management plan.

Table 1.6: Methods used to create nutrient management plans: 2015 – 2018

Method	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
PLANET	23	±2	22	±2	24	±2	23	±2
Muddy Boots	17	±2	19	±2	19	±2	18	±2
Farmade / Multicrop	12	±2	9	±1	11	±2	11	±2
Industry plan – ‘Tried and Tested’	18	±2	16	±2	17	±2	16	±2
Other	30	±2	31	±3	27	±2	30	±3
Don't know	15	±2	16	±2	14	±2	13	±2

Based on 1 775 responses in 2015, 1 421 in 2016, 1 485 in 2017 and 1 559 in 2018 from holdings with a nutrient management plan.

Table 1.7: Sources of nutrient recommendations for nutrient management plans: 2015 – 2018

Source	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Defra recommendations / manual (RB209)	68	±2	65	±3	65	±3	67	±3
An adviser's or industry note	36	±2	36	±3	35	±3	35	±3
Personal experience	40	±3	40	±3	41	±3	40	±3
Other	4	±1	3	±1	4	±1	3	±1
Don't know	3	±1	4	±1	4	±1	3	±1

Based on, 1 780 responses in 2015, 1 430 in 2016, 1 485 in 2017 and 1 563 in 2018 from holdings with a nutrient management plan.

Table 1.8: Nutrient testing of soil: 2016 – 2018

		2016		2017		2018	
		Proportion	95% CI	Proportion	95% CI	Proportion	95% CI
Testing the nutrient content (indices) of soil	% of holdings	69	±2	69	±2	69	±2
	% of farmed area	84	±2	83	±2	83	±2
Testing the pH of soil	% of holdings	74	±2	73	±2	73	±2
	% of farmed area	86	±2	86	±2	86	±2

Based on responses from holdings considering the questions applicable. Minimum numbers of responses used: 2 079 in 2016, 2 195 in 2017 and 2 280 in 2018.

Table 1.9: Nutrient testing of soil by proportion of fields: 2018

		All fields		Some fields		None of the fields	
		Proportion	95% CI	Proportion	95% CI	Proportion	95% CI
Testing the nutrient content (indices) of soil at least every 5 years	% of holdings	57	±2	42	±2	0.7	±0.5
	% of farmed area	63	±3	36	±3	0.7	±0.6
Testing the pH of soil at least every 5 years	% of holdings	57	±2	43	±2	0.4	±0.3
	% of farmed area	61	±3	39	±3	0.4	±0.4

Based on responses from holdings with a programme of soil testing for either nutrient indices or pH. Minimum numbers of responses used: 1 746 in 2018.

Table 1.10: Nutrient testing of manure: 2017 - 2018

Methods of testing/assessing/calculating nutrient content of manure	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Sampling and lab analysis	13	±1	13	±1
Sampling and on-farm testing	3	±1	4	±1
Based on published tables	33	±2	33	±2
No testing done	53	±2	51	±2

Based on 1 901 responses in 2017 and 1 934 in 2018 from holdings without a manure management plan.

Table 1.11: Uptake of manure management plans: 2015 – 2018

	2015		2016		2017		2018	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI
% of holdings	63	±2	62	±2	62	±2	63	±2
% of farmed area	76	±2	77	±3	78	±2	78	±2

Based on 2 299 responses in 2015, 1 871 in 2016, 2 032 in 2017 and 2 091 in 2018 from holdings for which the question was applicable.

Table 1.12: Source of nutrient recommendations for manure management plans: 2015 – 2018

	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Defra recommendations / manual (RB209), CoGAP	89	±2	91	±2	90	±2	89	±2
Other	14	±2	11	±2	11	±2	12	±2

Based on 1 622 responses in 2015, 1 320 in 2016, 1 445 in 2017 and 1 466 in 2018 from holdings with a manure management plan.

Table 1.13: Soil organic matter and awareness of soil types: 2017 - 2018

Methods of testing/assessing/calculating nutrient content of manure	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Holdings keeping track of soil organic matter	35	±3	35	±3
Holdings who know the soil type ^(a) for each field on the farm	73	±3	74	±3

Based on no less than 1 503 responses in 2017 and 1 582 in 2018.

(a) as described in Appendix 1 of Defra Recommendations/Manual (RB209)

Table 1.14: Reasons preventing farmers keeping track of soil organic matter: 2017 - 2018

Methods of testing/assessing/calculating nutrient content of manure	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Too expensive	20	±3	19	±3
Not important enough to test for	38	±3	36	±3
Difficult to interpret results	30	±3	31	±3
Other	23	±3	23	±3

Based on 1 045 responses in 2017 and 1 072 in 2018 from holdings that do not keep track of soil organic matter

Section 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 process allows more efficient capture and treatment of the nutrients and greenhouse gas emissions from animal slurries and manures than can be achieved by spreading directly onto land. 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 any waste or crop feedstocks in this way.

Key findings

- In 2018, 5.4% of farmers said they process waste by anaerobic digestion. This is almost unchanged from 2017.
- The proportion of farms processing waste by anaerobic digestion varied across farm types with 8.4% of Pig & Poultry farms doing so, followed by 8.1% of Other Crops farms.
- Crops were the most common material type being processed, with 3.6% of farmers choosing this option. Slurries were the next most popular option processed by 2.9% of farmers.

The majority of farms do not currently process slurries, crops or other feedstocks by anaerobic digestion, with just 5.4% of holdings doing so in 2018. However, prior to 2015, the number of farmers processing by anaerobic digestion had previously remained stable at approximately 1.5% or below (Table 2.1).

Table 2.1: Proportion of holdings processing waste by anaerobic digestion: 2014 – 2018

Waste type	% of holdings					95% CI
	2014	2015	2016	2017	2018	2018
Slurries	0.9	2.4	2.6	2.9	2.9	± 0.7
Crops	0.8	3.2	3.0	3.9	3.6	± 0.8
Other feedstocks from the holding	0.2	0.8	0.5	0.9	0.7	± 0.3
Other feedstocks from outside the holding	0.3	0.5	0.7	0.9	0.9	± 0.4
Any of the above	1.5	5.0	4.7	5.5	5.4	± 1.0

Based on 2 470 in 2014 from holdings who had heard of anaerobic digestion and, 2 641 in 2015, 2 235 in 2016, 2 311 in 2017 and 2 413 in 2018 from all holdings.

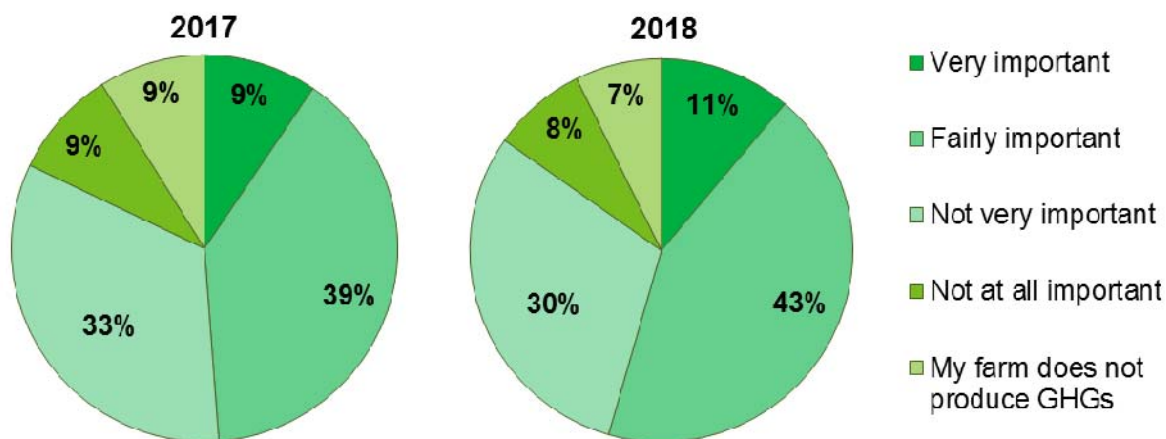
Section 3. Emissions

This section looks at the importance farmers place on greenhouse gas (GHG) emissions when making decisions about their farms. 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

- The number of farmers considering greenhouse gases (GHG) to be either fairly or very important when taking decisions about their land, crops and livestock increased to 54% of farms in 2018, compared to 49% in 2017.
- In 2018, 58% of farmers reported that they were currently taking action to reduce greenhouse gas emissions from their farm.
- The most common actions taken to reduce GHG emissions on farms were recycling of waste materials from the farm (87%), improving energy efficiency (75%) and improving nitrogen fertiliser application accuracy (69%).
- The most common motivation for taking any action was that it was considered to be good business practice to do so. This has been the case for the past six years.
- For those not taking action to reduce GHG emissions, the most common reasons given were that it was not necessary because the farm did not produce many emissions and a lack of information.

Figure 3.1: Importance placed on GHGs by farmers when taking decisions about their land, crops and livestock: 2017 – 2018 (proportion of holdings)

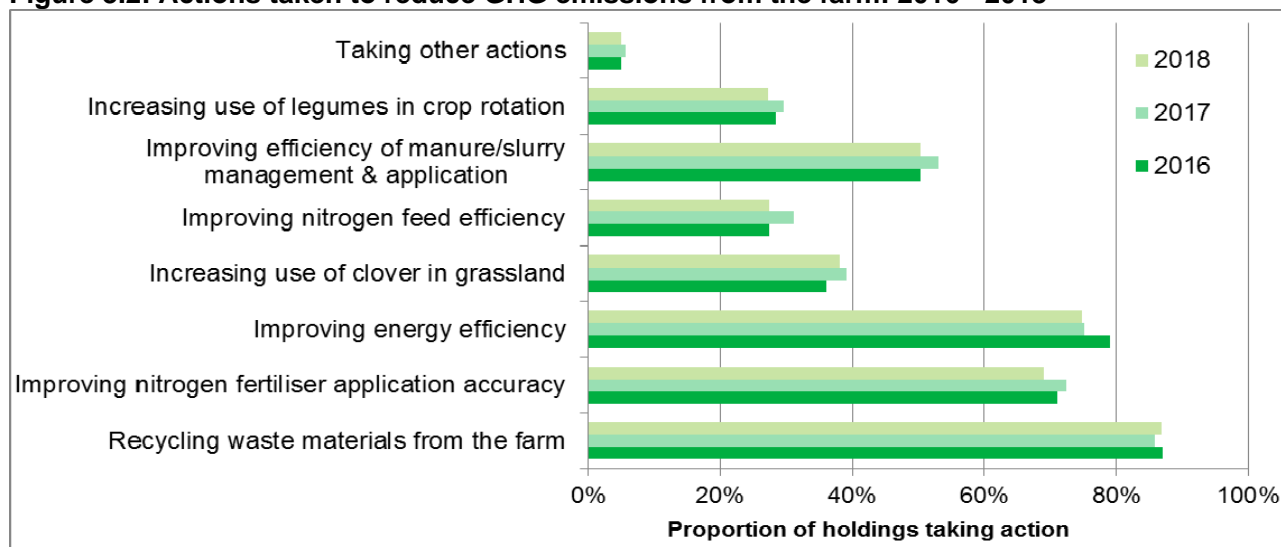


The number of farmers considering greenhouse gases to be either fairly or very important when taking decisions about their land, crops and livestock has increased to 54% of farms in 2018, compared to 49% in 2017 (Figure 3.1). There were 8% of farms where greenhouse gases were considered to be “not at all important” and another 7% that believed that their farm did not produce any GHGs.

