



Department for Environment Food & Rural Affairs

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13 March 2024

Dear Leader,
Cc. Chief Executive

Slurry Infrastructure grant – a message from the Secretary of State

I am writing this letter jointly with my colleagues from Natural England to inform you that we recently published guidance on Natural England's new approach to planning consultations for slurry store projects funded through the Slurry Infrastructure grant (SIG).

The Department for Environment, Food and Rural Affairs (Defra) introduced the grant scheme in December 2022 to help farms invest in high quality slurry systems as part of action to reduce air and water pollution from farms.

I ask that you share this guidance with your colleagues for consideration when processing planning applications for grant-funded slurry stores in your area.

[Slurry Infrastructure grant planning applications: Natural England's advice for LPAs.](#)

Natural England's advice on SIG-related planning consultations

Natural England support the Slurry Infrastructure grant scheme because it will reduce pollution and help protected sites to realise their conservation objectives. Round 2 of the SIG, which launched on 21st November 2023, [prioritises areas](#) across England where action is most urgently needed to reduce the impact of farming on protected sites ¹.

SIG applications may require planning permission, such as for new slurry stores, and Natural England must be consulted where there may be impacts on protected sites. In April last year, Defra, the Environment Agency and Natural England provided [an update on the SIG \[The National Archives\]](#) to Local Planning Authorities (LPAs) in priority grant funding areas. This provided advice that LPAs are likely to receive a greater number of planning

¹ Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), and Wetlands designated to be of international importance under the Ramsar Convention (or Ramsar sites).

applications (or prior approvals) for improving existing stores or building additional slurry storage. The letter also included a checklist of evidence LPAs should expect to see for slurry store proposals.

To support the scheme and reduce the amount of detailed assessment required on a case-by-case basis for planning consultations, Natural England has worked closely with the Environment Agency on the modelling of scheme level-impacts. This analysis (Annex 1), using [Farmscoper](#), has demonstrated that there would be scheme-level net reductions in water and air pollution.

Natural England has considered the Farmscoper analysis and the wider context of the scheme. As a result, Natural England expects that in the majority of cases it will be able to send standardised responses to planning consultations from LPAs, advising that the environmental risks are low and that we consider further assessment will not be required. This is due to:

- The aims of the scheme (reducing pollution impacts to protected sites);
- The reduction in pollution shown by the modelling of scheme level-impacts;
- The criteria and requirements of the scheme.

Natural England considers there may be a small number of SIG consultations where further assessment will be required as there may be a high potential for pollution impacts on protected sites. In these higher-risk cases, Natural England will provide more detailed advice to the LPA to support its decision making.

In accordance with the advice set out in [Planning practice guidance](#) (Paragraph: 019 Reference ID: 13-019-20190722) Natural England advises that LPAs should note that special rules also apply to permitted development rights where development could have a significant effect on a Habitats site (as defined in the National Planning Policy Framework).

To enable Natural England to provide advice on planning applications which takes account of the SIG scheme conditions, it would be helpful for any SIG-related planning consultations received by Natural England to be clearly marked so that they can be processed accordingly. LPAs should also continue to consult Natural England on other matters related to its remit, as detailed on [gov.uk](#).

You can consult Natural England by email using: consultations@naturalengland.org.uk

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Steve Barclay', is positioned above the printed name.

RT HON STEVE BARCLAY MP

Annex 1: Slurry Infrastructure Grant (Round 1) – Pollutant Emission Reduction Paper

Using multiple scenarios with different levels of ambition and measure take up, it has been possible to show the range of air and water quality improvements which may be possible from the Slurry Infrastructure Grant.

Introduction

The Slurry Infrastructure Grant (SIG) facilitates farmers in England to improve or expand their slurry storage capacity in order to enable the improved use of organic nutrients on the farm. To understand any impacts on nearby habitat sites, we need to understand the potential impact the scheme may have on ammonia emissions and other pollutants released.

