Department for Environment Food & Rural Affairs

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British Survey of Fertiliser Practice
Fertiliser use on farm for the 2018 crop year

The British Survey of Fertiliser Practice is an annual survey that collects information on usage and application rates of nitrogen, phosphate, potash, sulphur, organic manures and lime on the major crops and grass grown in mainland Britain. It also includes the official statistics on annual fertiliser consumption in the UK (Table B2.6 of the full report, see link below).

This release gives key results from the 2018 survey. Full results and methodological details are published in a separate report here.

Key results – Overall application rates by nutrient (compared to 2017)

The overall application rate (in kg per hectare) is based on the proportion of the crop area treated and the actual field rate of application used.

Nutrient	Tillage crops		Grassland		**All crops and grass**	
	Change	Rate (kg/ha)	Change	Rate (kg/ha)	**Change**	**Rate (kg/ha)**
Nitrogen	⇧	142	⇧	57	⇧	**95**
Phosphate	⇩	27	⇔	8	⇩	**17**
Potash	⇩	35	⇔	12	⇩	**22**
Sulphur	⇧	35	⇧	4	⇧	**18**

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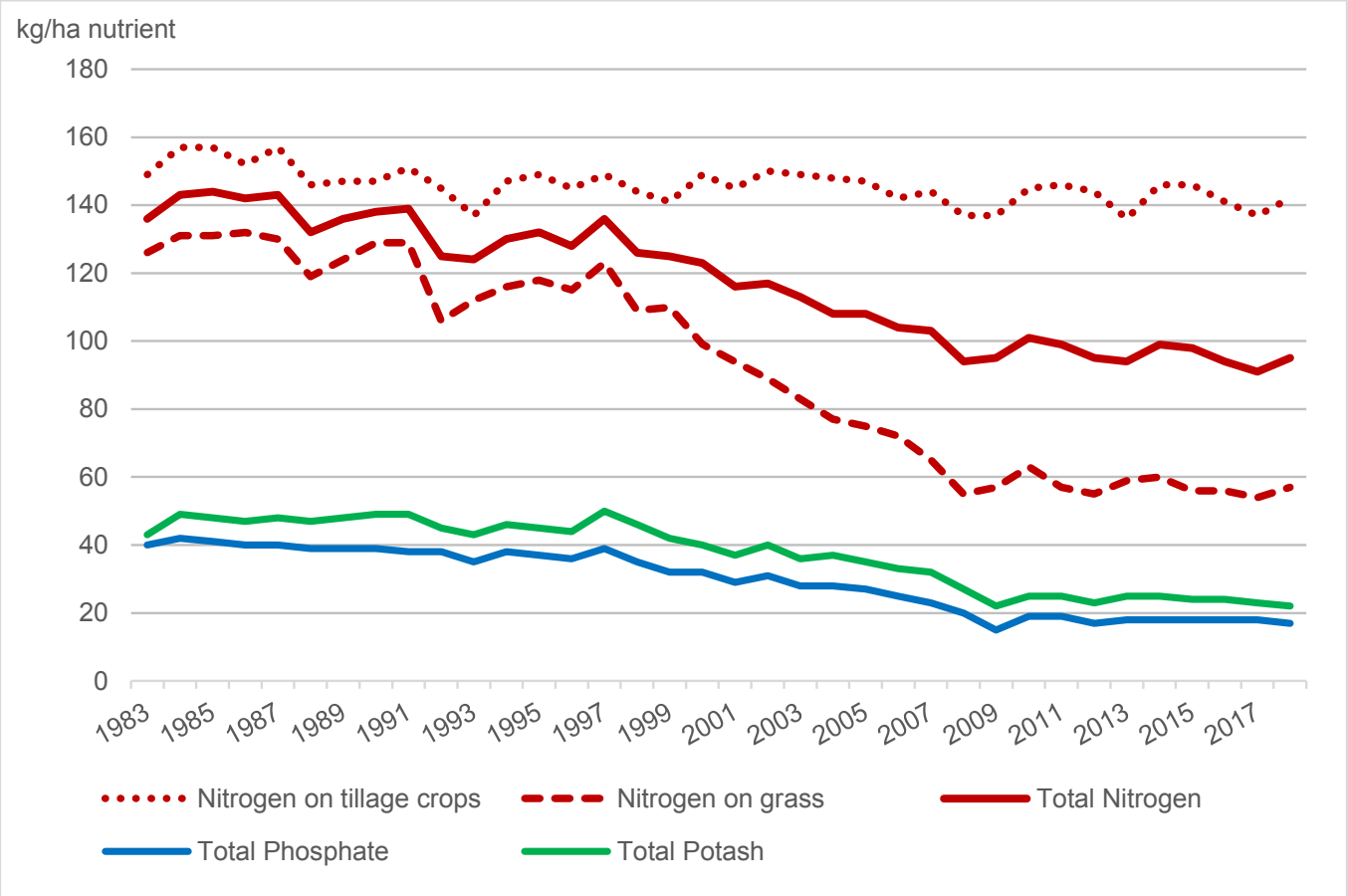
Defra statistical releases, including details of future publication dates, and can be viewed on the Defra website at: https://www.gov.uk/government/statistics/announcements?utf8=%E2%9C%93&keywords=&topics%5B%5D=&organisations%5B%5D=department-for-environment-food-rural-affairs&from_date=&to_date=&commit=Refresh+results

