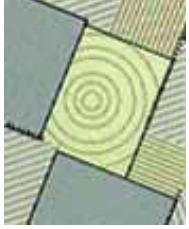
THE BRITISH SURVEY OF

# Fertiliser Practice

FERTILISER USE ON FARM CROPS
FOR CROP YEAR 2010

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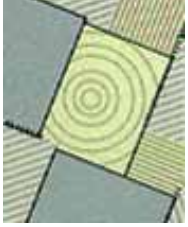
Marc Thomas

Economics and Statistics Programme
Food and Farming Group
Defra
Foss House
Peasholme Green
York
YO1 7PX

Email: marc.thomas@defra.gsi.gov.uk

Tel: +44 (0) 1904 456401
Fax: +44 (0) 1904 455242



# FOREWORD

The British Survey of Fertiliser Practice provides information on fertiliser use on the major crops and grass grown in mainland Britain.

The 2010 Survey was sponsored by the Department for Environment, Food and Rural Affairs (Defra) and the Scottish Government. The Survey has the full support of the Farmers' Unions in England, Scotland and Wales.

The Survey is carried out annually and is based upon returns from a sample of farms. In 2010, the Survey was co-ordinated by GfK Kynetec, who was responsible for the survey design, data collection, statistical analysis and quality control monitoring.

March 2011

# ACKNOWLEDGEMENTS

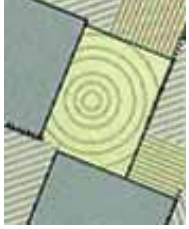
The sponsors gratefully acknowledge the co-operation of all farmers taking part in the 2010 British Survey of Fertiliser Practice.

We wish to thank all those involved for their assistance and support in the design, conduct and analysis of the Survey.

The agronomic interpretation of the Survey results benefited from advice from Chris Dawson (Chris Dawson and Associates), agronomic consultant to the Agricultural Industries Confederation (AIC).

Kate Benford[1]

[1] GfK Kynetec, Weston Court, Weston, Newbury, Berkshire RG20 8JE



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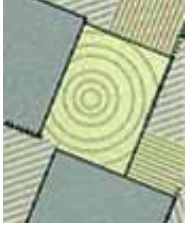

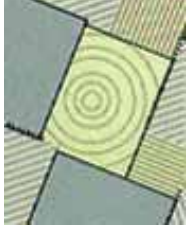

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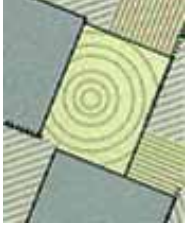
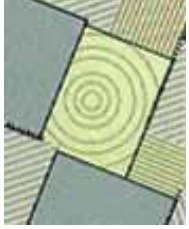
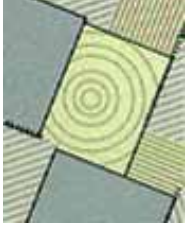






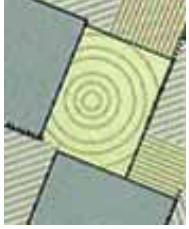
# EXECUTIVE SUMMARY

The British Survey of Fertiliser Practice is an annual, nationally representative survey based on the selection of a random stratified sample of farms from mainland Britain. In 2010, responses from 1,366 farms were obtained. The main purpose of the survey 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 main findings from the 2010 Survey on the use of each fertiliser nutrient in Great Britain are summarised below (Table ES1). Weather and economic factors which may have contributed to recorded changes in fertiliser use during the 2009/2010 cropping season are also discussed in the report.

**Table ES1 Nutrient dressing cover, current and five year mean overall application rates for all crops and grass, Great Britain 2010**

| | All Tillage | All Grass | All Crops and Grass |
|---|---|---|---|
| **Total Nitrogen** | | | |
| Overall application rate, 2010 (kg/ha) | 149 | 63 | 102 |
| Mean overall application rate, 2006-2010 (kg/ha) | 145 | 62 | 101 |
| Crop area receiving dressing, 2010 (%) | 90 | 63 | 75 |
| **Straight Nitrogen** | | | |
| Overall application rate, 2010 (kg/ha) | 134 | 30 | 78 |
| Mean overall application rate, 2006-2010 (kg/ha) | 129 | 27 | 75 |
| Crop area receiving dressing, 2010 (%) | 81 | 29 | 53 |
| **Compound Nitrogen** | | | |
| Overall application rate, 2010 (kg/ha) | 14 | 33 | 24 |
| Mean overall application rate, 2006-2010 (kg/ha) | 15 | 35 | 26 |
| Crop area receiving dressing, 2010 (%) | 23 | 43 | 34 |
| **Total Phosphate** | | | |
| Overall application rate, 2010 (kg/ha) | 30 | 10 | 19 |
| Mean overall application rate, 2006-2010 (kg/ha) | 31 | 12 | 21 |
| Crop area receiving dressing, 2010 (%) | 50 | 43 | 46 |
| **Total Potash** | | | |
| Overall application rate, 2010 (kg/ha) | 38 | 14 | 25 |
| Mean overall application rate, 2006-2010 (kg/ha) | 42 | 16 | 28 |
| Crop area receiving dressing, 2010 (%) | 50 | 44 | 47 |
| **Total Sulphur** | | | |
| Overall application rate, 2010 (kg/ha) | 24 | 2 | 12 |
| Mean overall application rate, 2006-2010 (kg/ha) | 22 | 2 | 12 |
| Crop area receiving dressing, 2010 (%) | 40 | 6 | 22 |



## Nitrogen

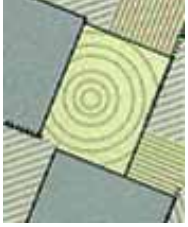
- Total nitrogen applied increased by 10 kg/ha on tillage crops and by 6 kg/ha on grassland between 2009 and 2010. The total nitrogen rate on all crops and grassland increased by 5 kg/ha (this is below the individual rates for crops and grass because of an increase in the area of grassland and a reduction in the area of crops). Overall application rates of nitrogen on all tillage crops and grassland have recovered to the levels observed in 2007, following relatively lower rates applied in both 2008 and 2009 (when fertiliser prices were at historically high levels). Whilst the rise in the application rate on grassland is the second annual increase since 1999, the level is consistent with the declining long term trend. The rate on all tillage has remained relatively constant for the last 25 years.
- There were increases in the overall application rate of nitrogen in 2010 on winter wheat, winter barley and oilseed rape. Rates on maincrop potatoes decreased sharply (by 33 kg/ha), though application rates on this crop can vary considerably year on year. Rates on spring barley and sugar beet were similar to 2009. The proportion of crop area (for tillage crops) receiving a straight nitrogen application remained the same as 2009 at 81%, with modest increases on winter wheat and potatoes and similar reductions on winter barley, spring barley and sugar beet. Overall rates of compound nitrogen applied in 2010 increased by 1-5 kg/ha since 2009 on major tillage crops, the exception being potatoes where the rate decreased by 17 kg/ha. Dressing cover for compound fertiliser increased on all major tillage crops except potatoes and oilseed rape.
- The 6 kg/ha increase in overall total nitrogen rate on grassland was caused by a higher dressing cover and an increased average field application rate of straight N. An increase in dressing cover was also seen for compound N although the average field rate was unchanged since 2009, resulting in overall total N rate of 63 kg/ha for grassland in 2010.

## Phosphate

- Overall phosphate use on tillage crops and grassland in 2010 increased compared to last year (by 7 kg/ha to 30 kg/ha and by 1 kg/ha to 10 kg/ha respectively). This was a reversal of the decreased rates observed between the 2008 and 2009 cropping years. This is due to a combination of increased average application rates on both tillage and grassland and an increase in the proportion of land receiving a phosphate dressing. In 2010, 50% of all tillage crops and 43% of grassland received a phosphate application, giving five year means of 47% and 46%, respectively. It is possible that the increase in use of phosphate in 2010 was caused by applications made to compensate for lower usage in the previous cropping year.
- Overall phosphate use on tillage crops has gradually declined since 1983, with five-year means of 58 kg/ha in 1983-87, 54 kg/ha in 1988-92, 53 kg/ha in 1993-97, 46 kg/ha in 1998-02, 38 kg/ha in 2003-07 and 31 kg/ha for the period 2006-10. For grassland, the five-year means have been 25 kg/ha in 1983-87, 23 kg/ha in 1988-92, 23 kg/ha in 1993-97, 20 kg/ha in 1998-02, 16 kg/ha in 2003-07 and 12 kg/ha for the period 2006-10.

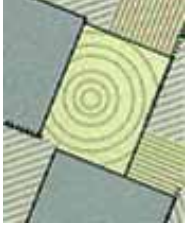
## Potash

- The proportion of the area of tillage crops receiving a potash dressing increased from 43% in 2009 to 50% in 2010. This combined with slightly reduced average field rate of potash in 2010 (76 kg/ha) meant the overall rate increased by 5 kg/ha compared to last year. The overall rate on grassland rose by 2 kg/ha as a result of higher average rates and an increase in the area receiving a dressing.
- Overall potash use on tillage crops has declined since 1983 albeit gradually at first, with five-year means of 64 kg/ha in 1983-87, 63 kg/ha in 1998-92, 62 kg/ha in 1993-97, 57 kg/ha in 1998-02, 52 kg/ha in 2003-07 and 42 kg/ha in 2006-10. The pattern of overall potash use on grassland has been more variable compared to tillage crops, but also shows a net decline between 1983 and 2010. Overall potash rates were relatively stable at 31-33 kg/ha during the mid 1980s - early 1990s but, since then, have tended to decline despite occasional year-on-year increases being recorded.



## Sulphur

- The Survey has collected detailed information on sulphur fertiliser use since 1993, when only 3-6% of the cereal crop areas and 8% of the oilseed rape area received a sulphur application. By 1997, these proportions had increased markedly to 13-14% for cereals and 30% for oilseed rape. Dressing covers for sulphur generally remained fairly static until 2002, and then increased steadily to 2007. Dressing covers reduced in 2008 and 2009 for all cereals except winter barley. In 2010 cereals sulphur dressing covers were in the 42%-44% range. The 64% dressing cover for oilseed rape was a 4% increase from 2009.
- In 2010, 22% of all crops and grass received a dressing of sulphur, this figure was 40% for tillage crops. On tillage crops the overall application rate for sulphur was 24 kg/ha, an increase of 5 kg in comparison to last year. Applications on grass were consistent with 2008 at 2 kg/ha, this low overall rate is caused by the low dressing cover, with only 6% of grass receiving a sulphur dressing.



# SECTION A

## THE BRITISH SURVEY OF FERTILISER PRACTICE

## A1 INTRODUCTION AND STRUCTURE OF THE REPORT

The British Survey of Fertiliser Practice (BSFP) is the primary source of data on organic and inorganic fertiliser use in Great Britain. The results from the Survey are used by the British fertiliser industry, by Government and by the wider agricultural community. It is essential that the claims made from the Survey are underpinned by an effective methodology. Section A2 describes this methodology, detailing measures undertaken to avoid bias and unreliability. National changes in relative cropping areas are discussed in Section A3.

Section B provides a commentary of recent changes in survey data and longer term trends. Section C presents the main tables of results from the Survey, grouped by geographic coverage. They include major crop groups, grassland, product types and farm types. Figures for estimates of 'total', 'straight' and 'compound' nutrient rates are presented in separate tables. Section D provides an analysis of the application of organic manures and manufactured fertilisers.

### A1.1 HISTORY

The survey has been in existence, in various forms, since 1942 for England & Wales. It was extended to Scotland in 1983. Historical data from 1942 to 1997 have been summarised in several reviews spanning this period of time.[2, 3, 4, 5]

The current methods of survey design and implementation are the result of adaptation of the original design by Rothamsted Experimental Station, undertaken by Edinburgh Data Library at the University of Edinburgh between 1992 and 1998. From 1999 until 2003 design and analysis was undertaken by the Rural Business Unit at the University of Cambridge and from 2004 by GfK Kynetec (formerly Kynetec Limited), who also retained responsibility for conducting the fieldwork.

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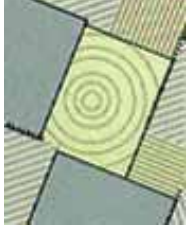
[2] Yates, F. and Boyd, D.A. (1965). Two decades of Surveys of Fertiliser Practice. *Outlook on Agriculture* **5**, 203-210.

[3] Church, B.M. and Lewis, D.A. (1977). Fertiliser use on farm crops, England and Wales: Information from the Survey of Fertiliser Practice, 1942-1976. *Outlook on Agriculture* **9**, 186-193.

[4] Chalmers, A.G., Kershaw, C.D. and Leech, P.K. (1990). Fertiliser use on farm crops in Great Britain: Results from the Survey of Fertiliser Practice, 1969-1988. *Outlook on Agriculture* **19**, 269-278.

[5] Chalmers, A.G., Renwick, A.W., Johnston, A.E. and Dawson, C.J. (1999). Design, development and use of a national survey of fertiliser applications. *Proceedings International Fertiliser Society* **437**.



# A2 SURVEY METHODOLOGY

## A2.1 SAMPLE

The Survey sample is selected from the population of agricultural holdings compiled using the June Agricultural Survey (a sample survey conducted annually which records information on farm size, cropping, stocking and employment). In each year, two samples are extracted from the June Survey, one for England & Wales and one for Scotland. Holdings less than 20 hectares in size are excluded from the BSFP sample. In England & Wales, farms are classified into one of three types, cropping, livestock and horticulture. Farms are then further classified into four size groups. In Scotland, a similar number of size groups are used but farms are classified into only two types, mainly cropping and mainly livestock.

The farm types are based on groupings of the standard UK (and EU) farm classifications (called 'robust' types). Farms with a robust type of 'Other' (robust type 10) are not included in the sample. See A2.4 paragraph 9 for more details.

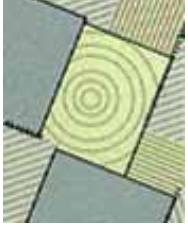
The target sample size is 1500 farms. The farms are allocated to each of the combinations of farm type and size in proportion to the total area of crops and grass recorded in the June Survey in 2009 (the latest available data). The exception to this is that in England & Wales the number of farms in the horticultural group are sampled at a higher rate to ensure sufficient numbers for a robust estimate to be made. See Tables A2.1 and A2.2 for the number of farms selected.

Three reserves are selected for each farm in the main sample. The reserves will be the nearest holding (using the County/Parish/Holding (CPH) number) and of the same farm type and size. The survey is voluntary. Each farm in the main sample is contacted; if for whatever reason a farm is not able to take part in the survey, the first reserve for that farm is then contacted. If this farm also refuses then the second and if necessary the third reserve is contacted. If all four farms refuse then no farm is recruited into the survey.

This resulted in an achieved sample size of 1,366 holdings in 2010.

To help improve the survey response and to reduce the year-on-year variability, a core of respondents complete the survey each year. This was introduced in 2000 when approximately one third of the sample agreed to stay in the survey for a number of years. Between 2006 and 2007 a review of the panel structure was undertaken to ensure that the proportion of respondents who had participated on the panel for 5 consecutive years or more constituted no more than 20% of the total sample. In 2010, 65% of the sample had also responded in 2009.

The responses are weighted to be representative of the national population by using the inverse of the achieved sampling fraction (i.e. the number of holdings in the population divided by the achieved sample size in each strata) as the weight.



## Table A2.1 Derivation of the stratified random sample for the 2010 survey, England & Wales

| | farm holdings in population in 2009 | total crops and grass in 2009 (column %) | notional sampling fraction[a] (%) | target sample size | achieved sample size | achieved sample fraction[b] (%) |
|---|---|---|---|---|---|---|
| **England & Wales** | | | | | | |
| **Livestock & mixed** | | | | | | |
| (Robust types: specialist pigs, specialist poultry, dairy, cattle and sheep (LFA & lowland), mixed) | | | | | | |
| **crops & grass area** | | | | | | |
| 20-50 ha | 17054 | 6.9 | 0.50 | 85 | 87 | 0.51 |
| 51-100 ha | 14816 | 12.8 | 1.07 | 158 | 158 | 1.07 |
| 101-200 ha | 9584 | 15.8 | 2.04 | 196 | 180 | 1.88 |
| 200+ ha | 3376 | 13.3 | 4.89 | 165 | 144 | 4.27 |
| ***Total livestock & mixed*** | 44830 | 48.7 | 1.35 | 604 | 569 | 1.27 |
| **Crops** | | | | | | |
| (Robust types: cereals, general cropping) | | | | | | |
| **crops & grass area** | | | | | | |
| 20-50 ha | 7411 | 3.1 | 0.51 | 38 | 45 | 0.61 |
| 51-100 ha | 7654 | 6.7 | 1.07 | 82 | 75 | 0.98 |
| 101-200 ha | 7262 | 12.5 | 2.11 | 153 | 133 | 1.83 |
| 200+ ha | 6074 | 28.2 | 5.69 | 345 | 269 | 4.43 |
| ***Total crops*** | 28401 | 50.4 | 2.18 | 618 | 522 | 1.84 |
| **Horticulture** | | | | | | |
| (Robust type: horticulture) | | | | | | |
| **crops & grass area** | | | | | | |
| 20-50 ha | 675 | 0.3 | 1.61 | 11 | 9 | 1.33 |
| 51-100 ha | 245 | 0.2 | 3.39 | 8 | 5 | 2.04 |
| 101-200 ha | 111 | 0.2 | 7.02 | 8 | 5 | 4.50 |
| 200+ ha | 42 | 0.2 | 19.17 | 8 | 7 | 16.67 |
| ***Total horticulture*** | 1073 | 0.8 | 3.26 | 35 | 26 | 2.42 |
| ***Total for England & Wales*** | 74304 | 100 | | 1257 | 1117 | 1.50 |

[a] The *notional sampling fraction* is found by expressing the *target sample size* as a percentage of the *farm holdings in population in 2009*

[b] The *achieved sampling fraction* is found by expressing the *achieved sample size* as a percentage of the *farm holdings in population in 2009*

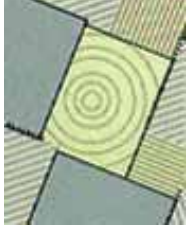


**Table A2.2 Derivation of the stratified random sample for the 2010 survey, Scotland**

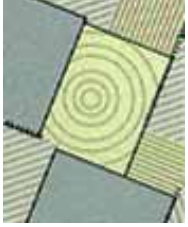
| | farm holdings in population in 2009 | total crops and grass in 2009 (column %) | notional sampling fraction[a] (%) | target sample size | achieved sample size | achieved sample fraction[b] (%) |
|---|---|---|---|---|---|---|
| **Scotland** | | | | | | |
| **Cereal/general** | | | | | | |
| (Robust types: cereals, general cropping, horticulture) | | | | | | |
| **crops & grass area** | | | | | | |
| 20-50 ha | 1162 | 2.4 | 0.51 | 6 | 8 | 0.69 |
| 51-100 ha | 1430 | 6.2 | 1.09 | 16 | 15 | 1.05 |
| 101-200 ha | 1357 | 11.5 | 2.12 | 29 | 29 | 2.14 |
| 200+ ha | 741 | 14.9 | 5.04 | 37 | 33 | 4.45 |
| ***Total cereal/general*** | 4690 | 35.1 | 1.87 | 88 | 85 | 1.81 |
| **Livestock & mixed** | | | | | | |
| (Robust types: specialist pigs, specialist poultry, dairy, cattle and sheep (LFA & lowland), mixed) | | | | | | |
| **crops & grass area** | | | | | | |
| 20-50 ha | 2995 | 6.1 | 0.51 | 15 | 16 | 0.53 |
| 51-100 ha | 3217 | 14.0 | 1.09 | 35 | 33 | 1.03 |
| 101-200 ha | 2553 | 21.2 | 2.08 | 53 | 53 | 2.08 |
| 200+ ha | 1143 | 23.6 | 5.16 | 59 | 58 | 5.07 |
| ***Total livestock & mixed*** | 9908 | 64.9 | 1.64 | 162 | 160 | 1.61 |
| ***Total for Scotland*** | 14598 | 100 | | 250 | 245 | 1.68 |

## A2.2 DATA COLLECTION

Data collection was undertaken between June and September 2010. In addition to collecting information on the fertiliser use on each field, the recorder collected general information on the holding and the use of lime and organic manures and slurries.

[a] The *notional sampling fraction* is found by expressing the *target sample size* as a percentage of the *farm holdings in population in 2009*

[b] The *achieved sampling fraction* is found by expressing the *achieved sample size* as a percentage of the *farm holdings in population in 2009*



## A2.3 DEFINITIONS OF TERMS

1. For the purpose of the Survey, the term **Great Britain** (or **Britain**) is defined to cover England (including the Isle of Wight), Wales (including Anglesey) and mainland Scotland.

2. The **survey year** ran from autumn 2009 to autumn 2010, corresponding to the 2010 season or harvest year. The recording period for fertiliser applications varied for different crop and grass groups on farms of not less than 20 hectares (ha) in size.

3. For the purposes of this survey, a **field** is defined as any single area of land measuring more than 0.2 ha (half an acre) which had a uniform cropping and fertiliser history from autumn 2009. For data collection and processing purposes, separate fields with identical cropping and fertiliser management on the same farm are blocked together as one 'field', to represent the total combined area of those fields. Areas within the same natural boundary receiving different treatments (crops on fertilisers) were recorded separately. Agricultural land which had been set-aside under the Single Payment Scheme was recorded, but was not included in analyses unless it was used to grow an industrial crop. Fallow land other than set-aside has always been collected by the survey, but is not included in the calculations of this report.

4. In the report, **tillage** is defined as all crops except grass, forestry, glasshouse crops and uncropped land designated as 'set-aside' under the Single Payment Scheme. **Grass** refers to all forms of grassland which may be grazed, conserved or grown for seed production; rough grazing is excluded.

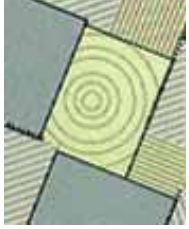
5. The abbreviation **N** is used for nitrogen; **$P_2O_5$** for phosphate; **$K_2O$** for potash, **$SO_3$** for sulphur and **FYM** for all types of organic manure e.g. slurries and solid manures. The phrase **total use** includes both straight (single nutrient) and compound (multi nutrient) products. Fertiliser products containing nitrogen and sulphur only are classified with straight nitrogen.

6. For each fertiliser nutrient, the **average field rate** (of application) is defined as the sum of nutrient applied divided by the total area of those fields which received any dressing of the nutrient. Crop area without any application of the nutrient is excluded from the calculation of the average field rates of application. These field-specific application rates provide direct evidence on the level and variation in farming practice.

7. The term **dressing cover** is used to describe the proportion of crop area treated with any dressing of the fertiliser nutrient in question, and is stated as a percentage.

8. The **overall application rate** is defined as the total quantity of nutrient used, in kilograms (kg), divided by the total extent of crop area, in hectares (ha) (including any areas without application of the nutrient).

   Any change in an overall application rate is due to a change in either the (actual) field rate of application used on farms, or to a change in the dressing cover, or to changes in both. Arithmetically, overall application rate is equivalent to the result of multiplying the average field rate of application by the proportion of crop area that receives any nutrient dressing. The overall application rate of a nutrient on a crop, by definition, cannot be greater than the average field rate of application.



9. The UK farm type system, which is based on the EU system, aggregates a wide range of defined farm types into ten 'robust' types:
   (1) Cereals
   (2) General Cropping
   (3) Horticulture
   (4) Specialist Pigs
   (5) Specialist Poultry
   (6) Dairy
   (7) Cattle and Sheep (LFA)
   (8) Cattle and Sheep (lowland)
   (9) Mixed
   (10) Other

   Prior to 2004, the UK agricultural departments amalgamated the robust types 'Specialist Pigs' and 'Specialist Poultry' as the single robust type 'Pigs and Poultry'. 2006 was the first year that the BSFP adopted the revised classification following analysis that showed this would not lead to under-representation of either of these farm types through marginalisation. The composition of 'robust' types is presented in greater detail in Appendix 3. The sampling framework outlined in Section A2.1 can be related to robust types as set out below.

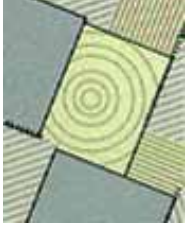
   Data presented in tables GB4.1 to GB4.5 are derived from the robust types shown below.

| *table number* | *robust group in table title* | *robust type name* | *robust number* |
|---|---|---|---|
| GB4.1 | cereal farms | Cereals | 1 |
| GB4.2 | general cropping | General cropping and horticulture | 2, 3 |
| GB4.3 | dairy farms | Dairy | 6 |
| GB4.4 | other livestock | LFA and lowland grazing livestock | 7, 8 |
| GB4.5 | mixed farms | Mixed | 9 |

   These robust type groupings are also used in tables D1.4 and D3.2. Due to the small number of specialist pigs and poultry farms interviewed in the survey, data collected from these robust types have not been presented in any of the tables listed above.

10. Regional analysis of the Survey data for England was classified in two ways in 2010. Table EW4.1a is based on the **Government Office Regions** (GORs) in common with other Defra surveys. Table EW4.1b is based on the former MAFF administrative regions, which were revised in 1996 to take account of changes to county boundaries and nomenclature resulting from the introduction of Unitary Local Authorities between April 1995 and April 1998. These revised regions, termed **BSFP regions**, have been the basis for regional analysis within the survey historically and are detailed in Appendix 2.

11. Where changes in application rates are termed 'significant' this indicates that the probability of a change of this magnitude arising purely by chance (sampling error) is less than five percent.



# A3 GENERAL TRENDS AND ISSUES

## A3.1 CROP AREAS AND WEATHER CONDITIONS

Annual changes in relative cropping areas, as well as any changes in fertiliser practice for individual crops, may affect nutrient application rates when aggregated across the main crop groupings. Table A3.1 provides a summary of June Agricultural Survey estimates for areas of individual major crops, crop groupings and total tillage and grassland categories in 2008/09 and 2009/10, and illustrates percentage changes in relative cropping areas over the past five years. There were about 10.9 million hectares of managed agricultural land in Britain in 2010, of which 4.5 million hectares (35%) were cultivated for tillage cropping and the remainder, 6.4 million hectares, were grassland (excluding rough grazing). Note that the 2010 June Survey was a census of all agricultural holdings. This led to updates to the statistical register and small revisions to the June 2009 figures.

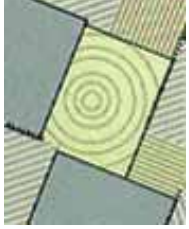
The Single Farm Payment was introduced on 1 January 2005, replacing all the previous main Common Agricultural Policy (CAP) payment schemes with a single payment. To obtain this single payment, farmers must demonstrate compliance with a number of measures designed to protect the environment. One potential impact of cross-compliance, and of environmental schemes, is that margins of fields will remain un-cropped. In this report, as was the case in for the last 4 years, all calculations of fertiliser rates have been made on the basis of sown area rather than field size.

**Table A3.1 Cropping and grassland areas ('000 ha) in Great Britain, 2009 – 2010**

| **Crops** | June 2009 '000s ha | June 2010 '000s ha | % change since 2009 | % change since 2005 | 2010 crop areas as % of total tillage area |
|---|---|---|---|---|---|
| Wheat | 1765 | 1928 | 9.2 | 3.7 | 42.4 |
| Barley – winter | 398 | 376 | -5.4 | -1.1 | 8.3 |
| – spring | 718 | 521 | -27.4 | -1.9 | 11.5 |
| *Total cereals*[1] | *3037* | *2975* | *-2.0* | *3.2* | *65.5* |
| Oilseed rape – total | 569 | 642 | 12.7 | 23.7 | 14.1 |
| Sugar beet | 114 | 118 | 3.5 | -20.4 | 2.6 |
| Potatoes[2] | 139 | 133 | -4.2 | 0.5 | 2.9 |
| Linseed | 28 | 44 | 57.1 | -2.7 | 1.0 |
| Peas/beans[3] | 228 | 208 | -8.8 | -12.9 | 4.6 |
| Maize/other fodder | 228 | 223 | -2.2 | 14.6 | 4.9 |
| Vegetables | 124 | 120 | -3.1 | 0.2 | 2.6 |
| *Total tillage*[4] | *4549* | *4544* | *-0.1* | *3.6* | *100.0* |
| Set-aside and bare fallow[5] | 244 | 173 | -29.2 | -75.2 | |
| **Grassland** | | | | | 2010 grass areas as % of total grass area |
| Less than 5 years old | 1120 | 1114 | -0.6 | 5.3 | 17.5 |
| 5 years and older | 5195 | 5264 | 1.3 | 4.5 | 82.5 |
| *Total grass*[6] | *6315* | *6378* | *1.0* | *4.7* | *100.0* |
| *Total crops and grass*[7] | *10865* | *10922* | *0.5* | *4.2* | |

[1] including minor cereals (oats, rye, triticale, mixed corn).
[2] early + maincrop potatoes.
[3] harvested dry for animal consumption or, for peas, human consumption.
[4] including other crops, but not bare fallow or set-aside.
[5] The obligatory set-aside rate for the 2010 Single Payment Year was set at 0%.
[6] managed grassland, excluding rough grazing.
[7] total tillage + total grassland.

Source: Annual Defra/Scottish Government/Welsh Assembly Government (WAG) June Agricultural Survey data



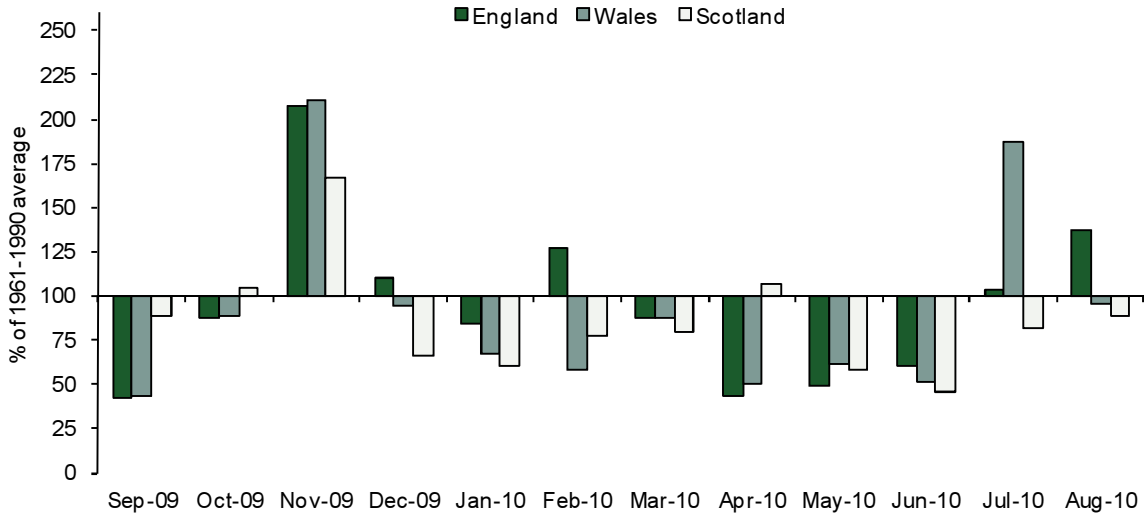
Comparing the 2009 and 2010 cropping years, the total area of uncropped land (bare fallow and set- aside) fell by 29% in 2010. This was predominantly caused by a reduction in land left as bare fallow in England, with the obligatory set aside area remaining at zero in all countries. The total area under tillage crops was virtually unchanged at -0.1% and cereals reduced by 2.0%. The 9.2% increase in wheat area in 2010 balanced the 12.8% reduction seen between the two previous cropping years. The reduction in spring barley area of 27.4% was the largest of the cereal crops, with 2010 seeing an increase in the area cropped with linseed.

Unusual seasonal weather conditions can influence fertiliser usage in some years. For example:

- A very wet (or very dry) autumn might delay the establishment of winter sown crops, or alter the ratio of winter to spring sown crops, with their different fertiliser requirements.
- Prolonged wet weather can increase leached losses of some nutrients, particularly nitrogen and sulphur. Weather conditions also affect other aspects of soil chemistry and nutrient availability.
- Adverse weather conditions can disrupt planned activities, such as fertiliser spreading.
- Growing conditions determine plant growth and can therefore affect nutrient requirements.

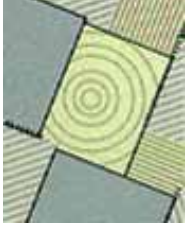
In September and October 2009 rainfall was below average for Great Britain, with England having the driest September since 1997. Almost all areas recorded well above average rainfall for November, with England and Wales having twice the normal amount. For the winter as a whole rainfall tended to be below average, but there were significant snowfalls between December and February 2010. England and Wales had the coldest winter since 1978/1979, for Scotland it was comparable with 1946/7. Dry conditions persisted for the period March to June, with April and May being particularly dry. It was the driest spring since 1984. July saw twice the average rainfall in Wales, England by contrast had rainfall just above average. In August the rainfall in England was above average, but below average for Scotland and Wales.

**Figure A3.1 Monthly rainfall as a % of the long term average[6]**




When the weather affects the proportion of winter to spring crops (notably cereals and oilseed rape) this can have a major impact on fertiliser use because lower-yielding spring crops often require less fertiliser. The impact of all these factors on fertiliser use are discussed in Section B of this report.

[6] www.metoffice.gov.uk/climate/uk



# SECTION B

## COMMENTARY ON FERTILISER USE IN GREAT BRITAIN

This commentary refers to rates of application in mainland Britain of fertilisers containing nitrogen (N), phosphate ($P_2O_5$), potash ($K_2O$) and sulphur ($SO_3$) on tillage crops and grassland (excluding rough grazing). Section B1 of the report covers the five-year period 2006-2010. Comments on longer term trends are made in Section B2.

The estimates of overall application rates from the survey relate to usage on farms during the 2009-2010 growing season: they form a basis for estimating quantities of fertiliser used in Great Britain. The estimates of the average field rates provide a better indication than overall application rates of actual usage levels and also of any annual variation in fertiliser practice on farms. The definitions of the terms used are set out in Section A of this report.

The statistics on the pattern of fertiliser practice reported for Great Britain largely reflect practice in England & Wales due to its greater area of total crops and grassland: about 9.0 million hectares in England & Wales and about 1.9 million hectares in Scotland. In what is otherwise a commentary on Britain as a whole, remarks on the separate regions are only made to highlight particular trends of interest. Readers interested in more detailed recent trends for individual crops in England & Wales or in Scotland can refer to tables presented in Section C. A summary of data from earlier years is available in Chalmers 2001[7].

