



23rd June 2020

## British Survey of Fertiliser Practice

### Fertiliser use on farm for the 2019 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 2019 survey. Full results and methodological details are published in a separate report [here](#).

#### Key points - overall application rates by nutrient (compared to 2018)

*Note: 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.*

##### Nitrogen

- Overall rate fell to 92 kg/ha
- Rates on tillage crops and grassland both fell to 137 kg/ha and 54 kg/ha respectively

##### Phosphate

- Overall rate fell to 16 kg/ha
- Rates on tillage crops fell to 26 kg/ha whilst rates on grassland remained level at 8 kg/ha

##### Potash

- Overall rate remained level at 22 kg/ha
- Rates on tillage crops fell to 34 kg/ha whilst rates on grassland fell to 11 kg/ha

##### Sulphur

- Overall rate remained level at 18 kg/ha
- Rates on tillage crops remained level at 35 kg/ha whilst rates on grassland increased to at 5 kg/ha

## Contents

British Survey of Fertiliser Practice.....	1
Fertiliser use on farm for the 2020 crop year.....	1
Key points - overall application rates by nutrient (compared to 2018).....	1
Nitrogen .....	1
Phosphate.....	1
Potash.....	1
Sulphur.....	1
Contents.....	2
What you need to know about this release.....	3
Section 1 – Overall fertiliser use on crops and grass .....	4
Section 2 – Use by type of nutrient .....	5
2.1 Nitrogen .....	5
2.2 Phosphate and potash .....	5
2.3 Sulphur.....	6
Section 3 - Organic manures.....	7
Section 4 – About these statistics .....	9

## What you need to know about this release

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### 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)

For general enquiries about National Statistics, contact the National Statistics Public Enquiry Service:

Tel: 0845 601 3034

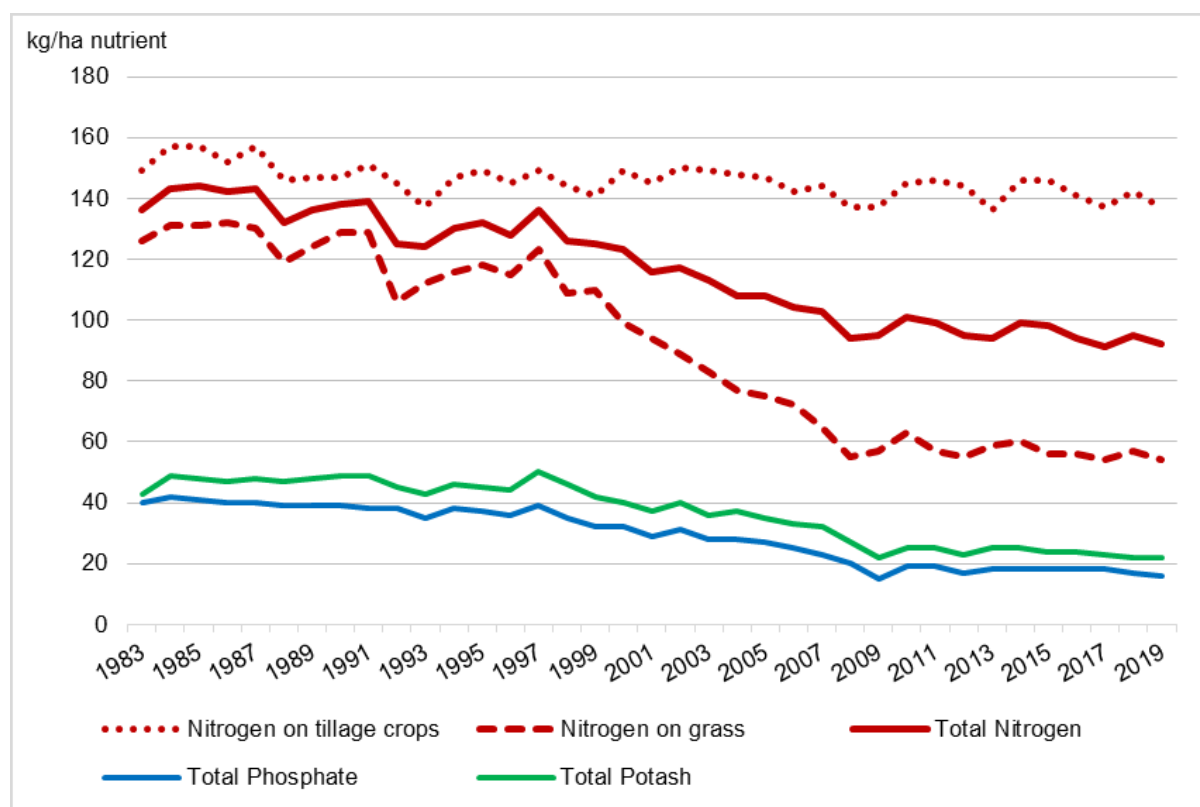
Email: [info@statistics.gov.uk](mailto:info@statistics.gov.uk).