1. Overall fertiliser use on crops and grass

Figure 1 shows the overall application rates of nitrogen (N), phosphate (P_2O_5) and potash (K_2O) on tillage crops and grass from 1983. Overall application rates are driven by a combination of the number of fields that receive a dressing and the rate of application for that field. Maximum usage was seen in the 1980s but there has been a general downward trend since then. The long-term decline in total nitrogen over this period is mainly due to decreased use on grassland.

Figure 1: Overall fertiliser use (kg/ha) on all crops and grass, Great Britain 1983 - 2018



2. Nitrogen

2018 saw a 4 kg/ha increase in total nitrogen use on all crops and grassland (Table 1). This was driven by a 5 kg/ha increase in the overall rates on tillage crops and a 3 kg/ha increase in the overall rate on grassland. However, the total nitrogen use of 142 kg/ha on tillage crops remained within the typical 140-150 kg/ha range seen over the majority of the 30 years of the survey.

Table 1: Overall nitrogen use (kg N/ha), Great Britain 2014 - 2018

	Tillage crops	Grass	**All crops and grass**
2014	146	60	**99**
2015	146	56	**98**
2016	141	56	**94**
2017	137	54	**91**
2018	142	57	**95**

3. Phosphate and potash

Table 2: Overall phosphate and potash use (kg/ha), Great Britain 2014 - 2018

Total phosphate (P_2O_5)				Total potash (K_2O)			
	Tillage crops	Grass	**All crops and grass**		Tillage crops	Grass	**All crops and grass**
2014	29	10	**18**	**2014**	39	14	**25**
2015	29	9	**18**	**2015**	38	12	**24**
2016	29	9	**18**	**2016**	39	12	**24**
2017	30	8	**18**	**2017**	37	12	**23**
2018	27	8	**17**	**2018**	35	12	**22**

Table 2 contains overall phosphate and potash application rates for the past five years. Overall, fertiliser phosphate and potash use on all crops and grass has varied little over this period with rates on tillage crops about three times higher than those used on grassland.

4. Sulphur

Table 3: Overall sulphur use (kg SO_3/ha), Great Britain 2014 - 2018

	Tillage crops	Grass	**All crops and grass**
2014	31	4	**16**
2015	31	3	**16**
2016	31	3	**16**
2017	34	3	**17**
2018	35	4	**18**

Overall applications of sulphur on tillage crops and grass has increased by 1kg/ha to 35kg/ha and 4kg/ha respectively in 2018 (Table 3). The low overall rate on grass is a result of the low dressing cover, with only 12% of all grass receiving a sulphur dressing.

5. Organic manures

Organic manures[1] applied to agricultural land may be produced on farm by livestock as slurries, farmyard manure (FYM) and poultry manures or imported from other sources such as treated sewage sludge (also called bio-solids) and some industrial 'wastes' such as compost, paper waste or brewery effluent. The nutrient levels in organic manures vary but can provide a valuable source of nitrogen, phosphorus and potassium.

In 2018, 68% of farms in the survey used organic manures on at least one field on the farm[2] (Table 4). Cattle manure from beef and dairy farms represents by far the largest volume of manure type generated in Great Britain. The proportion of farms using cattle FYM and cattle slurry has remained relatively stable over the last 5 years and was 51% and 17% of farms respectively in 2018.