[7] Chalmers A. G. (2001) A Review of fertiliser, lime and organic manure use on farm crops in Great Britain from 1983 to 1997. *Soil Use and Management* **17**, 254-262.

# B1 2010 RESULTS FOR GREAT BRITAIN AND CHANGES IN RECENT YEARS

## B1.1 OVERVIEW OF FERTILISER USE ON ALL CROPS AND GRASS

Overall rates of total nitrogen, phosphate and potash in Great Britain over the last five years are illustrated in Figure B1.1, which is based on data presented in Tables B1.1 and B1.2. Whilst the data showed a trend of declining overall application rates on all crops and grass for nitrogen, phosphate and potash until 2008, the total nitrogen rate in 2010 increased by 5 kg/ha on 2009. Application rates for straight and compound nitrogen applied on crops and grassland are also presented in Table B1.1.

**Figure B1.1 Overall fertiliser use (kg/ha) on all crops and grass, Great Britain 2006 – 2010**

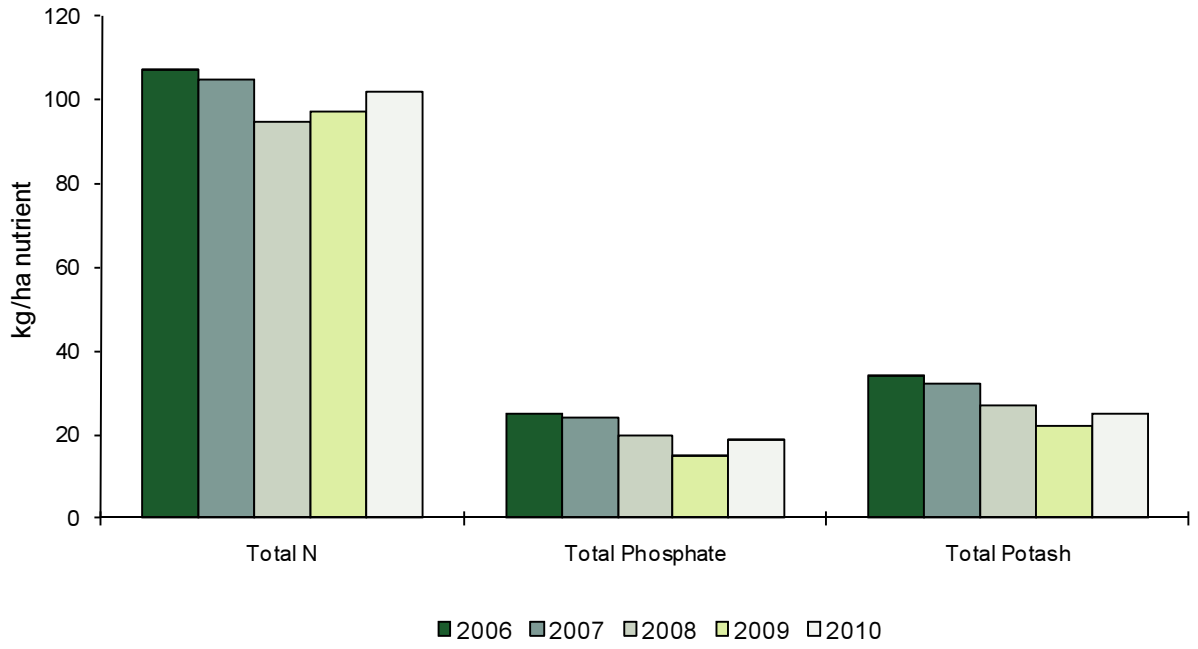



**Table B1.1 Overall nitrogen use (kg/ha), Great Britain 2006 – 2010**

**Total nitrogen**

| | *tillage crops* | *grass* | *all crops and grass* |
|---|---|---|---|
| *2006* | 147 | 72 | 107 |
| *2007* | 148 | 65 | 105 |
| *2008* | 140 | 55 | 95 |
| *2009* | 139 | 57 | 97 |
| *2010* | 149 | 63 | 102 |

**Straight nitrogen**

| | *tillage crops* | *grass* | *all crops and grass* |
|---|---|---|---|
| *2006* | 128 | 28 | 74 |
| *2007* | 133 | 26 | 77 |
| *2008* | 125 | 23 | 71 |
| *2009* | 125 | 28 | 75 |
| *2010* | 134 | 30 | 78 |

**Compound nitrogen**

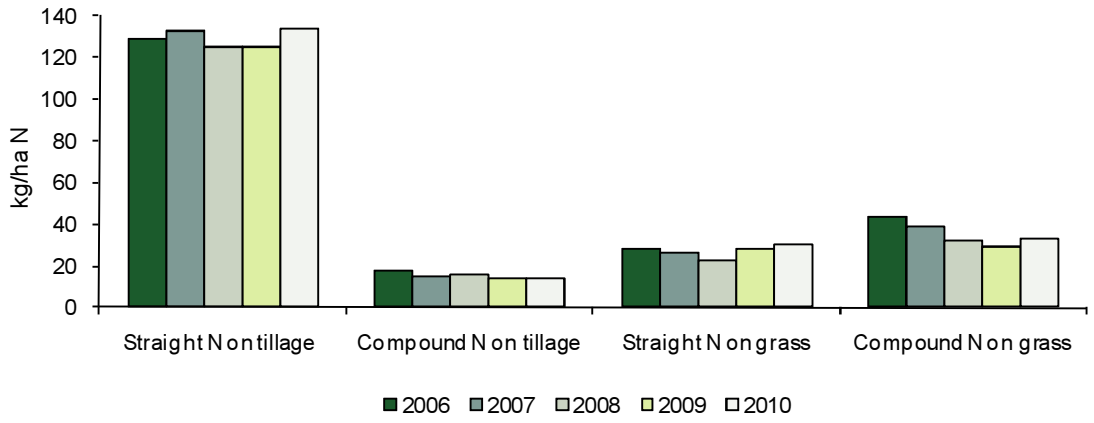
| | *tillage crops* | *grass* | *all crops and grass* |
|---|---|---|---|
| *2006* | 18 | 44 | 32 |
| *2007* | 15 | 39 | 28 |
| *2008* | 16 | 32 | 24 |
| *2009* | 14 | 29 | 22 |
| *2010* | 14 | 33 | 24 |

## B1.1.1 Nitrogen

### All crops and grassland

The 5 kg/ha increase in total nitrogen use on all crops and grassland (Figure B1.1) was caused by an increase in the overall rate of straight N used on both tillage crops and grass. The trend of declining overall rates of compound nitrogen has levelled off on tillage crops and a 4 kg/ha increase was observed on grass (Table B1.1).

**Figure B1.2 Overall straight and compound nitrogen use (kg/ha), Great Britain 2006 – 2010**




### Tillage crops

Straight N continues to be the main source of nitrogen on tillage crops, with the proportion of tillage area receiving a straight nitrogen dressing unchanged from 2009 at 81%. The change in average field application rate is responsible for the overall rate of straight N for these crops increasing by 9 kg/ha in 2010 to 134 kg/ha.

### Grassland

In 2008 the overall nitrogen application rate of 55 kg/ha was the lowest reported for the whole survey period since 1983 (see section B2). The 6 kg/ha increase to the overall N application rate in 2010 was due to a higher proportion of the grass area receiving a dressing of straight N with the same being the case for compound N. The average field rate of straight N increased by 4 kg/ha to 104 kg/ha, whilst the compound N average field rate was unchanged at 76 kg/ha.

## B1.1.2 Phosphate and Potash

### Phosphate

Table B1.2 shows overall phosphate applications for the past five years. The 2009 rates were the lowest since this data set began in 1983 for both tillage (23 kg/ha) and grass (9 kg/ha). This trend was reversed on tillage crops in 2010 with an increase to the overall rate of 7 kg/ha. This was due to a 10% increase in the area of tillage crops receiving phosphate fertiliser dressing and a 2 kg/ha increase in the average field rate to 59 kg/ha. For grassland the overall rate has been more stable, but 2010 saw a 5% increase in dressing cover and a 1 kg/ha increase in average field rate to 24 kg/ha. The five year means for overall phosphate rates for tillage crops and grass were 31 and 12 kg/ha respectively.

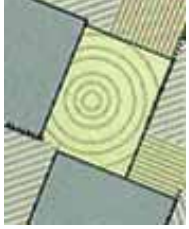


**Table B1.2 Overall phosphate and potash use (kg/ha), Great Britain 2006 – 2010**

**Total phosphate**

| | *tillage crops* | *grass* | *all crops and grass* |
|---|---|---|---|
| *2006* | 35 | 16 | 25 |
| *2007* | 34 | 14 | 24 |
| *2008* | 31 | 10 | 20 |
| *2009* | 23 | 9 | 15 |
| *2010* | 30 | 10 | 19 |

**Total potash**

| | *tillage crops* | *grass* | *all crops and grass* |
|---|---|---|---|
| *2006* | 49 | 21 | 34 |
| *2007* | 47 | 18 | 32 |
| *2008* | 43 | 13 | 27 |
| *2009* | 33 | 12 | 22 |
| *2010* | 38 | 14 | 25 |

### Potash

As with phosphate, overall potash use in 2009 fell to the lowest ever recorded by the Survey on tillage crops (33 kg/ha) and grassland (12 kg/ha) alike. In 2010 overall potash use increased by 5 kg/ha on tillage and by 2 kg/ha on grassland. For both tillage crops and grass the proportion of the area receiving a dressing of potash increased, to 50% and 44% respectively. The average field rate of potash declined by 1 kg/ha on tillage crops to 76 kg/ha, whilst on grass the average field rate increased by 2 kg/ha to 32 kg/ha for 2010.

## B1.2 FERTILISER USE ON MAJOR TILLAGE CROPS

Overall and average field rates of fertiliser application for major tillage crops in Great Britain over the past five years are summarised in Tables B1.3 and B1.4. More detailed statistics for 2010 are presented in Section C. Longer term trends in overall application rates of nitrogen, phosphate and potash since 1983 are summarised in Section B2.

Small apparent changes in fertiliser use on individual crops should be treated with a degree of caution as these estimates are based on a smaller number of farms and fields than the aggregate estimates for all tillage crops. Information on sampling errors, which help in judging whether apparent changes may be real or attributable to sampling variation alone, is given in Appendix 1.

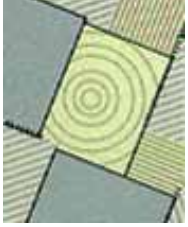


**Table B1.3 Overall fertiliser use (kg/ha) on major tillage crops, Great Britain 2006 – 2010**

## Total nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 192 | 101 | 136 | 142 | 191 | 99 |
| *2007* | 190 | 98 | 136 | 131 | 189 | 92 |
| *2008* | 178 | 94 | 134 | 154 | 191 | 86 |
| *2009* | 188 | 100 | 140 | 168 | 185 | 94 |
| *2010* | 193 | 98 | 142 | 135 | 197 | 93 |

## Straight nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 180 | 60 | 118 | 42 | 177 | 87 |
| *2007* | 182 | 61 | 124 | 30 | 181 | 82 |
| *2008* | 169 | 56 | 120 | 40 | 183 | 77 |
| *2009* | 180 | 69 | 129 | 50 | 178 | 90 |
| *2010* | 185 | 64 | 127 | 34 | 190 | 86 |

## Compound nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 12 | 41 | 18 | 100 | 14 | 13 |
| *2007* | 8 | 37 | 12 | 102 | 8 | 10 |
| *2008* | 9 | 39 | 15 | 114 | 9 | 9 |
| *2009* | 7 | 31 | 10 | 118 | 7 | 5 |
| *2010* | 8 | 34 | 15 | 101 | 8 | 7 |

## Total phosphate

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 34 | 39 | 37 | 122 | 34 | 35 |
| *2007* | 31 | 36 | 35 | 130 | 30 | 41 |
| *2008* | 27 | 34 | 35 | 130 | 29 | 31 |
| *2009* | 17 | 29 | 22 | 141 | 20 | 20 |
| *2010* | 27 | 35 | 33 | 120 | 29 | 29 |

## Total potash

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 41 | 60 | 54 | 197 | 38 | 109 |
| *2007* | 39 | 49 | 59 | 199 | 38 | 104 |
| *2008* | 36 | 47 | 51 | 235 | 36 | 90 |
| *2009* | 23 | 41 | 34 | 245 | 24 | 73 |
| *2010* | 31 | 46 | 47 | 204 | 29 | 78 |

[a] Figures for maincrop potatoes include second earlies.

[b] Single crop grouping for the combined winter and spring oilseed rape areas.

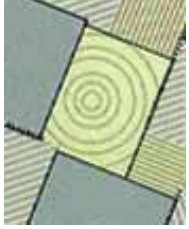


**Table B1.4 Average field rates (kg/ha) on major tillage crops, Great Britain 2006 – 2010**

## Total nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 194 | 103 | 139 | 151 | 193 | 108 |
| *2007* | 193 | 102 | 139 | 144 | 190 | 95 |
| *2008* | 181 | 99 | 138 | 156 | 193 | 92 |
| *2009* | 190 | 103 | 142 | 181 | 186 | 98 |
| *2010* | 195 | 104 | 145 | 139 | 198 | 98 |

## Straight nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 189 | 89 | 130 | 105 | 182 | 100 |
| *2007* | 189 | 91 | 135 | 76 | 183 | 89 |
| *2008* | 177 | 88 | 132 | 99 | 186 | 88 |
| *2009* | 187 | 94 | 137 | 121 | 182 | 95 |
| *2010* | 191 | 93 | 136 | 80 | 194 | 94 |

## Compound nitrogen

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 71 | 65 | 67 | 130 | 53 | 84 |
| *2007* | 58 | 65 | 61 | 131 | 40 | 69 |
| *2008* | 74 | 64 | 63 | 147 | 46 | 65 |
| *2009* | 72 | 61 | 64 | 140 | 37 | 41 |
| *2010* | 64 | 59 | 62 | 126 | 44 | 62 |

## Total phosphate

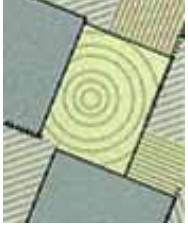
| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 62 | 54 | 59 | 141 | 59 | 72 |
| *2007* | 62 | 51 | 58 | 149 | 61 | 77 |
| *2008* | 61 | 48 | 56 | 147 | 61 | 58 |
| *2009* | 54 | 48 | 53 | 159 | 54 | 47 |
| *2010* | 60 | 50 | 55 | 138 | 60 | 58 |

## Total potash

| | *winter wheat* | *spring barley* | *winter barley* | *maincrop potatoes* [a] | *oilseed rape* [b] | *sugar beet* |
|---|---|---|---|---|---|---|
| *2006* | 75 | 76 | 76 | 211 | 69 | 143 |
| *2007* | 76 | 64 | 80 | 221 | 72 | 126 |
| *2008* | 76 | 62 | 74 | 249 | 71 | 112 |
| *2009* | 72 | 61 | 72 | 272 | 67 | 109 |
| *2010* | 72 | 64 | 73 | 231 | 67 | 112 |

[a] Figures for maincrop potatoes include second earlies.

[b] Single crop grouping for the combined winter and spring oilseed rape areas.



### B1.2.1 Nitrogen

Increases in overall rates of total nitrogen (Table B1.3) between 2009 and 2010 were seen for winter wheat, winter barley and oilseed rape, whilst rates reduced on potatoes and were largely unchanged on spring barley and sugar beet. Average field rates (Table B1.4), which are unaffected by changes in dressing cover, saw increases for all the major tillage crops except potatoes and sugar beet (which were unchanged from 2009).

### Winter wheat

The field cropping information collected in the Survey enables separate estimates to be made of nitrogen fertiliser use on milling and non-milling (seed/feed) categories of winter wheat (Table B1.5). The difference between the rates applied to milling and non-milling wheats reflect differences in crop husbandry and nitrogen management practices.

**Table B1.5 Average field application rates (kg/ha) of nitrogen on cereals by market use, Great Britain 2006 – 2010**

### Total nitrogen

| | *winter wheat* | | *spring barley* | | *winter barley* | |
|---|---|---|---|---|---|---|
| | *milling* | *non-milling* | *malting* | *non-malting* | *malting* | *non-malting* |
| *2006* | 219 | 182 | 107 | 97 | 129 | 144 |
| *2007* | 212 | 184 | 107 | 96 | 129 | 145 |
| *2008* | 202 | 174 | 102 | 95 | 120 | 144 |
| *2009* | 211 | 180 | 105 | 100 | 139 | 143 |
| *2010* | 217 | 183 | 108 | 96 | 133 | 150 |

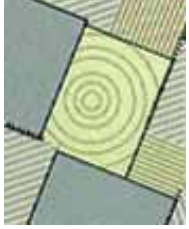
Nitrogen fertiliser requirements for winter wheat depend on the intended market end use (grain N levels), as well as upon soil type and the residual soil nitrogen fertility from previous cropping and manure practice[8]. Milling varieties are often grown as a second wheat and often receive extra nitrogen, either as a solid dressing or as late foliar urea spray, which is applied to improve the chances of achieving an adequate grain protein content for a milling premium. High yielding feed crops, rather than lower yielding varieties of milling wheat, are often grown as a first winter wheat after a break crop such as oilseed rape. This is to exploit the potential yield and residual soil nitrogen benefits from the crop rotation, and also to avoid any risk of lower grain protein concentrations as a result of high yield diluting the grain nitrogen concentration for first wheat in the rotation.

The non-milling crop continues to dominate the wheat crop area (Table B1.6) with only 35% of the crop area in 2010 being grown as milling wheat (5 year mean: 32%).

**Table B1.6 Percentage distribution (% crop area) of cereal crop areas by market use, Great Britain 2006 – 2010, as estimated from the Survey**

| | *winter wheat* | | *spring barley* | | *winter barley* | |
|---|---|---|---|---|---|---|
| | *milling* | *non-milling* | *malting* | *non-malting* | *malting* | *non-malting* |
| *2006* | 34 | 66 | 57 | 43 | 30 | 70 |
| *2007* | 33 | 67 | 56 | 44 | 37 | 63 |
| *2008* | 27 | 73 | 54 | 46 | 27 | 73 |
| *2009* | 33 | 67 | 57 | 43 | 34 | 66 |
| *2010* | 35 | 65 | 61 | 39 | 29 | 71 |

[8] Anon. (2010). *Fertiliser Manual (RB209),* Defra, 8th edition. The Stationery Office, London. ISBN 978-0-11-243286-9.



## Spring barley

Overall use of total nitrogen on spring barley decreased by 2 kg/ha in 2010 to 98 kg/ha which is in line with the five year mean. The overall application rate of straight nitrogen decreased to 64 kg/ha, whilst the overall application rate for compound N increased to 34 kg/ha. This reflects the trend since 2005 for a reducing percentage of the spring barley area receiving a dressing of compound N, but is a 6% rise over that seen in 2009 (57% in 2010). The average field rate for total nitrogen was 104 kg/ha in 2010, continuing the trend of decline since the value of 114 kg/ha in 2001.

Further analysis of the data by crop type (Table B1.5) shows the average rate applied to the spring malting crop had increased from 2009 to 108 kg/ha. For non-malting crops the nitrogen application rate reversed the 5 kg/ha increase observed between 2008 and 2009 to return to 96 kg ha, with a five year mean of 97 kg/ha.

Estimated nitrogen rates on spring barley crops have been consistently slightly higher on malting than non-malting crops, with a mean difference of 9 kg/ha over the last five years. This slightly higher use of nitrogen on malting than non-malting crops may seem anomalous, since lower rates of nitrogen are recommended for malting barley, under the same conditions of soil type and nitrogen fertility level, than for the feed varieties of barley. This recommendation is made to avoid the risk of high grain nitrogen content, which would adversely affect subsequent malt quality. However, malting crops are normally grown on soils with low nitrogen fertility and the average field rates of nitrogen reported for malting varieties in Table B1.5 are generally in the range recommended for mineral soil types with low nitrogen residues (70 - 120 kg/ha)[9]. Feed crops on the other hand are often grown within mixed rotations, which tend to have a higher soil nitrogen fertility, with consequently less need for nitrogen fertiliser.

The proportion of spring barley grown for malting has fluctuated during the last five years (Table B1.6). The mean for the period 2006-2010 is 57%.

## Winter barley

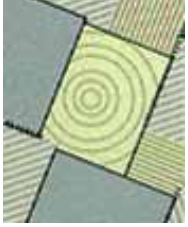
In the period 2002-2008 overall total nitrogen use on winter barley decreased from year to year, down to 134 kg/ha in 2008. This rate increased by 6 kg/ha to 140 kg/ha in 2009, with a further 2 kg/ha increase seen in 2010. The straight nitrogen rate decreased by 2 kg/ha whereas the compound nitrogen rate increased by 5 kg/ha in 2010.

Nitrogen requirements for winter barley, as with the spring sown crop, depend on a range of agronomic factors, including the intended market for the grain. Field average rates of nitrogen on malting crops decreased by 6 kg/ha to 133 kg/ha, but the rate reported last year was the highest since 2002. For non malting crops the average field rate increased 7 kg/ha to 150 kg/ha in 2010 (Table B1.5), with the 5 year average being 145 kg/ha.

The higher application rates of nitrogen (five-year mean of +15 kg/ha) on non-malting, compared to malting winter barley crops, reflect typical agronomic practice, although the gap between malting and non malting crops was more than in previous years. The majority of winter barley crops (both feed and malting) are grown in England in arable rotations, usually after a previous cereal crop, when the soil nitrogen fertility status is low. Higher nitrogen rates are recommended for feed crops.

The proportion of relative crop area grown for malting was 29% in 2010, which was typical of the recent past, with the five year mean calculated as 31%. (Table B1.6).

[9] Anon. (2010). *Fertiliser Manual (RB209),* Defra, 8th edition. The Stationery Office, London. ISBN 978-0-11-243286-9.



## Maincrop potatoes

Total nitrogen use on maincrop potatoes has fluctuated over the last five years. In 2009 the rate was at its highest for the period at 168 kg/ha, and in 2010 this reduced by 33 kg/ha to 135 kg/ha, below the five year mean of 146 kg/ha. (Table B1.3). This reduction in 2010 is due to decreases in the average field rates of straight and compound nitrogen (Table B1.4), as well as a reduction in the area receiving any compound nitrogen fertiliser (85% in 2009 compared with 80% in 2010).

## Oilseed rape

In 2010, overall total nitrogen use on oilseed rape, as a combined category for both the autumn and spring sown crop, increased by 12 kg/ha to 197 kg/ha (five year mean 191 kg/ha). The increase was caused by increased average field rates of straight and, to a lesser extent, compound nitrogen.

A more detailed breakdown of the data for oilseed rape (Table B1.7) shows that the average field rate of nitrogen on winter oilseed rape increased by 10 kg/ha between 2009 and 2010, a higher rate than seen in the previous four years. The rate for the spring crop is almost unchanged on 2009. It should be remembered that this crop represents only 2% of the total oilseed rape area and data for it are drawn from a much smaller number of sample points and should consequently be treated with caution (Table B1.7).

**Table B1.7 Average field application rates of nitrogen (kg/ha) on winter and spring oilseed rape, Great Britain 2006 – 2010**

**Total nitrogen (kg/ha)**

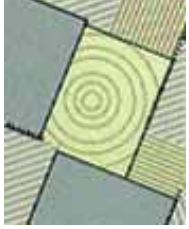
| | *winter oilseed rape* | *spring oilseed rape** |
|---|---|---|
| *2006* | 192 | 163 |
| *2007* | 191 | 127 |
| *2008* | 194 | 115 |
| *2009* | 190 | 120 |
| *2010* | 200 | 121 |

* Spring oilseed rape data is more variable due to smaller crop area

.

## Sugar beet

The overall nitrogen use on sugar beet fell by 1 kg/ha since 2009 after a considerable increase (+8 kg/ha) in the previous year. The overall nitrogen rate at 93 kg/ha is in line with the five year mean. The proportion of crop area receiving a nitrogen dressing was consistent between 2009 and 2010. The average field rate of compound nitrogen rose by 21 kg/ha, although dressing cover with compound nitrogen is low at 11% of the sugar beet area in comparison to 94% dressing cover with straight N.



### B1.2.2 Phosphate and Potash

#### Phosphate

In 2010 there was a consistent recovery of overall phosphate rates to 2008 levels with the exception of potatoes. Overall phosphate use in potatoes increased by 11 kg/ha between 2008 and 2009 and decreased by 21 kg/ha in 2010. This greater level of volatility in overall rate in potatoes is in line with what been seen in recent years (Table B1.3). The reduction in the overall rate in 2010 was caused by a reduction in the average field rate (Table B1.4) as phosphate dressing cover was largely consistent between the two years. The overall phosphate rate of 30 kg/ha for tillage crops is in line with the 2006-2010 five year average.

#### Potash

Overall potash use on tillage crops increased in 2010 by 5 kg/ha, to 38 kg/ha. This followed a 10 kg/ha reduction in overall potash rate between 2009 and 2010. The increase in overall potash rate on tillage crops in 2010 was caused by a 7% increase in the tillage area receiving a dressing (43% in 2009, up to 50% in 2010). The average field rates for the major tillage crops were consistent between 2009 and 2010 with the exception again being potatoes, which fell 41 kg/ha to 231 kg/ha. Part of the reason for recent apparent fluctuations in estimates of nutrient application rates for potatoes may be because these crops are not always wholly managed by the farmers themselves and; it is recognised that information on the nutrient content of fertilisers applied by contractor is less reliably reported by farmers than for self-applied products.

### B1.2.3 Sulphur

The Survey has collected detailed information on sulphur fertiliser use since 1993, when only 3-6% of the cereal crop area and 8% of the oilseed rape area received an application of sulphur. By 1997, the proportions of these crop areas which were treated with sulphur had increased markedly to 13-14% for cereals and 30% for oilseed rape. Since then however, dressing covers for sulphur generally remained fairly static until 2002 when the areas increased steadily until 2007. 2008 saw reductions in dressing covers for cereals at 35%-43%, a pattern that continued in 2009, except in winter barley where sulphur dressing cover increased to 45%. In 2010 cereals dressing covers with sulphur were in the 42-44% range. In oilseed rape the 10% reduction observed in 2009 was replaced by a 4 kg/ha increase in 2010 (Table B1.8). In 2010 average field rates increased on winter wheat and oilseed rape and were largely static on winter and spring barley.

**Table B1.8 Dressing cover (% area) and average application rate (kg/ha $SO_3$) of sulphur on cereals and oilseed rape, Great Britain 2006 – 2010**

#### Dressing cover (%)

| | *winter wheat* | *winter barley* | *spring barley* | *oilseed rape* |
|---|---|---|---|---|
| *2006* | 43 | 42 | 32 | 64 |
| *2007* | 46 | 44 | 36 | 70 |
| *2008* | 43 | 42 | 35 | 70 |
| *2009* | 39 | 45 | 32 | 60 |
| *2010* | 42 | 44 | 42 | 64 |

#### Average field rate (kg/ha $SO_3$)

| | *winter wheat* | *winter barley* | *spring barley* | *oilseed rape* |
|---|---|---|---|---|
| *2006* | 51 | 49 | 41 | 70 |
| *2007* | 51 | 53 | 43 | 80 |
| *2008* | 51 | 46 | 42 | 85 |
| *2009* | 47 | 50 | 41 | 79 |
| *2010* | 55 | 49 | 41 | 86 |

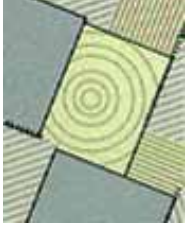


Table B1.9 shows the proportion of major tillage crops receiving a sulphur dressing in England & Wales compared with Scotland. Historically a higher proportion of cereal and oilseed crops was treated with sulphur in Scotland than in England & Wales which may have been due to the greater awareness of the risk of sulphur deficiency in Scotland due to historically extremely low levels of atmospheric sulphur deposition, compared to most other areas of Britain. It is clear that arable farmers in England & Wales became more aware of the need to apply sulphur, illustrated by the increasing percentage dressing cover figures for all major tillage crops in between 2004 and 2007. In 2010 these percentage dressing covers remain at or below the peaks seen in cereals and in oilseed rape.

**Table B1.9 Dressing cover (% area) of sulphur on cereals and oilseed rape by region, 2006 – 2010**

| | | *winter wheat* | *winter barley* | *spring barley* | *oilseed rape* |
|---|---|---|---|---|---|
| England & Wales | *2006* | 42 | 41 | 32 | 63 |
| | *2007* | 46 | 45 | 38 | 72 |
| | *2008* | 43 | 42 | 42 | 70 |
| | *2009* | 39 | 44 | 34 | 60 |
| | *2010* | 41 | 42 | 42 | 64 |
| Scotland* | *2006* | 52 | 60 | 31 | 83 |
| | *2007* | 56 | 39 | 32 | 53 |
| | *2008* | 48 | 42 | 27 | 66 |
| | *2009* | 54 | 55 | 30 | 67 |
| | *2010* | 56 | 52 | 41 | 61 |

* Scottish data may appear more variable due to smaller sample sizes.

## B1.3 FERTILISER USE ON GRASSLAND

Overall fertiliser usage on grassland in Great Britain in the last five years, as previously shown (Tables B1.1 and B1.2), is summarised again in Table B1.10. The corresponding estimates of dressing cover and average field rates for each nutrient are shown in Table B1.11.

**Table B1.10 Overall fertiliser use (kg/ha) on grassland, Great Britain 2006 – 2010**

| | *straight nitrogen* | *compound nitrogen* | *total nitrogen* | *total phosphate* | *total potash* |
|---|---|---|---|---|---|
| *2006* | 28 | 44 | 72 | 16 | 21 |
| *2007* | 26 | 39 | 65 | 14 | 18 |
| *2008* | 23 | 32 | 55 | 10 | 13 |
| *2009* | 28 | 29 | 57 | 9 | 12 |
| *2010* | 30 | 33 | 63 | 10 | 14 |

Dressing cover for total nitrogen on grass increased by 4 kg/ha between 2009 and 2010 (Table B1.11). There have been increases in dressing cover in the last two years which are counter to the long term trend. As in previous years, a higher proportion of grass received compound N as opposed to straight N, but the average field rate for compound N is three quarters of the straight N rate of 104 kg/ha.

Overall application rates for phosphate and potash increased marginally on grass to 10 and 14 kg/ha respectively.

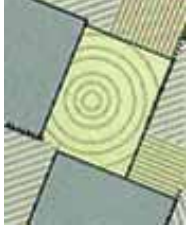


**Table B1.11 Dressing cover (%) and average application rate (kg/ha) of fertiliser on grassland, Great Britain 2006 – 2010**

## Dressing cover (%)

| | *straight nitrogen* | *compound nitrogen* | *total nitrogen* | *total phosphate* | *total potash* |
|---|---|---|---|---|---|
| *2006* | 28 | 55 | 70 | 56 | 56 |
| *2007* | 26 | 49 | 66 | 51 | 51 |
| *2008* | 25 | 42 | 58 | 42 | 42 |
| *2009* | 28 | 39 | 59 | 38 | 39 |
| *2010* | 29 | 43 | 63 | 43 | 44 |

## Average field rate (kg/ha)

| | *straight nitrogen* | *compound nitrogen* | *total nitrogen* | *total phosphate* | *total potash* |
|---|---|---|---|---|---|
| *2006* | 102 | 80 | 103 | 28 | 37 |
| *2007* | 103 | 79 | 99 | 27 | 35 |
| *2008* | 93 | 77 | 95 | 24 | 32 |
| *2009* | 100 | 76 | 98 | 23 | 30 |
| *2010* | 104 | 76 | 100 | 24 | 32 |

The proportion of the grass area receiving a straight nitrogen dressing increased by 1%, to 29% and compound N dressing cover increased by 4% to 43% in 2010. Dressing cover percentages of phosphate and potash also increased to 43% and 44% of grass area for 2010. The five year means are 46% for both nutrients.

Average field rates for phosphate and potash were at their lowest level for the five year period in 2009, falling to 23 kg/ha for phosphate and 30 kg/ha for potash. These rates rose marginally in 2010 by 1 kg/ha for phosphate and 2 kg/ha for potash.

### B1.3.1 Nitrogen

## Cutting and grazing management

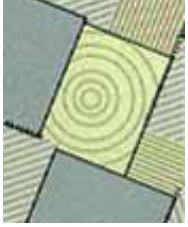
Fertiliser requirements for grassland vary according to the type of livestock enterprise, intensity of production and the associated cutting and grazing regimes used for sward management. Fertiliser use on dairy, other livestock and mixed farms in Great Britain in 2010 are presented in Section C. The Survey estimates of annual distributions of the total grassland area between grazing and cutting management regimes since 2006 are summarised in Table B1.12. These should not be taken as authoritative national estimates of grassland utilisation, as the Survey is designed to estimate fertiliser application rates, not to derive accurate crop areas, although these may still be the best estimates of grassland utilisation by area.

**Table B1.12 Grassland utilisation (% of grass area), Great Britain 2006 – 2010**

| | *grazed* [a] | *silage* [b] | *hay* [b] |
|---|---|---|---|
| *2006* | 91 | 31 | 11 |
| *2007* | 92 | 30 | 12 |
| *2008* | 95 | 29 | 12 |
| *2009* | 93 | 29 | 12 |
| *2010* | 91 | 31 | 12 |

[a] May also be cut.

[b] May also be grazed.



Nearly all grassland is grazed at some stage during the season (Table B1.12) and the proportion in 2010 is slightly below the five year mean of 93%.

Fertiliser usage for the different cutting and grazing categories is presented in Table B1.13. The differences in average field rates for each nutrient illustrate the influence of grassland management practice on fertiliser inputs.