This report outlines our modelled assessment of whole farm change in emissions following grant uptake. The assessment assumes that grant conditions will be applied and does not represent slurry infrastructure changes outside of the grant scheme. A set of scenarios are presented representing the range of potential impacts of the SIG for an average dairy farm². It is a scheme-wide assessment based on typical farm data and is not a suitable approach for site specific risk assessments.

Background

Slurry storage and the Slurry Infrastructure Grant

The Code of Good Agricultural Practice for reducing ammonia emissions cites covering stores of organic manures and applying those manures effectively and efficiently to agricultural land as key measures to tackle ammonia emissions. Ensuring sufficient farm storage to facilitate this management is essential to optimising manure management and ensuring farmers can avoid spreading at high-risk times and locations.

The SIG is a government grant aimed at improving slurry storage infrastructure on farms across England. The scheme prioritises³ farms located close to protected sites⁴ to target emission and nutrient reductions close to the most sensitive sites and within sensitive catchments.

Conditions of the scheme include:

- The grant must facilitate a minimum of 6 - 8 months storage based on existing livestock numbers
- The grant can fund replacing or expanding existing stores, or building additional storage, or infrastructure
- The storage must meet regulatory compliance
- Grant funded stores must be fitted with a fixed or floating impermeable cover unless using a slurry bag or slurry acidification (although existing stores can remain uncovered)

² Although other livestock farms will be included in the grant scheme, Dairy shows typical benefits which can be achieved by the scheme. Results for Lowland Farms which includes other grazing animals and farm types are appended.

³ [Check how applications will be prioritised - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

⁴ [UK Protected Areas | JNCC - Adviser to Government on Nature Conservation](https://www.jncc.gov.uk)

- Must maintain 6 - 8 months storage for the duration of the GFA (Grant Funding Agreement) of 5 years
- Must maintain a nutrient management plan based on recent soil analysis.

Spatial Targeting

Following the advice of Natural England, the JNCC (Joint Nature Conservation Committee) and the Environment Agency, Defra has prioritised grant roll out using spatial targeting to identify locations where action is most urgently needed to reduce the impact of farming on protected sites. This includes areas within 2 km of protected sites where ammonia critical levels are exceeded and includes protected sites where agricultural activity is a reason for poor water quality. This approach aims to prioritise mitigation close to protected sites and which will have the greatest environmental benefit.

Farmscoper Scenario Modelling

[Farmscoper](#) is a decision support tool which assesses diffuse agricultural pollutant loads and quantifies the impact of farm mitigation methods. We used Farmscoper to assess several different scenarios representing the range of potential impacts of the SIG for an average dairy farm. The current version of the model (v5) uses 2019 agricultural census data (livestock and land use) and 2019 fertiliser and manure usage figures from the British Survey of Fertiliser Practice so typical farms created in Farmscoper will be close to 'current'.

Measure selection: Farmscoper allows the user to select a suite of on-farm and in-field mitigation measures which, when implemented, equate to a net change in pollutant loading from the whole farm (not from a specific source). The measures linked to the SIG are listed in Table 1.

Table 1: Farmscoper SIG Measures (bold indicates a measure is directly facilitated by the scheme)

ID	Farmscoper measure description	Notes
21	Fertiliser spreader calibration	Nutrient management planning may increase awareness and uptake of this measure
22	Use a fertiliser recommendation system	
23	Integrate fertiliser and manure nutrient supply	Indirectly facilitated by the scheme infrastructure
25	Do not apply manufactured fertiliser to high-risk areas	Improved utilisation of slurry, as well as nutrient management planning may increase uptake of this measure
26	Avoid spreading manufactured fertiliser to fields at high-risk times	
27	Use manufactured fertiliser placement technologies	
32	Do not apply P fertilisers to high P index soils	
52	Increase the capacity of farm slurry stores to improve timing of slurry applications	Directly facilitated by the scheme infrastructure
54	Install covers to slurry stores	
67	Manure Spreader Calibration	Improved utilisation of slurry, as well as nutrient management planning may increase uptake of this measure
68	Do not apply manure to high-risk areas	Indirectly facilitated by the scheme infrastructure
69	Do not spread slurry or poultry manure at high-risk times	Directly facilitated by the scheme infrastructure