You can find National Statistics on the internet [on the Gov.uk website](#).

## Section 1 – Overall fertiliser use on crops and grass

Figure 1 shows the overall application rates of nitrogen (N), phosphate (P<sub>2</sub>O<sub>5</sub>) and potash (K<sub>2</sub>O) 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 1983-2019**



## Section 2 – Use by type of nutrient

### 2.1 Nitrogen

2019 saw a 3 kg/ha decrease in total nitrogen use on all crops and grassland (Table 2.1). This was driven by a 5 kg/ha decrease in the overall rates on tillage crops and a 3 kg/ha decrease in the overall rate on grassland. The total nitrogen use of 137 kg/ha on tillage crops remained near the typical 140-150 kg/ha range seen over the majority of the 30 years of the survey.

**Table 2.1 - Overall nitrogen use (kg N/ha), Great Britain 2015-2019**

	Tillage crops	Grass	All crops and grass
<b>2015</b>	146	56	<b>98</b>
<b>2016</b>	141	56	<b>94</b>
<b>2017</b>	137	54	<b>91</b>
<b>2018</b>	142	57	<b>95</b>
<b>2019</b>	137	54	<b>92</b>

### 2.2 Phosphate and potash

**Table 2.2 - Overall phosphate and potash use (kg/ha), Great Britain 2015-2019**

Total phosphate (P <sub>2</sub> O <sub>5</sub> )				Total potash (K <sub>2</sub> O)			
	Tillage crops	Grass	All crops and grass		Tillage crops	Grass	All crops and grass
<b>2015</b>	29	9	<b>18</b>	<b>2015</b>	38	12	<b>24</b>
<b>2016</b>	29	9	<b>18</b>	<b>2016</b>	39	12	<b>24</b>
<b>2017</b>	30	8	<b>18</b>	<b>2017</b>	37	12	<b>23</b>
<b>2018</b>	27	8	<b>17</b>	<b>2018</b>	35	12	<b>22</b>
<b>2019</b>	26	8	<b>16</b>	<b>2019</b>	34	11	<b>22</b>

Table 2.2 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.

## 2.3 Sulphur

**Table 2.3 - Overall sulphur use (kg SO<sub>3</sub>/ha), Great Britain 2015-2019**

	Tillage crops	Grass	All crops and grass
<b>2015</b>	31	3	<b>16</b>
<b>2016</b>	31	3	<b>16</b>
<b>2017</b>	34	3	<b>17</b>
<b>2018</b>	35	4	<b>18</b>
<b>2019</b>	35	5	<b>18</b>

Overall applications of sulphur on tillage crops remained at 35kg/ha in 2019 while applications on grass increased by 1kg/ha to 5kg/ha (Table 2.3). The low overall rate on grass is a result of the low dressing cover, with only 14% of all grass receiving a sulphur dressing.

## Section 3 - Organic manures

Note: The underlying sample design of the BSFP is designed to measure manufactured fertiliser usage and therefore may not represent the population of farmers using organic manures as robustly.

Organic manures 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 (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 2019, 67% of farms in the survey used organic manures on at least one field on the farm (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 50% and 17% of farms respectively in 2019.

**Table 3 - Numbers and percentage (%) of farms using each type of manure in Great Britain, 2019**

	Farms in sample	Farms in population	Farms in population %	Volume (Mt: Mm <sup>3</sup> )	Volume %
<b>None</b>	376	28,707	33%	n/a	n/a
<b>Cattle FYM</b>	704	43,595	50%	38.3	40%
<b>Cattle slurry</b>	255	14,968	17%	44.1	46%
<b>Pig FYM</b>	39	1,596	2%	2.1	2%
<b>Pig Slurry</b>	12	378	0%	0.5	1%
<b>Layer manure</b>	28	1,144	1%	0.8	1%
<b>Broiler/ turkey litter</b>	43	1,827	2%	0.7	1%
<b>Other FYM</b>	78	5,429	6%	1.9	2%
<b>Other farm</b>	3	92	0%	1.0	1%
<b>Bio-solids</b>	52	1,899	2%	2.8	3%
<b>Other non-farm</b>	43	2,021	2%	4.5	5%
<b>Total with manure</b>	951	57,818	67%	96.7	100%

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

In 2019, organic manure was applied to 26% of the area of tillage crops compared to 35% for grass of five years and over and 47% 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.



## Section 4 – About these statistics

### 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 2019 the achieved sample size was 1,327. 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 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>