In 2018, 58% 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 energy efficiency (75%) and improving nitrogen fertiliser application accuracy (69%). The largest change in actions seen between 2013

when these questions were first asked and 2018 was an increase in the number of farmers improving efficiency of their manure & slurry management and application. This has risen steadily from 28% of holdings in 2013 to 50% in 2018.

Figure 3.2: Actions taken to reduce GHG emissions from the farm: 2016 - 2018^(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 83% of holdings) followed by concern for the environment (selected by 68%) (Table 3.4).

Figure 3.3: Reasons preventing farmers taking action to reduce GHG emissions: 2018



(a) Unsure what to do - too many conflicting views on the issue

(b) Not necessary - don't believe farm produces many emissions

As might be expected, the reasons that prevent people from taking action to reduce GHG emissions vary depending on whether farmers were currently taking action or not (Figure 3.3). For those not currently taking action, the most commonly quoted reasons were that farmers did not think it was necessary to do so as the farm did not produce many emissions (44%) and a lack of information (37%). For those who were already taking action the most commonly quoted reason was that farmers had already done all they can (34%), followed by lack of information (30%) and expense (28%).

Table 3.1: Importance placed on GHGs by farmers when taking decisions about their land, crops and livestock: 2016 - 2018

	% of holdings			95% CI
	2016	2017	2018	2018
Very important	9	9	11	±1
Fairly important	39	39	43	±2
Not very important	33	33	30	±2
Not at all important	10	9	8	±1
Do not believe farm produces GHGs	9	9	7	±1

Based on responses from 2 203 holdings in 2016, 2 301 in 2017 and 2 395 in 2018.

Table 3.2: Belief that reducing GHG emissions from the farm will contribute to improving the overall profitability: 2016 - 2018

	% of holdings			95% CI
	2016	2017	2018	2018
Strongly agree	3	4	4	±1
Agree	38	37	44	±2
Disagree	51	51	45	±2
Strongly disagree	8	8	7	±1

Based on responses from 2 187 holdings in 2016, 2 299 in 2017 and 2 391 in 2018.

Table 3.3: Actions being taken to reduce GHG emissions from farms: 2016 - 2018

	% of holdings			95% CI
	2016	2017	2018	2018
Taking action ^(a)	57	56	58	±2
<i>Of those taking action, the actions were^(b):</i>				
Recycling of waste materials from the farm (e.g. tyres, plastics)	87	86	87	±2
Improving nitrogen fertiliser application accuracy	71	72	69	±3
Improving energy efficiency (e.g. reducing electricity use, using reduced tillage)	79	75	75	±3
Increasing use of clover in grassland	36	39	38	±3
Improving nitrogen feed efficiency, livestock diets	27	31	27	±2
Improving efficiency in manure and slurry management and application	50	53	50	±3
Increasing use of legumes in arable rotation	28	30	27	±2
Other actions	5	6	5	±1

(a) Based on responses from 2 198 holdings in 2016, 2 273 in 2017 and 2 364 in 2018.

(b) Based on responses from 1 405 holdings in 2016, 1 389 in 2017 and 1 485 in 2018 who are taking action to reduce GHG emissions.

Table 3.4: Main motivations for those taking action to reduce GHG emissions: 2016 - 2018

Motivations	% of holdings			95% CI
	2016	2017	2018	2018
Consider it good business practice	85	84	83	±2
Concern for the environment	63	64	68	±3
To improve profitability	55	52	53	±3
Regulation	45	41	44	±3
To meet market demands	19	20	20	±2
Other motivation	2	3	3	±1

Based on 1 397 responses in 2016, 1 388 in 2017 and 1 485 in 2018 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: 2017 - 2018

	For those not taking action ^(a)			For those already taking action ^(b)			For all holdings ^(c)		
	% of holdings			% of holdings			% of holdings		
	2017	2018	95% CI	2017	2018	95% CI	2017	2018	95% CI
Lack of information	34	37	±3	29	30	±3	32	34	±2
Too expensive	14	12	±2	30	28	±3	22	20	±2
Lack of incentive	21	25	±3	27	25	±3	24	25	±2
Already done all they can	10	13	±2	34	34	±3	21	23	±2
Don't believe farmers can do much	17	18	±3	6	8	±2	12	13	±2
Not necessary – don't believe farm produces many emissions	47	44	±4	15	13	±2	31	28	±2
Unsure what to do - too many conflicting views on the issue	33	31	±3	27	25	±3	30	28	±2
Other reasons	5	6	±2	6	6	±2	6	6	±1

(a) Based on responses from 867 holdings in 2017 and 862 holdings in 2018 who are not taking action to reduce GHG emissions.

(b) Based on responses from 907 holdings in 2017 and 980 holdings in 2018 who are currently taking action to reduce GHG emissions.

(c) Based on responses from 1 786 holdings in 2017 and 1 849 holdings in 2018 regardless of whether or not they are taking action to reduce GHG emissions.

Section 4. Fertiliser, manure and slurry spreaders

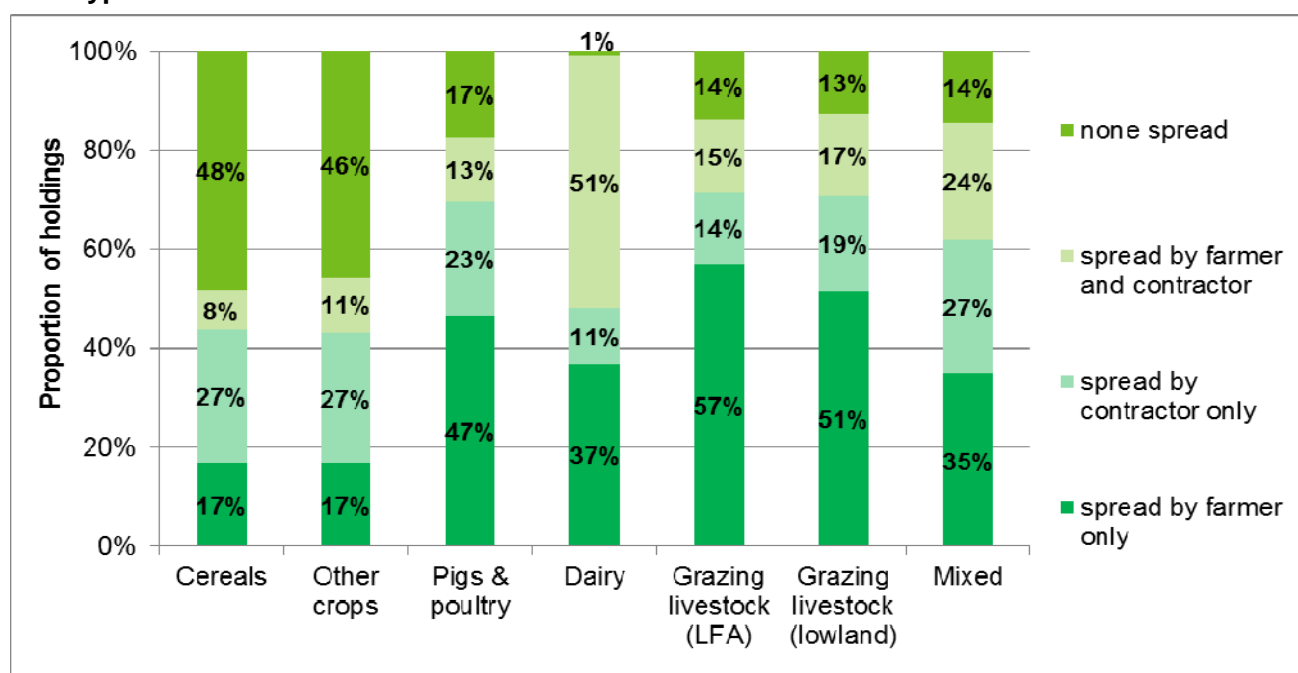
Calibrating fertiliser, manure and slurry spreaders can help to improve input efficiency and reduce GHG emissions. This section focuses specifically on farmers who spread manure, slurry and fertiliser.

More details on nitrogen fertiliser spreading practices are available in the British Survey of Fertiliser Practice at: <https://www.gov.uk/government/collections/fertiliser-usage>.

Key findings

- Three quarters of holdings (75%) spread manure or slurry on their grass or arable land in 2018 and 85% spread fertilisers.
- On 55% of holdings where the farmer spreads at least some 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: 2018



In 2018, 75% of holdings spread manure or slurry on their grass and arable land. As might be expected there was considerable variation between farm types. Almost all dairy farms spread manures or slurries and these farms are more likely to use contractors to spread at least some of the manure and slurry than other farm types. The majority (57%) of LFA grazing livestock farmers spread manure/slurry themselves only (Figure 4.1).

Fertiliser was spread either by the farmer or a contractor on 96% of cereal farms, 95% of other cropping farms and 92% of dairy farms. On all three of these farm types the largest proportion of holdings said the fertiliser was spread solely by the farmer, however cereal and other cropping farms were more likely to use a contractor than dairy farms (Figure 4.2).