70	Use slurry band spreading application techniques	Improved awareness of these techniques through nutrient management planning
71	Use slurry injection application techniques	
73	Incorporate manure into the soil	

The 3 key Farmscoper measures directly facilitated by the scheme are:

- Farmscoper measure 52 (Increasing the capacity of the slurry store) which assumes an increase in storage capacity from 18 weeks to 26 weeks (6 months). The measure cannot take account of the expansion of stores that are currently non-compliant with SSAFO (<4 months capacity) i.e., the environmental gain from <4 months storage or the impact of a completely new store.
- Farmscoper measure 54 (Install covers to slurry stores) which assumes open slurry tanks are fitted with a rigid cover with a vent. All grant funded stores must have an impermeable cover unless using acidification technology.
- Farmscoper measure 69 (Do not spread slurry or poultry manure at high-risk times) which assumes the increased storage will immediately allow farmers to avoid spreading slurry at high-risk times.

Many of the other measures are secondary benefits which may be facilitated by either the increased capacity offered by the scheme, the farmer's newly updated nutrient management plan (a requirement of the scheme) or CSF (Catchment Sensitive Farming) advice, to which all scheme entrants will be offered an in-person visit. We do not know exactly what farm practices the farmer already implements through their current nutrient management.

Measure uptake rate: There is a likely increased uptake of many measures, but these uptake rates are dependent on the farm and assumed changes in uptake rates can only be estimated. 0% as a baseline uptake figure and 100% maximum uptake is assumed for measures 52 and 54 (i.e. slurry storage is increased from 4 to 6 months, and has a cover), but optimistic for measure 69. To understand the potential for change in uptake rates from the measures which would be indirectly influenced by the scheme, we:

- consulted agricultural leads and Catchment Sensitive Farming Advisers and Environment Officers in the Environment Agency and in Natural England.
- Extracted data from the CSF database and advice audit on uptake in measures post advice
- Extracted data on measure uptake through agricultural regulation (Environment Agency officers).

The assumed baseline rate, followed by the with-scheme uptake rate is included in parentheses in Table 2.

To consider the on-farm impact of SIG, we ran a range of different scenarios showing a range of potential impacts of the scheme. The measures included in each scenario are summarised in Table 2. An explanation of each scenario is given in Table 3.

Table 2: Summary of Farmscoper measures and uptake rates in each scenario model run

ID	Farmscoper measure description	Scenario*						
		1	2	3	4	5	5a (10% fertiliser reduction)	6
21	Fertiliser spreader calibration					X (10, 20)	X (10, 20)	X (0, 100)
22	Use a fertiliser recommendation system					X (10, 30)	X (10, 30)	X (0, 100)
23	Integrate fertiliser and manure nutrient supply				X (50, 90)	X (60, 80)	X (60, 80)	X (0, 100)
25	Do not apply manufactured fertiliser to high-risk areas					X (50, 70)	X (50, 70)	X (0, 100)
26	Avoid spreading manufactured fertiliser to fields at high-risk times					X (50, 70)	X (50, 70)	X (0, 100)
27	Use manufactured fertiliser placement technologies					X (10, 20)	X (10, 20)	X (0, 100)
32	Do not apply P fertilisers to high P index soils					X (40, 60)	X (40, 60)	X (0, 100)
52	Increase the capacity of farm slurry stores to improve timing of slurry applications	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)
54	Install covers to slurry stores	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)	X (0, 100)
67	Manure Spreader Calibration					X (30, 40)	X (30, 40)	X (0, 100)
68	Do not apply manure to high-risk areas					X (20, 30)	X (20, 30)	X (0, 100)
69	Do not spread slurry or poultry manure at high-risk times	X (0, 100)		X (0, 100)	X (50, 90)	X (20, 25)	X (20, 25)	X (0, 100)
70	Use slurry band spreading application techniques					X (5, 15)	X (5, 15)	X (0, 100)
71	Use slurry injection application techniques					X (4, 7)	X (4, 7)	X (0, 100)
73	Incorporate manure into the soil					X (40, 50)	X (40, 50)	X (0, 100)
	Measures assessed:	Individually	Together	Together	Together	Together	Together	Together