**Table B1.13 Nitrogen application rates (kg/ha) by grassland utilisation, Great Britain 2006 – 2010**

## Total nitrogen

| | *overall application rate* | | | | *average field rate* | | |
|---|---|---|---|---|---|---|---|
| | *grazed* [a] | *silage* [b] | *hay* [b] | | *grazed* [a] | *silage* [b] | *hay* [b] |
| *2006* | 72 | 113 | 53 | *2006* | 102 | 130 | 86 |
| *2007* | 63 | 106 | 47 | *2007* | 97 | 128 | 81 |
| *2008* | 52 | 96 | 40 | *2008* | 92 | 121 | 74 |
| *2009* | 55 | 104 | 40 | *2009* | 95 | 124 | 82 |
| *2010* | 59 | 106 | 48 | *2010* | 97 | 128 | 82 |

## Straight nitrogen

| | *overall application rate* | | | | *average field rate* | | |
|---|---|---|---|---|---|---|---|
| | *grazed* [a] | *silage* [b] | *hay* [b] | | *grazed* [a] | *silage* [b] | *hay* [b] |
| *2006* | 28 | 44 | 23 | *2006* | 102 | 108 | 81 |
| *2007* | 26 | 40 | 19 | *2007* | 101 | 118 | 75 |
| *2008* | 22 | 37 | 21 | *2008* | 91 | 104 | 75 |
| *2009* | 27 | 49 | 23 | *2009* | 98 | 113 | 88 |
| *2010* | 29 | 51 | 24 | *2010* | 103 | 117 | 81 |

## Compound nitrogen

| | *overall application rate* | | | | *average field rate* | | |
|---|---|---|---|---|---|---|---|
| | *grazed* [a] | *silage* [b] | *hay* [b] | | *grazed* [a] | *silage* [b] | *hay* [b] |
| *2006* | 44 | 70 | 30 | *2006* | 79 | 100 | 70 |
| *2007* | 38 | 66 | 28 | *2007* | 76 | 99 | 73 |
| *2008* | 30 | 59 | 19 | *2008* | 73 | 97 | 73 |
| *2009* | 28 | 55 | 17 | *2009* | 73 | 96 | 67 |
| *2010* | 30 | 55 | 24 | *2010* | 72 | 97 | 71 |

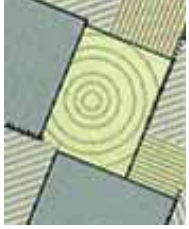
In 2010 the overall total nitrogen rates for both the grazed and silage categories continued to recover from the lows observed in 2008. The increase in overall application rates was caused by higher average field rates and an increased proportion of the grass receiving a dressing of N.

Overall application rates and average field rates of straight nitrogen increased in all categories of grass except hay in 2010, against a trend of decline in previous years. Compound nitrogen rates either increased or remained the same as in 2009, again against the long term downward trend. The five year means for the overall compound nitrogen rate are 34, 61 and 24 kg/ha for grazed grass, silage and hay respectively, a slight increase on last year's five year means.

The fall in nitrogen use over the long term on grassland is likely to be related in part to decreases in ruminant livestock numbers which may have reduced herbage production requirements.

[a] May also be cut.

[b] May also be grazed.



## B1.3.2 Phosphate and Potash

Phosphate and potash requirements for grassland depend, as for nitrogen, on the system of sward management.

**Table B1.14 Phosphate and potash use (kg/ha) by grassland utilisation, Great Britain 2006 – 2010**

### Total phosphate

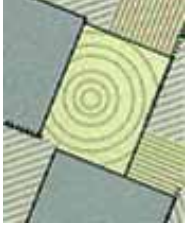
| | overall application rate | | | average field rate | | |
|---|---|---|---|---|---|---|
| | *grazed* [a] | *silage* [b] | *hay* [b] | *grazed* [a] | *silage* [b] | *hay* [b] |
| *2006* | 15 | 24 | 15 | 27 | 35 | 30 |
| *2007* | 13 | 21 | 11 | 26 | 31 | 30 |
| *2008* | 9 | 18 | 7 | 23 | 30 | 22 |
| *2009* | 8 | 15 | 7 | 22 | 28 | 26 |
| *2010* | 10 | 16 | 10 | 23 | 29 | 28 |

### Total potash

| | overall application rate | | | average field rate | | |
|---|---|---|---|---|---|---|
| | *grazed* [a] | *silage* [b] | *hay* [b] | *grazed* [a] | *silage* [b] | *hay* [b] |
| *2006* | 20 | 38 | 16 | 35 | 52 | 34 |
| *2007* | 17 | 33 | 15 | 33 | 48 | 37 |
| *2008* | 12 | 28 | 8 | 30 | 44 | 26 |
| *2009* | 11 | 25 | 9 | 29 | 42 | 33 |
| *2010* | 13 | 26 | 12 | 30 | 44 | 33 |

Overall phosphate rates declined over the period 2005-2009 (Table B1.14). In 2009, the rates across all grass types were the lowest for the period. In 2010 the overall phosphate rate increased by 1-3 kg/ha across the different grassland management systems. The corresponding five-year means for grazed grass, silage and hay were 11, 19 and 10 kg/ha, respectively. Average field rates showed a similar pattern of increase over 2009.

Like phosphate, overall potash rates have declined between 2005 and 2009 to reach a five year low across grazed and silage grassland. In 2010 both overall and average field rates increased by 1-3 kg/ha.



### B1.3.3 Sulphur

In 2010, only 6% of the total grassland area received a sulphur dressing (mean 6% for 2006-2010 period). Of this, a higher proportion of grassland cut for silage is treated with sulphur compared to grazed grass or grass cut for hay (Table B1.15). Estimated dressing covers have fluctuated in the past five years, with only grazed grass showing a marginal increase in 2010.

The significant proportion of heavier textured soil types which occur in the main grassland farming areas, and assumed inputs of sulphur from slurry applications to silage fields, are among possible reasons for the current low level of sulphur fertiliser use on grassland.

**Table B1.15 Sulphur use on grassland, Great Britain 2006 – 2010**

**Dressing cover (%)**

| | *grazed* [a] | *silage* [b] | *hay* [b] | *all grass* |
|---|---|---|---|---|
| *2006* | 7 | 14 | 4 | 7 |
| *2007* | 5 | 10 | 4 | 5 |
| *2008* | 4 | 9 | 4 | 5 |
| *2009* | 5 | 12 | 5 | 5 |
| *2010* | 6 | 11 | 5 | 6 |

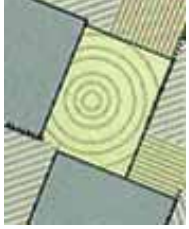
**Average application rate per year (kg/ha $SO_3$)**

| | *grazed* [a] | *silage* [b] | *hay* [b] | *all grass* |
|---|---|---|---|---|
| *2006* | 38 | 35 | 23 | 38 |
| *2007* | 45 | 47 | 28 | 43 |
| *2008* | 33 | 34 | 44 | 33 |
| *2009* | 29 | 29 | 26 | 29 |
| *2010* | 29 | 32 | 37 | 30 |

Estimated average field rates of sulphur application showed sharp increases across all sward management systems in 2007, with grazed grass and grass cut for silage reaching their highest rates for the past five years. Since then, these rates have stabilised at 29-37 kg/ha in 2010 across the different grassland utilisations. The five year means are 35, 35 and 32 kg/ha $SO_3$ for grazed, silage and hay grassland, respectively (Table B1.15). Note that the average application rates in Table B1.15 are annual totals, not rates per cut.

[a] May also be cut.

[b] May also be grazed.



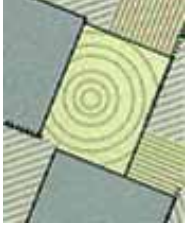
# B2 LONGER TERM TRENDS FOR GREAT BRITAIN

## B2.1 NITROGEN USE

The British Survey of Fertiliser Practice was first undertaken as an integrated British survey in 1992. Before then, the annual Survey of Fertiliser Practice had been carried out separately for England & Wales and for Scotland. Survey statistics from those earlier surveys have since been collated in order to report an aggregated series for nutrient use in Great Britain since 1983, when the survey in Scotland started.

**Table B2.1 Total overall nitrogen application rates (kg/ha), England & Wales 1971 - 2010 and Scotland and Great Britain 1983 – 2010**

| | *tillage crops* | | | *grass* | | | *all crops and grass* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* |
| *1971* | 90 | - | - | 74 | - | - | - | - | - |
| *1972* | 91 | - | - | 83 | - | - | - | - | - |
| *1973* | 89 | - | - | 85 | - | - | - | - | - |
| *1974* | 85 | - | - | 91 | - | - | 89 | - | - |
| *1975* | 86 | - | - | 99 | - | - | 93 | - | - |
| *1976* | 96 | - | - | 98 | - | - | 97 | - | - |
| *1977* | 100 | - | - | 110 | - | - | 111 | - | - |
| *1978* | 105 | - | - | 113 | - | - | 114 | - | - |
| *1979* | 113 | - | - | 117 | - | - | 121 | - | - |
| *1980* | 121 | - | - | 119 | - | - | 120 | - | - |
| *1981* | 135 | - | - | 125 | - | - | 130 | - | - |
| *1982* | 141 | - | - | 123 | - | - | 132 | - | - |
| *1983* | 154 | 113 | 149 | 125 | 131 | 126 | 139 | 124 | 136 |
| *1984* | 162 | 121 | 157 | 132 | 127 | 131 | 147 | 125 | 143 |
| *1985* | 161 | 131 | 157 | 131 | 130 | 131 | 146 | 130 | 144 |
| *1986* | 156 | 119 | 152 | 135 | 120 | 132 | 146 | 120 | 142 |
| *1987* | 160 | 139 | 157 | 133 | 116 | 130 | 147 | 125 | 143 |
| *1988* | 149 | 125 | 146 | 116 | 132 | 119 | 133 | 129 | 132 |
| *1989* | 150 | 128 | 147 | 127 | 111 | 124 | 139 | 118 | 136 |
| *1990* | 149 | 131 | 147 | 132 | 116 | 129 | 141 | 122 | 138 |
| *1991* | 154 | 128 | 151 | 133 | 111 | 129 | 143 | 117 | 139 |
| *1992* | 147 | 125 | 145 | 104 | 111 | 106 | 126 | 116 | 125 |
| *1993* | 137 | 130 | 137 | 112 | 114 | 112 | 124 | 119 | 124 |
| *1994* | 149 | 128 | 147 | 117 | 112 | 116 | 133 | 118 | 130 |
| *1995* | 151 | 140 | 149 | 119 | 114 | 118 | 134 | 124 | 132 |
| *1996* | 148 | 122 | 145 | 118 | 100 | 115 | 133 | 108 | 128 |
| *1997* | 151 | 134 | 149 | 123 | 124 | 123 | 137 | 128 | 136 |
| *1998* | 146 | 131 | 144 | 107 | 119 | 109 | 127 | 124 | 126 |
| *1999* | 143 | 126 | 141 | 108 | 117 | 110 | 126 | 121 | 125 |
| *2000* | 154 | 135 | 149 | 95 | 110 | 99 | 124 | 118 | 123 |
| *2001* | 144 | 147 | 145 | 90 | 113 | 94 | 114 | 127 | 116 |
| *2002* | 153 | 143 | 150 | 85 | 105 | 89 | 116 | 119 | 117 |
| *2003* | 152 | 135 | 149 | 79 | 102 | 83 | 112 | 114 | 113 |
| *2004* | 154 | 134 | 152 | 73 | 93 | 77 | 110 | 108 | 108 |
| *2005* | 152 | 134 | 150 | 72 | 84 | 74 | 110 | 102 | 109 |
| *2006* | 150 | 121 | 147 | 69 | 86 | 72 | 108 | 98 | 107 |
| *2007* | 152 | 120 | 148 | 64 | 72 | 65 | 108 | 90 | 105 |
| *2008* | 144 | 111 | 140 | 52 | 66 | 55 | 98 | 82 | 95 |
| *2009* | 143 | 113 | 139 | 54 | 69 | 57 | 99 | 84 | 97 |
| *2010* | 153 | 114 | 149 | 62 | 64 | 63 | 107 | 81 | 102 |



The aggregated data for Great Britain follow a similar pattern to that observed for England & Wales because a large proportion of both the tillage an grassland areas in Britain is located in England & Wales. Overall total nitrogen rates for tillage crops and grassland in England & Wales since 1969 and in Scotland and Great Britain since 1983 are summarised in Table B2.1. The data for Great Britain are presented graphically in Figure B2.1. Overall nitrogen use has been consistently higher on tillage crops than on grassland ever since the British survey started.

Apart from a dip in 1992-93 due to the introduction of set-aside, the overall rate of total nitrogen on tillage land stayed within the range 145-150 kg/ha with some wider fluctuations caused by factors such as changes in the crop area or changes in nitrogen applications to specific crops (see Figure B2.3). The rate for 2010 is within that range, with the overall rate of nitrogen on tillage crops for Great Britain being 149 kg/ha.

Nitrogen levels applied to grassland have been consistently lower than tillage crops. From 1983 until 1999, the difference was fairly constant, averaging 27 kg/ha. Since 2000, the overall applications made to grass have fallen consistently relative to those made to tillage crops, although in 2009 and 2010 the overall rate for total nitrogen rose slightly in comparison to 2008.

Data on straight and compound nitrogen for Great Britain are not available for the period 1983-1991 when the survey in Scotland was separate from the one in England & Wales. Figure B2.2 shows the overall rates of straight and compound nitrogen on tillage crops and grassland. Most of the total nitrogen fertiliser used on tillage crops each year has been applied in straight form. There is a marked difference for grassland where compound nitrogen accounts for around two thirds of the total applied.

**Figure B2.1 Overall application rates (kg/ha) of total nitrogen on tillage crops and grassland, Great Britain 1983 – 2010**

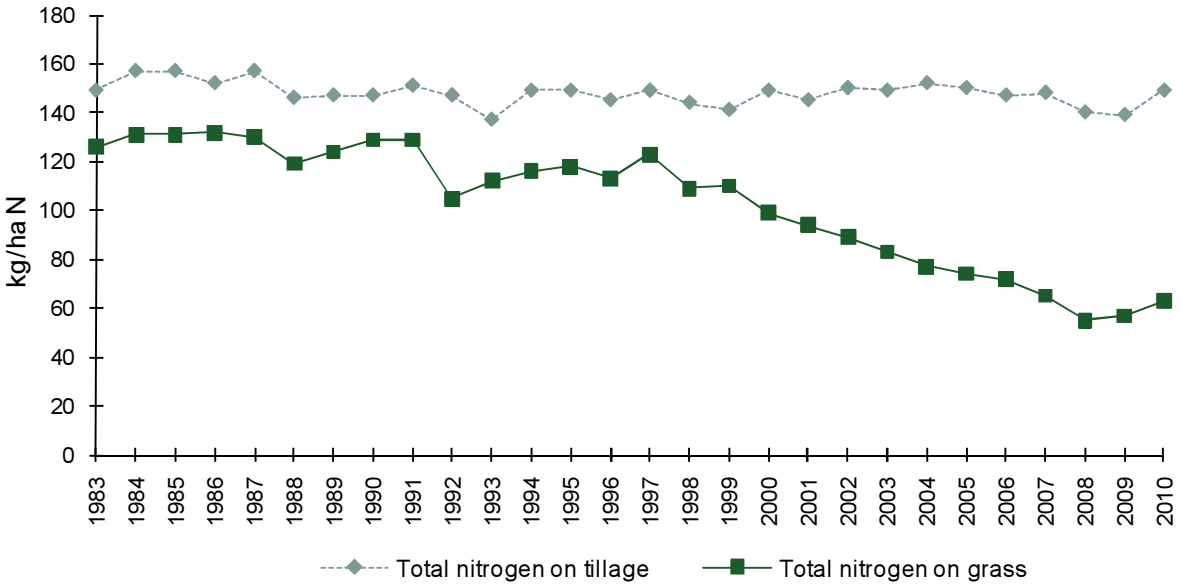
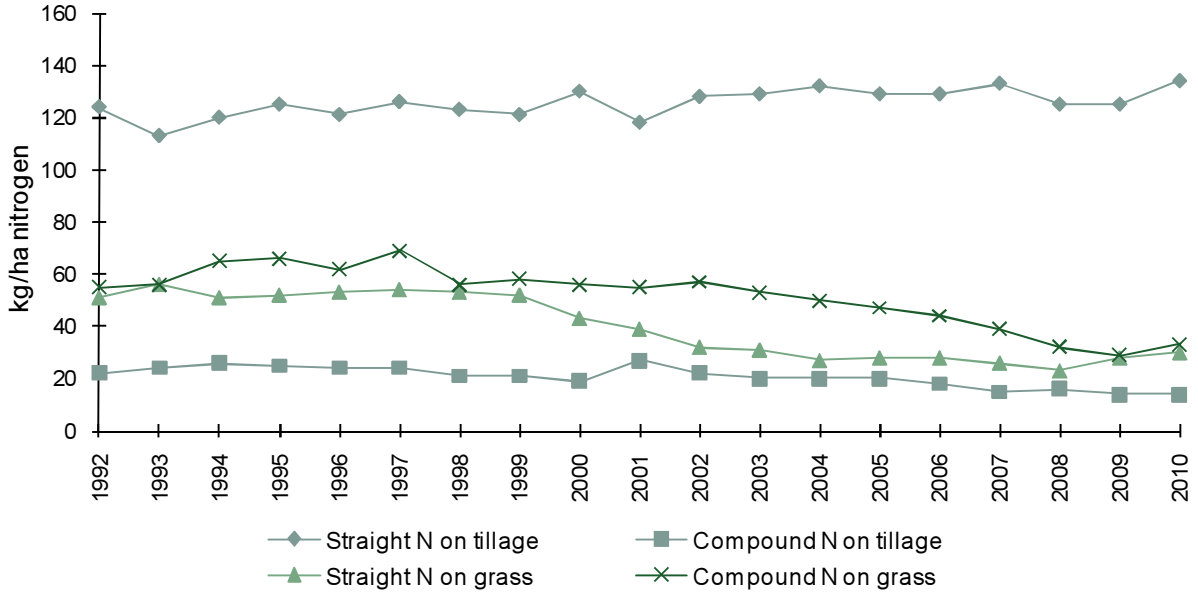


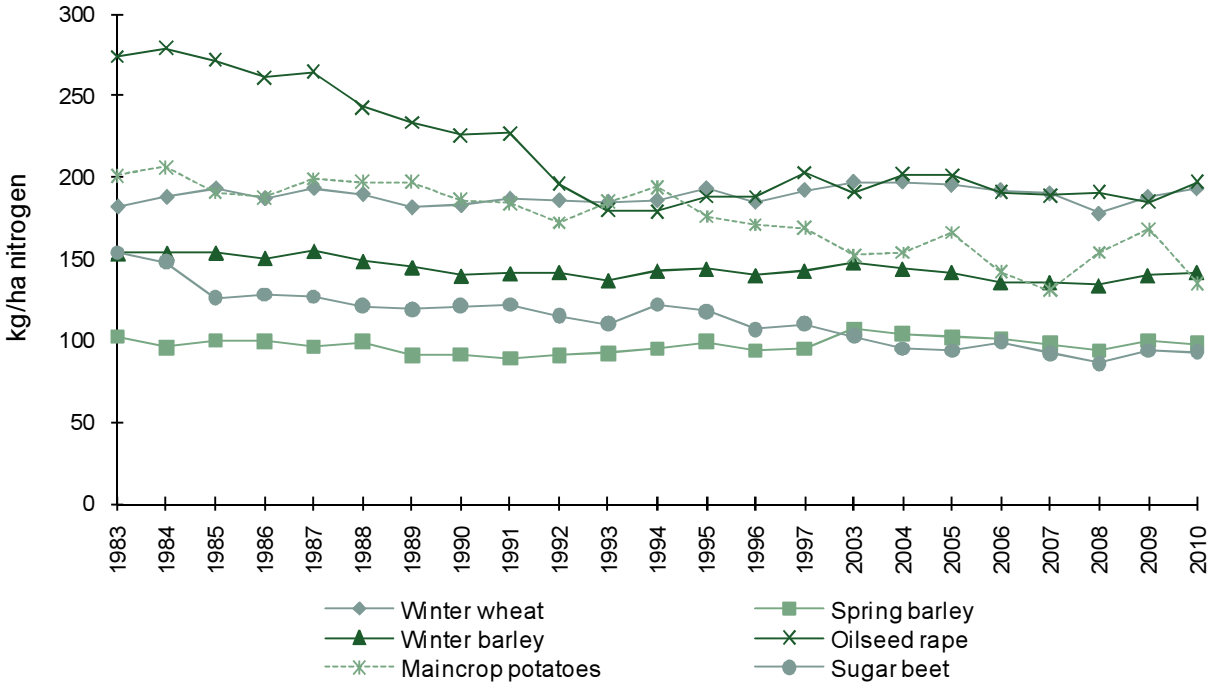
**Figure B2.2 Overall application rates (kg/ha) of straight and compound nitrogen on tillage crops and grassland, Great Britain 1992 – 2010**

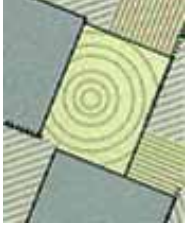



### B2.1.1 Nitrogen use on major tillage crops

Overall application rates of total nitrogen on the main arable crops in Great Britain since 1983 are shown in Figure B2.3.

**Figure B2.3 Overall application rates (kg/ha) of total nitrogen on major arable crops, Great Britain 1983 – 2010**





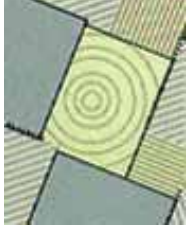
### B2.1.2 Autumn and winter applications of nitrogen fertiliser

The British Survey of Fertiliser Practice is able to monitor the extent to which recommended agronomic advice is adopted. By analysing the month during which fertiliser applications are made it is possible to assess the extent to which autumn and winter nitrogen is applied to winter cereals and oilseed rape. The standard advice is that autumn nitrogen is not required for winter cereals, as economic yield benefits are rare and autumn-applied nitrogen is vulnerable to leaching loss. The Great Britain values have remained below 10% for both winter cereal crops since 2003, and despite some minor fluctuations the trend is for reduced dressing cover of autumn applied nitrogen on winter cereals. The area receiving autumn nitrogen is too low for data relating to average field application to be used.

Autumn nitrogen at 30 kg/ha is recommended for winter oilseed rape, unless the soil has a high nitrogen fertility, as the crop normally requires more nitrogen than winter cereals during the autumn growth period.

**Table B2.2 Dressing cover (% area) of autumn or winter-applied (August to January) nitrogen on winter cereals and winter oilseed rape and average application rate (kg/ha) for winter oilseed rape, England & Wales 1985 – 1998 and Great Britain 1999 – 2010**

| | *winter wheat* | *winter barley* | *winter oilseed rape* | |
|---|---|---|---|---|
| | *dressing cover* | *dressing cover* | *dressing cover* | *application rate* |
| *England & Wales* | | | | |
| *1983* | 67 | 77 | - | - |
| *1984* | 66 | 77 | - | - |
| *1985* | 56 | 64 | 88 | 52 |
| *1986* | 44 | 50 | 81 | 52 |
| *1987* | 36 | 43 | 74 | 53 |
| *1988* | 28 | 31 | 64 | 45 |
| *1989* | 18 | 25 | 52 | 45 |
| *1990* | 10 | 16 | 45 | 42 |
| *1991* | 11 | 12 | 49 | 46 |
| *1992* | 8 | 10 | 50 | 44 |
| *1993* | 8 | 8 | 41 | 42 |
| *1994* | 12 | 16 | 44 | 39 |
| *1995* | 11 | 13 | 48 | 38 |
| *1996* | 11 | 12 | 51 | 37 |
| *1997* | 12 | 11 | 44 | 36 |
| *1998* | 7 | 12 | 34 | 38 |
| *Great Britain* | | | | |
| *1999* | 6 | 10 | 35 | 43 |
| *2000* | 7 | 11 | 33 | 42 |
| *2001* | 7 | 14 | 43 | 43 |
| *2002* | 8 | 16 | 41 | 47 |
| *2003* | 5 | 9 | 42 | 39 |
| *2004* | 6 | 9 | 35 | 40 |
| *2005* | 4 | 9 | 42 | 41 |
| *2006* | 5 | 7 | 28 | 35 |
| *2007* | 3 | 5 | 27 | 42 |
| *2008* | 3 | 6 | 31 | 34 |
| *2009* | 2 | 3 | 26 | 32 |
| *2010* | 2 | 7 | 29 | 33 |

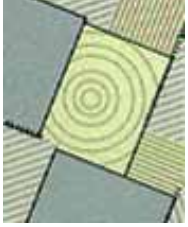


## B2.2 PHOSPHATE AND POTASH USE

Annual overall rates of phosphate and potash on tillage crops and on grassland in Great Britain since 1983 are illustrated in Figure B2.4, using the data presented in Tables B2.3 and B2.4.

**Table B2.3 Overall phosphate application rates (kg/ha), England & Wales 1969 - 2010 and Scotland and Great Britain 1983 – 2010**

| | *tillage crops* | | | *grass* | | | *all crops and grass* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* |
| *1969* | 53 | - | - | 34 | - | - | - | - | - |
| *1970* | 56 | - | - | 32 | - | - | - | - | - |
| *1971* | 54 | - | - | 34 | - | - | - | - | - |
| *1972* | 56 | - | - | 34 | - | - | - | - | - |
| *1973* | 54 | - | - | 34 | - | - | - | - | - |
| *1974* | 51 | - | - | 27 | - | - | 39 | - | - |
| *1975* | 46 | - | - | 27 | - | - | 34 | - | - |
| *1976* | 50 | - | - | 29 | - | - | 38 | - | - |
| *1977* | 51 | - | - | 26 | - | - | 37 | - | - |
| *1978* | 49 | - | - | 28 | - | - | 39 | - | - |
| *1979* | 49 | - | - | 27 | - | - | 38 | - | - |
| *1980* | 49 | - | - | 27 | - | - | 37 | - | - |
| *1981* | 51 | - | - | 25 | - | - | 38 | - | - |
| *1982* | 55 | - | - | 24 | - | - | 39 | - | - |
| *1983* | 54 | 63 | 55 | 26 | 36 | 28 | 39 | 47 | 40 |
| *1984* | 61 | 68 | 62 | 25 | 33 | 26 | 42 | 48 | 42 |
| *1985* | 56 | 70 | 58 | 24 | 30 | 25 | 40 | 46 | 41 |
| *1986* | 56 | 63 | 57 | 22 | 27 | 23 | 40 | 42 | 40 |
| *1987* | 56 | 71 | 58 | 23 | 28 | 24 | 39 | 45 | 40 |
| *1988* | 54 | 65 | 56 | 21 | 31 | 23 | 38 | 45 | 39 |
| *1989* | 52 | 67 | 54 | 23 | 31 | 24 | 38 | 45 | 39 |
| *1990* | 51 | 68 | 53 | 24 | 28 | 25 | 38 | 43 | 39 |
| *1991* | 53 | 65 | 54 | 23 | 24 | 23 | 38 | 40 | 38 |
| *1992* | 51 | 67 | 54 | 19 | 30 | 22 | 35 | 43 | 38 |
| *1993* | 49 | 65 | 52 | 19 | 28 | 21 | 33 | 41 | 35 |
| *1994* | 51 | 69 | 53 | 23 | 28 | 24 | 37 | 43 | 38 |
| *1995* | 50 | 68 | 53 | 22 | 31 | 24 | 36 | 45 | 37 |
| *1996* | 51 | 65 | 52 | 22 | 26 | 23 | 36 | 40 | 36 |
| *1997* | 53 | 69 | 55 | 24 | 32 | 25 | 38 | 46 | 39 |
| *1998* | 49 | 66 | 51 | 20 | 27 | 21 | 34 | 43 | 35 |
| *1999* | 43 | 64 | 45 | 19 | 27 | 20 | 31 | 42 | 32 |
| *2000* | 44 | 60 | 47 | 18 | 30 | 20 | 31 | 42 | 32 |
| *2001* | 40 | 60 | 43 | 16 | 29 | 19 | 27 | 41 | 29 |
| *2002* | 41 | 62 | 44 | 18 | 26 | 20 | 29 | 39 | 31 |
| *2003* | 37 | 61 | 40 | 16 | 26 | 18 | 26 | 39 | 28 |
| *2004* | 38 | 63 | 41 | 15 | 27 | 17 | 26 | 41 | 28 |
| *2005* | 37 | 57 | 40 | 15 | 22 | 16 | 25 | 35 | 27 |
| *2006* | 33 | 53 | 35 | 14 | 22 | 16 | 23 | 33 | 25 |
| *2007* | 32 | 53 | 34 | 12 | 20 | 14 | 22 | 32 | 24 |
| *2008* | 28 | 50 | 31 | 9 | 16 | 10 | 18 | 29 | 20 |
| *2009* | 19 | 49 | 23 | 7 | 15 | 9 | 13 | 27 | 15 |
| *2010* | 27 | 50 | 30 | 9 | 16 | 10 | 18 | 27 | 19 |



Overall phosphate use on tillage crops had gradually declined over the period since 1983, from a five-year mean of 58 kg/ha in 1983-87, 54 kg/ha in 1988-1992 and 53 kg/ha in 1993-97 to 46 kg/ha for the period 1998-2002. The 2010 rate of 30 kg/ha represents an increase of 7 kg/ha from 2009, but this rate was the lowest recorded since Great Britain records began.

The overall rate of phosphate on grassland was highest in 1983, at 28 kg/ha, and then application remained relatively stable at 23-25 kg/ha between 1985 and 1997, apart from a temporary recorded drop to 21 kg/ha in 1992-93. However, overall phosphate use has decreased gradually since 1997 to a level of 10 kg/ha in 2010, a slight recovery from 2009, the lowest recorded since 1983. The five-year means have been 25 kg/ha in 1983-87, 23 kg/ha in 1988-1992, 23 kg/ha in 1993-97, 20 kg/ha in 1998-2002 and 12 kg/ha for the period 2006-10.

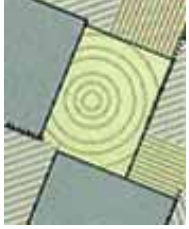


**Table B2.4 Overall potash application rates (kg/ha), England & Wales 1969 - 2010 and Scotland and Great Britain 1983 – 2010**

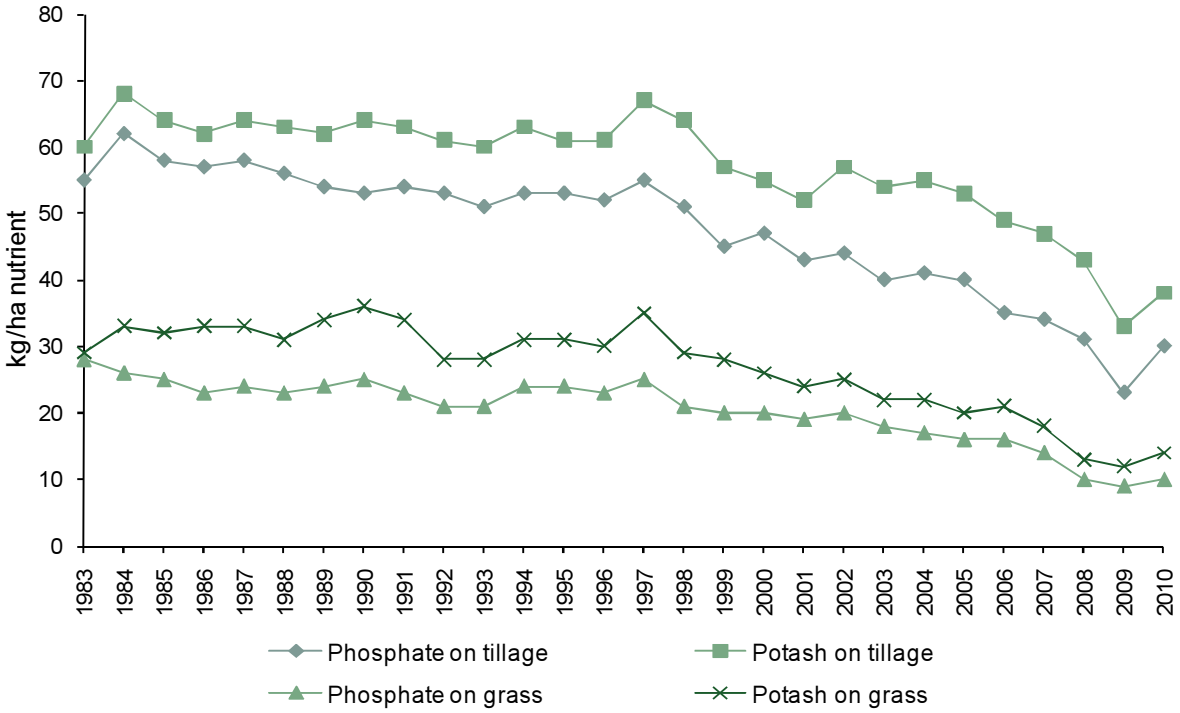
| | *tillage crops* | | | *grass* | | | *all crops and grass* | | |
|---|---|---|---|---|---|---|---|---|---|
| | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* | *England & Wales* | *Scotland* | *Great Britain* |
| *1969* | 61 | - | - | 23 | - | - | - | - | - |
| *1970* | 61 | - | - | 26 | - | - | - | - | - |
| *1971* | 59 | - | - | 21 | - | - | - | - | - |
| *1972* | 63 | - | - | 20 | - | - | - | - | - |
| *1973* | 60 | - | - | 22 | - | - | - | - | - |
| *1974* | 56 | - | - | 20 | - | - | 36 | - | - |
| *1975* | 51 | - | - | 21 | - | - | 34 | - | - |
| *1976* | 56 | - | - | 23 | - | - | 37 | - | - |
| *1977* | 56 | - | - | 23 | - | - | 39 | - | - |
| *1978* | 56 | - | - | 25 | - | - | 41 | - | - |
| *1979* | 53 | - | - | 27 | - | - | 40 | - | - |
| *1980* | 54 | - | - | 26 | - | - | 40 | - | - |
| *1981* | 56 | - | - | 26 | - | - | 41 | - | - |
| *1982* | 61 | - | - | 28 | - | - | 44 | - | - |
| *1983* | 60 | 62 | 60 | 28 | 36 | 29 | 44 | 46 | 43 |
| *1984* | 68 | 67 | 68 | 33 | 35 | 33 | 50 | 49 | 49 |
| *1985* | 63 | 67 | 64 | 32 | 34 | 32 | 48 | 47 | 48 |
| *1986* | 62 | 61 | 62 | 33 | 30 | 33 | 48 | 43 | 47 |
| *1987* | 63 | 70 | 64 | 33 | 31 | 33 | 48 | 47 | 48 |
| *1988* | 63 | 66 | 63 | 30 | 34 | 31 | 47 | 47 | 47 |
| *1989* | 60 | 73 | 62 | 34 | 36 | 34 | 48 | 51 | 48 |
| *1990* | 62 | 74 | 64 | 36 | 35 | 36 | 49 | 50 | 49 |
| *1991* | 62 | 72 | 63 | 35 | 31 | 34 | 49 | 47 | 49 |
| *1992* | 59 | 72 | 63 | 26 | 34 | 28 | 43 | 48 | 45 |
| *1993* | 58 | 72 | 60 | 27 | 34 | 29 | 42 | 47 | 43 |
| *1994* | 62 | 74 | 63 | 31 | 31 | 31 | 46 | 46 | 46 |
| *1995* | 59 | 72 | 61 | 30 | 34 | 31 | 44 | 48 | 45 |
| *1996* | 59 | 73 | 61 | 31 | 28 | 30 | 45 | 44 | 44 |
| *1997* | 66 | 74 | 67 | 35 | 36 | 35 | 50 | 50 | 50 |
| *1998* | 63 | 73 | 64 | 28 | 36 | 29 | 45 | 51 | 46 |
| *1999* | 55 | 71 | 57 | 27 | 32 | 28 | 41 | 48 | 42 |
| *2000* | 54 | 67 | 55 | 24 | 33 | 26 | 39 | 47 | 40 |
| *2001* | 48 | 72 | 52 | 23 | 33 | 24 | 34 | 49 | 37 |
| *2002* | 55 | 72 | 57 | 24 | 30 | 25 | 38 | 46 | 40 |
| *2003* | 51 | 73 | 54 | 20 | 31 | 22 | 34 | 46 | 36 |
| *2004* | 53 | 72 | 55 | 21 | 30 | 22 | 35 | 46 | 36 |
| *2005* | 51 | 66 | 53 | 19 | 26 | 20 | 34 | 40 | 35 |
| *2006* | 46 | 69 | 49 | 19 | 28 | 21 | 32 | 42 | 34 |
| *2007* | 44 | 70 | 47 | 17 | 23 | 18 | 30 | 40 | 32 |
| *2008* | 40 | 68 | 43 | 12 | 20 | 13 | 26 | 37 | 27 |
| *2009* | 29 | 64 | 33 | 10 | 20 | 12 | 19 | 36 | 22 |
| *2010* | 34 | 68 | 38 | 13 | 19 | 14 | 23 | 35 | 25 |

Overall potash use on tillage crops declined slightly between 1983 and 1997, with a five-year mean of 64 kg/ha in 1983-87, 63 kg/ha in 1988-1992, 62 kg/ha in 1993-1997, and 57 kg/ha in 1998-2002. Between 2006 and 2010, overall potash use on tillage crops averaged 42 kg/ha, the rate of 33 kg/ha in 2009 being the lowest level recorded since 1983.