Table 4: Numbers and percentage (%) of farms using each type of manure in Great Britain, 2018

	Farms in sample	Farms in population	Farms in population %	Volume (Mt: Mm^3)	Volume %
None	371	28,942	32%	n/a	n/a
Cattle FYM	686	45,793	51%	39.2	41%
Cattle slurry	237	15,390	17%	40.8	43%
Pig FYM	38	1,537	2%	1.6	2%
Pig Slurry	10	354	0%	1.0	1%
Layer manure	30	1,140	1%	0.5	0%
Broiler/ turkey litter	31	1,359	2%	0.6	1%
Other FYM	75	6,097	7%	2.7	3%
Other farm	5	353	0%	0.8	1%
Bio-solids	49	1,601	2%	2.8	3%
Other non-farm	45	2,020	2%	5.1	5%
Total with manure	932	61,417	68%	95.1	100%

Note: some farmers may use more than one type of manure. Mt: Mm^3 are million tonnes and cubic metres.

In 2018, organic manure was applied to 27% of the area of tillage crops whereas this was 33% for grass of five years and over and 52% for grass under five years old. The majority of cattle manure and slurry was applied to grassland, reflecting the practice of utilising the manure on the farm on which it is produced.

Broadcast application is by far the predominant method of applying slurry being mostly spread on grassland. Manures applied to fields for winter sown crop are primarily treated in August and September (prior to drilling) whereas spring sown and grass fields are predominantly treated in the spring.

Where organic manures are used, applications of manufactured fertiliser can usually be reduced. Whilst the survey did not specifically ask farmers whether they adjusted manufactured fertiliser inputs because of manure use, an indication of this is possible by comparing fields that received manure with those that did not. This shows that for the major tillage crops the overall application rate of nitrogen was lower on fields which received manure. A similar trend is also seen for phosphate and potash use.

[1] The underlying sample design of the BSFP is constructed to measure manufactured fertiliser usage and therefore may not represent the population of farmers using organic manures as robustly.

[2] Not all manure generated by a farm is necessarily retained for use by that farm and excess manure/slurry may be exported for use elsewhere.

Further information

Survey Background and Methodology

The British Survey of Fertiliser Practice (BSFP) is the primary source of data on inorganic and organic fertiliser use in Great Britain. Its main purpose is to estimate average application rates of nitrogen, phosphate and potash used for agricultural crops and grassland. Information is also collected on applications of sulphur fertilisers, organic manures and lime. The survey data are used by Government, industry and the wider agricultural community to monitor best practice, to assess potential environmental impacts and mitigation strategies and provide important evidence to estimate greenhouse gas emissions from agriculture to inform policy.

The full Report with detailed methodological information plus separate key datasets are available on the GOV.UK website.

The BSFP is a voluntary annual survey of a sample of farmers selected from a population of agricultural holdings compiled using the June Agricultural Survey. The target sample size is 1,500 farms; this sample size has been designed to achieve a statistically representative sample at the national level. Holdings of less than 20 hectares are not included in the sample. While these smaller holdings account for a significant proportion of all holdings in terms of numbers, they cover a much smaller proportion of the total area of crops and grass.

Data collection is undertaken mainly through face to face interviews with individual farmers and in 2018 the achieved sample size was 1,303. The underlying sample design of the BSFP is constructed to measure manufactured fertiliser usage and therefore may not as reliably represent the population of farmers using organic manures. The standard errors are relatively small for tillage crops, all crops and the main arable crops of wheat, oilseed rape and barley. Detailed methodology is provided in the full report.

All calculations of fertiliser rates are based on sown area of crops rather than field areas[3] and results are expressed in terms of the equivalent nutrient. The overall application rate takes into account the proportion of the crop area treated and the actual field rate of application used.

Feedback

Feedback on the publication and the survey is welcome. Contact information for feedback or questions is provided on the front page of this statistical notice.

Other statistics of interest

Defra also run other surveys which may be of relevance and interest to fertiliser use and related practices through its Farm Practices Survey for England which is available of the Defra website.

Data on fertiliser use are also a key element of soil nutrient balances. Soil nutrient balances provide a method for estimating the annual nutrient loadings of nitrogen and phosphorus to agricultural soils. They give an indication of the potential risk associated with losses of nutrients to the environment; losses which can impact on air and water quality and on climate change. Soil nutrient balances estimates are published under the heading “Soils” here:- https://www.gov.uk/government/collections/agri-environment-analysis

[3] This reflects cross-compliance and environmental scheme measures where field margins remain uncropped.

National Statistics Status

National Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

The continued designation of these statistics as National Statistics was confirmed in 2012 following a full assessment by the UK Statistics Authority against the Code of Practice for Statistics.

Since the last review of these statistics in 2012, we have continued to comply with the Code of Practice for Statistics, and have made improvements including:

•Incremental improvements to the sample selection to optimise coverage for key survey data items;
•Improvements to the wording of questions in light of feedback from interviewers; and
•Flexible use of the survey platform to collect additional data to meet needs of data users (the modular questions)