* Uptake rates for baseline and with-scheme included in parentheses respectively

Table 3: Aim of each Scenario Model Run

Scenario	Assumptions	Objectives
1	Only measures directly linked to the scheme are included. 0% as a baseline uptake figure and 100% maximum uptake for measures 52 and 54 is correct (slurry storage is increased from 4 to 6 months, and grant conditions state the store must have a cover), but optimistic for measure 69	Outputs shown individually to show individual contribution of each measure
2	Only two direct scheme measures (52 and 54) are included and assessed together (i.e., combined effect on pollutant loads)	Net impact of the scheme, resulting from the increased slurry store capacity and cover in isolation.
3	As scenario 1, but measures assessed together	Net impact of the scheme, resulting from the increased slurry store capacity, cover and the improved timing of slurry spreading
4	Only measures which farms are not already required to do, and are highly likely to be influenced by the scheme – with realistic uptake rates	Pessimistic run - Net impact of the scheme is measured, assessed against the legal baseline and measures guaranteed to change
5	All direct and indirect measures modelled together showing the maximum impact of the scheme, with realistic baseline and likely uptake rates	Realistic run – reasonable representation of potential impact
5a	As 5, but with additional reduced fertiliser use measure (10% reduction in use of inorganic fertiliser assumed due to more efficient use of nutrients from organic manures and slurries).	Realistic run – reasonable representation of potential impact
6	All direct and indirect measures modelled together showing the maximum impact of the scheme, and assuming measures are newly implemented i.e., no prior uptake.	Optimistic run to show full potential of improved nutrient management in combination with the scheme

Results

Farmscoper was run to show the change in uptake for a suite of measures presented in table 3. The runs represent an average dairy farm in England (results for lowland grazing is presented in the addendum at the end of this report). Results show the percentage change in pollutant load for each pollutant across the whole farm (Table 4).

Table 4 - % reduction whole farm pollutant loads (based on a typical dairy farm in England)

Dairy	Ammonia	Methane	Nitrous Oxide	Nitrate	Phosphorus	FIOs
Scenario 1:						
Install covers to slurry stores	0.6	0.0	0.0	0.0	0.0	0.0
Increase the capacity of farm slurry stores to improve timing of slurry applications	-1.1	0.0	0.1	0.9	1.8	4.4
Do not spread slurry or poultry manure at high-risk times	0.0	0.0	5.4	2.3	4.5	2.2
Scenario 2	0.4	0.0	0.1	0.9	1.8	4.4
Scenario 3	0.4	0.0	5.4	3.0	5.9	5.5
Scenario 4	1.1	0.0	4.5	3.3	3.8	4.3
Scenario 5	2.8	0.0	1.9	2.0	2.7	4.2
Scenario 5a (fertiliser application reduced by 10%)	3.4	0.0	3.8	3.3	3.1	4.2
Scenario 6	28.2	0.0	14.0	9.8	15.8	7.4

Discussion

Scenario 1 shows that while an increase in store size (from 4 to 6 months capacity) results in a net increase in emissions of 1.1%, covering the store facilitates a reduction in total farm emissions of 0.6% (Table 4). When these measures are considered together (Scenario 2/3) Farmscoper model outputs show a predicted total net reduction in ammonia emission of 0.4%. Note that in the Farmscoper framework the pollutant reduction gain from additional methods decreases less than an alternative additive approach in which the pollutant source is quickly exhausted and the impact of multiple methods over-estimated⁵.