Figure 4.2: Proportion of holdings spreading fertiliser on grassland and arable land by farm type: 2018

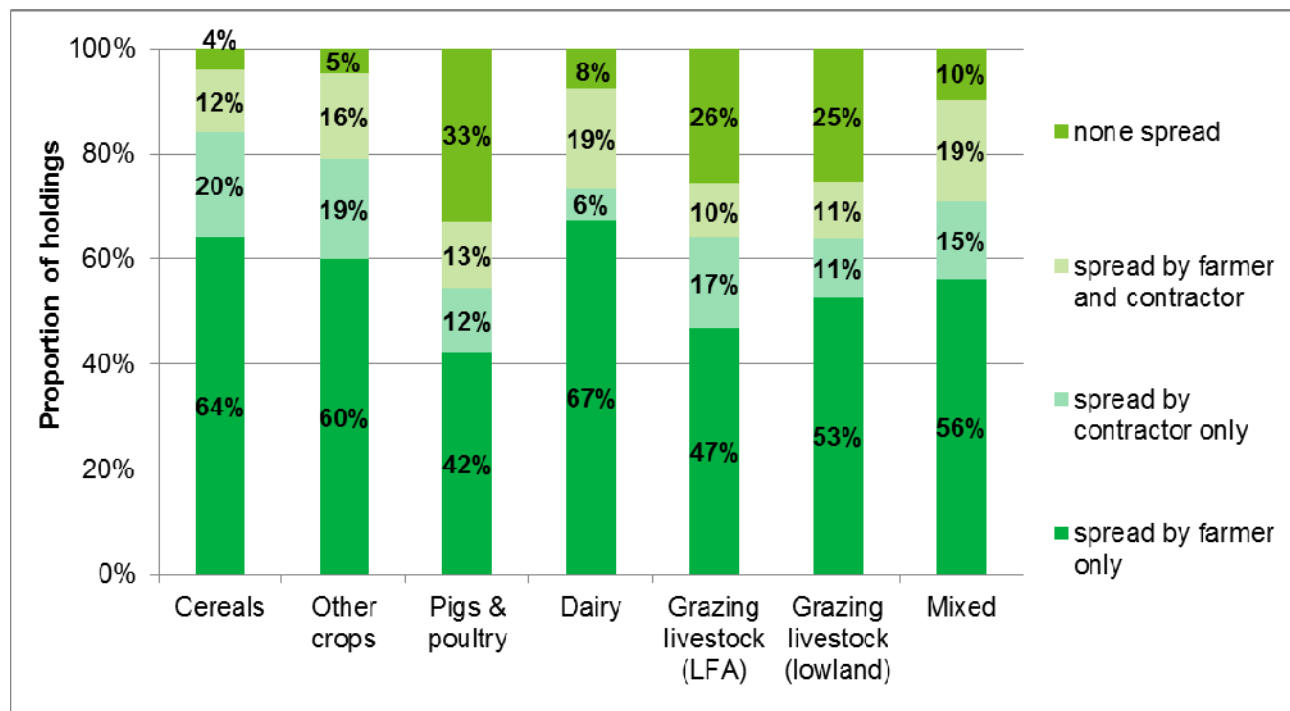


Table 4.1: Spreading of manure and slurry on grassland or arable land: 2016 - 2018

	2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Spread by farmer only	39	±3	38	±2	37	±2
Spread by farmer and also contractor	16	±2	17	±1	17	±2
Spread by contractor only	21	±2	20	±2	22	±2
None spread	24	±2	24	±2	25	±2

Based on 1 911 responses in 2016, 2 025 in 2017 and 2 113 in 2018

Table 4.2: Spreading of fertiliser on grassland or arable land: 2016 - 2018

	2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Spread by farmer only	58	±2	59	±2	57	±2
Spread by farmer and also contractor	11	±1	11	±1	13	±2
Spread by contractor only	16	±2	14	±2	15	±2
None spread	15	±2	15	±2	15	±2

Based on 1 951 response in 2016, 2 029 in 2017 and 2 121 in 2018.

Table 4.3: Frequency with which farmers calibrate their manure or slurry spreader(s): 2016 - 2018

Frequency of check	2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Never	46	±3	54	±3	55	±3
Whenever there is significant change in manure or slurry characteristics	18	±3	17	±2	16	±2
Whenever manure or slurry is tested	1	±1	1	±1	1	±1
Every year	21	±3	18	±2	18	±3
Less often than every year	9	±2	7	±2	7	±2
Other frequency	6	±2	3	±1	3	±1

Based on 938 responses in 2016, 1 002 in 2017 and 980 in 2018 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.

Section 5. Manure and slurry storage

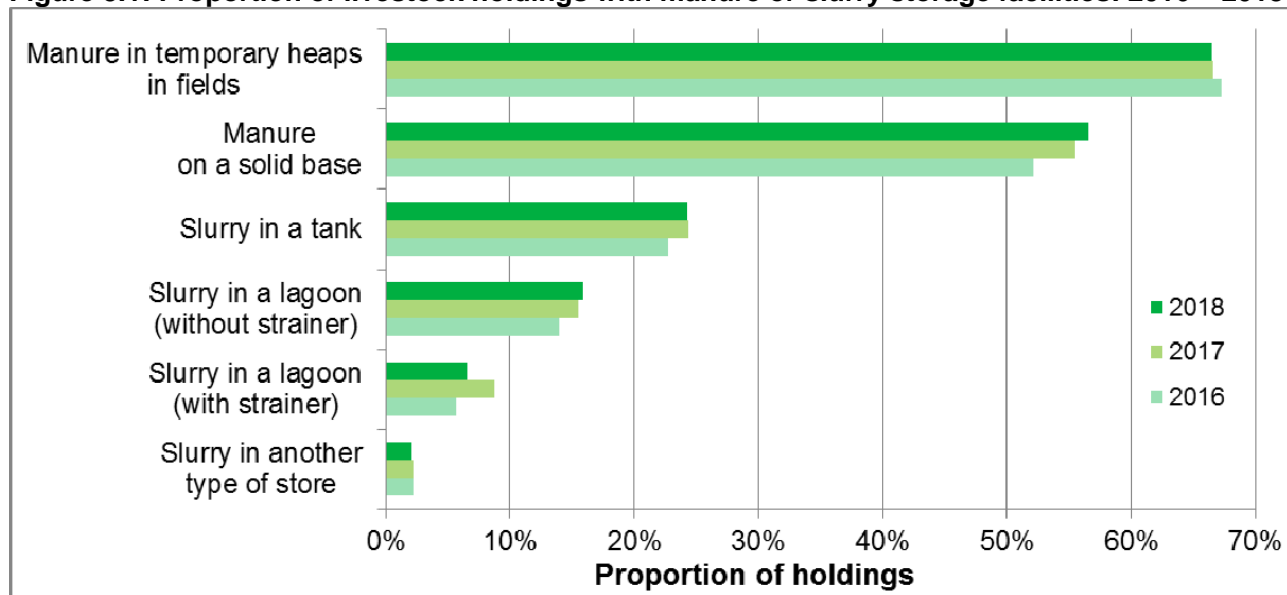
The system of manure and slurry management is relevant to the control of environmental risks to water and air. It prevents the loss of ammonia to the air, at the same time retaining the nitrogen for use as an organic fertiliser, reducing the need for manufactured nitrogen fertiliser inputs.

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 the suspended solids from slurry allows the two manure streams to be handled separately. The solid fraction can be stored on a concrete pad or in a field heap, while the liquid fraction can be stored and transported/pumped to fields for land application. Separation can reduce storage space and improve the efficiency with which nitrogen is applied to land which has the potential to reduce emissions.

Key findings

- Temporary heaps remains the most common form of storage for solid manure, with approximately two thirds (67%) of the farmers having this kind of store.
- Almost a quarter of farmers (24%) store their slurry in a tank, whilst 16% store slurry in lagoons without a strainer.
- In 2018, 16% of livestock farmers with storage facilities intend to enlarge or upgrade their manure or slurry storage compared to 13% in 2017.

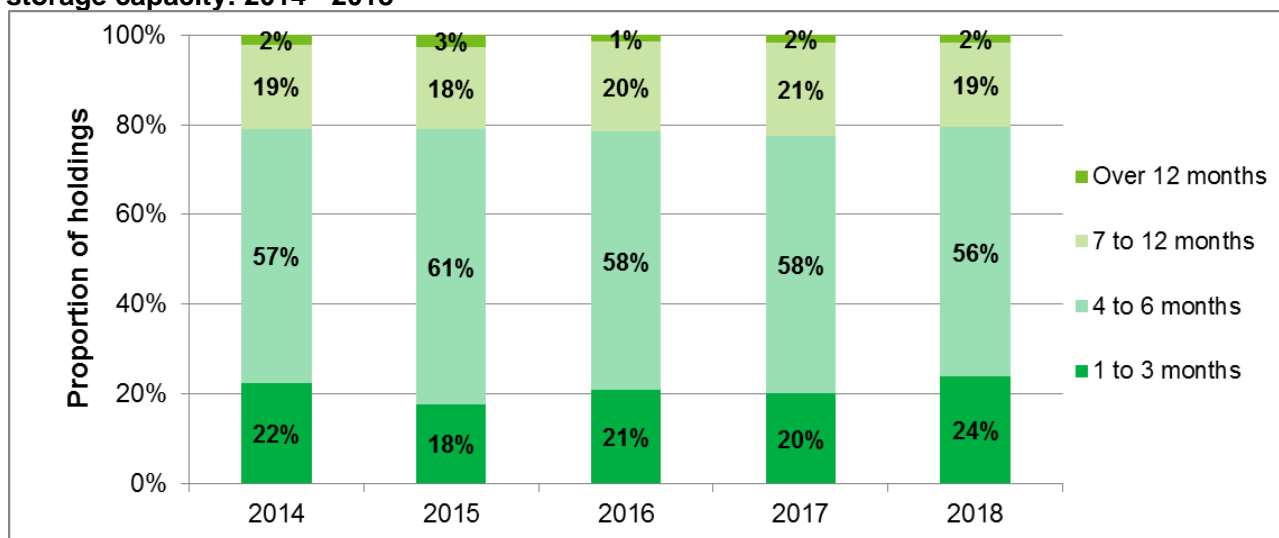
Figure 5.1: Proportion of livestock holdings with manure or slurry storage facilities: 2016 – 2018



The most common storage facility for solid manure continues to be temporary heaps in fields. The most common facilities for slurry storage are tanks (24% of farms) followed by lagoons without a strainer (16%). Slurry in a tank is far more likely to have a cover than any other type of store (Table 5.2).