The pattern of overall potash use on grassland has been more variable, compared to tillage crops, but has also shown a net decline between 1983 and 2010. Overall potash rates were relatively stable at 31-33 kg/ha during the mid-late 1980s but, since then, have tended to decline despite temporary recorded increases.

Overall rates of phosphate and potash applied to tillage crops are more than double those used on grassland. However there is greater use of manures on grassland (35% cover) than on tillage crops (21% cover).

**Figure B2.4 Overall application rates (kg/ha) phosphate and potash on tillage crops and grassland, Great Britain 1983 – 2010**



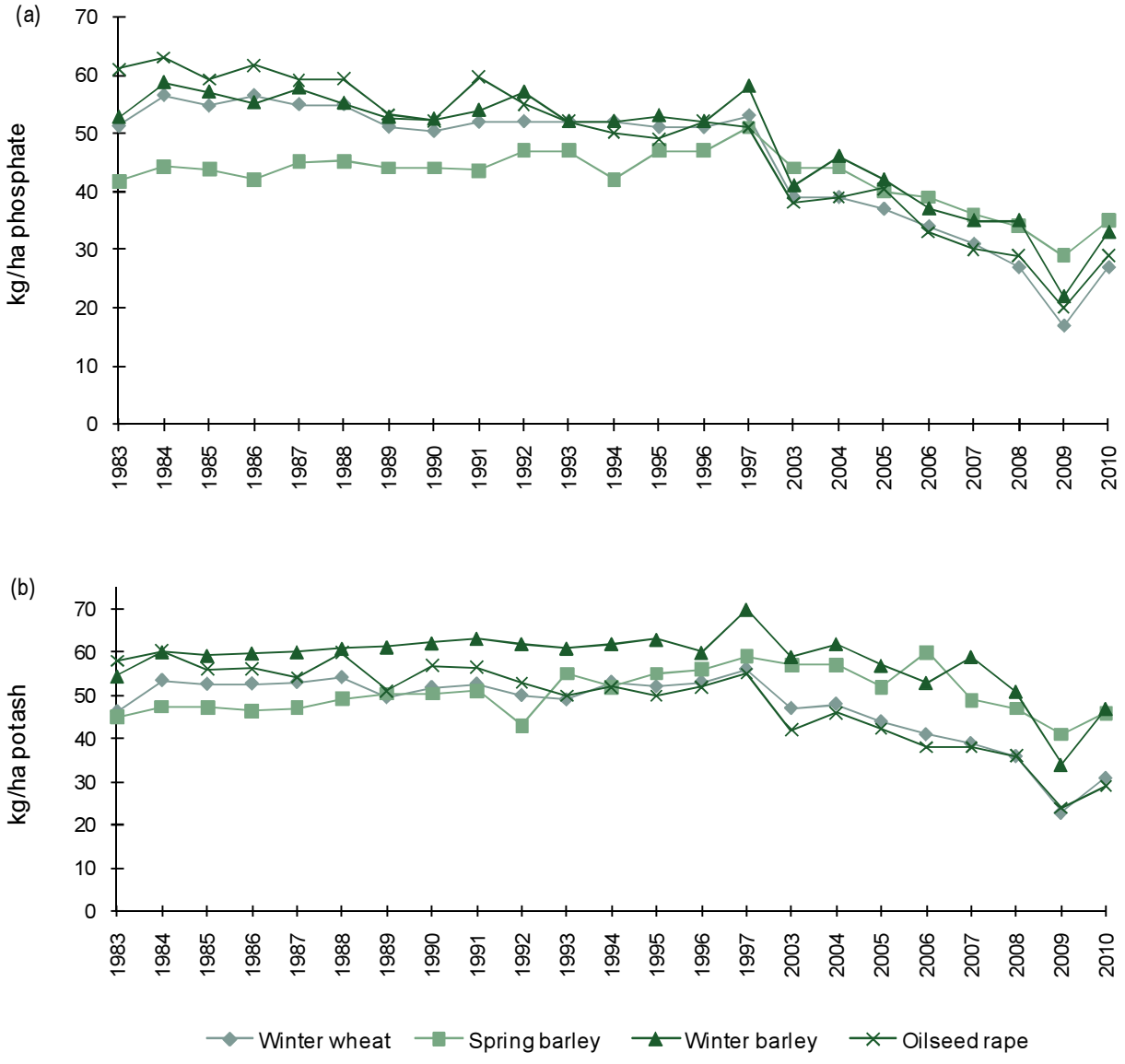

## B2.2.1 Phosphate and potash use on major tillage crops

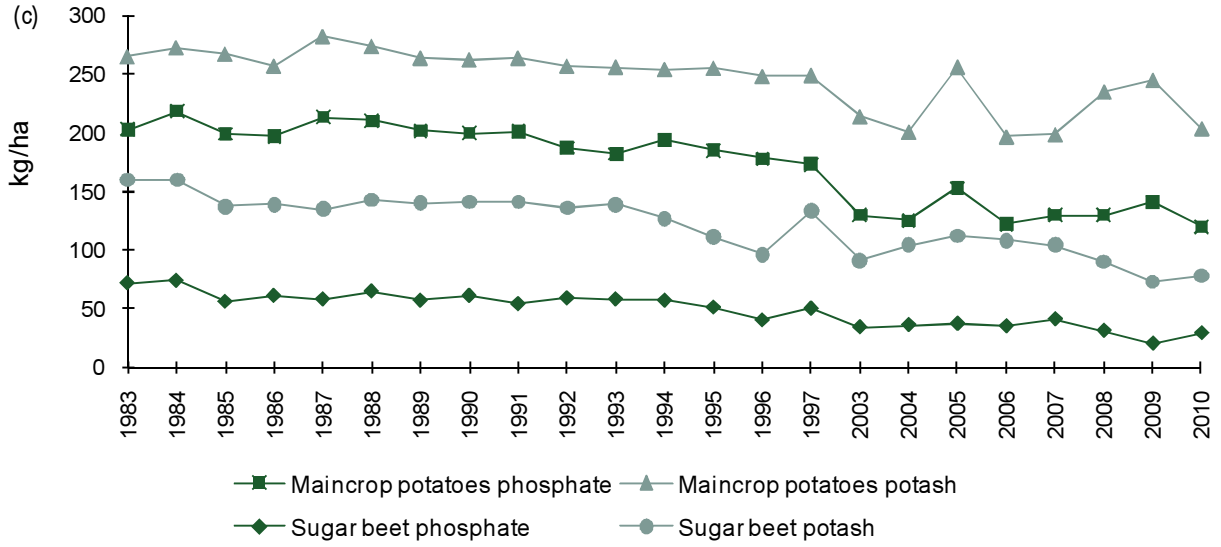
Overall application rates of phosphate and potash on the main arable crops in Great Britain since 1983 are shown in Figure B2.5.

Phosphate use on most major tillage crops has shown a gradual net decline over the survey period. The net decline of phosphate on potatoes has been more dramatic, although it has stabilised in recent years.
Overall application rates of phosphate have gradually declined on winter wheat and, less consistently, on winter barley since the mid 1980s (Figure B2.5(a)); the mean for the five year period 1998-2002 showed a drop to below 50 kg/ha for the first time in both crops (43 kg/ha for winter wheat and 47 kg/ha for winter barley). 2009 saw more marked decreases in overall rates (-10 kg/ha for winter wheat and -13 kg/ha for winter barley). 2010 saw overall phosphate rates recover (+10 kg/ha for winter wheat, and +11 kg/ha for winter barley). This trend gives rates of 27 and 32 kg/ha for winter wheat and winter barley respectively for the 2006-2010 period. Phosphate use rose slightly on spring barley between 1983 and 1997, and then declined until 2009, with an increase in overall rate of 6 kg/ha in 2010. Overall phosphate use has also declined on oilseed rape, maincrop potatoes and sugar beet with means for 1983-87 of 61, 206 and 64 kg/ha, respectively declining to 46, 152 and 44 in 1998-2002. Rates in general have continued to decline between 2006-2010, except in potatoes where the rate has fluctuated between 120 and 141 kg/ha for the period.

On winter wheat, the mean overall potash rates were very similar for the five year periods 1983-87, 1988-92 and 1993-97 at 52, 52 and 53 kg/ha, respectively but there was a reduction to 48 kg/ha in 1998-2002. For barley, the same periods have seen an increase in potash use from 59 kg/ha (winter barley) and 47 kg/ha (spring barley) in 1983-87 to 63 and 55 kg/ha in 1998-2002. The corresponding means for oilseed rape, maincrop potatoes and sugar beet show decreases from 57, 269 and 146 kg/ha in 1983-1987 to levels of 46, 230 and 102 kg/ha for the 1998-2002 period. Rates in 2006-2010 indicate that the downward trend is continuing, despite the large falls in 2009 and subsequent recovery in 2010 (five year means: 33, 216, 91 kg/ha).

**Figure B2.5 Overall application rates (kg/ha) of (a) phosphate and (b) potash on major arable crops, and (c) phosphate and potash on sugar beet and potatoes Great Britain 1983 – 2010**

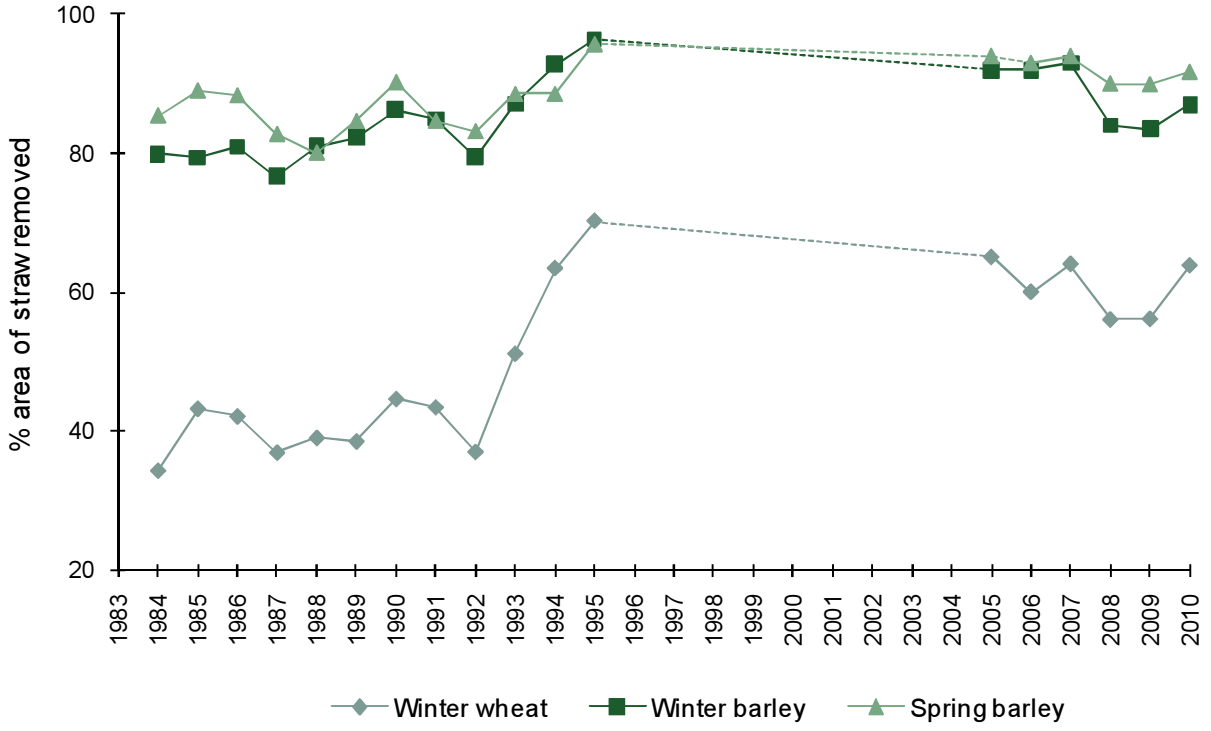




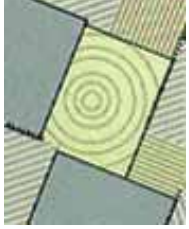

Much of the long term reduction in the overall rates of application of phosphate and potash to combinable arable crops results from a decrease in the dressing cover, as at least in 2010, average field rates have increased.

Estimates of the percentage of straw removed from wheat and barley fields are shown in Figure B2.6.

**Figure B2.6 Percentage of straw removed from wheat and barley fields Great Britain 1984 – 2010**




Data for the period 1984-1995 were sourced from MAFF/Defra straw disposal surveys, those for period 2005-2010 from this survey. No data are available for the period 1996-2004. The straw burning ban was introduced in 1993.

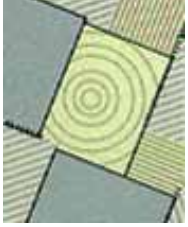


Quantities of nitrogen, phosphate and potash used in the UK since 1965 are shown in Table B2.5. These data are based on BSFP findings and trade and sales data. They are compiled by the Agricultural Industries Confederation in conjunction with Defra. They are considered to be the official figures for fertiliser usage.

## Table B2.5 Quantities of major nutrients used, United Kingdom 1965-2010

| | *Nitrogen kt N* | | | | *Phosphate kt $P_2O_5$* | | | | *Potash kt $K_2O$* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *England & Wales* | *Scotland* | *N. Ireland* | *UK* | *England & Wales* | *Scotland* | *N. Ireland* | *UK* | *England & Wales* | *Scotland* | *N. Ireland* | *UK* |
| *1965* | 473 | 72 | 20 | 565 | 369 | 88 | 23 | 479 | 346 | 62 | 17 | 425 |
| *1966* | 491 | 76 | 23 | 590 | 332 | 81 | 22 | 435 | 335 | 61 | 18 | 413 |
| *1967* | 573 | 85 | 27 | 685 | 359 | 79 | 23 | 460 | 354 | 61 | 19 | 434 |
| *1968* | 625 | 93 | 29 | 748 | 367 | 81 | 21 | 469 | 362 | 62 | 18 | 441 |
| *1969* | 639 | 108 | 35 | 781 | 362 | 84 | 22 | 467 | 363 | 65 | 19 | 447 |
| *1970* | 653 | 108 | 34 | 796 | 366 | 81 | 23 | 470 | 356 | 63 | 20 | 438 |
| *1971* | 732 | 119 | 43 | 894 | 397 | 84 | 24 | 504 | 373 | 65 | 21 | 459 |
| *1972* | 751 | 120 | 48 | 919 | 371 | 76 | 24 | 470 | 336 | 60 | 19 | 416 |
| *1973* | 759 | 132 | 56 | 947 | 373 | 85 | 25 | 482 | 333 | 63 | 21 | 417 |
| *1974* | 784 | 139 | 57 | 980 | 357 | 72 | 21 | 449 | 347 | 55 | 19 | 421 |
| *1975* | 788 | 143 | 54 | 984 | 306 | 69 | 18 | 393 | 302 | 59 | 16 | 377 |
| *1976* | 851 | 144 | 65 | 1059 | 315 | 69 | 19 | 404 | 322 | 59 | 17 | 398 |
| *1977* | 879 | 146 | 68 | 1093 | 316 | 69 | 21 | 406 | 330 | 59 | 20 | 409 |
| *1978* | 924 | 156 | 75 | 1155 | 316 | 72 | 22 | 410 | 328 | 64 | 20 | 412 |
| *1979* | 941 | 160 | 85 | 1186 | 321 | 73 | 22 | 416 | 333 | 65 | 21 | 419 |
| *1980* | 1031 | 156 | 81 | 1268 | 342 | 75 | 24 | 440 | 361 | 65 | 22 | 447 |
| *1981* | 1100 | 159 | 76 | 1335 | 344 | 73 | 24 | 441 | 367 | 66 | 21 | 454 |
| *1982* | 1180 | 160 | 76 | 1416 | 357 | 65 | 24 | 446 | 394 | 67 | 22 | 483 |
| *1983* | 1227 | 161 | 82 | 1470 | 359 | 65 | 24 | 448 | 409 | 68 | 23 | 500 |
| *1984* | 1316 | 183 | 89 | 1588 | 391 | 69 | 28 | 488 | 457 | 73 | 29 | 559 |
| *1985* | 1298 | 186 | 96 | 1580 | 375 | 71 | 23 | 469 | 441 | 72 | 28 | 541 |
| *1986* | 1297 | 176 | 99 | 1572 | 341 | 65 | 28 | 434 | 415 | 66 | 29 | 510 |
| *1987* | 1370 | 193 | 111 | 1674 | 340 | 65 | 27 | 432 | 429 | 70 | 29 | 528 |
| *1988* | 1251 | 180 | 94 | 1525 | 341 | 70 | 24 | 435 | 419 | 76 | 29 | 524 |
| *1989* | 1223 | 193 | 98 | 1514 | 334 | 65 | 26 | 425 | 420 | 74 | 29 | 523 |
| *1990* | 1275 | 194 | 113 | 1582 | 323 | 63 | 28 | 414 | 409 | 73 | 33 | 515 |
| *1991* | 1224 | 193 | 98 | 1515 | 321 | 61 | 24 | 406 | 393 | 71 | 28 | 492 |
| *1992* | 1105 | 166 | 94 | 1365 | 295 | 55 | 21 | 371 | 351 | 64 | 26 | 441 |
| *1993* | 968 | 142 | 109 | 1219 | 286 | 50 | 24 | 360 | 344 | 57 | 29 | 430 |
| *1994* | 986 | 133 | 129 | 1248 | 312 | 51 | 28 | 391 | 361 | 59 | 38 | 458 |
| *1995* | 1064 | 156 | 128 | 1348 | 325 | 53 | 27 | 405 | 378 | 64 | 34 | 476 |
| *1996* | 1048 | 157 | 128 | 1333 | 302 | 62 | 30 | 394 | 370 | 65 | 36 | 471 |
| *1997* | 1156 | 172 | 112 | 1440 | 325 | 63 | 24 | 412 | 405 | 65 | 31 | 501 |
| *1998* | 1111 | 158 | 106 | 1375 | 308 | 56 | 19 | 383 | 397 | 64 | 26 | 487 |
| *1999* | 1015 | 152 | 117 | 1284 | 274 | 50 | 23 | 347 | 365 | 59 | 27 | 451 |
| *2000* | 1005 | 150 | 113 | 1268 | 237 | 59 | 21 | 317 | 322 | 61 | 26 | 409 |
| *2001* | 876 | 180 | 106 | 1162 | 201 | 57 | 21 | 279 | 274 | 69 | 26 | 369 |
| *2002* | 915 | 187 | 95 | 1197 | 209 | 55 | 19 | 283 | 397 | 70 | 24 | 391 |
| *2003* | 853 | 170 | 108 | 1131 | 203 | 60 | 19 | 282 | 283 | 66 | 26 | 375 |
| *2004* | 875 | 150 | 100 | 1125 | 205 | 57 | 16 | 278 | 288 | 65 | 22 | 375 |
| *2005* | 834 | 150 | 77 | 1061 | 192 | 55 | 12 | 259 | 267 | 67 | 18 | 352 |
| *2006* | 780 | 153 | 70 | 1003 | 173 | 51 | 11 | 235 | 243 | 66 | 16 | 325 |
| *2007* | 802 | 126 | 80 | 1008 | 169 | 46 | 9 | 224 | 241 | 59 | 17 | 317 |
| *2008* | 804 | 128 | 74 | 1006 | 160 | 49 | 6 | 215 | 244 | 68 | 13 | 325 |
| *2009* | 737 | 119 | 57 | 913 | 91 | 34 | 4 | 129 | 148 | 52 | 8 | 208 |
| *2010e* | *812* | *127* | *76* | *1015* | *123* | *40* | *6* | *169* | *191* | *60* | *12* | *263* |

Note: Years are harvest (e.g. 2010 refers to the 2009/10 cropping year) rather than calendar years. Data for 2010 are estimates.



# SECTION C – TABLES

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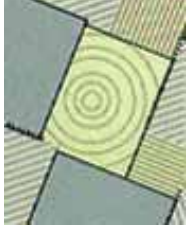
### GREAT BRITAIN TABLES 2010



### ENGLAND AND WALES TABLES 2010



Note: 1. Row percentages may not sum to exactly to 100 due to rounding.
2. No estimates are shown for crops with fewer than 5 fields in the sample. Nevertheless, some estimates are based on very few fields in the sample and should be treated with great caution.
3. FYM refers to any form of organic manure applied.





## SCOTLAND TABLES 2010



Note: 1. Row percentages may not sum to exactly to 100 due to rounding.
2. No estimates are shown for crops with less than 5 fields in the sample. Nevertheless, some estimates are based on very few fields in the sample and should be treated with great caution.
3. FYM refers to any form of organic manure applied.

**Table GB1.1 Total fertiliser use, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | $SO_3$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 92 | 46 | 37 | 34 | 22 | 127 | 51 | 55 | 116 | 24 | 20 | 67 |
| Winter wheat | 99 | 45 | 42 | 42 | 17 | 195 | 60 | 72 | 193 | 27 | 31 | 1660 |
| Spring barley | 95 | 70 | 73 | 42 | 31 | 104 | 50 | 64 | 98 | 35 | 46 | 646 |
| Winter barley | 98 | 59 | 64 | 44 | 20 | 145 | 55 | 73 | 142 | 33 | 47 | 475 |
| Oats | 88 | 55 | 54 | 30 | 19 | 106 | 52 | 64 | 93 | 28 | 34 | 194 |
| Rye/triticale/Durum wheat | 70 | 30 | 56 | 24 | 21 | 114 | 44 | 64 | 80 | 13 | 36 | 30 |
| Potatoes (seed or earlies) | 99 | 92 | 92 | 37 | 16 | 142 | 160 | 173 | 140 | 147 | 159 | 20 |
| Potatoes (maincrop) | 98 | 87 | 88 | 18 | 34 | 139 | 138 | 231 | 135 | 120 | 204 | 120 |
| Sugar beet | 95 | 50 | 70 | 26 | 34 | 98 | 58 | 112 | 93 | 29 | 78 | 105 |
| Spring oilseed rape | 100 | 33 | 26 | 17 | 8 | 121 | 64 | 57 | 121 | 22 | 15 | 16 |
| Winter oilseed rape | 100 | 48 | 44 | 65 | 16 | 200 | 60 | 67 | 199 | 29 | 30 | 556 |
| Linseed | 93 | 29 | 39 | 18 | 6 | 63 | 53 | 62 | 58 | 15 | 24 | 46 |
| Forage maize | 70 | 53 | 38 | 10 | 91 | 64 | 56 | 79 | 45 | 30 | 30 | 215 |
| Rootcrops for stockfeed | 86 | 74 | 74 | 21 | 57 | 89 | 74 | 87 | 76 | 55 | 64 | 85 |
| Leafy forage crops | 87 | 62 | 63 | 15 | 49 | 76 | 55 | 59 | 66 | 34 | 37 | 49 |
| Arable silage/other fodder crops | 29 | 36 | 35 | 1 | 27 | 98 | 44 | 50 | 29 | 16 | 17 | 69 |
| Peas - human consumption | 5 | 27 | 24 | 5 | 1 | 50 | 54 | 63 | 3 | 14 | 15 | 36 |
| Peas - animal consumption | 6 | 37 | 41 | 1 | 13 | 44 | 56 | 59 | 3 | 20 | 24 | 49 |
| Beans - animal consumption | 3 | 34 | 32 | 4 | 4 | 18 | 59 | 75 | 1 | 20 | 24 | 218 |
| Vegetables (brassicae) | 60 | 60 | 62 | 10 | 51 | 157 | 76 | 133 | 94 | 46 | 83 | 16 |
| Vegetables (other) | 79 | 48 | 67 | 9 | 8 | 142 | 66 | 136 | 112 | 32 | 91 | 55 |
| Soft Fruit | 39 | 1 | 38 | 0 | 0 | 44 | 43 | 114 | 17 | 1 | 43 | 10 |
| Top Fruit | 87 | 57 | 59 | 17 | 0 | 74 | 33 | 46 | 65 | 19 | 27 | 48 |
| Other tillage | 30 | 26 | 23 | 23 | 3 | 93 | 52 | 103 | 28 | 14 | 24 | 41 |
| All tillage | 90 | 50 | 50 | 40 | 21 | 165 | 59 | 76 | 149 | 30 | 38 | 4826 |
| Grass under 5 years old | 81 | 56 | 59 | 13 | 46 | 126 | 32 | 47 | 102 | 18 | 28 | 1079 |
| Grass 5 years and over | 59 | 40 | 41 | 5 | 33 | 92 | 22 | 27 | 54 | 9 | 11 | 2443 |
| All grass | 63 | 43 | 44 | 6 | 35 | 100 | 24 | 32 | 63 | 10 | 14 | 3522 |
| All crops and grass | 75 | 46 | 47 | 22 | 29 | 136 | 42 | 54 | 102 | 19 | 25 | 8348 |

Source: British Survey of Fertiliser Practice 2010

**Table GB1.2 Use of straight fertiliser, Great Britain 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 83 | 11 | 0 | 127 | 73 | 0 | 106 | 8 | 0 | 67 |
| Winter wheat | 97 | 13 | 12 | 191 | 72 | 85 | 185 | 9 | 10 | 1660 |
| Spring barley | 69 | 5 | 8 | 93 | 57 | 77 | 64 | 3 | 6 | 646 |
| Winter barley | 94 | 8 | 11 | 136 | 74 | 94 | 127 | 6 | 11 | 475 |
| Oats | 72 | 7 | 6 | 112 | 68 | 100 | 81 | 5 | 6 | 194 |
| Rye/triticale/Durum wheat | 57 | 2 | 28 | 124 | 86 | 81 | 71 | 2 | 23 | 30 |
| Potatoes (seed or earlies) | 37 | 0 | 35 | 129 | 0 | 141 | 48 | 0 | 49 | 20 |
| Potatoes (maincrop) | 43 | 8 | 22 | 80 | 230 | 232 | 34 | 18 | 50 | 120 |
| Sugar beet | 92 | 2 | 25 | 94 | 94 | 117 | 86 | 2 | 29 | 105 |
| Spring oilseed rape | 96 | 7 | 0 | 117 | 115 | 0 | 113 | 9 | 0 | 16 |
| Winter oilseed rape | 98 | 14 | 15 | 196 | 68 | 74 | 192 | 10 | 11 | 556 |
| Linseed | 92 | 0 | 8 | 63 | 0 | 83 | 57 | 0 | 7 | 46 |
| Forage maize | 39 | 2 | 15 | 80 | 82 | 111 | 32 | 1 | 17 | 215 |
| Rootcrops for stockfeed | 22 | 4 | 7 | 110 | 29 | 150 | 24 | 1 | 11 | 85 |
| Leafy forage crops | 30 | 1 | 0 | 65 | 169 | 0 | 19 | 2 | 0 | 49 |
| Arable silage/other fodder crops | 10 | 1 | 1 | 109 | 67 | 85 | 11 | 1 | 1 | 69 |
| Peas - human consumption | 0 | 5 | 2 | 0 | 82 | 152 | 0 | 4 | 3 | 36 |
| Peas - animal consumption | 4 | 8 | 13 | 59 | 58 | 84 | 2 | 4 | 11 | 49 |
| Beans - animal consumption | 0 | 12 | 11 | 0 | 60 | 73 | 0 | 7 | 8 | 218 |
| Vegetables (brassicae) | 20 | 0 | 12 | 77 | 0 | 75 | 15 | 0 | 9 | 16 |
| Vegetables (other) | 58 | 1 | 19 | 105 | 46 | 173 | 60 | 0 | 33 | 55 |
| Soft Fruit | 38 | 1 | 38 | 44 | 50 | 114 | 17 | 1 | 43 | 10 |
| Top Fruit | 61 | 12 | 4 | 94 | 31 | 112 | 57 | 4 | 4 | 48 |
| Other tillage | 21 | 5 | 2 | 106 | 74 | 175 | 22 | 4 | 4 | 41 |
| All tillage | 81 | 10 | 12 | 165 | 71 | 91 | 134 | 7 | 10 | 4826 |
| Grass under 5 years old | 45 | 2 | 3 | 116 | 78 | 114 | 52 | 1 | 3 | 1079 |
| Grass 5 years and over | 25 | 0 | 1 | 100 | 70 | 93 | 25 | 0 | 0 | 2443 |
| All grass | 29 | 0 | 1 | 104 | 76 | 104 | 30 | 0 | 1 | 3522 |
| All crops and grass | 53 | 5 | 6 | 147 | 71 | 92 | 78 | 3 | 5 | 8348 |

Source: British Survey of Fertiliser Practice 2010

**Table GB1.3 Use of compound fertiliser, Great Britain 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 23 | 36 | 37 | 46 | 44 | 55 | 10 | 16 | 20 | 67 |
| Winter wheat | 13 | 32 | 31 | 64 | 54 | 66 | 8 | 17 | 21 | 1660 |
| Spring barley | 57 | 66 | 65 | 59 | 49 | 62 | 34 | 32 | 41 | 646 |
| Winter barley | 24 | 53 | 53 | 62 | 51 | 68 | 15 | 27 | 36 | 475 |
| Oats | 23 | 48 | 48 | 53 | 49 | 59 | 12 | 24 | 28 | 194 |
| Rye/triticale/Durum wheat | 16 | 28 | 28 | 57 | 41 | 47 | 9 | 11 | 13 | 30 |
| Potatoes (seed or earlies) | 92 | 92 | 57 | 101 | 160 | 193 | 92 | 147 | 110 | 20 |
| Potatoes (maincrop) | 80 | 80 | 78 | 126 | 129 | 197 | 101 | 102 | 154 | 120 |
| Sugar beet | 11 | 48 | 46 | 62 | 57 | 106 | 7 | 27 | 49 | 105 |
| Spring oilseed rape | 15 | 26 | 26 | 56 | 50 | 57 | 8 | 13 | 15 | 16 |
| Winter oilseed rape | 17 | 35 | 30 | 44 | 56 | 63 | 8 | 19 | 19 | 556 |
| Linseed | 2 | 29 | 31 | 48 | 53 | 56 | 1 | 15 | 17 | 46 |
| Forage maize | 44 | 51 | 26 | 30 | 55 | 54 | 13 | 28 | 14 | 215 |
| Rootcrops for stockfeed | 64 | 71 | 67 | 82 | 77 | 80 | 52 | 54 | 53 | 85 |
| Leafy forage crops | 61 | 61 | 63 | 77 | 53 | 59 | 47 | 32 | 37 | 49 |
| Arable silage/other fodder crops | 21 | 35 | 34 | 85 | 44 | 48 | 18 | 15 | 16 | 69 |
| Peas - human consumption | 5 | 22 | 22 | 50 | 47 | 56 | 3 | 10 | 12 | 36 |
| Peas - animal consumption | 2 | 29 | 28 | 20 | 55 | 47 | 0 | 16 | 13 | 49 |
| Beans - animal consumption | 3 | 22 | 21 | 18 | 58 | 76 | 1 | 13 | 16 | 218 |
| Vegetables (brassicae) | 60 | 60 | 60 | 132 | 76 | 124 | 79 | 46 | 74 | 16 |
| Vegetables (other) | 43 | 48 | 48 | 121 | 66 | 121 | 52 | 32 | 58 | 55 |
| Soft Fruit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Top Fruit | 37 | 55 | 55 | 20 | 27 | 42 | 7 | 15 | 23 | 48 |
| Other tillage | 11 | 21 | 21 | 54 | 47 | 95 | 6 | 10 | 20 | 41 |
| All tillage | 23 | 41 | 39 | 62 | 55 | 70 | 14 | 23 | 27 | 4826 |
| Grass under 5 years old | 55 | 55 | 56 | 92 | 31 | 43 | 50 | 17 | 25 | 1079 |
| Grass 5 years and over | 40 | 40 | 41 | 71 | 21 | 26 | 29 | 9 | 11 | 2443 |
| All grass | 43 | 43 | 43 | 76 | 24 | 30 | 33 | 10 | 13 | 3522 |
| All crops and grass | 34 | 42 | 41 | 72 | 38 | 48 | 24 | 16 | 20 | 8348 |