Scenarios 2 and 3 have the same impact in terms of Air Quality emission reduction, showing that whilst avoiding spreading at high-risk times has a positive impact on water quality (2.1% reduction in nitrate loading, 4.1% in phosphorus loading and 1.1% in faecal indicator organism (FIO) loading) it has little impact on ammonia.

The lowest level of improvement we would expect is from farms who already comply with the legal baseline and apply good nutrient management on their farms. Scenario 4 represents this case, and shows a 1.1% reduction in ammonia concentration, along with a 4.5% reduction in nitrous oxides and a 3.3% reduction in nitrate loading.

The real benefit of the scheme is observed when it is implemented with a nutrient management plan, and farmers increase their uptake of the suite of measures associated with improved nutrient management.

Based on our understanding of a likely baseline level, and realistic change in uptake rates, scenarios 5 and 5a show a representative scenario. In this case, it is assumed that there is a marginal increase in the uptake of a range of Farmscoper measures, resulting in 2.8 – 3.4% decrease in ammonia emissions, and a 2.0 – 2.9% reduction in nitrogen loading. The 10% reduction in inorganic fertiliser applications (for N and P) has a beneficial impact for air and water quality.

Scenario 6 shows the full potential of the scheme, where all store and field-based measures are applied, and assuming that none were taken up in the base case. This is overly optimistic but shows the scale of improvement potential when slurry is managed optimally.

As can be seen all the scenarios show a net reduction in pollution (emissions and nutrients). Using multiple scenarios with different levels of ambition and take up, it has been possible to show the range of improvements and reductions which may be possible from the SIG.

⁵ [Cost-curves for mitigating multiple water pollutants, ammonia and greenhouse gas emissions on farms – FARMSCOPER decision support tool, USER-GUIDE and economic analysis for pollution mitigation methods - WQ0106 \(Module 3\) - Science Search \(defra.gov.uk\)](#)

Addendum:

Results for Scenario's 1 to 6 for 'Lowland' and 'Mixed' farms are presented below. Results show variable trends as these farm types include a mixture of agricultural land uses and livestock.

Lowland	Ammonia	Methane	Nitrous Oxide	Nitrate	Phosphorus	FIOs
Scenario 1:						
Install covers to slurry stores	-0.1	0.0	0.0	0.0	0.0	0.0
Increase the capacity of farm slurry stores to improve timing of slurry applications	-0.2	0.0	0.0	0.1	0.2	0.5
Do not spread slurry or poultry manure at high-risk times	0.0	0.0	0.9	0.3	0.5	0.2
Scenario 2	-0.1	0.0	0.0	0.1	0.2	0.5
Scenario 3	-0.1	0.0	0.9	0.4	0.7	0.6
Scenario 4	0.4	0.0	1.1	0.7	0.7	0.5
Scenario 5	1.1	0.0	0.9	0.7	0.9	0.4
Scenario 5a	2.2	0.0	2.7	1.9	1.7	0.4
Scenario 6	10.3	0.0	7.1	5.3	6.0	0.9

Mixed	Ammonia	Methane	Nitrous Oxide	Nitrate	Phosphorus	FIOs
Scenario 1:						
Install covers to slurry stores	0.9	0.0	0.0	0.0	0.0	0.0
Increase the capacity of farm slurry stores to improve timing of slurry applications	-0.6	0.0	0.0	0.1	0.2	1.6
Do not spread slurry or poultry manure at high-risk times	0.0	0.0	1.1	0.2	0.6	1.0
Scenario 2	0.6	0.0	0.0	0.1	0.2	1.6
Scenario 3	0.6	0.0	1.1	0.2	0.7	2.2
Scenario 4	1.6	0.0	1.7	1.4	0.7	1.7
Scenario 5	2.5	0.0	1.5	1.7	1.0	1.5
Scenario 5a	4.6	0.0	4.4	4.6	1.8	1.5
Scenario 6	14.1	0.0	9.5	9.2	6.3	3.4