In 2018, 16% of livestock farmers planned to make changes to their manure or slurry storage facilities. Of these, 28% planned to make the changes within the next year and a further 47% in the next 1 to 3 years (Table 5.3).

Figure 5.2: Proportion of holdings with storage facilities for slurry by number of months of storage capacity: 2014 - 2018



The proportion of holdings that have 6 months storage capacity or less for slurry remains almost unchanged at 79%. 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 5.2 and Table 5.4).

Table 5.1: Proportion of holdings with storage facilities for manure and/or slurry: 2015 – 2018 storage

Storage facility	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Solid manure stored in heaps on a solid base	58	±3	52	±3	56	±3	57	±3
Solid manure stored in temporary heaps in fields	68	±2	67	±3	67	±3	67	±3
Slurry in a tank	24	±2	23	±3	24	±3	24	±3
Slurry in a lagoon without strainer	15	±2	14	±2	16	±2	16	±2
Storage with strainer facility	7	±1	6	±1	9	±2	7	±1
Slurry in another type of store	2	±1	2	±1	2	±1	2	±1

Based on no fewer than 1 679 responses in 2015, 1 450 in 2016, 1 430 in 2017 and 1 459 in 2018 from livestock holdings.

Table 5.2: Proportion of holdings having storage facilities for manure and/or slurry where the store is covered: 2015 - 2018

Storage facility	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Solid manure stored in heaps on a solid base	15	±3	17	±3	17	±3	16	±3
Solid manure stored in temporary heaps in fields	1	±1	1	±1	1	±1	1	±0
Slurry in a tank	28	±5	27	±6	25	±6	28	±6
Slurry in a lagoon without strainer	2	±2	3	±2	4	±2	5	±3
Storage with strainer facility	3	±3	8	±6	2	±2	3	±3
Slurry in another type of store	1	±1	4	±4	1	±1	4	±4

Based on no fewer than 116 responses in 2015, 82 in 2016, 125 in 2017 and 100 in 2018 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: 2015 - 2018

	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings planning to make changes to their current facilities ^(a)	13	±2	11	±2	13	±2	16	±2
<i>Of those planning to make changes, the changes will be made: ^(b)</i>								
In 0 to 6 months	13	±5	10	±5	10	±4	11	±4
In 7 to 11 months	14	±5	13	±5	9	±4	17	±5
In 1 to less than 3 years	49	±7	48	±8	50	±7	47	±7
In 3 to less than 5 years	14	±5	16	±6	18	±6	14	±5
In 5 years or more	10	±4	12	±5	13	±5	11	±4

(a) Based on 1 678 responses in 2015, 1 446 in 2016, 1 431 in 2017 and 1 423 in 2018 from livestock holdings that have manure or slurry storage facilities.

(b) Based on 233 responses in 2015, 168 in 2016, 202 in 2017 and 235 in 2018 from livestock holdings that are planning to make changes.

Table 5.4: Proportion of holdings with slurry stores by storage capacity: 2015 - 2018

Storage capacity	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 3 months	18	±3	21	±4	20	±3	24	±4
4 to 6 months	61	±4	58	±4	58	±4	56	±4
7 to 12 months	18	±3	20	±4	21	±4	19	±3
Over 12 months	3	±1	1	±1	2	±1	2	±1

Based on 673 responses in 2015, 523 in 2016, 576 in 2017 and 569 in 2018 from livestock holdings that have slurry storage facilities.

Table 5.5: Proportion of holdings that have a slurry separator: 2015 - 2018

	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Holdings who have a slurry separator	8	±2	8	±2	8	±2	7	±2

Based on 685 responses in 2015, 552 in 2016, 577 in 2017 and 578 in 2018 from livestock holdings.

Section 6. Farm health planning and biosecurity

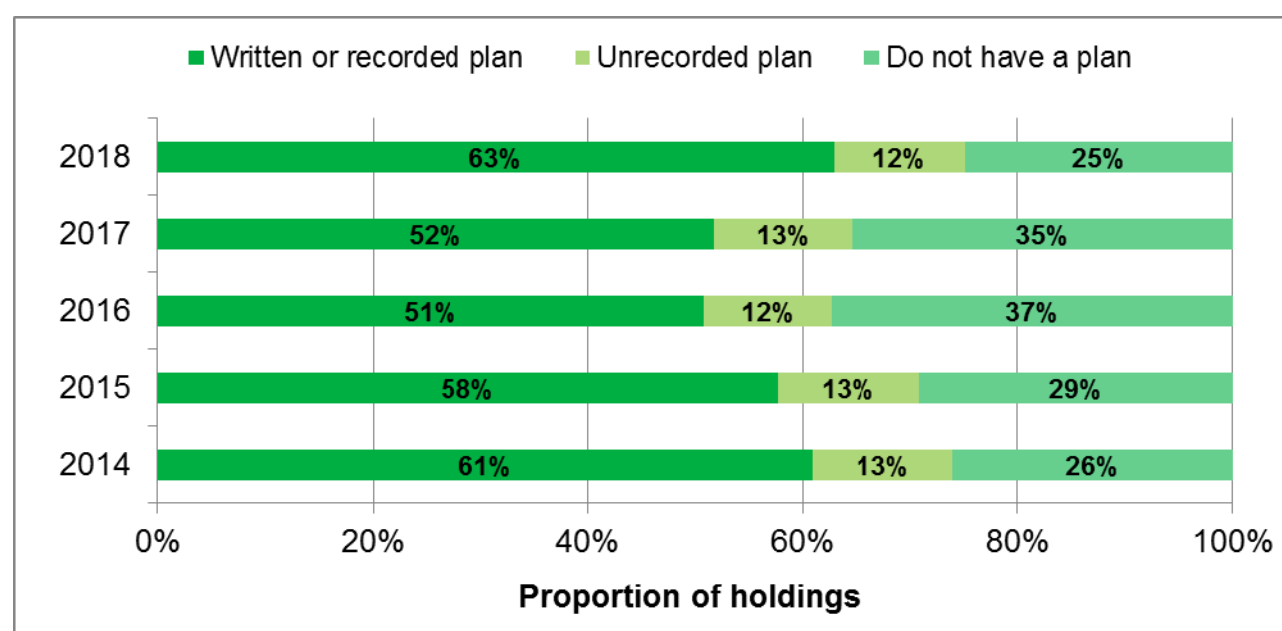
Farm health planning is a Defra initiative which benefits farmers by helping to prevent disease and improve the performance of their livestock. This can help to reduce GHG emissions over the course of an animal's lifetime by, for example, reaching finishing weights earlier and achieving higher feed conversion rates. Farm health planning 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

- The number of livestock farmers with a Farm Health Plan increased to 75% in 2018, compared with 65% in 2017.
- In 2018, just under half (48%) of farmers with a FHP used it on a routine basis to inform disease management decisions.
- The number of FHPs completed with the help of a vet or adviser has increased steadily from 60% in 2009 to 79% in 2018.

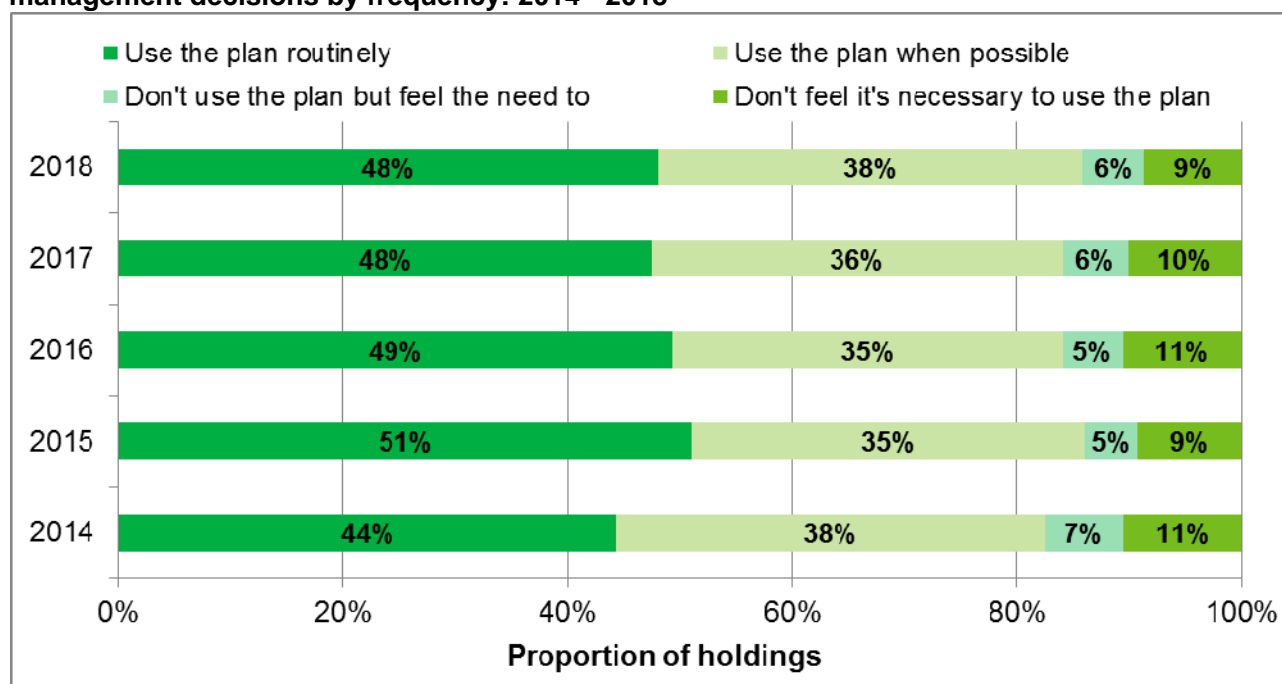
In 2018, 75% of livestock farms had a Farm Health Plan. This is an increase when compared with 65% in 2017. The majority of livestock farmers have a written or recorded plan and this is where the increase was seen, rising from 52% in 2017 to 63% in 2018. Livestock farmers with a plan that was not recorded (12%) saw little change in 2018 (Figure 6.1). Of those holdings with a FHP in 2018, 79% had created the plan with assistance from a vet or adviser (Table 6.2). The proportion using a vet or adviser has risen steadily from 60% in 2009 when we first asked the question.