Source: British Survey of Fertiliser Practice 2010

**Table GB1.4 Use of lime, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | | | Average application rate (tonnes of product/ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Fields limed | Fields in sample |
| Spring wheat | 5.3 | - | - | - | - | 5.3 | 4.3 | - | - | - | - | 4.3 | 6 | 67 |
| Winter wheat | 3.3 | 1.4 | 0.6 | 0.2 | 0.1 | 5.7 | 2.8 | 5.0 | 3.9 | 5.8 | 4.2 | 3.6 | 98 | 1660 |
| Spring barley | 4.5 | 0.5 | 2.1 | 0.1 | 0.6 | 7.8 | 3.8 | 7.8 | 4.2 | 7.5 | 1.1 | 4.0 | 82 | 646 |
| Winter barley | 5.0 | 0.6 | 1.2 | 0.2 | 0.2 | 7.1 | 4.0 | 5.8 | 5.5 | 6.1 | 2.9 | 4.4 | 47 | 475 |
| Oats | 4.3 | 1.5 | 1.3 | - | 0.6 | 7.7 | 3.8 | 3.0 | 4.7 | - | 6.4 | 4.0 | 17 | 194 |
| Rye/triticale/Durum wheat | 2.0 | 10.1 | - | 3.0 | 4.8 | 20.0 | 3.7 | 5.7 | - | 8.1 | 5.0 | 5.7 | 8 | 30 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 20 |
| Potatoes (maincrop) | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 120 |
| Sugar beet | 6.6 | 5.0 | - | 11.1 | 5.6 | 28.3 | 4.9 | 4.8 | - | 5.2 | 12.1 | 6.4 | 31 | 105 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 16 |
| Winter oilseed rape | 9.1 | 2.2 | 0.2 | 0.6 | 0.1 | 12.2 | 3.0 | 4.6 | 3.8 | 11.7 | 5.0 | 3.8 | 54 | 556 |
| Linseed | - | 8.1 | - | - | - | 8.1 | - | 6.3 | - | - | - | 6.3 | 5 | 46 |
| Forage maize | 9.8 | 1.4 | 0.3 | - | 2.1 | 13.7 | 3.9 | 6.3 | 5.0 | - | 4.5 | 4.2 | 35 | 215 |
| Rootcrops for stockfeed | 11.1 | - | 5.7 | - | 4.4 | 21.2 | 3.9 | - | 4.6 | - | 1.9 | 3.7 | 20 | 85 |
| Leafy forage crops | 3.7 | - | 1.1 | - | 4.0 | 8.9 | 5.3 | - | 5.0 | - | 3.5 | 4.4 | 6 | 49 |
| Arable silage/other fodder crops | 6.3 | 1.9 | 5.5 | - | 3.6 | 17.3 | 4.5 | 3.6 | 5.0 | - | 3.6 | 4.4 | 14 | 69 |
| Peas - human consumption | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 36 |
| Peas - animal consumption | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 49 |
| Beans - animal consumption | 3.3 | 2.6 | 0.6 | 0.1 | 0.3 | 7.0 | 2.0 | 4.3 | 3.2 | 5.0 | 2.5 | 3.0 | 27 | 218 |
| Vegetables (brassicae) | 45.0 | - | - | 2.8 | - | 47.8 | 5.0 | - | - | 5.0 | - | 5.0 | 9 | 16 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 55 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 10 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 48 |
| Other tillage | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 41 |
| All tillage | 4.7 | 1.5 | 0.8 | 0.4 | 0.5 | 8.0 | 3.3 | 4.9 | 4.3 | 6.7 | 5.5 | 4.0 | 471 | 4826 |
| Grass under 5 years old | 3.5 | 0.6 | 1.3 | 0.3 | 2.0 | 7.8 | 4.5 | 5.1 | 4.2 | 5.7 | 2.4 | 4.0 | 98 | 1079 |
| Grass 5 years and over | 1.7 | 0.1 | 0.7 | 0.0 | 1.5 | 4.1 | 3.3 | 6.5 | 4.4 | 3.8 | 3.5 | 3.6 | 142 | 2443 |
| All grass | 2.1 | 0.2 | 0.8 | 0.1 | 1.6 | 4.8 | 3.7 | 5.6 | 4.4 | 5.1 | 3.3 | 3.8 | 240 | 3522 |
| All crops and grass | 3.3 | 0.8 | 0.8 | 0.3 | 1.1 | 6.2 | 3.4 | 5.0 | 4.3 | 6.4 | 3.7 | 3.9 | 711 | 8348 |

Source: British Survey of Fertiliser Practice 2010

**Table GB2.1 Average fertiliser practice by grassland utilisation, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Grazed not mown | 54 | 38 | 38 | 20 | 82 | 20 | 22 | 44 | 7 | 8 | 1609 |
| Grazed mown | 76 | 49 | 52 | 58 | 116 | 28 | 40 | 87 | 14 | 21 | 1464 |
| All grazings | 61 | 42 | 43 | 34 | 97 | 23 | 30 | 59 | 10 | 13 | 3073 |
| Cut for silage - grazed | 83 | 54 | 58 | 68 | 124 | 28 | 42 | 103 | 15 | 25 | 1070 |
| Cut for silage - not grazed | 86 | 62 | 65 | 63 | 140 | 34 | 51 | 121 | 21 | 34 | 284 |
| All cut for silage | 83 | 56 | 60 | 67 | 128 | 29 | 44 | 106 | 16 | 26 | 1354 |
| Cut for hay - grazed | 56 | 34 | 35 | 31 | 79 | 27 | 30 | 44 | 9 | 11 | 453 |
| Cut for hay - not grazed | 70 | 45 | 43 | 21 | 96 | 31 | 47 | 68 | 14 | 21 | 125 |
| All cut for hay | 59 | 36 | 37 | 29 | 82 | 28 | 33 | 48 | 10 | 12 | 578 |
| All mowings | 77 | 51 | 53 | 57 | 118 | 29 | 43 | 91 | 15 | 23 | 1863 |
| All grass | 63 | 43 | 44 | 35 | 100 | 24 | 32 | 63 | 10 | 14 | 3521 |

Source: British Survey of Fertiliser Practice 2010

**Table GB3.0 Product use by month of application, Great Britain 2010**

**(a) Product use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight N | 0 | 0 | 0 | 0 | 0 | 3 | 28 | 42 | 19 | 4 | 2 | 1 |
| Straight P | 21 | 5 | 2 | 0 | 2 | 9 | 29 | 21 | 2 | 0 | 0 | 8 |
| Straight K | 2 | 5 | 3 | 2 | 6 | 17 | 31 | 26 | 5 | 1 | 1 | 2 |
| Compounds | 7 | 4 | 1 | 0 | 0 | 3 | 22 | 35 | 15 | 8 | 4 | 3 |
| All fertilisers | 3 | 2 | 0 | 0 | 0 | 3 | 26 | 39 | 17 | 5 | 3 | 2 |

**(b) Nutrient use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | 0 | 0 | 0 | 0 | 0 | 2 | 26 | 42 | 19 | 5 | 3 | 1 |
| Phosphate | 12 | 6 | 1 | 0 | 1 | 5 | 24 | 32 | 10 | 3 | 2 | 4 |
| Potash | 8 | 5 | 1 | 1 | 1 | 7 | 26 | 31 | 10 | 5 | 3 | 2 |
| Total | 3 | 2 | 0 | 0 | 0 | 3 | 26 | 39 | 16 | 5 | 3 | 2 |

Note: All fertilisers includes other straight fertilisers (e.g. sulphur or trace elements)

'Product' refers to the total tonnage of the products used by the farmers in the survey year 2010.

'Nutrient' refers to the tonnage of each nutrient contained in the products used.

(e.g. 100 kg of a 20:10:10 compound contains 20 kg of N, 10 kg of $P_2O_5$ and 10 kg of $K_2O$, while 100 kg of ammonium nitrate (straight N) contains typically 34.5 kg of N).

Estimates of total nutrients are shown in Section B.

Source: British Survey of Fertiliser Practice 2010

**Table GB3.1 Product type as percentage of all product used by crop group, Great Britain 2010**

| column % | spring cereal | winter cereal | potatoes | sugar beet | oilseed rape | other tillage | all tillage | grass for grazing | grass for hay | grass for silage | grass not specified | all grass | all crops and grass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 34.8 | 50.9 | 9.4 | 24.0 | 48.7 | 17.5 | 42.3 | 30.6 | 30.4 | 28.5 | 22.2 | 29.9 | 39.0 |
| Urea | 3.0 | 8.7 | 1.6 | 1.1 | 11.8 | 1.6 | 7.1 | 3.8 | 3.5 | 3.2 | 12.6 | 3.8 | 6.2 |
| Calcium Ammonium Nitrate (CAN) | 2.5 | 2.9 | 0.0 | 3.0 | 2.4 | 1.7 | 2.5 | 2.1 | 2.2 | 2.3 | 0.0 | 2.3 | 2.4 |
| Urea Ammonium Nitrate (UAN) | 5.7 | 10.1 | 0.8 | 7.3 | 10.1 | 2.0 | 8.2 | 2.1 | 2.5 | 2.4 | 0.0 | 2.1 | 6.6 |
| Other Straight N | 1.7 | 1.7 | 0.2 | 0.0 | 4.8 | 3.3 | 2.2 | 1.6 | 0.0 | 1.8 | 0.0 | 1.4 | 2.0 |
| Triple Superphosphate (TSP) | 1.7 | 2.2 | 2.9 | 0.0 | 2.7 | 3.8 | 2.3 | 0.5 | 0.8 | 0.4 | 0.0 | 0.6 | 1.9 |
| Other Straight P | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Muriate of Potash (MOP) | 2.0 | 2.4 | 7.7 | 0.8 | 2.5 | 6.6 | 3.0 | 0.7 | 1.8 | 0.9 | 0.0 | 0.8 | 2.4 |
| Other Straight K | 0.3 | 0.1 | 0.3 | 20.2 | 0.1 | 2.5 | 0.9 | 0.2 | 0.1 | 0.2 | 0.0 | 0.1 | 0.7 |
| PK | 9.7 | 10.7 | 4.2 | 31.6 | 8.2 | 14.4 | 10.7 | 2.7 | 3.4 | 2.1 | 20.5 | 2.8 | 8.6 |
| NK | 2.1 | 1.0 | 1.4 | 0.0 | 0.3 | 1.7 | 1.1 | 4.8 | 2.9 | 7.2 | 0.0 | 4.8 | 2.1 |
| Low N (<19% N) | 17.6 | 4.6 | 70.0 | 10.6 | 5.8 | 31.7 | 12.8 | 3.8 | 4.3 | 4.0 | 14.9 | 4.1 | 10.5 |
| High N (>=19% N) | 18.2 | 4.5 | 1.1 | 0.2 | 2.2 | 11.9 | 6.4 | 46.9 | 48.0 | 46.8 | 29.9 | 47.1 | 17.2 |
| Other | 0.5 | 0.1 | 0.5 | 1.1 | 0.5 | 1.3 | 0.4 | 0.2 | 0.1 | 0.2 | 0.0 | 0.2 | 0.4 |
| **Total product ('000 tonnes)** | **354** | **1555** | **82** | **72** | **476** | **125** | **2664** | **1081** | **118** | **653** | **3** | **1257** | **3921** |



**Table GB3.2 Use of product type by crop group, Great Britain 2010**

| row % | spring cereal | winter cereal | potatoes | sugar beet | oilseed rape | other tillage | all tillage | grass for grazing | grass for hay | grass for silage | grass not specified | all grass | total product ('000 tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 10.2 | 66.4 | 0.5 | 1.3 | 19.3 | 2.3 | 76.9 | 88.2 | 9.7 | 50.5 | 0.1 | 23.1 | 1526 |
| Urea | 4.9 | 67.4 | 0.7 | 0.1 | 26.2 | 0.7 | 85.9 | 92.3 | 9.6 | 47.8 | 1.9 | 14.1 | 308 |
| Calcium Ammonium Nitrate (CAN) | 17.9 | 65.5 | 0.0 | 1.5 | 10.7 | 4.3 | 64.4 | 79.3 | 7.3 | 54.5 | 0.0 | 35.6 | 94 |
| Urea Ammonium Nitrate (UAN) | 7.7 | 66.4 | 0.3 | 3.1 | 21.5 | 0.9 | 91.7 | 82.5 | 6.7 | 72.3 | 0.0 | 8.3 | 291 |
| Other Straight N | 12.1 | 44.6 | 0.5 | 0.0 | 39.0 | 3.8 | 79.4 | 97.8 | 0.0 | 60.4 | 0.0 | 20.6 | 68 |
| Triple Superphosphate (TSP) | 8.4 | 62.0 | 3.7 | 0.0 | 19.4 | 6.6 | 93.8 | 81.8 | 25.9 | 30.9 | 0.0 | 6.2 | 76 |
| Other Straight P | 42.7 | 34.9 | 0.0 | 16.0 | 0.0 | 6.4 | 85.2 | 100.0 | 0.0 | 100.0 | 0.0 | 14.8 | 1 |
| Muriate of Potash (MOP) | 9.6 | 53.3 | 8.4 | 0.8 | 15.7 | 12.2 | 90.1 | 84.8 | 24.2 | 53.0 | 0.0 | 9.9 | 79 |
| Other Straight K | 3.9 | 6.7 | 1.8 | 65.5 | 3.5 | 18.6 | 94.1 | 100.0 | 3.3 | 82.4 | 0.0 | 5.9 | 21 |
| PK | 10.7 | 55.4 | 1.1 | 9.8 | 13.8 | 9.3 | 91.3 | 88.4 | 13.5 | 39.9 | 2.1 | 8.7 | 291 |
| NK | 34.1 | 46.5 | 6.3 | 0.0 | 5.5 | 7.5 | 30.0 | 79.0 | 3.0 | 88.7 | 0.0 | 70.0 | 86 |
| Low N (<19% N) | 32.1 | 21.6 | 22.5 | 2.6 | 8.3 | 12.9 | 86.4 | 78.9 | 7.9 | 52.1 | 0.2 | 13.6 | 298 |
| High N (>=19% N) | 39.2 | 44.0 | 0.8 | 0.1 | 7.2 | 8.6 | 16.0 | 85.7 | 9.8 | 49.1 | 0.1 | 84.0 | 771 |
| Other | 15.7 | 36.5 | 2.1 | 5.6 | 18.2 | 22.0 | 78.8 | 88.7 | 7.1 | 34.6 | 0.0 | 21.2 | 12 |
| **All Fertilisers** | **13.3** | **58.4** | **3.1** | **2.7** | **17.9** | **4.7** | **67.9** | **86.0** | **9.4** | **52.0** | **0.2** | **32.1** | **3921** |

Source: British Survey of Fertiliser Practice 2010

**Table GB3.3 Product use by month of application, Great Britain 2010**

| row % | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | total product ('000 tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 0.0 | 2.4 | 25.2 | 42.7 | 20.8 | 4.2 | 2.1 | 1.1 | 0.4 | 0.5 | 0.2 | 0.0 | 1526 |
| Urea | 0.0 | 3.4 | 35.3 | 42.2 | 13.9 | 3.3 | 1.3 | 0.1 | 0.1 | 0.3 | 0.0 | 0.0 | 308 |
| Calcium Ammonium Nitrate (CAN) | 0.0 | 1.2 | 24.6 | 44.4 | 17.6 | 6.9 | 3.3 | 1.8 | 0.2 | 0.0 | 0.0 | 0.0 | 94 |
| Urea Ammonium Nitrate (UAN) | 0.0 | 3.8 | 31.9 | 46.3 | 15.0 | 1.7 | 0.9 | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 291 |
| Other Straight N | 0.0 | 5.2 | 61.6 | 20.2 | 8.6 | 0.9 | 2.0 | 0.0 | 0.1 | 1.2 | 0.0 | 0.0 | 68 |
| Triple Superphosphate (TSP) | 1.8 | 8.9 | 30.1 | 21.4 | 2.0 | 0.0 | 0.1 | 7.9 | 20.0 | 5.5 | 2.2 | 0.0 | 76 |
| Other Straight P | 0.0 | 0.0 | 27.4 | 0.0 | 14.9 | 0.0 | 0.0 | 13.6 | 44.0 | 0.0 | 0.0 | 0.0 | 1 |
| Muriate of Potash (MOP) | 1.9 | 19.0 | 34.8 | 27.8 | 5.0 | 1.7 | 0.9 | 1.6 | 2.0 | 4.5 | 0.4 | 0.5 | 79 |
| Other Straight K | 21.2 | 9.9 | 15.8 | 19.4 | 3.6 | 0.5 | 0.0 | 1.5 | 1.2 | 5.5 | 11.3 | 10.1 | 21 |
| PK | 1.1 | 10.9 | 22.5 | 12.4 | 2.1 | 0.3 | 0.3 | 4.0 | 27.5 | 14.1 | 3.2 | 1.4 | 291 |
| NK | 0.0 | 0.2 | 16.6 | 14.0 | 23.5 | 28.6 | 16.2 | 0.8 | 0.2 | 0.0 | 0.0 | 0.0 | 86 |
| Low N (<19% N) | 0.1 | 1.1 | 28.7 | 46.6 | 11.3 | 0.7 | 1.3 | 3.1 | 4.3 | 2.9 | 0.1 | 0.0 | 298 |
| High N (>=19% N) | 0.0 | 0.4 | 19.4 | 40.5 | 20.2 | 11.3 | 5.4 | 2.3 | 0.2 | 0.2 | 0.1 | 0.0 | 771 |
| Other | 0.0 | 4.0 | 36.9 | 29.5 | 1.6 | 1.9 | 0.0 | 18.7 | 0.3 | 5.9 | 0.0 | 1.2 | 12 |
| **All Fertilisers** | **0.3** | **3.2** | **26.1** | **38.7** | **16.6** | **5.2** | **2.7** | **1.8** | **3.0** | **1.8** | **0.4** | **0.2** | **3921** |

Source: British Survey of Fertiliser Practice 2010

**Table GB4.1 Average fertiliser practice on cereal farms, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 96 | 44 | 35 | 23 | 126 | 51 | 67 | 121 | 23 | 24 | 34 |
| Winter wheat | 100 | 49 | 43 | 15 | 201 | 62 | 70 | 200 | 30 | 30 | 957 |
| Spring barley | 96 | 69 | 67 | 21 | 114 | 52 | 67 | 109 | 36 | 45 | 218 |
| Winter barley | 99 | 63 | 64 | 10 | 151 | 56 | 71 | 149 | 35 | 46 | 204 |
| Oats | 88 | 53 | 49 | 16 | 112 | 53 | 61 | 99 | 28 | 30 | 97 |
| Rye/triticale/Durum wheat | 43 | 19 | 19 | 57 | 117 | 53 | 65 | 50 | 10 | 12 | 6 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | 4 |
| Potatoes (maincrop) | 100 | 100 | 100 | 18 | 139 | 169 | 224 | 139 | 169 | 224 | 20 |
| Sugar beet | 90 | 56 | 75 | 15 | 104 | 71 | 101 | 93 | 40 | 76 | 36 |
| Spring oilseed rape | 100 | 34 | 27 | 6 | 122 | 64 | 57 | 122 | 22 | 15 | 15 |
| Winter oilseed rape | 99 | 50 | 44 | 16 | 200 | 61 | 65 | 199 | 30 | 28 | 385 |
| Linseed | 93 | 33 | 38 | 7 | 66 | 53 | 61 | 62 | 18 | 24 | 37 |
| Forage maize | 91 | 70 | 35 | 83 | 66 | 39 | 52 | 60 | 27 | 18 | 33 |
| Rootcrops for stockfeed | 100 | 76 | 67 | 18 | 124 | 60 | 112 | 124 | 45 | 75 | 18 |
| Leafy forage crops | 89 | 8 | 8 | 68 | 70 | 78 | 117 | 62 | 6 | 9 | 5 |
| Arable silage/other fodder crops | 2 | 30 | 30 | 8 | 94 | 42 | 47 | 2 | 13 | 14 | 17 |
| Peas - human consumption | 0 | 8 | 8 | 3 | 0 | 89 | 144 | 0 | 7 | 12 | 12 |
| Peas - animal consumption | 8 | 42 | 38 | 13 | 49 | 59 | 50 | 4 | 25 | 19 | 27 |
| Beans - animal consumption | 1 | 32 | 30 | 4 | 21 | 58 | 72 | 0 | 19 | 22 | 158 |
| Vegetables (brassicae) | - | - | - | - | - | - | - | - | - | - | 0 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | 0 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | 1 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | 1 |
| Other tillage | 32 | 15 | 10 | 5 | 112 | 57 | 137 | 36 | 9 | 14 | 18 |
| All tillage | 91 | 51 | 47 | 15 | 179 | 60 | 70 | 163 | 31 | 33 | 2303 |
| Grass under 5 years old | 72 | 37 | 39 | 17 | 107 | 31 | 50 | 77 | 11 | 19 | 172 |
| Grass 5 years and over | 49 | 23 | 23 | 6 | 75 | 22 | 27 | 37 | 5 | 6 | 436 |
| All grass | 54 | 26 | 27 | 9 | 85 | 25 | 34 | 46 | 6 | 9 | 608 |
| All crops and grass | 84 | 46 | 43 | 14 | 167 | 56 | 66 | 140 | 26 | 28 | 2911 |

The data in this table apply to farms in the 'cereals' robust group, as detailed in Appendix 3.

Source: British Survey of Fertiliser Practice 2010

**Table GB4.2 Average fertiliser practice on general cropping and horticultural farms, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 85 | 35 | 17 | 4 | 137 | 76 | 68 | 117 | 26 | 12 | 12 |
| Winter wheat | 98 | 35 | 39 | 11 | 187 | 57 | 85 | 183 | 20 | 33 | 418 |
| Spring barley | 94 | 59 | 72 | 11 | 108 | 52 | 75 | 101 | 31 | 54 | 127 |
| Winter barley | 97 | 64 | 77 | 9 | 141 | 55 | 81 | 137 | 35 | 63 | 118 |
| Oats | 94 | 59 | 67 | 16 | 92 | 63 | 84 | 87 | 37 | 57 | 35 |
| Rye/triticale/Durum wheat | 94 | 26 | 87 | 0 | 136 | 63 | 76 | 128 | 17 | 66 | 12 |
| Potatoes (seed or earlies) | 99 | 85 | 85 | 1 | 151 | 172 | 187 | 148 | 146 | 159 | 13 |
| Potatoes (maincrop) | 97 | 85 | 86 | 34 | 136 | 132 | 233 | 132 | 112 | 200 | 85 |
| Sugar beet | 100 | 52 | 67 | 36 | 97 | 51 | 123 | 97 | 26 | 83 | 63 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | 1 |
| Winter oilseed rape | 100 | 42 | 48 | 15 | 201 | 60 | 74 | 201 | 25 | 36 | 122 |
| Linseed | 94 | 11 | 34 | 0 | 47 | 48 | 71 | 44 | 5 | 24 | 8 |
| Forage maize | 71 | 27 | 23 | 88 | 57 | 57 | 44 | 40 | 15 | 10 | 17 |
| Rootcrops for stockfeed | 100 | 72 | 76 | 95 | 101 | 83 | 119 | 101 | 59 | 91 | 5 |
| Leafy forage crops | 90 | 23 | 35 | 14 | 90 | 121 | 118 | 81 | 28 | 42 | 5 |
| Arable silage/other fodder crops | - | - | - | - | - | - | - | - | - | - | 2 |
| Peas - human consumption | 7 | 34 | 29 | 0 | 50 | 50 | 53 | 4 | 17 | 16 | 23 |
| Peas - animal consumption | 3 | 32 | 43 | 12 | 23 | 49 | 63 | 1 | 15 | 27 | 19 |
| Beans - animal consumption | 15 | 40 | 41 | 4 | 19 | 65 | 85 | 3 | 26 | 35 | 38 |
| Vegetables (brassicae) | 75 | 75 | 79 | 38 | 161 | 75 | 135 | 121 | 56 | 107 | 10 |
| Vegetables (other) | 81 | 49 | 68 | 5 | 142 | 66 | 137 | 116 | 32 | 93 | 48 |
| Soft Fruit | 40 | 2 | 39 | 0 | 44 | 43 | 114 | 18 | 1 | 44 | 9 |
| Top Fruit | 87 | 58 | 61 | 0 | 74 | 33 | 47 | 64 | 19 | 28 | 43 |
| Other tillage | 30 | 39 | 39 | 0 | 71 | 50 | 92 | 21 | 20 | 36 | 21 |
| All tillage | 90 | 46 | 53 | 13 | 156 | 63 | 97 | 141 | 29 | 51 | 1254 |
| Grass under 5 years old | 71 | 46 | 46 | 12 | 97 | 46 | 50 | 68 | 21 | 23 | 107 |
| Grass 5 years and over | 54 | 24 | 25 | 15 | 92 | 19 | 22 | 49 | 5 | 5 | 172 |
| All grass | 60 | 32 | 33 | 14 | 94 | 34 | 37 | 56 | 11 | 12 | 279 |
| All crops and grass | 84 | 43 | 49 | 13 | 147 | 59 | 88 | 123 | 25 | 43 | 1533 |

The data in this table apply to farms in the 'general cropping' and 'horticulture' robust groups, as detailed in Appendix 3.

Source: British Survey of Fertiliser Practice 2010

**Table GB4.3 Average fertiliser practice on dairy farms, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 100 | 63 | 63 | 100 | 96 | 27 | 28 | 96 | 17 | 18 | 6 |
| Winter wheat | 96 | 40 | 45 | 60 | 159 | 47 | 49 | 153 | 19 | 22 | 77 |
| Spring barley | 87 | 66 | 69 | 67 | 87 | 39 | 42 | 76 | 25 | 29 | 51 |
| Winter barley | 100 | 57 | 55 | 50 | 130 | 54 | 71 | 130 | 31 | 39 | 34 |
| Oats | 98 | 9 | 9 | 19 | 104 | 25 | 52 | 102 | 2 | 4 | 7 |
| Rye/triticale/Durum wheat | - | - | - | - | - | - | - | - | - | - | 3 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | 0 |
| Potatoes (maincrop) | - | - | - | - | - | - | - | - | - | - | 2 |
| Sugar beet | - | - | - | - | - | - | - | - | - | - | 0 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | 0 |
| Winter oilseed rape | 95 | 92 | 58 | 11 | 195 | 89 | 61 | 185 | 82 | 35 | 8 |
| Linseed | - | - | - | - | - | - | - | - | - | - | 0 |
| Forage maize | 71 | 67 | 43 | 95 | 55 | 61 | 80 | 39 | 41 | 35 | 96 |
| Rootcrops for stockfeed | 65 | 65 | 65 | 72 | 106 | 53 | 101 | 69 | 35 | 65 | 7 |
| Leafy forage crops | - | - | - | - | - | - | - | - | - | - | 4 |
| Arable silage/other fodder crops | 72 | 43 | 41 | 49 | 112 | 41 | 43 | 81 | 18 | 18 | 22 |
| Peas - human consumption | - | - | - | - | - | - | - | - | - | - | 0 |
| Peas - animal consumption | - | - | - | - | - | - | - | - | - | - | 0 |
| Beans - animal consumption | - | - | - | - | - | - | - | - | - | - | 3 |
| Vegetables (brassicae) | - | - | - | - | - | - | - | - | - | - | 2 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | 3 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | 0 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | 0 |
| Other tillage | - | - | - | - | - | - | - | - | - | - | 0 |
| All tillage | 84 | 56 | 49 | 69 | 112 | 53 | 59 | 94 | 30 | 29 | 325 |
| Grass under 5 years old | 85 | 52 | 55 | 80 | 170 | 30 | 53 | 144 | 15 | 29 | 244 |
| Grass 5 years and over | 83 | 45 | 51 | 62 | 140 | 24 | 34 | 116 | 11 | 17 | 490 |
| All grass | 83 | 47 | 52 | 66 | 147 | 25 | 39 | 122 | 12 | 20 | 734 |
| All crops and grass | 83 | 48 | 51 | 67 | 141 | 30 | 42 | 118 | 14 | 21 | 1059 |

The data in this table apply to farms in the 'dairy' robust group, as detailed in Appendix 3.

Source: British Survey of Fertiliser Practice 2010

**Table GB4.4 Average fertiliser practice on other livestock farms, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | - | - | - | - | - | - | - | - | - | - | 2 |
| Winter wheat | 95 | 37 | 36 | 41 | 162 | 44 | 48 | 153 | 16 | 17 | 20 |
| Spring barley | 96 | 95 | 93 | 61 | 74 | 40 | 43 | 71 | 38 | 40 | 101 |
| Winter barley | 79 | 52 | 56 | 69 | 103 | 44 | 49 | 81 | 23 | 27 | 25 |
| Oats | 62 | 58 | 58 | 48 | 56 | 29 | 41 | 35 | 17 | 24 | 18 |
| Rye/triticale/Durum wheat | - | - | - | - | - | - | - | - | - | - | 2 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | 0 |
| Potatoes (maincrop) | - | - | - | - | - | - | - | - | - | - | 2 |
| Sugar beet | - | - | - | - | - | - | - | - | - | - | 0 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | 0 |
| Winter oilseed rape | - | - | - | - | - | - | - | - | - | - | 2 |
| Linseed | - | - | - | - | - | - | - | - | - | - | 0 |
| Forage maize | 57 | 29 | 46 | 89 | 74 | 32 | 111 | 42 | 9 | 51 | 23 |
| Rootcrops for stockfeed | 74 | 77 | 77 | 65 | 68 | 80 | 68 | 50 | 62 | 52 | 33 |
| Leafy forage crops | 89 | 81 | 79 | 53 | 73 | 47 | 48 | 65 | 38 | 38 | 29 |
| Arable silage/other fodder crops | 74 | 74 | 74 | 65 | 77 | 52 | 58 | 58 | 39 | 43 | 11 |
| Peas - human consumption | - | - | - | - | - | - | - | - | - | - | 0 |
| Peas - animal consumption | - | - | - | - | - | - | - | - | - | - | 2 |
| Beans - animal consumption | - | - | - | - | - | - | - | - | - | - | 0 |
| Vegetables (brassicae) | - | - | - | - | - | - | - | - | - | - | 0 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | 0 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | 0 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | 0 |
| Other tillage | - | - | - | - | - | - | - | - | - | - | 0 |
| All tillage | 86 | 68 | 69 | 58 | 95 | 43 | 50 | 82 | 29 | 35 | 270 |
| Grass under 5 years old | 85 | 77 | 76 | 52 | 104 | 31 | 37 | 89 | 24 | 28 | 347 |
| Grass 5 years and over | 52 | 44 | 43 | 32 | 71 | 21 | 24 | 37 | 9 | 10 | 1082 |
| All grass | 56 | 48 | 47 | 34 | 77 | 23 | 26 | 43 | 11 | 12 | 1429 |
| All crops and grass | 58 | 49 | 48 | 35 | 78 | 24 | 28 | 45 | 12 | 13 | 1699 |



The data in this table apply to farms in the 'LFA grazing livestock' and 'lowland grazing livestock' robust groups, as detailed in Appendix 3.

Source: British Survey of Fertiliser Practice 2010

**Table GB4.5 Average fertiliser practice on mixed farms, Great Britain 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 85 | 66 | 66 | 16 | 129 | 38 | 38 | 109 | 25 | 25 | 13 |
| Winter wheat | 99 | 42 | 45 | 30 | 188 | 57 | 73 | 186 | 24 | 33 | 176 |
| Spring barley | 94 | 74 | 78 | 57 | 95 | 50 | 62 | 90 | 37 | 48 | 149 |
| Winter barley | 100 | 46 | 46 | 45 | 148 | 56 | 69 | 148 | 26 | 32 | 94 |
| Oats | 86 | 63 | 65 | 29 | 113 | 51 | 66 | 97 | 32 | 43 | 36 |
| Rye/triticale/Durum wheat | 67 | 67 | 67 | 19 | 77 | 30 | 42 | 52 | 20 | 28 | 7 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | 3 |
| Potatoes (maincrop) | 100 | 100 | 100 | 58 | 158 | 149 | 209 | 158 | 149 | 209 | 10 |
| Sugar beet | 73 | 0 | 68 | 100 | 78 | 0 | 60 | 57 | 0 | 41 | 6 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | 0 |
| Winter oilseed rape | 100 | 37 | 40 | 30 | 201 | 49 | 80 | 201 | 18 | 32 | 37 |
| Linseed | - | - | - | - | - | - | - | - | - | - | 1 |
| Forage maize | 60 | 33 | 32 | 92 | 83 | 68 | 85 | 50 | 23 | 27 | 45 |
| Rootcrops for stockfeed | 93 | 71 | 78 | 74 | 75 | 83 | 86 | 69 | 59 | 67 | 22 |
| Leafy forage crops | 74 | 62 | 62 | 65 | 73 | 37 | 51 | 54 | 23 | 32 | 6 |
| Arable silage/other fodder crops | 11 | 17 | 17 | 20 | 74 | 48 | 62 | 8 | 8 | 11 | 17 |
| Peas - human consumption | - | - | - | - | - | - | - | - | - | - | 1 |
| Peas - animal consumption | - | - | - | - | - | - | - | - | - | - | 1 |
| Beans - animal consumption | 5 | 42 | 36 | 10 | 1 | 47 | 77 | 0 | 19 | 28 | 19 |
| Vegetables (brassicae) | - | - | - | - | - | - | - | - | - | - | 4 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | 4 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | 0 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | 4 |
| Other tillage | - | - | - | - | - | - | - | - | - | - | 2 |
| All tillage | 90 | 51 | 55 | 45 | 144 | 56 | 70 | 130 | 29 | 39 | 657 |
| Grass under 5 years old | 84 | 46 | 59 | 35 | 135 | 33 | 58 | 114 | 15 | 34 | 209 |
| Grass 5 years and over | 61 | 35 | 38 | 18 | 84 | 24 | 31 | 51 | 8 | 12 | 261 |
| All grass | 68 | 38 | 44 | 23 | 102 | 27 | 41 | 69 | 10 | 18 | 470 |
| All crops and grass | 77 | 44 | 49 | 32 | 123 | 41 | 55 | 95 | 18 | 27 | 1127 |



The data in this table apply to farms in the 'mixed' robust group, as detailed in Appendix 3.