Figure 6.1: Proportion of livestock holdings with a farm health plan: 2014 – 2018



Of those with a Farm Health Plan in 2018, 86% were using it either routinely or when they could to inform disease management decisions and a further 6% felt that they should be doing so. The remaining 9% did not feel it was necessary to use the plan (Figure 6.2).

Figure 6.2: Proportion of livestock holdings using their farm health plan to inform disease management decisions by frequency: 2014 - 2018



The number of livestock farmers who undertake training for animal health and welfare and disease management either routinely or when they can rose to 58% in 2018, compared with 48% in 2017. A further 14% said that although they did not undertake training they felt that they should and the remaining 29% did not feel training was necessary (Table 6.4).

Table 6.1: Proportion of livestock holdings with a farm health plan: 2014 - 2018

	% of holdings					95% CI
	2014	2015	2016	2017	2018	2018
Written or recorded plan	61	58	51	52	63	±2
Unrecorded plan	13	13	12	13	12	±2
No plan	26	29	37	35	25	±2

Based on 1 942 responses in 2014, 2 152 in 2015, 1 905 in 2016, 1 934 in 2017 and 1 775 in 2018 from livestock holdings.

Table 6.2: Proportion of holdings who completed their farm health plan with the assistance of a vet or adviser: 2014 – 2018

	% of holdings					95% CI
	2014	2015	2016	2017	2018	2018
Assistance from vet / adviser	70	72	74	75	79	±2

Based on 1 548 responses in 2014, 1 631 in 2015, 1 295 in 2016, 1 353 in 2017 and 1 374 in 2018 from holdings with livestock.

Table 6.3: Proportion of holdings using their farm health plan to inform disease management decisions by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Use plan routinely	51	±3	49	±3	48	±3	48	±3
Use plan when possible	35	±3	35	±3	36	±3	38	±3
Don't use plan but feel the need to	5	±1	5	±1	6	±1	6	±1
Don't feel it's necessary to use plan	9	±2	11	±2	10	±2	9	±2

Based on 1 632 responses in 2015, 1 305 in 2016, 1 353 in 2017 and 1 391 in 2018 from livestock holdings with a farm health plan.

Table 6.4: Proportion of holdings undertaking animal health and welfare and disease management training by frequency of training: 2015 - 2018

Frequency of training	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Undertake training routinely	18	±2	13	±2	15	±2	17	±2
Undertake training when possible	37	±2	33	±2	33	±2	40	±3
Don't undertake training but feel the need to	10	±1	12	±2	14	±2	14	±2
Don't feel training is necessary	35	±2	41	±2	38	±2	29	±2

Based on 2 142 responses in 2015, 1 867 in 2016, 1 929 in 2017 and 1 723 in 2018 from livestock holdings.

Section 7. Grassland and grazing

In some situations sowing temporary grassland with a clover mix or high sugar grasses can be a cost effective method of increasing production and improving environmental protection. For example, clover's nitrogen fixing properties (although not suitable for all soil types) can reduce the amount of nitrogen applied and improve grassland yields. High sugar grasses can help to improve the efficiency of animal production (for example, improved milk yields and faster live weight gain) which can in turn reduce GHG emissions.

Land and soil management mitigation methods can help to preserve good soil structure preventing erosion and compaction, both of which can lead to GHG emissions. Mitigation methods relating to this include keeping livestock away from water courses and reducing stocking rates when conditions are excessively wet.

Key findings

- In 2018, 74% of livestock holdings indicated that a proportion of their temporary grassland had been sown with a clover mix: 29% had sown all of their temporary grassland with a clover mix. This is unchanged since 2015.
- High sugar grasses were sown on 62% of livestock holdings with temporary grassland.
- The most common frequency for reseeding clover or high sugar grass swards in 2018 was 3 to 5 years.
- Approximately 70% of livestock farmers always take action to reduce stocking rates when fields are excessively wet.
- 63% of livestock farmers routinely try to keep livestock out of water courses.

Table 7.1: Proportion of livestock holdings that have sown their temporary grassland with a clover mix by proportion of grassland: 2015 - 2018

Proportion of temporary grassland (%)	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
100	29	±3	29	±3	29	±3	29	±3
81-99	5	±1	4	±2	6	±2	6	±2
61-80	7	±2	7	±2	5	±2	5	±2
41-60	8	±2	8	±2	8	±2	8	±2
21-40	8	±2	8	±2	8	±2	9	±2
1-20	16	±2	18	±3	14	±2	16	±3
0	26	±3	26	±3	30	±3	26	±3

Based on 1 106 responses in 2015, 813 in 2016, 928 in 2017 and 871 in 2018 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: 2015 - 2018

Proportion of temporary grassland (%)	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
100	20	±3	17	±3	21	±3	18	±3
81-99	5	±1	4	±1	5	±1	4	±1
61-80	8	±2	7	±2	7	±2	8	±2
41-60	9	±2	8	±2	9	±2	11	±2
21-40	9	±2	9	±2	8	±2	10	±2
1-20	11	±2	11	±2	12	±2	12	±2
0	38	±3	43	±4	39	±3	38	±4

Based on 1 106 responses in 2015, 810 in 2016, 928 in 2017 and 872 in 2018 from livestock holdings with temporary grass.

Table 7.3: Proportion of holdings by the frequency with which holders reseed their clover sward: 2015 – 2018

Frequency of reseeded	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 12 months	1	±1	2	±1	1	±1	1	±1
1 to 2 years	4	±1	4	±2	4	±1	5	±2
2 to 3 years	8	±2	6	±2	8	±2	11	±3
3 to 5 years	32	±4	31	±4	28	±4	34	±4
5 to 10 years	24	±3	20	±4	24	±4	22	±4
10 years and over	1	±1	2	±1	2	±1	1	±1
Never/Do not reseed	29	±3	35	±4	32	±4	26	±4

Based on 801 responses in 2015, 560 in 2016, 641 in 2017 and 607 in 2018 from livestock holdings with temporary grass.

Table 7.4: Proportion of holdings by the frequency with which holders reseed their high sugar grass sward: 2015 – 2018

Frequency of reseeded	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
1 to 12 months	1	±1	2	±1	2	±1	1	±1
1 to 2 years	5	±2	5	±2	3	±1	6	±2
2 to 3 years	9	±2	13	±3	14	±3	15	±3
3 to 5 years	34	±4	36	±5	29	±4	33	±4
5 to 10 years	23	±3	24	±4	25	±4	24	±4
10 years and over	2	±1	2	±2	2	±1	1	±1
Never/ Do not reseed	26	±4	17	±4	25	±4	20	±4

Based on 694 responses in 2015, 428 in 2016, 574 in 2017 and 539 in 2018 from livestock holdings with temporary grass.

Table 7.5: Frequency with which livestock holdings take action to reduce stocking rates when fields are excessively wet: 2017 - 2018

Frequency	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Always	70	±2	70	±3
Some of the time	27	±2	28	±3
Never	3	±1	2	±1

Based on 1 656 responses in 2017 and 1 581 in 2018 from holdings with livestock.

Table 7.6: Frequency with which livestock holdings take action to keep livestock out of water courses: 2017 - 2018

Frequency	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Routinely	63	±3	63	±3
Some of the time	27	±2	28	±3
Never	10	±2	9	±2

Based on 1 495 responses in 2017 and 1 441 in 2018 from holdings with livestock.

Section 8. Livestock feeding regimes and breeding practices

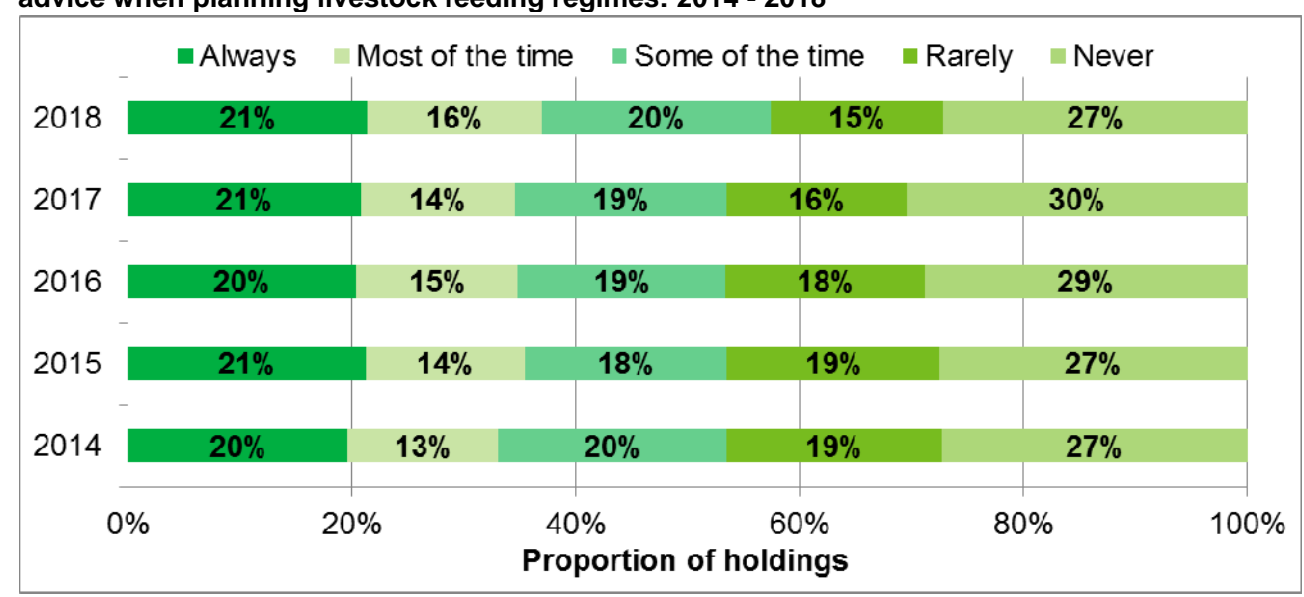
Cattle and sheep breeding practices are another area which can contribute to herd and flock productivity and efficiency which in turn can reduce GHG emissions. A Profitable Lifetime Index (PLI) is a scoring system to identify cattle with the best 'genetic merit' used when choosing bulls to breed with dairy cattle. The PLI uses a combination of attributes including life expectancy, health, fertility and milk production. Estimated Breeding Values (EBV) estimate the genetic worth of animals using desirable traits such as meat production. In addition to playing an important role in productivity and efficiency, livestock feeding practices such as intake and type of feed, can have an impact on GHG emissions.