Source: British Survey of Fertiliser Practice 2010

**Table EW1.1 Total fertiliser use, England & Wales 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 94 | 43 | 33 | 18 | 129 | 50 | 51 | 122 | 21 | 17 | 59 |
| Winter wheat | 99 | 43 | 40 | 17 | 196 | 60 | 71 | 194 | 26 | 29 | 1563 |
| Spring barley | 92 | 48 | 53 | 26 | 110 | 47 | 58 | 101 | 22 | 31 | 399 |
| Winter barley | 98 | 56 | 61 | 18 | 144 | 54 | 74 | 141 | 31 | 45 | 407 |
| Oats | 87 | 50 | 48 | 18 | 110 | 52 | 65 | 96 | 26 | 31 | 157 |
| Rye/triticale/Durum wheat | 68 | 26 | 54 | 23 | 111 | 39 | 62 | 76 | 10 | 33 | 28 |
| Potatoes (seed or earlies) | 97 | 97 | 97 | 57 | 173 | 167 | 212 | 168 | 163 | 206 | 10 |
| Potatoes (maincrop) | 97 | 85 | 86 | 37 | 143 | 137 | 236 | 139 | 116 | 202 | 97 |
| Sugar beet | 95 | 50 | 70 | 34 | 98 | 58 | 112 | 93 | 29 | 78 | 105 |
| Spring oilseed rape | 100 | 30 | 22 | 8 | 122 | 66 | 52 | 122 | 20 | 12 | 15 |
| Winter oilseed rape | 100 | 48 | 43 | 17 | 201 | 60 | 67 | 200 | 29 | 29 | 521 |
| Linseed | 93 | 29 | 39 | 6 | 63 | 53 | 62 | 58 | 15 | 24 | 46 |
| Forage maize | 70 | 52 | 37 | 91 | 64 | 57 | 81 | 45 | 30 | 30 | 212 |
| Rootcrops for stockfeed | 78 | 61 | 61 | 50 | 102 | 52 | 91 | 80 | 32 | 56 | 56 |
| Leafy forage crops | 80 | 50 | 54 | 49 | 73 | 59 | 69 | 58 | 30 | 38 | 28 |
| Arable silage/other fodder crops | 19 | 32 | 31 | 26 | 95 | 43 | 50 | 18 | 14 | 16 | 57 |
| Vining peas (for human consumption) | 5 | 28 | 25 | 1 | 50 | 54 | 63 | 3 | 15 | 16 | 34 |
| Field peas (harvested dry) | 5 | 36 | 40 | 11 | 49 | 57 | 57 | 2 | 21 | 23 | 47 |
| Field beans (harvested dry) | 1 | 32 | 30 | 4 | 15 | 58 | 73 | 0 | 19 | 22 | 211 |
| Vegetables (brassicae) | 55 | 55 | 59 | 46 | 156 | 77 | 135 | 87 | 43 | 79 | 15 |
| Vegetable Other | 80 | 46 | 64 | 7 | 146 | 53 | 136 | 116 | 24 | 87 | 48 |
| Soft Fruit | 83 | 3 | 81 | 0 | 44 | 43 | 114 | 37 | 1 | 92 | 8 |
| Top Fruit | 87 | 57 | 59 | 0 | 74 | 33 | 46 | 65 | 19 | 27 | 48 |
| Other tillage | 28 | 23 | 21 | 3 | 101 | 51 | 106 | 28 | 12 | 22 | 40 |
| All tillage | 89 | 45 | 44 | 20 | 171 | 59 | 76 | 153 | 27 | 34 | 4211 |
| Grass less than five years old | 78 | 44 | 48 | 50 | 134 | 30 | 49 | 104 | 13 | 24 | 800 |
| Grass five years and over | 57 | 36 | 37 | 36 | 95 | 22 | 29 | 54 | 8 | 11 | 2064 |
| All grass | 60 | 37 | 39 | 38 | 103 | 24 | 33 | 62 | 9 | 13 | 2864 |
| All crops and grass | 75 | 41 | 42 | 29 | 143 | 43 | 55 | 107 | 18 | 23 | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.2 Use of straight fertiliser, England & Wales 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 87 | 12 | 0 | 129 | 73 | 0 | 113 | 9 | 0 | 59 |
| Winter wheat | 97 | 13 | 11 | 193 | 72 | 85 | 187 | 10 | 10 | 1563 |
| Spring barley | 77 | 9 | 13 | 110 | 55 | 80 | 84 | 5 | 10 | 399 |
| Winter barley | 94 | 8 | 12 | 136 | 74 | 95 | 127 | 6 | 11 | 407 |
| Oats | 76 | 8 | 6 | 113 | 65 | 100 | 86 | 5 | 6 | 157 |
| Rye/triticale/Durum wheat | 55 | 0 | 28 | 122 | 0 | 80 | 67 | 0 | 22 | 28 |
| Potatoes (seed or earlies) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Potatoes (maincrop) | 44 | 6 | 22 | 82 | 286 | 218 | 36 | 16 | 49 | 97 |
| Sugar beet | 92 | 2 | 25 | 94 | 94 | 117 | 86 | 2 | 29 | 105 |
| Spring oilseed rape | 96 | 8 | 0 | 121 | 115 | 0 | 116 | 9 | 0 | 15 |
| Winter oilseed rape | 98 | 15 | 15 | 197 | 68 | 74 | 193 | 10 | 11 | 521 |
| Linseed | 92 | 0 | 8 | 63 | 0 | 83 | 57 | 0 | 7 | 46 |
| Forage maize | 39 | 2 | 15 | 81 | 82 | 111 | 32 | 1 | 17 | 212 |
| Rootcrops for stockfeed | 33 | 6 | 11 | 110 | 29 | 150 | 37 | 2 | 16 | 56 |
| Leafy forage crops | 35 | 0 | 0 | 61 | 0 | 0 | 21 | 0 | 0 | 28 |
| Arable silage/other fodder crops | 5 | 1 | 1 | 77 | 67 | 85 | 4 | 1 | 1 | 57 |
| Peas - human consumption | 0 | 5 | 2 | 0 | 82 | 152 | 0 | 4 | 3 | 34 |
| Peas - animal consumption | 4 | 8 | 12 | 59 | 58 | 77 | 2 | 5 | 10 | 47 |
| Beans - animal consumption | 0 | 12 | 11 | 0 | 60 | 74 | 0 | 7 | 8 | 211 |
| Vegetables (brassicae) | 11 | 0 | 3 | 58 | 0 | 74 | 6 | 0 | 2 | 15 |
| Vegetables (other) | 59 | 1 | 16 | 107 | 46 | 184 | 63 | 0 | 29 | 48 |
| Soft Fruit | 83 | 3 | 81 | 44 | 50 | 114 | 37 | 1 | 92 | 8 |
| Top Fruit | 61 | 12 | 4 | 94 | 31 | 112 | 57 | 4 | 4 | 48 |
| Other tillage | 22 | 5 | 2 | 106 | 74 | 175 | 23 | 4 | 4 | 40 |
| All tillage | 84 | 11 | 12 | 171 | 71 | 90 | 143 | 8 | 11 | 4211 |
| Grass under 5 years old | 53 | 2 | 4 | 122 | 69 | 115 | 65 | 1 | 4 | 800 |
| Grass 5 years and over | 28 | 0 | 1 | 103 | 72 | 93 | 28 | 0 | 1 | 2064 |
| All grass | 32 | 0 | 1 | 108 | 69 | 105 | 34 | 0 | 1 | 2864 |
| All crops and grass | 57 | 6 | 7 | 153 | 71 | 91 | 88 | 4 | 6 | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.3 Use of compound fertiliser, England & Wales 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Spring wheat | 20 | 31 | 33 | 46 | 41 | 51 | 9 | 13 | 17 | 59 |
| Winter wheat | 11 | 30 | 30 | 62 | 54 | 64 | 7 | 16 | 19 | 1563 |
| Spring barley | 27 | 41 | 41 | 63 | 44 | 51 | 17 | 18 | 21 | 399 |
| Winter barley | 20 | 50 | 50 | 67 | 50 | 67 | 13 | 25 | 33 | 407 |
| Oats | 17 | 43 | 42 | 56 | 49 | 60 | 10 | 21 | 25 | 157 |
| Rye/triticale/Durum wheat | 13 | 26 | 26 | 64 | 39 | 43 | 9 | 10 | 11 | 28 |
| Potatoes (seed or earlies) | 97 | 97 | 97 | 173 | 167 | 212 | 168 | 163 | 206 | 10 |
| Potatoes (maincrop) | 80 | 79 | 77 | 129 | 127 | 199 | 103 | 100 | 153 | 97 |
| Sugar beet | 11 | 48 | 46 | 62 | 57 | 106 | 7 | 27 | 49 | 105 |
| Spring oilseed rape | 11 | 22 | 22 | 57 | 49 | 52 | 6 | 11 | 12 | 15 |
| Winter oilseed rape | 16 | 33 | 29 | 45 | 56 | 62 | 7 | 19 | 18 | 521 |
| Linseed | 2 | 29 | 31 | 48 | 53 | 56 | 1 | 15 | 17 | 46 |
| Forage maize | 45 | 51 | 24 | 30 | 56 | 54 | 13 | 28 | 13 | 212 |
| Rootcrops for stockfeed | 45 | 56 | 50 | 97 | 55 | 78 | 44 | 31 | 39 | 56 |
| Leafy forage crops | 50 | 50 | 54 | 74 | 59 | 69 | 37 | 30 | 38 | 28 |
| Arable silage/other fodder crops | 14 | 31 | 30 | 97 | 42 | 48 | 14 | 13 | 14 | 57 |
| Peas - human consumption | 5 | 23 | 23 | 50 | 47 | 56 | 3 | 11 | 13 | 34 |
| Peas - animal consumption | 1 | 28 | 27 | 18 | 57 | 48 | 0 | 16 | 13 | 47 |
| Beans - animal consumption | 1 | 20 | 19 | 15 | 56 | 72 | 0 | 11 | 14 | 211 |
| Vegetables (brassicae) | 55 | 55 | 55 | 145 | 77 | 138 | 80 | 43 | 77 | 15 |
| Vegetables (other) | 40 | 45 | 48 | 132 | 53 | 119 | 53 | 24 | 58 | 48 |
| Soft Fruit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Top Fruit | 37 | 55 | 55 | 20 | 27 | 42 | 7 | 15 | 23 | 48 |
| Other tillage | 8 | 18 | 18 | 61 | 45 | 97 | 5 | 8 | 18 | 40 |
| All tillage | 16 | 35 | 33 | 63 | 55 | 69 | 10 | 19 | 23 | 4211 |
| Grass under 5 years old | 42 | 43 | 44 | 95 | 28 | 43 | 39 | 12 | 19 | 800 |
| Grass 5 years and over | 36 | 36 | 37 | 71 | 22 | 27 | 26 | 8 | 10 | 2064 |
| All grass | 37 | 37 | 38 | 76 | 23 | 30 | 28 | 9 | 12 | 2864 |
| All crops and grass | 27 | 36 | 36 | 72 | 38 | 48 | 19 | 14 | 17 | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.4 Use of lime, England & Wales 2010**

| | Crop area receiving dressing (%) | | | | | | Average application rate (tonnes of product/ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Fields limed | Fields in sample |
| Spring wheat | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 59 |
| Winter wheat | 3.3 | 1.5 | 0.4 | 0.2 | 0.1 | 5.5 | 2.8 | 5.0 | 3.3 | 5.8 | 4.2 | 3.6 | 89 | 1563 |
| Spring barley | 2.2 | 0.9 | 1.0 | 0.1 | 0.3 | 4.5 | 4.3 | 7.8 | 3.5 | 7.5 | 1.7 | 4.7 | 35 | 399 |
| Winter barley | 3.6 | 0.7 | 0.9 | 0.3 | 0.2 | 5.6 | 5.0 | 5.8 | 5.8 | 6.1 | 2.9 | 5.2 | 31 | 407 |
| Oats | 3.9 | 1.8 | 1.0 | - | 0.8 | 7.5 | 4.6 | 3.0 | 4.5 | - | 6.4 | 4.4 | 13 | 157 |
| Rye/triticale/Durum wheat | 2.1 | 10.7 | - | 3.2 | 5.1 | 21.1 | 3.7 | 5.7 | - | 8.1 | 5.0 | 5.7 | 8 | 28 |
| Potatoes (seed or earlies) | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 10 |
| Potatoes (maincrop) | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 97 |
| Sugar beet | 6.6 | 5.0 | - | 11.1 | 5.6 | 28.3 | 4.9 | 4.8 | - | 5.2 | 12.1 | 6.4 | 31 | 105 |
| Spring oilseed rape | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 15 |
| Winter oilseed rape | 9.2 | 2.3 | 0.2 | 0.6 | 0.1 | 12.5 | 3.0 | 4.6 | 3.8 | 11.7 | 5.0 | 3.7 | 51 | 521 |
| Linseed | - | 8.1 | - | - | - | 8.1 | - | 6.3 | - | - | - | 6.3 | 5 | 46 |
| Forage maize | 9.4 | 1.5 | 0.3 | - | 2.2 | 13.4 | 4.0 | 6.3 | 5.0 | - | 4.5 | 4.3 | 34 | 212 |
| Rootcrops for stockfeed | 13.6 | - | 5.6 | - | 5.3 | 24.4 | 4.1 | - | 4.6 | - | 0.4 | 3.4 | 14 | 56 |
| Leafy forage crops | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 28 |
| Arable silage/other fodder crops | 2.0 | 2.2 | - | - | 3.3 | 7.6 | 5.0 | 3.6 | - | - | 4.3 | 4.3 | 7 | 57 |
| Peas - human consumption | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 34 |
| Peas - animal consumption | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 47 |
| Beans - animal consumption | 3.5 | 2.7 | 0.4 | 0.1 | 0.4 | 7.1 | 2.0 | 4.3 | 3.7 | 5.0 | 2.5 | 3.1 | 26 | 211 |
| Vegetables (brassicae) | 49.7 | - | - | 3.1 | - | 52.8 | 5.0 | - | - | 5.0 | - | 5.0 | 9 | 15 |
| Vegetables (other) | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 48 |
| Soft Fruit | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 8 |
| Top Fruit | - | - | - | - | - | - | - | - | - | - | - | - | 1 | 48 |
| Other tillage | - | - | - | - | - | - | - | - | - | - | - | - | 2 | 40 |
| All tillage | 4.4 | 1.7 | 0.5 | 0.5 | 0.4 | 7.5 | 3.3 | 4.9 | 4.0 | 6.7 | 6.4 | 4.1 | 372 | 4211 |
| Grass under 5 years old | 3.2 | 0.9 | 0.4 | 0.5 | 2.9 | 8.0 | 4.7 | 5.1 | 4.6 | 5.7 | 2.4 | 4.0 | 72 | 800 |
| Grass 5 years and over | 1.8 | 0.1 | 0.6 | 0.0 | 1.6 | 4.2 | 3.2 | 6.5 | 4.9 | 3.8 | 3.0 | 3.4 | 120 | 2064 |
| All grass | 2.0 | 0.2 | 0.6 | 0.1 | 1.9 | 4.8 | 3.6 | 5.6 | 4.9 | 5.1 | 2.8 | 3.6 | 192 | 2864 |
| All crops and grass | 3.2 | 1.0 | 0.5 | 0.3 | 1.2 | 6.1 | 3.4 | 5.0 | 4.5 | 6.4 | 3.5 | 3.9 | 564 | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.5 Percentage of crop area by field application rate - Nitrogen, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Spring wheat | 6 | 1 | 2 | 7 | 12 | 14 | 32 | 12 | 14 | 1 | - | - | - | - | - | - | - | - | 59 |
| Winter wheat | 1 | 0 | 2 | 1 | 3 | 3 | 7 | 15 | 19 | 25 | 12 | 7 | 3 | 2 | - | - | - | - | 1563 |
| Spring barley | 8 | 1 | 5 | 9 | 16 | 26 | 28 | 6 | 1 | 0 | 1 | - | - | - | - | - | - | - | 399 |
| Winter barley | 2 | 0 | 2 | 2 | 5 | 19 | 25 | 29 | 9 | 2 | 3 | 2 | - | - | - | - | - | - | 407 |
| Oats | 13 | 1 | 3 | 11 | 17 | 25 | 18 | 9 | 2 | 1 | - | - | - | - | - | - | - | - | 157 |
| Rye/triticale/Durum wheat | 32 | 5 | 5 | 7 | 2 | 4 | 25 | 20 | - | - | - | - | - | - | - | - | - | - | 28 |
| Potatoes (seed or earlies) | 3 | 0 | 0 | 0 | 0 | 0 | 14 | 21 | 58 | 0 | 4 | - | - | - | - | - | - | - | 10 |
| Potatoes (maincrop) | 3 | 2 | 10 | 2 | 8 | 13 | 19 | 12 | 7 | 14 | 8 | 2 | 1 | - | - | - | - | - | 97 |
| Sugar beet | 5 | 3 | 8 | 10 | 21 | 32 | 20 | 1 | - | - | - | - | - | - | - | - | - | - | 105 |
| Spring oilseed rape | 0 | 0 | 0 | 0 | 42 | 12 | 18 | 28 | - | - | - | - | - | - | - | - | - | - | 15 |
| Winter oilseed rape | 0 | 0 | 0 | 2 | 1 | 1 | 6 | 13 | 22 | 28 | 13 | 8 | 3 | 1 | - | - | - | - | 521 |
| Linseed | 7 | 9 | 28 | 27 | 23 | 7 | - | - | - | - | - | - | - | - | - | - | - | - | 46 |
| Forage maize | 30 | 14 | 11 | 20 | 8 | 10 | 5 | - | - | - | - | - | - | - | - | - | - | - | 212 |
| Rootcrops for stockfeed | 22 | 2 | 9 | 13 | 16 | 10 | 13 | 11 | 0 | 6 | - | - | - | - | - | - | - | - | 56 |
| Leafy forage crops | 20 | 7 | 14 | 26 | 9 | 22 | 2 | - | - | - | - | - | - | - | - | - | - | - | 28 |
| Arable silage/other fodder crops | 81 | 0 | 2 | 4 | 6 | 5 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 57 |
| Peas - human consumption | 95 | 0 | 0 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 34 |
| Peas - animal consumption | 95 | 1 | 1 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 47 |
| Beans - animal consumption | 99 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 211 |
| Vegetables (brassicae) | 45 | 0 | 0 | 20 | 0 | 3 | 5 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | - | 15 |
| Vegetables (other) | 20 | 3 | 11 | 7 | 10 | 1 | 1 | 11 | 5 | 27 | 0 | 1 | 4 | - | - | - | - | - | 48 |
| Soft Fruit | 17 | 0 | 78 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 |
| Top Fruit | 13 | 17 | 13 | 13 | 19 | 10 | 9 | 6 | - | - | - | - | - | - | - | - | - | - | 48 |
| Other tillage | 72 | 1 | 4 | 5 | 4 | 2 | 9 | 2 | - | - | - | - | - | - | - | - | - | - | 40 |
| All tillage | 11 | 1 | 3 | 4 | 5 | 8 | 10 | 13 | 14 | 17 | 8 | 5 | 2 | 1 | - | - | - | - | 4211 |
| Grass under 5 years old | 22 | 1 | 7 | 12 | 9 | 10 | 13 | 7 | 5 | 4 | 3 | 3 | 1 | 2 | - | - | - | - | 800 |
| Grass 5 years and over | 43 | 3 | 11 | 13 | 10 | 5 | 4 | 4 | 2 | 2 | 1 | 1 | 0 | 1 | - | - | - | - | 2064 |
| All grass | 40 | 2 | 10 | 13 | 10 | 6 | 5 | 5 | 2 | 2 | 1 | 1 | 0 | 1 | - | - | - | - | 2864 |
| All crops and grass | 25 | 2 | 7 | 8 | 8 | 7 | 8 | 9 | 8 | 9 | 5 | 3 | 1 | 1 | - | - | - | - | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.6 Percentage of crop area by field application rate - Phosphate, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Spring wheat | 57 | 6 | 15 | 16 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | 59 |
| Winter wheat | 57 | 4 | 9 | 20 | 7 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1563 |
| Spring barley | 52 | 7 | 18 | 19 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | 399 |
| Winter barley | 44 | 6 | 14 | 26 | 7 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 407 |
| Oats | 50 | 5 | 18 | 17 | 8 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | 157 |
| Rye/triticale/Durum wheat | 74 | 6 | 10 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 28 |
| Potatoes (seed or earlies) | 3 | 0 | 0 | 4 | 0 | 0 | 14 | 21 | 54 | 0 | 4 | - | - | - | - | - | - | - | 10 |
| Potatoes (maincrop) | 15 | 7 | 5 | 8 | 9 | 10 | 10 | 6 | 11 | 5 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 97 |
| Sugar beet | 50 | 6 | 20 | 11 | 7 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | 105 |
| Spring oilseed rape | 70 | 0 | 11 | 12 | 0 | 8 | - | - | - | - | - | - | - | - | - | - | - | - | 15 |
| Winter oilseed rape | 52 | 4 | 10 | 22 | 8 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | 521 |
| Linseed | 71 | 3 | 5 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 46 |
| Forage maize | 48 | 13 | 12 | 19 | 1 | 2 | 2 | 2 | 1 | - | - | - | - | - | - | - | - | - | 212 |
| Rootcrops for stockfeed | 39 | 4 | 33 | 8 | 11 | 4 | 1 | - | - | - | - | - | - | - | - | - | - | - | 56 |
| Leafy forage crops | 50 | 11 | 15 | 8 | 1 | 9 | 6 | - | - | - | - | - | - | - | - | - | - | - | 28 |
| Arable silage/other fodder crops | 68 | 5 | 19 | 5 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 |
| Peas - human consumption | 72 | 0 | 12 | 10 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 34 |
| Peas - animal consumption | 64 | 1 | 12 | 17 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | 47 |
| Beans - animal consumption | 68 | 2 | 8 | 16 | 4 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 211 |
| Vegetables (brassicae) | 45 | 0 | 18 | 1 | 26 | 3 | 6 | - | - | - | - | - | - | - | - | - | - | - | 15 |
| Vegetables (other) | 54 | 5 | 24 | 4 | 11 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 48 |
| Soft Fruit | 97 | 0 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 8 |
| Top Fruit | 43 | 30 | 11 | 6 | 7 | 2 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | 48 |
| Other tillage | 77 | 8 | 1 | 10 | 2 | 0 | 3 | - | - | - | - | - | - | - | - | - | - | - | 40 |
| All tillage | 55 | 5 | 11 | 19 | 6 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 4211 |
| Grass under 5 years old | 56 | 22 | 15 | 5 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 800 |
| Grass 5 years and over | 64 | 24 | 10 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2064 |
| All grass | 63 | 23 | 11 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2864 |
| All crops and grass | 59 | 14 | 11 | 11 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW1.7 Percentage of crop area by field application rate - Potash, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Spring wheat | 67 | 5 | 13 | 6 | 6 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 59 |
| Winter wheat | 60 | 3 | 8 | 13 | 10 | 4 | 1 | 1 | 1 | - | - | - | - | - | - | - | - | - | 1563 |
| Spring barley | 47 | 5 | 17 | 13 | 15 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 399 |
| Winter barley | 39 | 5 | 8 | 17 | 15 | 12 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 407 |
| Oats | 52 | 5 | 13 | 12 | 9 | 6 | 0 | 2 | - | - | - | - | - | - | - | - | - | - | 157 |
| Rye/triticale/Durum wheat | 46 | 4 | 9 | 13 | 28 | - | - | - | - | - | - | - | - | - | - | - | - | - | 28 |
| Potatoes (seed or earlies) | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 | 0 | 14 | 21 | 0 | 8 | - | - | - | - | 10 |
| Potatoes (maincrop) | 14 | 2 | 0 | 2 | 2 | 11 | 4 | 2 | 4 | 9 | 11 | 4 | 5 | 15 | 4 | 6 | 3 | 2 | 97 |
| Sugar beet | 30 | 1 | 5 | 13 | 11 | 16 | 5 | 7 | 9 | 1 | 1 | 1 | - | - | - | - | - | - | 105 |
| Spring oilseed rape | 78 | 0 | 11 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 15 |
| Winter oilseed rape | 57 | 4 | 8 | 15 | 10 | 4 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 521 |
| Linseed | 61 | 1 | 7 | 23 | 7 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 46 |
| Forage maize | 63 | 7 | 6 | 2 | 9 | 4 | 1 | 6 | 2 | - | - | - | - | - | - | - | - | - | 212 |
| Rootcrops for stockfeed | 39 | 3 | 16 | 6 | 11 | 8 | 5 | 5 | 6 | 1 | - | - | - | - | - | - | - | - | 56 |
| Leafy forage crops | 46 | 10 | 16 | 8 | 0 | 15 | 0 | 6 | - | - | - | - | - | - | - | - | - | - | 28 |
| Arable silage/other fodder crops | 69 | 3 | 18 | 2 | 7 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 57 |
| Peas - human consumption | 75 | 0 | 11 | 4 | 7 | 1 | 0 | 2 | - | - | - | - | - | - | - | - | - | - | 34 |
| Peas - animal consumption | 60 | 8 | 8 | 16 | 4 | 3 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | 47 |
| Beans - animal consumption | 70 | 2 | 4 | 12 | 6 | 4 | 2 | 0 | 0 | 0 | 1 | - | - | - | - | - | - | - | 211 |
| Vegetables (brassicae) | 41 | 0 | 6 | 3 | 1 | 3 | 0 | 45 | - | - | - | - | - | - | - | - | - | - | 15 |
| Vegetables (other) | 36 | 5 | 5 | 7 | 5 | 2 | 5 | 11 | 15 | 5 | 4 | - | - | - | - | - | - | - | 48 |
| Soft Fruit | 19 | 0 | 0 | 0 | 0 | 78 | 0 | 3 | - | - | - | - | - | - | - | - | - | - | 8 |
| Top Fruit | 41 | 29 | 11 | 2 | 8 | 0 | 0 | 10 | - | - | - | - | - | - | - | - | - | - | 48 |
| Other tillage | 79 | 7 | 1 | 4 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 3 | - | - | - | - | - | 40 |
| All tillage | 56 | 4 | 8 | 13 | 10 | 5 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - | 4211 |
| Grass under 5 years old | 52 | 15 | 14 | 7 | 8 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | 800 |
| Grass 5 years and over | 63 | 21 | 11 | 3 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 2064 |
| All grass | 61 | 20 | 11 | 4 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 2864 |
| All crops and grass | 58 | 12 | 10 | 8 | 6 | 3 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | 7075 |

Source: British Survey of Fertiliser Practice 2010

**Table EW2.1 Average fertiliser practice by grassland utilisation, England & Wales 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Grazed not mown | 50 | 32 | 32 | 23 | 87 | 20 | 23 | 44 | 6 | 7 | 1266 |
| Grazed mown | 74 | 45 | 48 | 58 | 114 | 27 | 39 | 84 | 12 | 19 | 1303 |
| All grazings | 59 | 37 | 38 | 37 | 100 | 23 | 31 | 60 | 8 | 12 | 2569 |
| Cut for silage - grazed | 81 | 49 | 53 | 69 | 124 | 26 | 41 | 100 | 13 | 22 | 930 |
| Cut for silage - not grazed | 84 | 50 | 56 | 70 | 148 | 31 | 52 | 124 | 15 | 29 | 163 |
| All cut for silage | 81 | 49 | 54 | 69 | 127 | 27 | 43 | 104 | 13 | 23 | 1093 |
| Cut for hay - grazed | 55 | 33 | 34 | 31 | 76 | 26 | 29 | 42 | 9 | 10 | 428 |
| Cut for hay - not grazed | 69 | 39 | 39 | 21 | 95 | 29 | 52 | 65 | 11 | 20 | 96 |
| All cut for hay | 57 | 34 | 35 | 30 | 79 | 27 | 33 | 46 | 9 | 11 | 524 |
| All mowings | 75 | 45 | 48 | 58 | 117 | 27 | 41 | 87 | 12 | 20 | 1553 |
| All grass | 60 | 37 | 39 | 38 | 103 | 24 | 33 | 62 | 9 | 13 | 2863 |

Source: British Survey of Fertiliser Practice 2010

**Table EW2.2 Percentage of grass area by field application rate - Nitrogen, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 50 | 3 | 13 | 11 | 8 | 4 | 3 | 3 | 1 | 1 | 1 | 1 | - | - | - | - | - | - | 1266 |
| Grazed mown | 26 | 2 | 7 | 16 | 13 | 9 | 8 | 7 | 3 | 3 | 2 | 1 | 1 | 1 | - | - | - | - | 1303 |
| All grazings | 41 | 3 | 11 | 13 | 10 | 6 | 5 | 5 | 2 | 2 | 1 | 1 | 0 | 1 | - | - | - | - | 2569 |
| Cut for silage - grazed | 19 | 1 | 6 | 15 | 14 | 10 | 10 | 8 | 4 | 4 | 3 | 2 | 1 | 2 | - | - | - | - | 930 |
| Cut for silage - not grazed | 16 | 2 | 5 | 11 | 10 | 5 | 12 | 9 | 13 | 7 | 1 | 8 | 1 | 2 | 0 | 1 | - | - | 163 |
| All cut for silage | 19 | 1 | 6 | 15 | 14 | 9 | 10 | 8 | 5 | 4 | 3 | 3 | 1 | 2 | - | - | - | - | 1093 |
| Cut for hay - grazed | 45 | 3 | 11 | 18 | 11 | 5 | 2 | 4 | 1 | - | - | - | - | - | - | - | - | - | 428 |
| Cut for hay - not grazed | 31 | 0 | 12 | 21 | 5 | 11 | 13 | 2 | 2 | 1 | 0 | 1 | - | - | - | - | - | - | 96 |
| All cut for hay | 43 | 3 | 11 | 19 | 10 | 5 | 4 | 4 | 1 | - | - | - | - | - | - | - | - | - | 524 |
| All mowings | 25 | 2 | 7 | 15 | 13 | 8 | 8 | 7 | 4 | 3 | 2 | 2 | 1 | 1 | - | - | - | - | 1553 |
| All grass | 40 | 2 | 10 | 13 | 10 | 6 | 5 | 5 | 2 | 2 | 1 | 1 | 0 | 1 | - | - | - | - | 2863 |

Source: British Survey of Fertiliser Practice 2010

**Table EW2.3 Percentage of grass area by field application rate - Phosphate, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 68 | 23 | 7 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1266 |
| Grazed mown | 55 | 25 | 15 | 4 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 1303 |
| All grazings | 63 | 24 | 10 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2569 |
| Cut for silage - grazed | 51 | 27 | 17 | 5 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 930 |
| Cut for silage - not grazed | 50 | 21 | 22 | 4 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | 163 |
| All cut for silage | 51 | 26 | 18 | 5 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1093 |
| Cut for hay - grazed | 67 | 20 | 9 | 2 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 428 |
| Cut for hay - not grazed | 61 | 16 | 17 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 96 |
| All cut for hay | 66 | 20 | 10 | 3 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 524 |
| All mowings | 55 | 24 | 16 | 4 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 1553 |
| All grass | 63 | 23 | 11 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2863 |

Source: British Survey of Fertiliser Practice 2010

**Table EW2.4 Percentage of crop area by field application rate - Potash, England & Wales 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 68 | 21 | 8 | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 1266 |
| Grazed mown | 52 | 20 | 15 | 6 | 4 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 1303 |
| All grazings | 62 | 21 | 11 | 3 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 2569 |
| Cut for silage - grazed | 47 | 20 | 18 | 7 | 4 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 930 |
| Cut for silage - not grazed | 44 | 15 | 18 | 8 | 9 | 1 | 3 | 1 | - | - | - | - | - | - | - | - | - | - | 163 |
| All cut for silage | 46 | 20 | 18 | 8 | 5 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1093 |
| Cut for hay - grazed | 66 | 20 | 9 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 428 |
| Cut for hay - not grazed | 61 | 11 | 9 | 6 | 11 | 0 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | 96 |
| All cut for hay | 65 | 18 | 9 | 3 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | 524 |
| All mowings | 52 | 19 | 15 | 6 | 5 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1553 |
| All grass | 61 | 20 | 11 | 4 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 2863 |

Source: British Survey of Fertiliser Practice 2010

**Table EW3.0 Product use by month of application, England & Wales 2010**

**(a) Product use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight N | 0 | 0 | 0 | 0 | 0 | 3 | 30 | 42 | 18 | 4 | 2 | 1 |
| Straight P | 21 | 6 | 2 | 0 | 2 | 9 | 30 | 19 | 2 | 0 | 0 | 9 |
| Straight K | 1 | 5 | 3 | 3 | 6 | 18 | 31 | 24 | 5 | 1 | 1 | 2 |
| Compounds | 9 | 4 | 1 | 0 | 0 | 3 | 25 | 29 | 13 | 8 | 4 | 4 |
| All fertilisers | 3 | 2 | 0 | 0 | 0 | 4 | 28 | 37 | 16 | 5 | 2 | 2 |

**(b) Nutrient use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | 0 | 0 | 0 | 0 | 0 | 2 | 28 | 42 | 18 | 5 | 3 | 1 |
| Phosphate | 15 | 7 | 2 | 0 | 1 | 6 | 27 | 25 | 7 | 3 | 2 | 5 |
| Potash | 9 | 6 | 2 | 1 | 1 | 9 | 28 | 25 | 9 | 4 | 3 | 3 |
| Total | 4 | 2 | 0 | 0 | 0 | 4 | 28 | 37 | 16 | 5 | 2 | 2 |

Note: All fertilisers includes other straight fertilisers (e.g. sulphur or trace elements)

'Product' refers to the total tonnage of the products used by the farmers in the survey year 2010.

'Nutrient' refers to the tonnage of each nutrient contained in the products used.

(e.g. 100 kg of a 20:10:10 compound contains 20 kg of N, 10 kg of $P_2O_5$ and 10 kg of $K_2O$, while 100 kg of ammonium nitrate (straight N) contains typically 34.5 kg of N).

Estimates of total nutrients are shown in Section B.