Key findings

- In 2018, 73% of livestock holdings used a ration formulation programme or nutritional advice. This has increased slightly from 70% in 2017.
- Whole-crop silage and maize were the most common alternative forages (other than grazed or conserved grass) offered to cattle and sheep by 13% and 11% of farmers respectively.
- In 2018, 26% 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 21% of holdings breeding beef cattle and 11% of those breeding lambs in 2018.

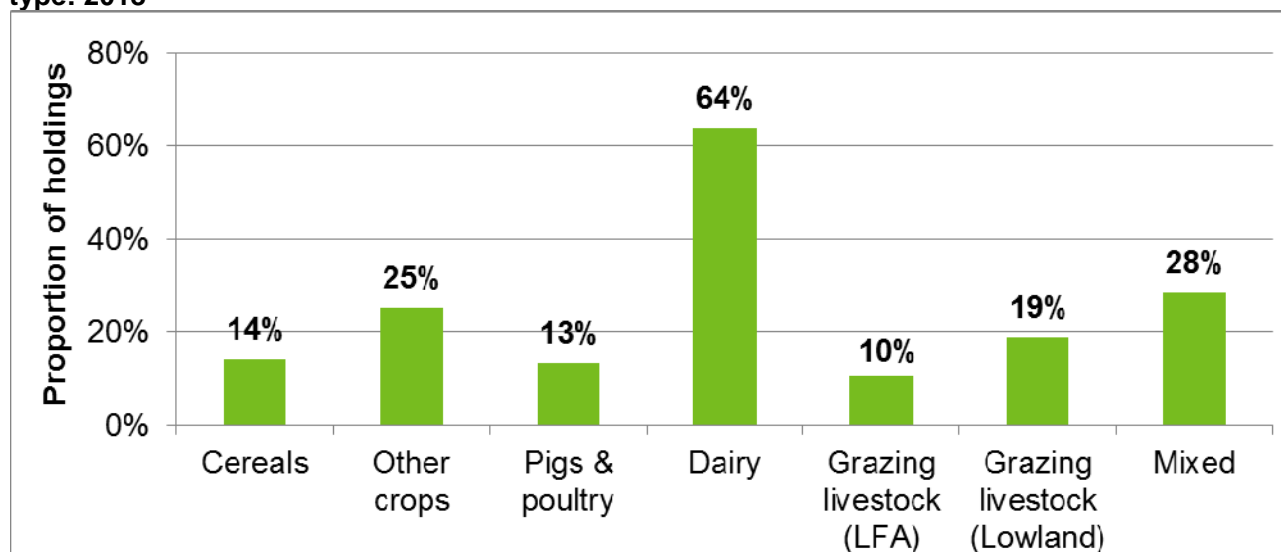
In 2018 over half (57%) of livestock holdings used a ration formulation programme or expert nutritional advice when planning the feeding regime of their cattle and sheep at least some of the time and a further 15% do so rarely (Figure 8.1).

Figure 8.1: Proportion of holdings using a ration formulation program or expert nutritional advice when planning livestock feeding regimes: 2014 - 2018



A quarter (25%) of farmers offered alternative forages (other than grazed or conserved grass) to their cattle and sheep in 2018. As might be expected this figure varies depending on farm type and dairy farmers are most likely to offer their livestock alternative forages (Figure 8.2).

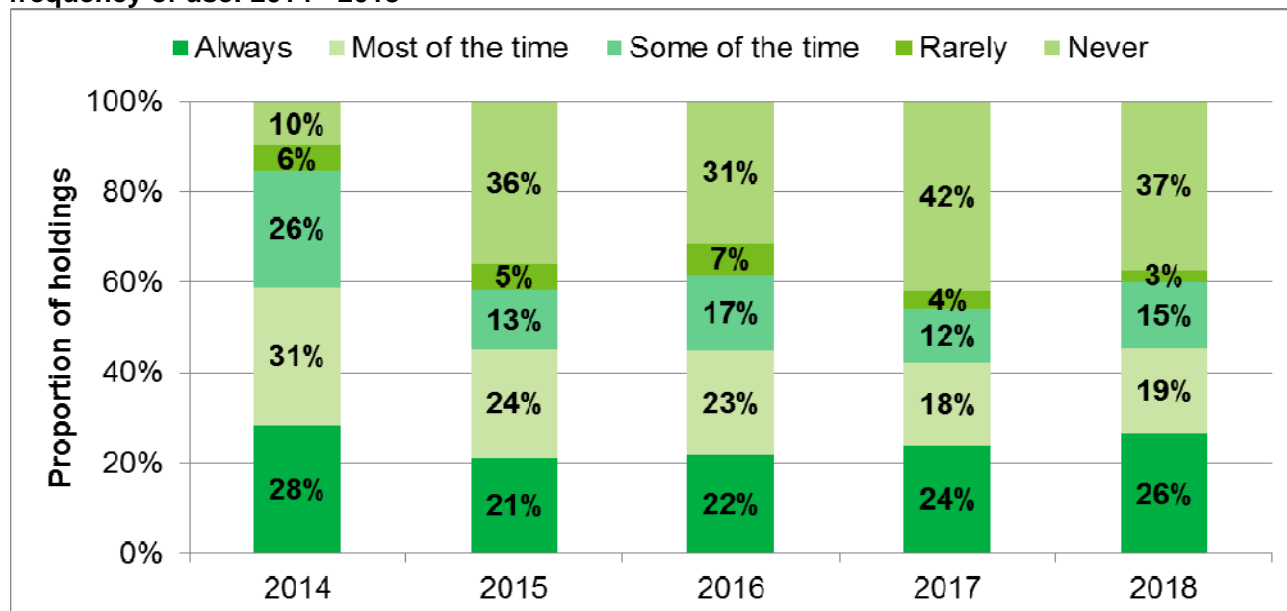
Figure 8.2: Proportion of holdings offering alternative forage crops to cattle and sheep by farm type: 2018^(a)



(a) For holdings with cattle and/or sheep

The most common of these forage crops were whole-crop silage and maize which were offered by 13% and 11% of farmers respectively.

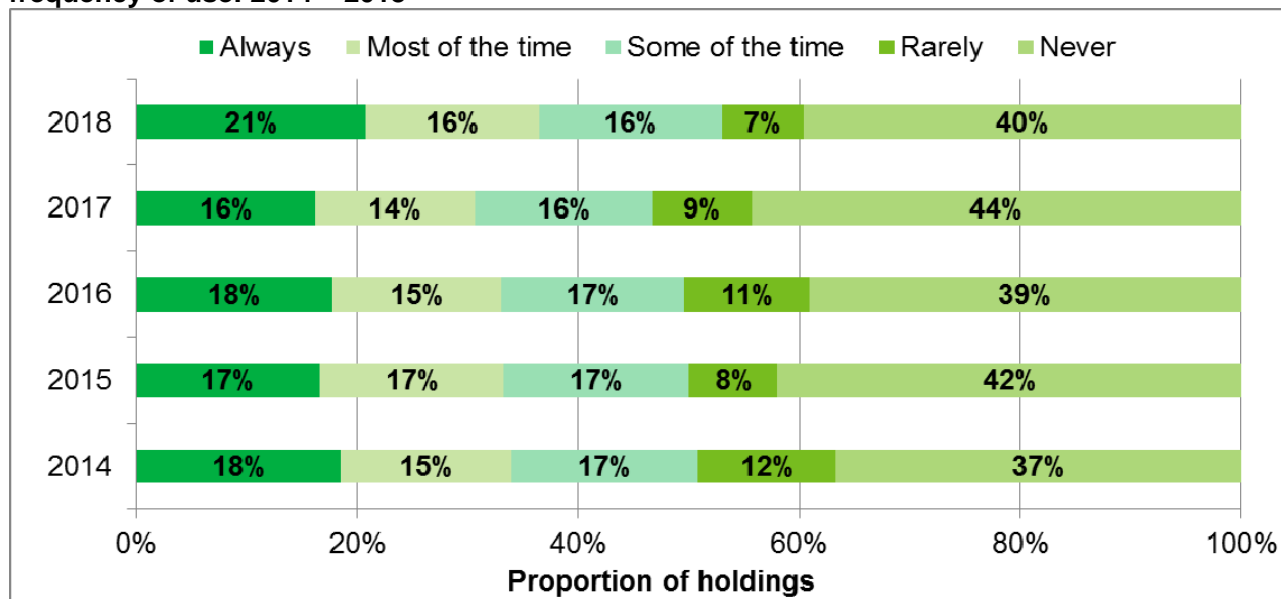
Figure 8.3: Proportion of holdings using bulls with a high PLI when breeding dairy cows by frequency of use: 2014 - 2018^(a)



(a) For holdings with dairy cattle

In 2018, 26% of livestock holdings always used bulls with a high Profitable Lifetime Index (PLI) when breeding dairy cows. This is similar to previous years and shows little change from 2011 when the questions were first asked.

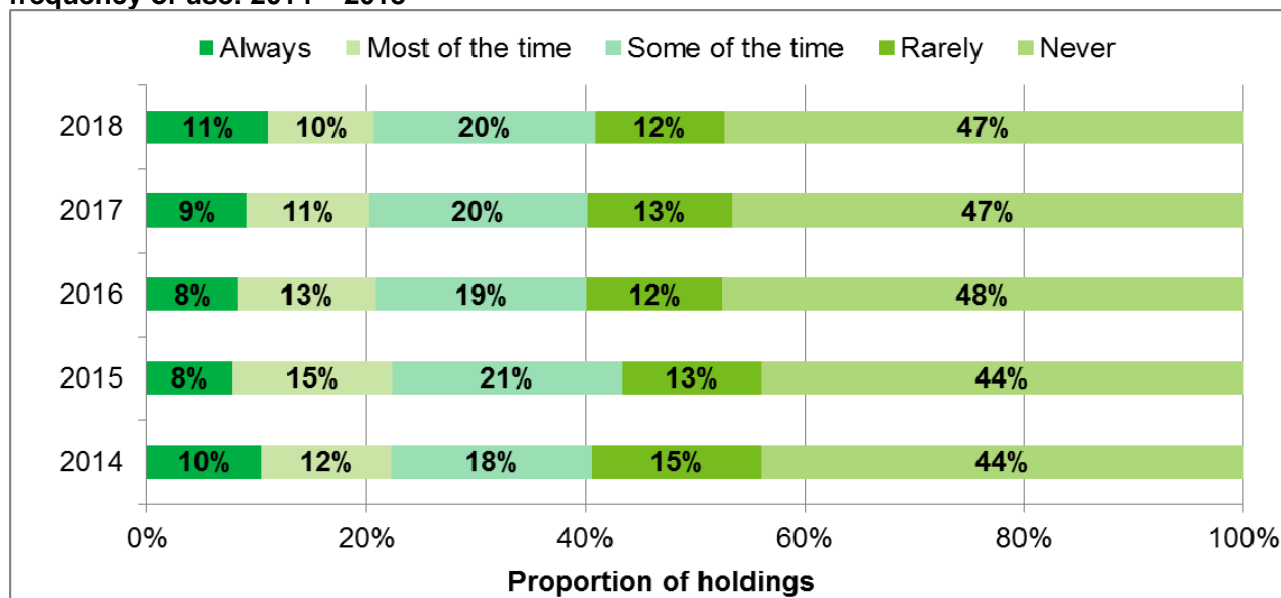
Figure 8.4: Proportion of holdings using bulls with high EBVs when breeding beef cattle by frequency of use: 2014 – 2018



(a) For holdings with beef cattle

Estimated Breeding Values (EBV) estimate the genetic worth of animals using desirable traits such as meat production. Over half (53%) of holdings used bulls with a high EBV at least some of the time when breeding beef cattle in 2018 (Figure 8.4). The equivalent proportion of holdings using rams with a high EBV at least some of the time when breeding lambs was 41% (Figure 8.5).

Figure 8.5: Proportion of holdings using rams with high EBVs when breeding lambs by frequency of use: 2014 – 2018



(a) For holdings with lambs

In addition to the proportion of holdings using bulls and rams with high EBVs (Table 8.4 and 8.5) the proportion of beef cattle and lambs that this figure relates to has also been calculated (Tables 8.6 and 8.7). By using responses from the 2017 June survey we are able to give an indication of the proportion of animals that are covered by this practice. In 2018, the holdings using bulls and rams with high EBVs at least some of the time accounted for 60% of beef cattle and 52% of lambs at June 2017.

Table 8.1: Proportion of holdings using a ration formulation programme when planning cattle and sheep feeding regimes by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	21	±2	20	±2	21	±2	21	±2
Most of the time	14	±2	15	±2	14	±2	16	±2
Some of the time	18	±2	19	±2	19	±2	20	±2
Rarely	19	±2	18	±2	16	±2	15	±2
Never	27	±2	29	±3	30	±3	27	±3

Based on 1 748 responses in 2015, 1 470 in 2016, 1 566 in 2017 and 1 566 in 2018 from holdings with cattle or sheep.

Table 8.2: Proportion of holdings offering alternative forages to cattle and sheep: 2017 - 2018

Alternative forage crop	2017		2018	
	% of holdings	95% CI	% of holdings	95% CI
Whole-crop silage	15	±2	13	±2
Maize	11	±1	11	±1
Red clover	7	±1	6	±1
Lucerne	2	±1	2	±1
Triticale	1	±0	1	±0
Any of the above	26	±2	25	±2
None of these	74	±2	75	±2

Based on 1 519 responses in 2017 and 1 533 in 2018 from holdings with cattle and sheep.

Table 8.3: Proportion of holdings using bulls with a high Profitable Lifetime Index (PLI) when breeding dairy cows by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	21	±3	22	±4	24	±3	26	±4
Most of the time	24	±3	23	±4	18	±3	19	±3
Some of the time	13	±3	17	±3	12	±3	15	±3
Rarely	5	±2	7	±2	4	±2	3	±1
Never	36	±4	31	±5	42	±4	37	±4

Based on 614 in 2015, 458 in 2016, 543 in 2017 and 520 in 2018 from holdings with cattle or sheep.

Table 8.4: Proportion of holdings using bulls with a high Estimated Breeding Value (EBV) when breeding beef cattle by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	17	±2	18	±3	16	±2	21	±3
Most of the time	17	±2	15	±3	14	±2	16	±2
Some of the time	17	±2	17	±3	16	±2	16	±2
Rarely	8	±2	11	±2	9	±2	7	±2
Never	42	±3	39	±4	44	±3	40	±3

Based on 1 123 in 2015, 707 in 2016, 1 005 in 2017 and 983 in 2018 from holdings with beef cattle.

Table 8.5: Proportion of holdings using rams with a high Estimated Breeding Value (EBV) when breeding lambs by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI	% of holdings	95% CI
Always	8	±2	8	±2	9	±2	11	±2
Most of the time	15	±3	13	±3	11	±2	10	±2
Some of the time	21	±3	19	±3	20	±3	20	±3
Rarely	13	±2	12	±3	13	±3	12	±2
Never	44	±4	48	±4	47	±4	47	±4

Based on 842 in 2015, 700 in 2016, 761 in 2017 and 756 in 2018 from holdings with lambs.

Table 8.6: Proportion of beef cattle on holdings using bulls with a high Estimated Breeding Value (EBV) by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of beef cattle	95% CI	% of beef cattle	95% CI	% of beef cattle	95% CI	% of beef cattle	95% CI
Always	19	±3	25	±6	19	±4	24	±4
Most of the time	18	±3	19	±4	19	±3	17	±3
Some of the time	19	±3	18	±4	17	±3	20	±4
Rarely	9	±2	10	±3	10	±2	8	±2
Never	34	±4	29	±4	36	±4	32	±4

Based on 1 123 responses in 2015, 707 in 2016, 1 005 in 2017 and 983 in 2018 from holdings with beef cattle.

Table 8.7: Proportion of lambs on holdings using rams with a high Estimated Breeding Value (EBV) by frequency of use: 2015 - 2018

Frequency of use	2015		2016		2017		2018	
	% of lambs	95% CI	% of lambs	95% CI	% of lambs	95% CI	% of lambs	95% CI
Always	10	±3	11	±4	12	±3	15	±5
Most of the time	15	±3	17	±4	14	±3	14	±4
Some of the time	24	±4	22	±4	23	±4	23	±4
Rarely	14	±3	14	±4	15	±3	12	±4
Never	36	±4	36	±5	37	±4	37	±5

Based on 842 responses in 2015, 700 in 2016 and 761 in 2017 and 756 in 2018 from holdings with lambs.

Survey methodology

Survey content

The Farm Practices Survey (FPS) – Greenhouse Gas Mitigation edition 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.

This release includes the results from the FPS run in February 2018. The survey largely focused on practices relating to greenhouse gas mitigation, similar in content to FPS surveys run in February over the previous seven years. Topics covered include nutrient and manure management, anaerobic digestion, emissions, fertiliser, manure and slurry spreaders and storage, farm health planning, grassland and grazing and livestock 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 6,000 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 40%. 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 just over 60 thousand holdings that exceed these thresholds out of the total English population of almost 107 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	15 787	1 336	48
Other crops	5 591	807	43
Pigs & poultry	3 645	511	29
Dairy	6 156	941	39
Grazing livestock (less favoured areas)	8 233	712	37
Grazing livestock (lowland)	15 177	1 155	37
Mixed	5 627	575	39
All farms	60 216	6 037	40

Data analysis

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.

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.

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

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 at the end of June 2018:

<https://www.gov.uk/government/collections/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>.

Data uses

The Farm Practices survey is used to investigate the impact of farming on the environment and to provide up-to-date agri-environment information on current issues to help inform policy decisions. The survey has a wide customer base both internal and external to Defra including Natural England, English Heritage, ADAS, the Environment Agency and the NFU.

Data from the Farm Practices Survey are used in Defra's greenhouse gas (GHG) indicator framework. The framework, initially developed as part of the 2012 review of progress in reducing GHG emissions from English agriculture¹, consists of ten key indicators covering farmer attitudes and knowledge, the uptake of mitigation methods and the GHG emission intensity of production² in key agricultural sectors. Information from the survey also feeds into the Defra publication, Agricultural Statistics and Climate Change which provides background context to the current understanding of agriculture and GHG emissions.

In partnership with the Devolved Administrations, the Government invested over £12 million, over a four and a half year period, on the development of an improved GHG inventory to strengthen understanding of on farm emissions. Information from the Farm Practices Survey fed into this project which should enable greater precision in reporting GHG emissions from the sector, so that, going forward, changes made to farming practices to reduce GHG emissions will be properly recognised in the inventory.

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.

¹ <https://www.gov.uk/government/publications/2012-review-of-progress-in-reducing-greenhouse-gas-emissions-from-english-agriculture>

² GHG produced per tonne of crop or litre of milk or kilogramme of meat produced.



If there are any amendments to your contact details, please notify the Rural Payments Agency :-
online - <https://bit.ly/RPChange> or
telephone - 03000 200 301

Farm Practices Survey - February 2018

Dear Sir/Madam

You are invited to participate in the February 2018 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 Basic 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 Spring 2018 on the following website:

<https://www.gov.uk/government/collections/farm-practices-survey>.

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 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://bit.ly/Data_Protection_Statement. Alternatively we can send you a copy if you call 03000 600 140 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.