Source: British Survey of Fertiliser Practice 2010

**Table EW3.1 Product type as percentage of all product used by crop group, England & Wales 2010**

| column % | spring cereal | winter cereal | potatoes | sugar beet | oilseed rape | other tillage | all tillage | grass for grazing | grass for hay | grass for silage | grass not specified | all grass | all crops and grass |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 42.9 | 52.0 | 9.9 | 24.0 | 49.0 | 19.7 | 44.8 | 34.1 | 32.3 | 33.7 | 22.2 | 34.7 | 42.3 |
| Urea | 4.0 | 9.3 | 0.5 | 1.1 | 12.2 | 1.8 | 7.9 | 4.4 | 4.1 | 3.6 | 12.6 | 4.3 | 7.0 |
| Calcium Ammonium Nitrate (CAN) | 2.8 | 2.9 | 0.0 | 3.0 | 2.4 | 1.7 | 2.6 | 1.7 | 2.6 | 1.9 | 0.0 | 2.0 | 2.4 |
| Urea Ammonium Nitrate (UAN) | 7.3 | 10.4 | 0.8 | 7.3 | 10.2 | 2.3 | 8.8 | 2.4 | 2.6 | 2.9 | 0.0 | 2.5 | 7.2 |
| Other Straight N | 2.1 | 1.7 | 0.0 | 0.0 | 4.8 | 3.9 | 2.3 | 1.9 | 0.0 | 2.3 | 0.0 | 1.7 | 2.2 |
| Triple Superphosphate (TSP) | 2.3 | 2.3 | 2.2 | 0.0 | 2.8 | 4.0 | 2.4 | 0.4 | 0.9 | 0.3 | 0.0 | 0.4 | 1.9 |
| Other Straight P | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 |
| Muriate of Potash (MOP) | 2.6 | 2.4 | 8.0 | 0.8 | 2.5 | 7.6 | 3.1 | 0.8 | 2.1 | 1.2 | 0.0 | 1.0 | 2.6 |
| Other Straight K | 0.4 | 0.1 | 0.0 | 20.2 | 0.1 | 2.5 | 1.0 | 0.2 | 0.2 | 0.3 | 0.0 | 0.2 | 0.8 |
| PK | 12.5 | 10.7 | 5.8 | 31.6 | 8.2 | 16.5 | 11.4 | 3.1 | 3.9 | 2.3 | 20.5 | 3.2 | 9.4 |
| NK | 1.9 | 0.9 | 1.9 | 0.0 | 0.2 | 2.0 | 1.0 | 5.2 | 3.3 | 8.4 | 0.0 | 5.3 | 2.1 |
| Low N (<19% N) | 5.2 | 3.1 | 68.9 | 10.6 | 5.0 | 26.3 | 9.0 | 3.2 | 3.1 | 2.9 | 14.9 | 3.2 | 7.6 |
| High N (>=19% N) | 15.6 | 4.1 | 1.5 | 0.2 | 2.1 | 10.0 | 5.2 | 42.3 | 44.9 | 40.2 | 29.9 | 41.2 | 14.1 |
| Other | 0.4 | 0.2 | 0.7 | 1.1 | 0.5 | 1.5 | 0.4 | 0.3 | 0.1 | 0.2 | 0.0 | 0.3 | 0.4 |
| **Total product ('000 tonnes)** | **198** | **1459** | **61** | **72** | **457** | **110** | **2358** | **848** | **102** | **505** | **3** | **958** | **3315** |

Source: British Survey of Fertiliser Practice 2010



**Table EW3.2 Use of product type by crop group, England & Wales 2010**

| row % | spring cereal | winter cereal | potatoes | sugar beet | oilseed rape | other tillage | all tillage | grass for grazing | grass for hay | grass for silage | grass not specified | all grass | total product ('000 tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 7.6 | 68.2 | 0.4 | 1.4 | 20.0 | 2.3 | 77.3 | 88.4 | 10.0 | 51.0 | 0.2 | 22.7 | 1400 |
| Urea | 4.6 | 68.0 | 0.1 | 0.1 | 26.6 | 0.7 | 86.9 | 94.7 | 10.6 | 49.5 | 2.2 | 13.1 | 298 |
| Calcium Ammonium Nitrate (CAN) | 14.9 | 68.4 | 0.0 | 1.8 | 11.5 | 3.4 | 72.1 | 81.1 | 12.6 | 52.9 | 0.0 | 27.9 | 70 |
| Urea Ammonium Nitrate (UAN) | 7.1 | 66.7 | 0.2 | 3.2 | 21.8 | 1.0 | 91.8 | 81.7 | 7.0 | 71.1 | 0.0 | 8.2 | 281 |
| Other Straight N | 10.2 | 45.0 | 0.0 | 0.0 | 40.7 | 4.1 | 78.3 | 99.9 | 0.0 | 59.6 | 0.0 | 21.7 | 63 |
| Triple Superphosphate (TSP) | 7.9 | 62.9 | 2.7 | 0.0 | 19.9 | 6.6 | 95.7 | 88.4 | 39.9 | 31.3 | 0.0 | 4.3 | 71 |
| Other Straight P | 42.7 | 34.9 | 0.0 | 16.0 | 0.0 | 6.4 | 85.2 | 100.0 | 0.0 | 100.0 | 0.0 | 14.8 | 1 |
| Muriate of Potash (MOP) | 9.3 | 54.0 | 6.5 | 0.9 | 16.3 | 13.0 | 89.3 | 84.9 | 24.2 | 52.9 | 0.0 | 10.7 | 74 |
| Other Straight K | 3.3 | 7.1 | 0.0 | 69.5 | 3.7 | 16.5 | 93.8 | 100.0 | 3.3 | 82.4 | 0.0 | 6.2 | 20 |
| PK | 9.4 | 55.2 | 1.2 | 10.5 | 14.2 | 9.6 | 91.4 | 90.0 | 14.6 | 36.6 | 2.3 | 8.6 | 271 |
| NK | 17.2 | 57.1 | 8.8 | 0.0 | 6.4 | 10.4 | 26.0 | 80.2 | 3.4 | 90.4 | 0.0 | 74.0 | 71 |
| Low N (<19% N) | 8.5 | 26.4 | 30.5 | 4.6 | 12.7 | 17.2 | 85.2 | 83.7 | 6.2 | 43.9 | 0.3 | 14.8 | 169 |
| High N (>=19% N) | 24.7 | 54.7 | 1.2 | 0.2 | 9.8 | 9.4 | 16.7 | 89.8 | 12.2 | 50.1 | 0.2 | 83.3 | 515 |
| Other | 9.2 | 39.3 | 2.2 | 6.0 | 19.6 | 23.7 | 77.7 | 88.6 | 7.2 | 33.7 | 0.0 | 22.3 | 12 |
| **All Fertilisers** | **8.4** | **61.9** | **2.6** | **3.0** | **19.4** | **4.7** | **71.1** | **88.6** | **10.7** | **52.8** | **0.3** | **28.9** | **3315** |

Source: British Survey of Fertiliser Practice 2010

**Table EW3.3 Product use by month of application, England & Wales 2010**

| row % | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | total product ('000 tonnes) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonium Nitrate | 0.0 | 2.5 | 26.1 | 42.7 | 20.2 | 4.2 | 2.1 | 1.1 | 0.4 | 0.3 | 0.1 | 0.0 | 1400 |
| Urea | 0.0 | 3.4 | 36.2 | 42.6 | 13.2 | 3.2 | 1.3 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 298 |
| Calcium Ammonium Nitrate (CAN) | 0.0 | 1.6 | 27.8 | 45.4 | 16.9 | 4.1 | 3.1 | 0.9 | 0.2 | 0.1 | 0.0 | 0.0 | 70 |
| Urea Ammonium Nitrate (UAN) | 0.0 | 4.0 | 32.4 | 45.6 | 15.1 | 1.6 | 0.9 | 0.0 | 0.2 | 0.1 | 0.1 | 0.0 | 281 |
| Other Straight N | 0.0 | 5.6 | 62.9 | 18.9 | 9.3 | 0.6 | 2.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 63 |
| Triple Superphosphate (TSP) | 1.9 | 9.5 | 31.0 | 18.6 | 1.5 | 0.0 | 0.2 | 8.3 | 20.8 | 5.8 | 2.3 | 0.0 | 71 |
| Other Straight P | 0.0 | 0.0 | 27.4 | 0.0 | 14.9 | 0.0 | 0.0 | 13.6 | 44.0 | 0.0 | 0.0 | 0.0 | 1 |
| Muriate of Potash (MOP) | 2.0 | 20.5 | 35.5 | 25.7 | 5.3 | 1.8 | 1.0 | 1.6 | 1.3 | 4.4 | 0.5 | 0.5 | 74 |
| Other Straight K | 22.4 | 10.5 | 16.7 | 16.7 | 2.4 | 0.0 | 0.0 | 1.6 | 1.3 | 5.8 | 11.9 | 10.6 | 20 |
| PK | 1.0 | 10.8 | 21.4 | 12.2 | 2.0 | 0.3 | 0.4 | 4.2 | 28.1 | 14.7 | 3.4 | 1.5 | 271 |
| NK | 0.0 | 0.0 | 19.6 | 14.4 | 19.8 | 28.0 | 17.2 | 1.0 | 0.1 | 0.0 | 0.0 | 0.0 | 71 |
| Low N (<19% N) | 0.1 | 1.9 | 31.4 | 40.7 | 10.7 | 0.7 | 1.6 | 4.7 | 6.4 | 1.8 | 0.1 | 0.0 | 169 |
| High N (>=19% N) | 0.0 | 0.6 | 24.5 | 36.5 | 18.6 | 10.8 | 5.3 | 3.2 | 0.2 | 0.1 | 0.1 | 0.0 | 515 |
| Other | 0.0 | 4.3 | 39.2 | 25.4 | 1.7 | 2.0 | 0.0 | 19.9 | 0.0 | 6.2 | 0.0 | 1.2 | 12 |
| **All Fertilisers** | **0.3** | **3.6** | **28.1** | **37.2** | **15.7** | **4.7** | **2.5** | **1.9** | **3.4** | **1.7** | **0.5** | **0.2** | **3315** |

Source: British Survey of Fertiliser Practice 2010

**Table EW4.1a Average fertiliser practice on tillage and grassland by GOR, England & Wales 2010**

| | | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| North West | All tillage | 94 | 53 | 71 | 60 | 154 | 39 | 88 | 144 | 21 | 62 | 82 |
| | All grass | 82 | 53 | 57 | 65 | 118 | 20 | 38 | 97 | 11 | 21 | 235 |
| | All crops and grass | 84 | 53 | 59 | 64 | 124 | 23 | 47 | 104 | 12 | 28 | 317 |
| North East | All tillage | 86 | 45 | 49 | 26 | 182 | 65 | 74 | 155 | 29 | 36 | 193 |
| | All grass | 43 | 31 | 32 | 30 | 78 | 26 | 32 | 34 | 8 | 10 | 164 |
| | All crops and grass | 61 | 37 | 39 | 28 | 141 | 46 | 54 | 86 | 17 | 21 | 357 |
| Eastern | All tillage | 90 | 44 | 34 | 8 | 176 | 65 | 78 | 159 | 29 | 62 | 813 |
| | All grass | 51 | 13 | 15 | 15 | 89 | 34 | 45 | 45 | 5 | 21 | 119 |
| | All crops and grass | 85 | 40 | 31 | 9 | 170 | 64 | 76 | 145 | 26 | 28 | 932 |
| Yorkshire and the Humber | All tillage | 93 | 48 | 53 | 19 | 179 | 58 | 84 | 167 | 28 | 45 | 760 |
| | All grass | 72 | 36 | 36 | 42 | 107 | 30 | 28 | 77 | 11 | 10 | 294 |
| | All crops and grass | 86 | 44 | 47 | 27 | 159 | 51 | 70 | 137 | 22 | 33 | 1054 |
| West Midlands | All tillage | 90 | 38 | 47 | 29 | 162 | 63 | 92 | 146 | 24 | 43 | 424 |
| | All grass | 64 | 34 | 36 | 35 | 90 | 20 | 27 | 58 | 7 | 10 | 307 |
| | All crops and grass | 76 | 36 | 41 | 32 | 128 | 40 | 60 | 97 | 14 | 24 | 731 |
| East Midlands | All tillage | 91 | 49 | 40 | 11 | 175 | 63 | 64 | 159 | 31 | 26 | 533 |
| | All grass | 52 | 20 | 21 | 28 | 106 | 21 | 29 | 55 | 4 | 6 | 180 |
| | All crops and grass | 79 | 40 | 35 | 16 | 162 | 57 | 58 | 128 | 23 | 20 | 713 |
| South West | All tillage | 84 | 45 | 46 | 37 | 154 | 56 | 68 | 130 | 25 | 31 | 722 |
| | All grass | 58 | 35 | 37 | 43 | 109 | 22 | 34 | 63 | 8 | 13 | 793 |
| | All crops and grass | 67 | 38 | 40 | 41 | 129 | 36 | 48 | 86 | 14 | 19 | 1515 |
| South East | All tillage | 89 | 42 | 44 | 17 | 176 | 54 | 69 | 156 | 23 | 31 | 537 |
| | All grass | 37 | 16 | 15 | 10 | 91 | 26 | 30 | 34 | 4 | 5 | 295 |
| | All crops and grass | 68 | 32 | 32 | 14 | 157 | 48 | 62 | 106 | 15 | 20 | 832 |
| Wales | All tillage | 86 | 70 | 70 | 55 | 114 | 51 | 64 | 98 | 36 | 45 | 147 |
| | All grass | 65 | 54 | 56 | 40 | 103 | 25 | 33 | 66 | 14 | 18 | 477 |
| | All crops and grass | 66 | 55 | 57 | 41 | 104 | 28 | 36 | 69 | 15 | 20 | 624 |

Source: British Survey of Fertiliser Practice 2010

**Table EW4.1b Average fertiliser practice on tillage and grassland by BSFP region, England & Wales 2010**

| | | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Wessex | All tillage | 81 | 39 | 43 | 32 | 170 | 59 | 73 | 138 | 23 | 31 | 362 |
| | All grass | 47 | 23 | 25 | 41 | 89 | 24 | 30 | 42 | 5 | 7 | 294 |
| | All crops and grass | 63 | 31 | 33 | 37 | 138 | 45 | 56 | 87 | 14 | 19 | 656 |
| Anglia | All tillage | 90 | 44 | 34 | 8 | 176 | 65 | 78 | 159 | 29 | 26 | 813 |
| | All grass | 51 | 13 | 15 | 15 | 89 | 34 | 45 | 45 | 5 | 7 | 119 |
| | All crops and grass | 85 | 40 | 31 | 9 | 170 | 64 | 76 | 145 | 26 | 24 | 932 |
| Northern | All tillage | 82 | 47 | 53 | 28 | 162 | 61 | 78 | 133 | 29 | 41 | 160 |
| | All grass | 74 | 50 | 54 | 54 | 114 | 22 | 39 | 85 | 11 | 21 | 292 |
| | All crops and grass | 76 | 49 | 54 | 48 | 126 | 30 | 48 | 96 | 15 | 26 | 452 |
| North East | All tillage | 94 | 49 | 54 | 21 | 179 | 58 | 84 | 168 | 28 | 46 | 848 |
| | All grass | 66 | 35 | 35 | 40 | 103 | 30 | 29 | 68 | 11 | 10 | 362 |
| | All crops and grass | 83 | 44 | 47 | 28 | 157 | 50 | 69 | 131 | 22 | 33 | 1210 |
| North Mercia | All tillage | 94 | 41 | 60 | 44 | 158 | 64 | 98 | 148 | 26 | 59 | 182 |
| | All grass | 69 | 40 | 43 | 55 | 99 | 19 | 26 | 68 | 7 | 11 | 200 |
| | All crops and grass | 76 | 40 | 49 | 52 | 121 | 33 | 53 | 92 | 13 | 26 | 382 |
| South Mercia | All tillage | 88 | 39 | 37 | 25 | 166 | 59 | 79 | 147 | 23 | 29 | 331 |
| | All grass | 50 | 24 | 23 | 17 | 85 | 18 | 25 | 43 | 4 | 6 | 184 |
| | All crops and grass | 70 | 31 | 30 | 21 | 137 | 44 | 59 | 95 | 14 | 18 | 515 |
| East Midland | All tillage | 91 | 49 | 40 | 11 | 175 | 63 | 64 | 159 | 31 | 26 | 533 |
| | All grass | 52 | 20 | 21 | 28 | 106 | 21 | 29 | 55 | 4 | 6 | 180 |
| | All crops and grass | 79 | 40 | 35 | 16 | 162 | 57 | 58 | 128 | 23 | 20 | 713 |
| South East | All tillage | 89 | 42 | 44 | 17 | 176 | 54 | 69 | 156 | 23 | 31 | 537 |
| | All grass | 37 | 16 | 15 | 10 | 91 | 26 | 30 | 34 | 4 | 5 | 295 |
| | All crops and grass | 68 | 32 | 32 | 14 | 157 | 48 | 62 | 106 | 15 | 20 | 832 |
| South West | All tillage | 88 | 55 | 57 | 49 | 126 | 48 | 65 | 111 | 26 | 37 | 298 |
| | All grass | 69 | 46 | 49 | 50 | 117 | 22 | 36 | 81 | 10 | 18 | 461 |
| | All crops and grass | 74 | 48 | 51 | 50 | 119 | 29 | 43 | 88 | 14 | 22 | 759 |
| Wales | All tillage | 86 | 70 | 70 | 55 | 114 | 51 | 64 | 98 | 36 | 45 | 147 |
| | All grass | 65 | 54 | 56 | 40 | 103 | 25 | 33 | 66 | 14 | 18 | 477 |
| | All crops and grass | 66 | 55 | 57 | 41 | 104 | 28 | 36 | 69 | 15 | 20 | 624 |

Source: British Survey of Fertiliser Practice 2010

**Table SC1.1 Total fertiliser use, Scotland 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Winter wheat | 100 | 80 | 90 | 18 | 183 | 55 | 85 | 183 | 44 | 77 | 97 |
| Spring barley | 98 | 94 | 94 | 37 | 97 | 51 | 68 | 95 | 48 | 64 | 247 |
| Winter barley | 100 | 85 | 87 | 32 | 155 | 59 | 72 | 155 | 50 | 62 | 68 |
| Oats | 92 | 78 | 79 | 28 | 91 | 50 | 61 | 84 | 39 | 48 | 37 |
| Potatoes | 100 | 96 | 96 | 10 | 123 | 146 | 189 | 123 | 139 | 181 | 33 |
| Winter oilseed rape | 100 | 62 | 72 | 11 | 177 | 63 | 74 | 177 | 39 | 53 | 35 |
| Other crops | 68 | 67 | 69 | 38 | 78 | 72 | 77 | 53 | 48 | 53 | 98 |
| All tillage | 95 | 87 | 89 | 31 | 120 | 58 | 76 | 114 | 50 | 68 | 615 |
| Grass less than five years old | 89 | 82 | 83 | 37 | 111 | 35 | 44 | 99 | 28 | 36 | 279 |
| Grass five years and over | 65 | 57 | 56 | 19 | 79 | 20 | 23 | 52 | 12 | 13 | 379 |
| All grass | 72 | 64 | 63 | 24 | 90 | 25 | 30 | 64 | 16 | 19 | 658 |
| All crops and grass | 79 | 71 | 72 | 26 | 102 | 38 | 49 | 81 | 27 | 35 | 1273 |

Source: British Survey of Fertiliser Practice 2010



**Table SC1.2 Use of straight fertiliser, Scotland 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Winter wheat | 91 | 4 | 17 | 168 | 54 | 94 | 152 | 2 | 16 | 97 |
| Spring barley | 61 | 1 | 2 | 70 | 74 | 58 | 43 | 1 | 1 | 247 |
| Winter barley | 93 | 7 | 7 | 136 | 80 | 82 | 127 | 6 | 5 | 68 |
| Oats | 56 | 4 | 6 | 107 | 91 | 101 | 59 | 4 | 6 | 37 |
| Potatoes | 43 | 10 | 30 | 98 | 151 | 199 | 43 | 16 | 60 | 33 |
| Winter oilseed rape | 100 | 3 | 18 | 160 | 56 | 72 | 160 | 2 | 13 | 35 |
| Other crops | 22 | 2 | 7 | 96 | 91 | 105 | 21 | 2 | 7 | 98 |
| All tillage | 66 | 2 | 7 | 108 | 84 | 102 | 71 | 2 | 7 | 615 |
| Grass less than five years old | 27 | 1 | 0 | 94 | 139 | 30 | 25 | 1 | 0 | 279 |
| Grass five years and over | 15 | 0 | 0 | 75 | 67 | 0 | 12 | 0 | 0 | 379 |
| All grass | 18 | 0 | 0 | 83 | 97 | 30 | 15 | 0 | 0 | 658 |
| All crops and grass | 34 | 1 | 2 | 99 | 88 | 101 | 33 | 1 | 2 | 1273 |

Source: British Survey of Fertiliser Practice 2010

**Table SC1.3 Use of compound fertiliser, Scotland 2010**

| | Crop area receiving dressing (%) | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Winter wheat | 44 | 77 | 73 | 72 | 55 | 82 | 32 | 42 | 61 | 97 |
| Spring barley | 90 | 93 | 92 | 58 | 51 | 68 | 52 | 48 | 62 | 247 |
| Winter barley | 57 | 79 | 80 | 50 | 55 | 71 | 29 | 44 | 57 | 68 |
| Oats | 51 | 73 | 73 | 48 | 48 | 57 | 24 | 35 | 42 | 37 |
| Potatoes | 85 | 85 | 65 | 95 | 145 | 185 | 81 | 124 | 121 | 33 |
| Winter oilseed rape | 48 | 62 | 54 | 34 | 60 | 74 | 17 | 37 | 40 | 35 |
| Other crops | 56 | 65 | 64 | 57 | 71 | 73 | 32 | 46 | 46 | 98 |
| All tillage | 73 | 85 | 82 | 59 | 57 | 74 | 43 | 48 | 60 | 615 |
| Grass less than five years old | 82 | 81 | 83 | 90 | 34 | 44 | 74 | 27 | 36 | 279 |
| Grass five years and over | 57 | 57 | 56 | 71 | 20 | 23 | 40 | 11 | 13 | 379 |
| All grass | 64 | 63 | 63 | 77 | 25 | 30 | 49 | 16 | 19 | 658 |
| All crops and grass | 67 | 70 | 69 | 71 | 37 | 47 | 47 | 26 | 32 | 1273 |

Source: British Survey of Fertiliser Practice 2010



**Table SC1.4 Use of lime, Scotland 2010**

| | Crop area receiving dressing (%) | | | | | | Average application rate (tonnes of product/ha) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Ground limestone | Ground chalk | Magnesian limestone | Sugar beet lime | Other | All | Fields limed | Fields in sample |
| Winter wheat | 3.9 | - | 5.6 | - | - | 9.5 | 1.6 | - | 4.7 | - | - | 3.4 | 9 | 97 |
| Spring barley | 7.1 | - | 3.4 | - | 1.0 | 11.4 | 3.7 | - | 4.5 | - | 0.9 | 3.7 | 47 | 247 |
| Winter barley | 15.4 | - | 3.6 | - | - | 19.0 | 2.3 | - | 4.9 | - | - | 2.8 | 16 | 68 |
| Oats | - | - | - | - | - | - | - | - | - | - | - | - | 4 | 37 |
| Potatoes | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 33 |
| Winter oilseed rape | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 35 |
| Other crops | 9.2 | - | 5.9 | - | 1.4 | 16.5 | 3.7 | - | 4.6 | - | 2.9 | 4.0 | 20 | 98 |
| All tillage | 7.1 | - | 3.6 | - | 0.7 | 11.4 | 3.2 | - | 4.6 | - | 1.3 | 3.5 | 99 | 615 |
| Grass less than five years old | 4.0 | - | 3.3 | - | 0.1 | 7.4 | 4.2 | - | 4.1 | - | 0.6 | 4.1 | 26 | 279 |
| Grass five years and over | 1.5 | - | 1.4 | - | 0.9 | 3.7 | 4.0 | - | 3.5 | - | 7.9 | 4.7 | 22 | 379 |
| All grass | 2.2 | - | 1.9 | - | 0.7 | 4.7 | 4.1 | - | 3.8 | - | 7.6 | 4.5 | 48 | 658 |
| All crops and grass | 3.7 | - | 2.4 | - | 0.7 | 6.8 | 3.5 | - | 4.2 | - | 5.6 | 4.0 | 147 | 1273 |

Source: British Survey of Fertiliser Practice 2010

**Table SC1.5 Percentage of crop area by field application rate - Nitrogen, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Winter wheat | 0 | 0 | 0 | 8 | 3 | 0 | 9 | 14 | 19 | 27 | 21 | - | - | - | - | - | - | - | 97 |
| Spring barley | 2 | 1 | 5 | 14 | 27 | 37 | 13 | 1 | - | - | - | - | - | - | - | - | - | - | 247 |
| Winter barley | 0 | 0 | 1 | 6 | 2 | 12 | 15 | 24 | 27 | 11 | 1 | 0 | 1 | - | - | - | - | - | 68 |
| Oats | 8 | 0 | 10 | 32 | 7 | 19 | 19 | 3 | 0 | 2 | - | - | - | - | - | - | - | - | 37 |
| Potatoes | 0 | 0 | 6 | 13 | 17 | 12 | 39 | 5 | 0 | 1 | 0 | 2 | 4 | 0 | 1 | - | - | - | 33 |
| Winter oilseed rape | 0 | 0 | 1 | 4 | 11 | 0 | 7 | 18 | 19 | 16 | 19 | 5 | - | - | - | - | - | - | 35 |
| Other crops | 32 | 9 | 6 | 20 | 14 | 7 | 4 | 7 | 0 | 1 | - | - | - | - | - | - | - | - | 98 |
| All tillage | 5 | 1 | 4 | 13 | 18 | 23 | 13 | 6 | 6 | 6 | 4 | - | - | - | - | - | - | - | 615 |
| Grass less than five years old | 11 | 2 | 7 | 20 | 13 | 12 | 15 | 5 | 6 | 4 | 3 | 3 | - | - | - | - | - | - | 279 |
| Grass five years and over | 35 | 2 | 16 | 21 | 8 | 6 | 3 | 3 | 1 | 2 | 1 | - | - | - | - | - | - | - | 379 |
| All grass | 28 | 2 | 14 | 21 | 10 | 7 | 6 | 4 | 2 | 3 | 2 | 1 | - | - | - | - | - | - | 658 |
| All crops and grass | 21 | 2 | 11 | 18 | 12 | 13 | 8 | 5 | 4 | 4 | 2 | 1 | - | - | - | - | - | - | 1273 |

Source: British Survey of Fertiliser Practice 2010



**Table SC1.6 Percentage of crop area by field application rate - Phosphate, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Winter wheat | 20 | 9 | 19 | 38 | 12 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 97 |
| Spring barley | 6 | 9 | 36 | 37 | 12 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 247 |
| Winter barley | 15 | 3 | 24 | 35 | 21 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 68 |
| Oats | 22 | 14 | 19 | 32 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | 37 |
| Potatoes | 4 | 10 | 2 | 0 | 4 | 23 | 20 | 1 | 23 | 8 | 0 | 2 | 0 | 4 | - | - | - | - | 33 |
| Winter oilseed rape | 38 | 5 | 5 | 39 | 8 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | 35 |
| Other crops | 33 | 5 | 13 | 15 | 24 | 3 | 2 | 3 | 1 | 0 | 1 | - | - | - | - | - | - | - | 98 |
| All tillage | 13 | 8 | 27 | 34 | 13 | 2 | 1 | 0 | 1 | - | - | - | - | - | - | - | - | - | 615 |
| Grass less than five years old | 18 | 27 | 38 | 12 | 2 | 1 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | 279 |
| Grass five years and over | 43 | 37 | 16 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 379 |
| All grass | 36 | 35 | 22 | 6 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 658 |
| All crops and grass | 29 | 26 | 24 | 15 | 5 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 1273 |

Source: British Survey of Fertiliser Practice 2010

**Table SC1.7 Percentage of crop area by field application rate - Potash, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Winter wheat | 10 | 0 | 19 | 10 | 36 | 16 | 4 | 2 | 3 | - | - | - | - | - | - | - | - | - | 97 |
| Spring barley | 6 | 4 | 19 | 33 | 27 | 9 | 3 | - | - | - | - | - | - | - | - | - | - | - | 247 |
| Winter barley | 13 | 0 | 24 | 8 | 44 | 9 | 1 | - | - | - | - | - | - | - | - | - | - | - | 68 |
| Oats | 21 | 1 | 30 | 17 | 25 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 37 |
| Potatoes | 4 | 10 | 2 | 0 | 2 | 12 | 2 | 0 | 25 | 16 | 11 | 0 | 1 | 6 | 5 | 1 | 3 | - | 33 |
| Winter oilseed rape | 28 | 5 | 6 | 28 | 21 | 10 | 1 | - | - | - | - | - | - | - | - | - | - | - | 35 |
| Other crops | 31 | 5 | 12 | 10 | 23 | 12 | 3 | 1 | 1 | 0 | 1 | - | - | - | - | - | - | - | 98 |
| All tillage | 11 | 3 | 18 | 23 | 28 | 11 | 3 | 0 | 1 | 1 | - | - | - | - | - | - | - | - | 615 |
| Grass less than five years old | 17 | 20 | 35 | 15 | 9 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | 279 |
| Grass five years and over | 44 | 34 | 17 | 3 | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 379 |
| All grass | 37 | 30 | 22 | 6 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 658 |
| All crops and grass | 28 | 21 | 20 | 12 | 11 | 5 | 1 | - | - | - | - | - | - | - | - | - | - | - | 1273 |

Source: British Survey of Fertiliser Practice 2010

**Table SC2.1 Average fertiliser practice by grassland utilisation, Scotland 2010**

| | Crop area receiving dressing (%) | | | | Average field rate (kg/ha) | | | Overall application rate (kg/ha) | | | Fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | $P_2O_5$ | $K_2O$ | FYM | N | $P_2O_5$ | $K_2O$ | N | $P_2O_5$ | $K_2O$ | |
| Grazed not mown | 64 | 56 | 56 | 13 | 70 | 20 | 20 | 45 | 11 | 11 | 343 |
| Grazed mown | 92 | 85 | 87 | 53 | 127 | 33 | 46 | 116 | 28 | 41 | 161 |
| All grazings | 69 | 62 | 62 | 21 | 84 | 23 | 27 | 58 | 14 | 16 | 504 |
| Cut for silage - grazed | 95 | 87 | 91 | 56 | 128 | 34 | 47 | 122 | 29 | 43 | 140 |
| Cut for silage - not grazed | 89 | 81 | 79 | 52 | 128 | 37 | 51 | 115 | 30 | 41 | 121 |
| All cut for silage | 93 | 84 | 86 | 54 | 128 | 35 | 49 | 119 | 30 | 42 | 261 |
| Cut for hay - grazed | 70 | 68 | 67 | 19 | 126 | 30 | 42 | 88 | 21 | 28 | 25 |
| Cut for hay - not grazed | 76 | 70 | 61 | 20 | 100 | 35 | 35 | 76 | 25 | 21 | 29 |
| All cut for hay | 73 | 69 | 64 | 20 | 113 | 33 | 39 | 82 | 23 | 25 | 54 |
| All mowings | 90 | 82 | 83 | 50 | 125 | 35 | 48 | 112 | 29 | 39 | 310 |
| All grass | 72 | 64 | 63 | 24 | 90 | 25 | 30 | 64 | 16 | 19 | 658 |

Source: British Survey of Fertiliser Practice 2010

**Table SC2.2 Percentage of grass area by field application rate - Nitrogen, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 36 | 3 | 17 | 25 | 7 | 5 | 2 | 3 | 0 | 0 | 1 | - | - | - | - | - | - | - | 343 |
| Grazed mown | 8 | 0 | 7 | 12 | 12 | 14 | 17 | 11 | 6 | 8 | 2 | 5 | - | - | - | - | - | - | 161 |
| All grazings | 31 | 3 | 15 | 22 | 8 | 7 | 5 | 4 | 1 | 2 | 1 | 1 | - | - | - | - | - | - | 504 |
| Cut for silage - grazed | 5 | 0 | 7 | 12 | 11 | 16 | 16 | 11 | 6 | 8 | 2 | 5 | - | - | - | - | - | - | 140 |
| Cut for silage - not grazed | 11 | 0 | 3 | 10 | 22 | 10 | 16 | 3 | 10 | 11 | 5 | - | - | - | - | - | - | - | 121 |
| All cut for silage | 7 | 0 | 6 | 11 | 16 | 13 | 16 | 8 | 8 | 10 | 3 | 3 | - | - | - | - | - | - | 261 |
| Cut for hay - grazed | 30 | 0 | 5 | 7 | 14 | 0 | 17 | 4 | 14 | 9 | - | - | - | - | - | - | - | - | 25 |
| Cut for hay - not grazed | 24 | 2 | 9 | 26 | 7 | 12 | 5 | 0 | 0 | 14 | - | - | - | - | - | - | - | - | 29 |
| All cut for hay | 27 | 1 | 7 | 16 | 11 | 6 | 12 | 2 | 7 | 11 | - | - | - | - | - | - | - | - | 54 |
| All mowings | 10 | 0 | 6 | 12 | 15 | 13 | 16 | 7 | 7 | 9 | 3 | 3 | - | - | - | - | - | - | 310 |
| All grass | 28 | 2 | 14 | 21 | 10 | 7 | 6 | 4 | 2 | 3 | 2 | 1 | - | - | - | - | - | - | 658 |

Source: British Survey of Fertiliser Practice 2010



**Table SC2.3 Percentage of grass area by field application rate - Phosphate, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 44 | 38 | 15 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 343 |
| Grazed mown | 15 | 30 | 38 | 13 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 161 |
| All grazings | 38 | 37 | 19 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 504 |
| Cut for silage - grazed | 13 | 31 | 39 | 14 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 140 |
| Cut for silage - not grazed | 19 | 20 | 46 | 10 | 3 | 0 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | 121 |
| All cut for silage | 16 | 26 | 42 | 12 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 261 |
| Cut for hay - grazed | 32 | 15 | 49 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 |
| Cut for hay - not grazed | 30 | 22 | 27 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 |
| All cut for hay | 31 | 18 | 39 | 12 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 54 |
| All mowings | 18 | 26 | 40 | 13 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 310 |
| All grass | 36 | 35 | 22 | 6 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 658 |

Source: British Survey of Fertiliser Practice 2010

**Table SC2.4 Percentage of grass area by field application rate - Potash, Scotland 2010**

| | kg/ha | | | | | | | | | | | | | | | | | | Fields in |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| row % | 0 | <25 | 25- | 50- | 75- | 100- | 125- | 150- | 175- | 200- | 225- | 250- | 275- | 300- | 325- | 350- | 375- | 400+ | sample |
| Grazed not mown | 44 | 36 | 17 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 343 |
| Grazed mown | 13 | 15 | 39 | 18 | 9 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | 161 |
| All grazings | 38 | 32 | 22 | 5 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 504 |
| Cut for silage - grazed | 9 | 15 | 40 | 19 | 10 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 140 |
| Cut for silage - not grazed | 21 | 19 | 25 | 14 | 15 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 121 |
| All cut for silage | 14 | 16 | 34 | 17 | 12 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 261 |
| Cut for hay - grazed | 33 | 13 | 34 | 10 | 9 | - | - | - | - | - | - | - | - | - | - | - | - | - | 25 |
| Cut for hay - not grazed | 39 | 18 | 27 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 29 |
| All cut for hay | 36 | 16 | 30 | 13 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | - | 54 |
| All mowings | 17 | 17 | 33 | 16 | 11 | 5 | - | - | - | - | - | - | - | - | - | - | - | - | 310 |
| All grass | 37 | 30 | 22 | 6 | 3 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 658 |

Source: British Survey of Fertiliser Practice 2010

**Table SC3.0 Product use by month of application, Scotland 2010**

**(a) Product use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight N | 0 | 3 | 1 | 0 | 0 | 1 | 15 | 43 | 25 | 7 | 3 | 2 |
| Straight P | 8 | 0 | 0 | 0 | 0 | 0 | 14 | 69 | 9 | 0 | 0 | 0 |
| Straight K | 9 | 5 | 0 | 0 | 0 | 0 | 22 | 56 | 5 | 2 | 0 | 2 |
| Compounds | 2 | 2 | 0 | 0 | 0 | 1 | 15 | 47 | 20 | 9 | 4 | 1 |
| All fertilisers | 1 | 2 | 0 | 0 | 0 | 1 | 15 | 46 | 21 | 8 | 4 | 1 |

**(b) Nutrient use**

| row % | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen | 0 | 2 | 0 | 0 | 0 | 1 | 13 | 45 | 24 | 9 | 4 | 1 |
| Phosphate | 3 | 3 | 0 | 0 | 0 | 1 | 17 | 51 | 16 | 4 | 3 | 1 |
| Potash | 3 | 3 | 0 | 0 | 0 | 1 | 20 | 48 | 15 | 6 | 3 | 1 |
| Total | 1 | 3 | 0 | 0 | 0 | 1 | 16 | 47 | 20 | 7 | 3 | 1 |

Note: All fertilisers includes other straight fertilisers (e.g. sulphur or trace elements)

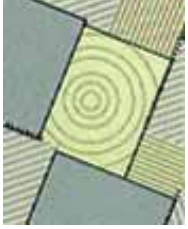
'Product' refers to the total tonnage of the products used by the farmers in the survey year 2010.