Janine Horsfall
Farming Statistics Team

Official Use Only

Name/Address	
Comments in box	
Comments elsewhere	

If you require a large
print form please
contact us on
03000 600 140

For help with completion of the form
contact us at:

Helpline: 03000 600 140 Mon-Fri 9.00am to 4.30pm

Email: surveys@defra.gsi.gov.uk

Section 1. Soil 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 or Not applicable, please go to question 7

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

OR

I created the plan myself with professional advice from:

Fertiliser adviser or agronomist 1 Animal nutritionist 2 FWAG 3 Other 4 C125

OR

The plan was created by the above 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. What 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

(ii) Nutrient testing

Tick one box in each row

7. Do you have a programme of soil testing for nutrient indices?

Yes 1 No 2 Not applicable 3 C63

If No or Not applicable, please go to question 9

8. If yes, do you test each field at least every 5 years?

All of them 1 Some of them 2 None of them 3 C140

9. Do you have a programme of soil testing for pH?

Yes 1 No 2 Not applicable 3 C92

If No or Not applicable, please go to question 11

10. If yes, do you test each field at least every 5 years?

All of them 1 Some of them 2 None of them 3 C141

Soil Nutrient Management (continued)

11. Do you test/assess/calculate the nutrient content of manure?

Yes, by sampling
and lab analysis

 1

Yes, by sampling
and on-farm testing

 2

Yes, based on
published tables

 3

No

 4

Not applicable

 5

C142

(iii) Manure management plans

12. Have you completed a manure management plan for your farm?

Yes
 1

No
 2

Not applicable
 3

If No or not applicable, please go to Section 2

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

Defra Recommendations/Manual (RB209), CoGAP

 C66

Other (please specify)

 C67

(iv) Soil Monitoring

14. Do you keep track of soil organic matter on your farm?

Yes
 1

No
 2

C206

If Yes, please go to question 16

15. What are the reasons stopping you from keeping track of soil organic matter on your farm?

Tick **all** that apply

Too expensive

 C207

Not important enough to test for

 C208

Difficult to interpret results

 C209

Other (please specify)

 C210

16. Do you know the soil types as described in Appendix 1 of Defra Recommendations/Manual (RB209) for each field on your farm?

Yes
 1

No
 2

C211

Section 2. Anaerobic Digestion

17. Do you already process any of the following by anaerobic digestion either on your farm or elsewhere?

Tick one box in **every** row

	Yes	No	
Slurries / manures	<input type="checkbox"/> 1	<input type="checkbox"/> 2	A19
Crops (including silage)	<input type="checkbox"/> 1	<input type="checkbox"/> 2	A52
Other feedstocks from your farm	<input type="checkbox"/> 1	<input type="checkbox"/> 2	A20
Other feedstocks from outside your farm	<input type="checkbox"/> 1	<input type="checkbox"/> 2	A21

Section 3. Emissions

18. 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

19. 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

20. Are you currently taking any action to reduce greenhouse gas emissions from your farm?

Yes No

1 2 D64 → If No, please go to question 23

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

- Improving energy efficiency (e.g. reducing electricity use, using reduced tillage) 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 program) D67
- Improving efficiency in manure and slurry management and application (e.g. controlled application rate, improved timing) 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

22. 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

23. 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

24. Are any of the manure, slurry or fertiliser spreaders on your farm computer controlled with variable rate application? Please tick **all** that apply

Yes, fertiliser spreaders ₁ Yes, manure or slurry spreaders ₂ No, none of them ₃ I do not have any spreaders ₄ ^{C104} → **If no spreaders, please go to question 27**

25. Do you or contractors spread fertilisers, solid manure or slurry on your grass or arable land?

Tick **one** box in **each** column

	Fertiliser	Manure or slurry
Yes, I spread it myself	<input type="checkbox"/> C132	<input type="checkbox"/> C149
Yes, I spread some myself and also use a contractor	<input type="checkbox"/> C133	<input type="checkbox"/> C150
Yes, a contractor spreads it	<input type="checkbox"/> C134	<input type="checkbox"/> C151
No, not applied to grass or arable land	<input type="checkbox"/> C135	<input type="checkbox"/> C152

26. On average, which of the following options best describes how often your manure (solid manure or slurry) spreader is calibrated? Exclude fertiliser spreaders.

Tick **one** box only

I do not have a manure spreader	<input type="checkbox"/> C173
Never	<input type="checkbox"/> C136
Every year	<input type="checkbox"/> C160
Less often than every year	<input type="checkbox"/> C161
Whenever there is significant change in manure or slurry characteristics	<input type="checkbox"/> C137
Whenever manure or slurry is tested (e.g. sampled or analysed)	<input type="checkbox"/> C138
Other, please specify <input style="width: 450px; height: 40px;" type="text"/>	<input type="checkbox"/> C139

Note

27. The remaining sections on the following pages relate only to holdings with livestock (cattle, sheep, pigs, poultry or horses).

Do you have any livestock?

Yes ₁ ^{T94} → **If Yes, please go to question 28 on page 6**

No ₂ → **If No, please go to Section 9 on page 8**

Section 5. Manure and slurry storage

28. Do you have storage facilities for solid manure on your farm? Please tick **one** box only

Yes	No - I spread directly from shed (no further storage)	No - my farm does not produce manure	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	P207

If No, please go to question 30

29. Please indicate your manure storage facilities by type of store and type of cover. Tick **all** that apply.

	No cover	Plastic sheet cover	Solid store cover
Solid manure in heaps on a solid base	<input type="checkbox"/> P208	<input type="checkbox"/> P209	<input type="checkbox"/> P210
Solid manure in temporary heaps in fields	<input type="checkbox"/> P211	<input type="checkbox"/> P212	

30. Do you have storage facilities for slurry on your farm? Please tick **one** box only

Yes	No - I have little or no storage & spread directly	No - my farm does not produce slurry	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	P217

If no slurry produced, please go to question 34

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

32. Please indicate your slurry storage facilities by type of store and type of cover. Tick **all** that apply.

	No cover	Natural crust	Floating plastic cover	Floating straw /woodchip	Rigid/fixed cover
In-house storage in channel below slats	<input type="checkbox"/> P218				
Below ground tank	<input type="checkbox"/> P219	<input type="checkbox"/> P223	<input type="checkbox"/> P227	<input type="checkbox"/> P231	<input type="checkbox"/> P235
Above ground tank	<input type="checkbox"/> P220	<input type="checkbox"/> P224	<input type="checkbox"/> P228	<input type="checkbox"/> P232	<input type="checkbox"/> P236
Lagoon without strainer	<input type="checkbox"/> P221	<input type="checkbox"/> P225	<input type="checkbox"/> P229	<input type="checkbox"/> P233	<input type="checkbox"/> P237
Storage with strainer facility (e.g. lagoon with strainer wall or weeping wall compound)	<input type="checkbox"/> P247	<input type="checkbox"/> P248	<input type="checkbox"/> P249	<input type="checkbox"/> P250	<input type="checkbox"/> P251
Other type	<input type="checkbox"/> P222	<input type="checkbox"/> P226	<input type="checkbox"/> P230	<input type="checkbox"/> P234	<input type="checkbox"/> P238

33. Do you have a slurry separator?

Yes	No	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	P70

34. Are you planning to enlarge, upgrade or reconstruct any of your manure or slurry storage facilities?

Yes	No	
<input type="checkbox"/> 1	<input type="checkbox"/> 2	P67

If No, please go to section 6

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 10 years or more	
Changes planned:	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	P68

Section 6. Farm Health Planning and Biosecurity

36. Do you have a Farm Health Plan (FHP)? Please tick **one** box only

Yes, a written or recorded plan

 T92

Yes, but not written or recorded

 T91

No

 T90


If No, please go to question 39

37. If yes, did you complete the FHP with the assistance of a vet or other adviser?

 1

 2 T93

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

Yes, routinely

 1

Yes, when I can

 2

No, but I feel I should

 3

No, I don't feel the need

 4

T130

39. Do you or your staff undertake training on animal health & welfare and disease management?

Please tick **one** box only

Yes, routinely

 1

Yes, when I / my staff can

 2

No, but I feel I should

 3

No, I don't feel the need

 4

T135

Section 7. Grassland and grazing

(i) Temporary grassland

40. Questions 41, 42 and 43 relate to temporary grassland. If you do not have any temporary grassland, please tick this box and go to question 44.

 K95

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

	0%	1-20%	21-40%	41-60%	61-80%	81-99%	100%	
Clover	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	K96
High sugar grasses	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	K97

42. Do you reseed your clover or high sugar grasses? Tick **all** that apply

Yes, reseed clover K88

Yes, reseed high sugar grasses K89

No, do not reseed K49

→ **If No, please go to question 44**

43. If yes, please state the frequency (in months) with which you reseed your sward.

Clover months K98

High sugar grasses months K99

(ii) Grazing

44. Do you take action to reduce stocking rates when fields are excessively wet? Please tick **one** box only

Yes, Always

 1

Yes, some of the time

 2

No

 3

Not applicable

 4

K47

45. Do you take action to keep livestock out of water courses? Please tick **one** box only

Yes, routinely

 1

Yes, some of the time

 2

No

 3

Not applicable

 4

K48

Section 8. Ruminant livestock feeding regimes and breeding practices

46. How often do you or your adviser use a ration formulation program or nutritional advice from an expert when planning the feeding regime for your livestock? Please tick **one** box only

Always	Most of the time	Some of the time	Rarely	Never
<input type="checkbox"/> C105	<input type="checkbox"/> C106	<input type="checkbox"/> C107	<input type="checkbox"/> C108	<input type="checkbox"/> C109

47. Do you offer any alternative forages (other than grazed or conserved grass) to your livestock?

Tick **all** that apply.

Maize	Lucerne	Triticale	Red clover	Whole-crop silage	None of these
<input type="checkbox"/> C162	<input type="checkbox"/> C163	<input type="checkbox"/> C164	<input type="checkbox"/> C165	<input type="checkbox"/> C171	<input type="checkbox"/> C166

48. How often do you or your adviser use bulls with a high Profitable Lifetime Index (PLI) when breeding dairy cows? Please tick **one** box only

Always	Most of the time	Some of the time	Rarely	Never
<input type="checkbox"/> C110	<input type="checkbox"/> C111	<input type="checkbox"/> C112	<input type="checkbox"/> C113	<input type="checkbox"/> C114

49. 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 row, if relevant.

	Always	Most of the time	Some of the time	Rarely	Never
Bulls	<input type="checkbox"/> C115	<input type="checkbox"/> C116	<input type="checkbox"/> C117	<input type="checkbox"/> C118	<input type="checkbox"/> C119
Rams	<input type="checkbox"/> C120	<input type="checkbox"/> C121	<input type="checkbox"/> C122	<input type="checkbox"/> C123	<input type="checkbox"/> C124

Section 9. Declaration

Signature V3

Date

Name (please print)

Telephone number V8

Time taken to complete this form minutes V1

E-mail address V5

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.

Please now return this form in the pre-paid envelope to ONS, Government Buildings, Cardiff Road, Newport, NP10 8XG.