'Nutrient' refers to the tonnage of each nutrient contained in the products used.

(e.g. 100 kg of a 20:10:10 compound contains 20 kg of N, 10 kg of $P_2O_5$ and 10 kg of $K_2O$, while 100 kg of ammonium nitrate (straight N) contains typically 34.5 kg of N).

Estimates of total nutrients are shown in Section B.

Source: British Survey of Fertiliser Practice 2010



# SECTION D

## USE OF ORGANIC MANURES – GREAT BRITAIN, 2010

### Introduction

Whilst the British Survey of Fertiliser Practice has focussed historically on the application of manufactured fertilisers, in recent years it has also collected increasingly detailed information on the use and movement of organic manures. In previous years, farmers were asked where their manure applications fall within pre-specified 'high', 'medium' and 'low' ranges. In 2007, in an effort to better quantify the organic manure data, farmers were asked to provide a specific rate of application which could then be weighted in the same way as the manufactured fertiliser data to deliver a national picture of organic manure usage. However, it should be remembered that the underlying sample design is constructed to measure manufactured fertiliser usage and may not wholly represent the population of farmers using organic manures.

### D1 FARMS HANDLING ORGANIC MANURES

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 sludges (also called bio-solids) and some industrial 'wastes' such as paper waste or brewery effluent.

Of the 1,366 farms in the survey, around two thirds (919) used organic manures on at least one field on the farm, the details are shown in Table D1.1a.

**Table D1.1a Numbers and percentage (%) of farms using each type of manure in Great Britain, 2010**

| | *none* | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer manure* | *broiler/ turkey litter* | *other FYM* | *other farm* | *bio-solids* | *other non-farm* | *total with manure* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Farms in sample | 447 | 713 | 240 | 37 | 14 | 38 | 42 | 44 | 10 | 43 | 25 | 919 |
| Farms in population | 29080 | 46937 | 15025 | 1671 | 721 | 1905 | 2051 | 3125 | 434 | 2217 | 1290 | 59822 |
| Farms in population % | 33% | 53% | 17% | 2% | 1% | 2% | 2% | 4% | 0% | 2% | 1% | 67% |
| Volume ('000,000 t; $m^3$) | n/a | 34.9 | 39.1 | 3.1 | 1.1 | 0.9 | 0.9 | 1.1 | 0.5 | 2.3 | 1.2 | 85.1 |
| Volume % | n/a | 41% | 46% | 4% | 1% | 1% | 1% | 1% | 1% | 3% | 1% | 100% |

Note: some farmers may use more than one type of manure

**Table D1.1b Percentage (%) of farms using each type of manure in Great Britain, 2006 - 2010**

| | *none* | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer manure* | *broiler/ turkey litter* | *other FYM* | *other* |
|---|---|---|---|---|---|---|---|---|---|
| *2006* | 30 | 59 | 19 | 2 | 1 | 2 | 2 | 3 | 3 |
| *2007* | 33 | 56 | 20 | 1 | 1 | 2 | 2 | 2 | 3 |
| *2008* | 31 | 55 | 18 | 3 | 1 | 2 | 3 | 5 | 4 |
| *2009* | 32 | 53 | 17 | 2 | 1 | 2 | 2 | 3 | 4 |
| *2010* | 33 | 53 | 17 | 2 | 1 | 2 | 2 | 4 | 4 |

Cattle manure from beef and dairy farms is by far the largest volume of manure type generated in Great Britain. The percentage of farms using cattle FYM has declined by 6% since 2006, whereas the use of cattle slurry has remained more consistent, and was used on 17% of farms in 2010. Not all the manure generated by a farm is retained for use by that farm and excess manure/slurry can be exported for use elsewhere. Details of estimates of manure exports are given in Table D1.2a.

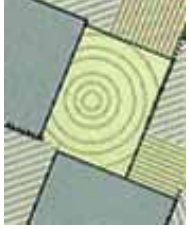


**Table D1.2a Estimated volume of exported manures, Great Britain 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *layer manure* | *broiler/ turkey litter* | *other* | *total* |
|---|---|---|---|---|---|---|---|
| Farms in sample | 21 | 6 | 4 | 0 | 1 | 2 | 32 |
| Farms in population | 1463 | 446 | - | - | - | - | 2186 |
| Exported volume ('000,000 t; $m^3$) | 0.6 | 1.2 | - | - | - | - | 1.8 |
| Average volume per farm (t;$m^3$) | 402 | 2739 | - | - | - | - | 833 |

Note: some farmers exported more than one type of manure

This indicates that only about 2% of the farmers surveyed exported manures and that cattle FYM is exported by more farms than any other manure. Data on manure types other than cattle FYM should be treated with caution due to the small numbers in the sample.

**Table D1.2b Percentage (%) of farms exporting manures of each type, Great Britain 2006 - 2010**

| | *cattle FYM* | *cattle slurry* | *other* | *farms in population* |
|---|---|---|---|---|
| *2006* | 1.6 | 0.2 | 0.2 | 90549 |
| *2007* | 1.3 | 0.6 | 0.3 | 91361 |
| *2008* | 1.7 | 0.5 | 1.0 | 89241 |
| *2009* | 1.4 | 0.3 | 0.1 | 89404 |
| *2010* | 1.6 | 0.5 | 0.5 | 88902 |

The percentage of farms exporting cattle manures is reasonably consistent over the five year period 2006 – 2010. Exports of other types of manures remain at a low level, and appear more variable over the period, but overall the number of exporting farms in the sample is low.

Of the farms surveyed, 919 reported use of either farm or non-farm manure and, of these, 107 had imported some or all of it. The details are given in Tables D1.3a/b.

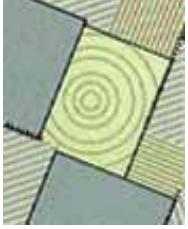
**Table D1.3a Number of farms importing farm manures (solids and liquids), showing quantity imported, Great Britain 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer manure* | *broiler/ turkey litter* | *other FYM* | *other farm manure* | *total* |
|---|---|---|---|---|---|---|---|---|---|
| Farms in sample | 37 | 4 | 17 | 5 | 23 | 36 | 8 | 1 | 107 |
| Farms in population | 1616 | - | 709 | 343 | 1072 | 1831 | 292 | - | 5335 |
| Imported volume ('000,000 t; $m^3$) | 1.2 | - | 0.4 | 0.2 | 0.3 | 0.5 | 0.1 | - | 3.0 |
| Average volume per farm (t; $m^3$) | 742 | - | 610 | 728 | 313 | 261 | 235 | - | 560 |

**Table D1.3b Number of farms importing non-farm manures (solids and liquids), showing quantity imported, Great Britain 2010**

| | *bio-solids* | *composted green manure* | *other non-farm manure* | *total* |
|---|---|---|---|---|
| Farms in sample | 44 | 14 | 14 | 70 |
| Farms in population | 2240 | 567 | 880 | 3610 |
| Imported volume ('000,000 t; $m^3$) | 2.2 | 0.5 | 0.5 | 3.2 |
| Average volume per farm (t; $m^3$) | 965 | 806 | 606 | 873 |

Note: some farmers imported more than one type of manure



The amount of imported non-farm manures increased each year between 2003 and 2009 to 5.7 million tonnes. In 2010 this volume of imported non farm manures reduced to 3.2 million tonnes. This is attributable to a reduced usage per farm (873 tonnes;$m^3$ compared with 1927 tonnes; $m^3$ in 2009) as the number of farms importing has remained consistent between the two years. However, care should be taken with the interpretation of these figures given the small number of farms involved. Cattle FYM and poultry manure continued to be the farm produced manures most likely to be imported.

Note that there is an imbalance between the estimate of manures exported from farms (1.8 million tonnes in 2010) and the estimate of imports (3.0 million tonnes). This is likely to be due to sampling error given the small proportion of farms involved. This is particularly true for pig and poultry manure where the coverage of BSFP is low; virtually no exports were identified yet 1.4 million tonnes of imports were recorded.

**Table D1.3c Percentage (%) of farms importing manures of each type, Great Britain 2006 - 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer/hen manure* | *broiler/ turkey litter* | *other FYM* | *other* | *farms in population* |
|---|---|---|---|---|---|---|---|---|---|
| *2006* | 2.1 | 0.1 | 0.4 | 0.0 | 0.8 | 2.1 | 0.3 | 3.3 | 90549 |
| *2007* | 2.6 | 0.6 | 0.5 | 0.4 | 1.1 | 1.7 | 0.1 | 3.2 | 91361 |
| *2008* | 2.8 | 0.4 | 0.5 | 0.2 | 1.4 | 2.0 | 0.4 | 3.3 | 89241 |
| *2009* | 2.6 | 0.2 | 0.8 | 0.4 | 1.2 | 1.6 | 0.2 | 3.3 | 89404 |
| *2010* | 1.8 | 0.3 | 0.8 | 0.4 | 1.2 | 2.1 | 0.3 | 4.1 | 88902 |

In 2010 the percentage of farms importing cattle FYM reduced to 1.8% and other manures increased to 4.1%. The other types of manure shown in the table are imported to a lesser degree and show greater fluctuations during the period.

The number and percentage of farms using each type of slurry application method in Great Britain are shown in Table 1.4. These data serve as a guide only and are calculated as an expression of the number of farms adopting a proportion of each application method, where slurry was applied. The data do not account for the proportion of each farm's total cultivatable area receiving slurry, or any variation in the rate at which slurry may have been applied using different application methods. Notwithstanding these considerations, it is clear that broadcast application is by far the most widespread method adopted both types of slurry.

**Table D1.4 Number and percentage (%) of farms using each type of application method by slurry type, Great Britain 2010**

| | | | *percentage of farms* | | | | | |
|---|---|---|---|---|---|---|---|---|
| *slurry type* | *farms in sample* | *farms in population* | *broadcast* | *band spread* | *shallow injection* | *deep injection* | *rain gun* | *rotating boom* |
| Cattle slurry | 240 | 15025 | 90 | 5 | 5 | 1 | 2 | 0 |
| Pig slurry | 14 | 721 | 70 | 27 | 0 | 0 | 0 | 3 |
| Grand Total | 253 | 15652 | 89 | 6 | 5 | 1 | 2 | 1 |

Note: some farms may apply both types of slurry

Whilst some of these application methods (e.g. shallow injection or deep injection) apply slurry below the surface of the field, the majority require secondary cultivation to incorporate the manure/slurry into the soil. Assessment of how often organic manures are incorporated into the soil is complicated by the fact that some farmers make more than one application or apply more than one type of manure and may incorporate each of these differently. As manure on grass fields is seldom incorporated (unless they are destined for re-seeding), grass fields have been excluded from the incorporation analysis.

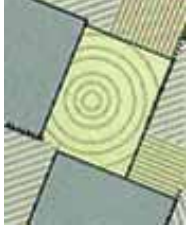


Table D1.5 gives estimates of the volume and area of manure/slurry incorporation on tillage fields by manure type and immediacy of incorporation. Farm yard manure is the most extensively incorporated at 93% of the area with 83% of it incorporated within a week of spreading on tillage fields. Cattle slurry is less likely to be incorporated at 81% of the volume and this incorporation tends to be later than for FYM, with 17% of the volume incorporated after one week.

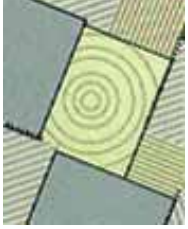
**Table D1.5 Percentage of incorporated of organic manure volume and area on tillage fields by incorporation time and manure/slurry type, Great Britain 2010**

| | *incorporation time after spreading* | | | | | | | | | | *total* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *not incorporated* | | *within 6 hours* | | *between 6 and 24 hours* | | *between 1 and 7 days* | | *more than 1 week* | | *applied area* | *volume applied* |
| | *%area* | *%vol* | *%area* | *%vol* | *%area* | *%vol* | *%area* | *%vol* | *%area* | *%vol* | *'000 ha* | *'000,000t;m³* |
| FYM | 7 | 8 | 5 | 6 | 27 | 27 | 49 | 50 | 10 | 9 | 676 | 17.2 |
| Cattle slurry | 15 | 19 | 15 | 20 | 22 | 18 | 28 | 26 | 21 | 17 | 90 | 2.8 |
| Pig slurry | 44 | 52 | 16 | 12 | 15 | 7 | 23 | 26 | 2 | 2 | 29 | 0.8 |
| Poultry FYM | 2 | 1 | 27 | 19 | 48 | 62 | 19 | 15 | 4 | 3 | 130 | 1.5 |
| Other | 4 | 1 | 33 | 34 | 29 | 34 | 31 | 27 | 3 | 4 | 145 | 3.1 |
| Total | 8 | 10 | 13 | 12 | 29 | 28 | 41 | 41 | 9 | 9 | 1069 | 25.3 |

Farmers were asked to indicate what proportion of their livestock manures had been spread by a contractor (Table D1.6). The percentage of farmers using a contractor to spread at least some of their FYM and cattle slurry is consistent with previous years at 29% and 25% respectively. Where contractors were used they were applying between 79% and 96% of the manure on average.

**Table D1.6 Use of contractors to spread manure/slurry in current season, Great Britain 2010**

| | *% of farms using a contractor* | *% volume applied by contractor* | *average % of contractor-applied manure, where contractor is used* |
|---|---|---|---|
| FYM | 29 | 22 | 79 |
| Cattle slurry | 25 | 25 | 83 |
| Other | 50 | 56 | 96 |
| Total | 29 | 27 | 84 |



## D2 USE OF ORGANIC MANURES

The proportion of the sown area receiving each of the main types of manure is shown in Table D2.1a, with cattle FYM and cattle slurry being the most extensively applied manures.

**Table D2.1a Percentage of sown area receiving each organic manure type, Great Britain 2006 - 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer hen manure* | *broiler/ turkey litter* | *other FYM* | *other* |
|---|---|---|---|---|---|---|---|---|
| *2006* | 20 | 9 | 1 | 1 | 1 | 1 | 1 | 2 |
| *2007* | 16 | 9 | 0 | 0 | 1 | 1 | 0 | 1 |
| *2008* | 15 | 9 | 1 | 0 | 1 | 1 | 1 | 2 |
| *2009* | 16 | 8 | 0 | 0 | 1 | 1 | 1 | 2 |
| *2010* | 16 | 9 | 1 | 0 | 1 | 1 | 1 | 2 |

Note: some areas may receive more than one type of manure

**Table D2.1b Percentage of sown area where organic manure is applied receiving each organic manure type, Great Britain 2006 – 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer hen manure* | *broiler/ turkey litter* | *other FYM* | *other* |
|---|---|---|---|---|---|---|---|---|
| *2006* | 65 | 31 | 2 | 2 | 2 | 3 | 3 | 6 |
| *2007* | 62 | 36 | 2 | 2 | 3 | 2 | 1 | 5 |
| *2008* | 56 | 33 | 3 | 2 | 3 | 5 | 4 | 7 |
| *2009* | 59 | 30 | 2 | 1 | 2 | 3 | 2 | 8 |
| *2010* | 58 | 32 | 3 | 1 | 2 | 3 | 2 | 7 |

Note: some areas may receive more than one type of manure

The percentage of the sown area receiving an application of cattle FYM has declined slightly since 2006 to 16%. Looking across the sown area where an organic manure has been applied the trend is for declining applications for all types, the exception being cattle slurry which increased to 32% of the area receiving an application of an organic manure (Table 2.1b).

The levels of nutrient within organic manures vary according to which type of manure is being applied as well as factors such as the size, age, gender, and market for the animals being farmed. Furthermore, the concentration of nutrients is dependent on the proportion of bedding, the length of time that the manure has been stored and, in the case of slurries particularly, diluting factors such rainwater or dirty water which affect the proportion of dry matter. The British Survey of Fertiliser Practice does not ask detailed questions on the animals producing manures or the nutrient analysis of any organic applications made, but it is possible to use typical values for different manure types to estimate the likely nutrient levels delivered. Details of these values are given in Table D2.2.

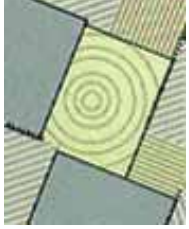


**Table D2.2 Typical dry matter and nutrient content of different organic manure types[10]**

| | *dry matter (%)* | *total N (kg/t; kg/m$^3$)* | *total $P_2O_5$ (kg/t; kg/m$^3$)* | *total $K_2O$ (kg/t; kg/m$^3$)* |
|---|---|---|---|---|
| Cattle FYM | 25 | 6.0 | 3.2 | 8.0 |
| Pig FYM | 25 | 7.0 | 6.0 | 8.0 |
| Sheep FYM | 25 | 6.0 | 3.2 | 8.0 |
| Duck manure | 25 | 6.5 | 5.5 | 7.5 |
| Layer hen manure | 30 | 16.0 | 13.0 | 9.0 |
| Broiler/turkey litter | 60 | 30.0 | 25.0 | 18.0 |
| Cattle slurry | 6 | 2.6 | 1.2 | 3.2 |
| Pig slurry | 4 | 3.6 | 1.8 | 2.4 |
| Digested liquid sewage sludge | 4 | 2.0 | 3.0 | 0.1 |
| Digested cake | 25 | 11.0 | 18.0 | 0.6 |
| Thermally dried | 95 | 40.0 | 75.0 | 2.0 |
| Lime stabilised | 40 | 8.5 | 26.0 | 0.8 |
| Composted green manure | 65 | 11.0 | 6.0 | 3.0 |

In Table D2.3, crops receiving manure applications have been classified as either "winter sown", "spring sown" or "grass" and their average treated areas and manure application rates shown.

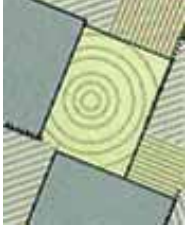
**Table D2.3 Treated areas and average manure application rates to winter sown and spring sown crops and grassland by manure type, Great Britain 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer manure* | *broiler/ turkey litter* | *other FYM* | *other farm manure* | *bio-solids* | *other non-farm* |
|---|---|---|---|---|---|---|---|---|---|---|
| **Winter sown** | | | | | | | | | | |
| Treated area % | 7.7 | 1.1 | 2.1 | 0.7 | 1.4 | 1.6 | 0.3 | - | 3.1 | 0.8 |
| Avg manure rate (t; m$^3$/ha) | 24 | 26 | 35 | 28 | 14 | 7 | 23 | - | 20 | 25 |
| Volume ('000,000 t ; m$^3$) | 5.8 | 0.9 | 2.3 | 0.6 | 0.6 | 0.3 | 0.2 | - | 1.9 | 0.6 |
| Fields in sample | 306 | 42 | 33 | 28 | 38 | 39 | 14 | 1 | 65 | 21 |
| **Spring sown** | | | | | | | | | | |
| Treated area % | 25.6 | 4.2 | 1.6 | 0.5 | 1.3 | 1.3 | 0.5 | - | 1.1 | 0.8 |
| Avg manure rate (t; m$^3$/ha) | 24 | 35 | 28 | 30 | 13 | 13 | 23 | - | 18 | 31 |
| Volume ('000,000 t ; m$^3$) | 8.2 | 2.0 | 0.6 | 0.2 | 0.2 | 0.2 | 0.1 | - | 0.3 | 0.3 |
| Fields in sample | 501 | 87 | 23 | 14 | 21 | 33 | 11 | 2 | 13 | 18 |
| **Grass** | | | | | | | | | | |
| Treated area % | 23.3 | 24.2 | 0.2 | 0.4 | 0.1 | 0.5 | 1.1 | 0.3 | 0.1 | 0.3 |
| Avg manure rate (t; m$^3$/ha) | 17 | 29 | 20 | 13 | 8 | 13 | 13 | 34 | 19 | 16 |
| Volume ('000,000 t ; m$^3$) | 20.7 | 36.3 | 0.2 | 0.3 | 0.1 | 0.3 | 0.7 | 0.5 | 0.1 | 0.2 |
| Fields in sample | 716 | 560 | 10 | 13 | 10 | 12 | 39 | 14 | 6 | 6 |

Note: This table excludes crops that cannot be classified as either winter or spring sown.

The majority of cattle manure and slurry applications were made to grassland, reflecting the practice of utilising the manure within the farm on which it is produced. Conversely, non-farm manures such as biosolids appear to be favoured on winter sown tillage land.

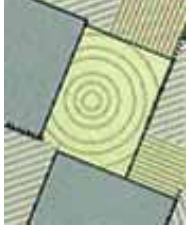
[10] Anon. (2010). *Fertiliser Manual (RB209),* Defra*,* 8th edition. The Stationery Office, London.



The time of year when manure was applied is shown in Table D2.4 as a proportion of fields receiving manure applications. Once again the crops have been classified as either "winter sown", "spring sown" or "grass". This segmentation highlights the prevalence of applications in August and September for winter sown crops (prior to drilling), whereas spring sown and grass fields are predominantly treated between November and April.

**Table D2.4 Percentage of fields receiving each organic manure type by sowing season and timing, Great Britain 2010**

| | *cattle FYM* | *cattle slurry* | *pig FYM* | *pig slurry* | *layer manure* | *broiler/ turkey litter* | *other FYM* | *other farm manure* | *bio-solids* | *other non-farm* |
|---|---|---|---|---|---|---|---|---|---|---|
| **Winter sown** | | | | | | | | | | |
| August | 14 | 13 | 38 | 7 | 40 | 48 | 0 | - | 39 | 32 |
| September | 69 | 48 | 39 | 27 | 33 | 43 | 68 | - | 45 | 67 |
| October | 10 | 18 | 2 | 11 | 15 | 10 | 25 | - | 7 | 1 |
| Winter (Nov, Dec, Jan) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 6 | 0 |
| Spring (Feb, Mar, Apr) | 2 | 20 | 21 | 38 | 10 | 0 | 0 | - | 2 | 0 |
| Summer (May, Jun, Jul) | 5 | 0 | 0 | 17 | 2 | 0 | 7 | - | 1 | 0 |
| **Spring sown** | | | | | | | | | | |
| August | 1 | 6 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 |
| September | 3 | 5 | 11 | 0 | 0 | 4 | 0 | - | 0 | 0 |
| October | 4 | 0 | 25 | 0 | 0 | 0 | 0 | - | 0 | 69 |
| Winter (Nov, Dec, Jan) | 17 | 42 | 6 | 47 | 1 | 8 | 48 | - | 49 | 0 |
| Spring (Feb, Mar, Apr) | 75 | 45 | 58 | 53 | 99 | 86 | 52 | - | 51 | 31 |
| Summer (May, Jun, Jul) | 0 | 2 | 0 | 0 | 0 | 3 | 0 | - | 0 | 0 |
| **Grass** | | | | | | | | | | |
| August | 8 | 3 | 5 | 0 | 0 | 0 | 11 | 8 | 2 | 1 |
| September | 4 | 2 | 0 | 0 | 18 | 3 | 19 | 0 | 0 | 0 |
| October | 9 | 4 | 3 | 9 | 0 | 0 | 16 | 5 | 0 | 4 |
| Winter (Nov, Dec, Jan) | 18 | 12 | 0 | 0 | 8 | 11 | 11 | 43 | 39 | 12 |
| Spring (Feb, Mar, Apr) | 43 | 55 | 48 | 53 | 50 | 80 | 21 | 40 | 40 | 68 |
| Summer (May, Jun, Jul) | 18 | 24 | 44 | 38 | 24 | 6 | 23 | 5 | 18 | 14 |



## D3 FERTILISER VALUE OF ORGANIC MANURES

Organic manures are valuable sources of the major plant nutrients (nitrogen, phosphorus and potassium) and, where used, applications of manufactured fertiliser can usually be reduced[11]. In the survey, farmers were not asked directly whether they had made an adjustment to fertiliser inputs because of manure use, however an indication of possible adjustments has been derived by comparing fields that received manure with those that did not. Organic fields, which use no mineral fertilisers, have been excluded from these comparisons, since they would distort the influence of manures on mineral application rates. Table D3.1a shows the dressing cover, average field rate and overall fertiliser rates for the main tillage crops in Great Britain, with and without manure inputs.

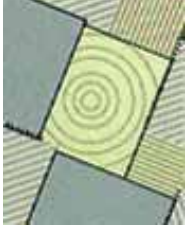
**Table D3.1a Dressing cover and application rates of manufactured fertiliser to tillage crops in Great Britain, with and without applications of organic manure, 2010**

| | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| *dressing cover (%)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 99 | 100 | 30 | 48 | 37 | 44 | 312 | 1327 |
| Spring barley | 96 | 100 | 73 | 72 | 75 | 75 | 224 | 390 |
| Winter barley | 97 | 100 | 53 | 62 | 56 | 67 | 108 | 362 |
| Potatoes (maincrop) | 100 | 100 | 75 | 96 | 83 | 94 | 49 | 69 |
| Sugar beet | 94 | 96 | 23 | 64 | 76 | 66 | 38 | 67 |
| Winter oilseed rape | 97 | 100 | 22 | 53 | 28 | 47 | 90 | 466 |
| Forage maize | 68 | 94 | 52 | 70 | 37 | 50 | 177 | 32 |

| | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| *average field rate (kg/ha)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 188 | 197 | 53 | 61 | 71 | 73 | 312 | 1327 |
| Spring barley | 94 | 108 | 48 | 50 | 59 | 66 | 224 | 390 |
| Winter barley | 142 | 146 | 50 | 56 | 65 | 75 | 108 | 362 |
| Potatoes (maincrop) | 140 | 138 | 132 | 140 | 196 | 245 | 49 | 69 |
| Sugar beet | 93 | 100 | 49 | 60 | 115 | 110 | 38 | 67 |
| Winter oilseed rape | 180 | 204 | 43 | 62 | 60 | 68 | 90 | 466 |
| Forage maize | 62 | 83 | 57 | 48 | 80 | 73 | 177 | 32 |

| | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| *overall application rate (kg/ha)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 187 | 197 | 16 | 29 | 26 | 32 | 312 | 1327 |
| Spring barley | 91 | 108 | 35 | 36 | 45 | 50 | 224 | 390 |
| Winter barley | 138 | 146 | 26 | 35 | 36 | 50 | 108 | 362 |
| Potatoes (maincrop) | 139 | 138 | 99 | 135 | 163 | 230 | 49 | 69 |
| Sugar beet | 87 | 96 | 11 | 38 | 88 | 73 | 38 | 67 |
| Winter oilseed rape | 175 | 204 | 10 | 33 | 17 | 32 | 90 | 466 |
| Forage maize | 42 | 78 | 30 | 34 | 30 | 37 | 177 | 32 |

[11] Anon. (2000). *Fertiliser Recommendations for Agricultural and Horticultural Crops.* MAFF Reference Book 209 (Seventh edition). The Stationery Office, London.



For all the major tillage crops, except potatoes where we have fewer fields, the overall rate of nitrogen from manufactured mineral fertiliser is consistently higher on fields where organic manures were not applied. Application rate increases of nitrogen ranged from 3% for winter barley through to 34% for forage maize, although again the number of fields is low for this crop. This is also predominantly the case for phosphate and potash fertiliser application rates. This was most dramatically illustrated by a 70% decrease in the application rate of phosphate on manured winter oilseed rape fields. This decrease was mainly caused by a reduction in dressing cover with only 22% of manured winter oilseed rape fields receiving a dressing of phosphate fertiliser. Sugar beet is an exception to this trend with manured fields having a higher average field rate of potash than unmanured ones. The survey does not collect reasons why manufactured fertiliser application rates may vary when used with or without organic manures. It is possible that certain fields are being managed to achieve a desired nutrient status and a strategy of this sort may require unusually high or low applications of specific nutrients. Where only a small number of fields are surveyed, such a strategy may exert an influential bias on the overall figures for a crop.

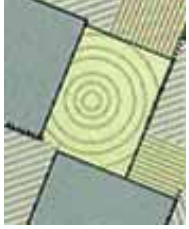
**Table D3.1b Overall field rate from manufactured fertiliser application to tillage crops in Great Britain, with and without applications of organic manure, 2006 - 2010**

| | *2006* | | *2007* | | *2008* | | *2009* | | *2010* | |
|---|---|---|---|---|---|---|---|---|---|---|
| *nitrogen (kg/ha)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 167 | 197 | 168 | 194 | 161 | 183 | 180 | 192 | 187 | 197 |
| Spring barley | 102 | 101 | 94 | 103 | 88 | 101 | 89 | 107 | 91 | 108 |
| Winter barley | 114 | 141 | 108 | 141 | 122 | 137 | 138 | 142 | 138 | 146 |
| Potatoes (maincrop) | 136 | 152 | 109 | 144 | 154 | 156 | 155 | 185 | 139 | 138 |
| Sugar beet | 83 | 109 | 79 | 99 | 80 | 89 | 88 | 101 | 87 | 96 |
| Winter oilseed rape | 181 | 193 | 181 | 191 | 159 | 197 | 176 | 191 | 175 | 204 |
| Forage maize | 52 | 58 | 51 | 61 | 44 | 48 | 50 | 81 | 42 | 78 |

| | *2006* | | *2007* | | *2008* | | *2009* | | *2010* | |
|---|---|---|---|---|---|---|---|---|---|---|
| *phosphate (kg/ha)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 19 | 37 | 21 | 33 | 17 | 30 | 9 | 18 | 16 | 29 |
| Spring barley | 49 | 33 | 41 | 36 | 39 | 33 | 34 | 29 | 35 | 36 |
| Winter barley | 35 | 38 | 34 | 36 | 25 | 37 | 20 | 23 | 26 | 35 |
| Potatoes (maincrop) | 90 | 156 | 91 | 151 | 140 | 127 | 108 | 164 | 99 | 135 |
| Sugar beet | 19 | 45 | 11 | 50 | 15 | 39 | 13 | 24 | 11 | 38 |
| Winter oilseed rape | 25 | 35 | 19 | 32 | 14 | 31 | 5 | 23 | 10 | 33 |
| Forage maize | 43 | 20 | 40 | 28 | 34 | 31 | 39 | 20 | 30 | 34 |

| | *2006* | | *2007* | | *2008* | | *2009* | | *2010* | |
|---|---|---|---|---|---|---|---|---|---|---|
| *potash (kg/ha)* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| Winter wheat | 37 | 42 | 36 | 40 | 31 | 37 | 21 | 23 | 26 | 32 |
| Spring barley | 60 | 61 | 51 | 49 | 48 | 48 | 39 | 43 | 45 | 50 |
| Winter barley | 51 | 54 | 46 | 62 | 41 | 53 | 29 | 35 | 36 | 50 |
| Potatoes (maincrop) | 174 | 225 | 141 | 230 | 260 | 227 | 176 | 291 | 163 | 230 |
| Sugar beet | 76 | 128 | 81 | 110 | 84 | 93 | 64 | 80 | 88 | 73 |
| Winter oilseed rape | 37 | 37 | 39 | 37 | 25 | 36 | 12 | 26 | 17 | 32 |
| Forage maize | 38 | 84 | 33 | 25 | 29 | 67 | 44 | 55 | 30 | 37 |

Differences in field rates with and without manures for nitrogen, phosphate and potash for the period 2006 to 2010 are shown in table D3.1b above. The trend for higher nitrogen rates on unmanured fields holds true for nitrogen for all major tillage crops throughout the period, with the exception being potatoes in 2010. The increased rates are most consistent for nitrogen on winter wheat at between 5% and 15% increase over manured fields. Overall rates for phosphate and potash in winter wheat show a similar trend over the five year period. Other crops show greater variability between manured and unmanured field rates for the different nutrients which may in part be due to the lower number of fields of each of these crops in the survey causing higher statistical variability.



Data for grassland are presented separately because grass is managed differently according to the amount of production required. Thus, intensive milk production requires large volumes of grass and is likely to receive higher inputs of both manure and mineral fertilisers than beef or sheep systems. Table D3.2 shows the average field rate of fertiliser applied to grassland in different management systems (as defined by Robust farm type groups) with and without applications of manure. Average field rates have been used for grassland because grass fields often receive no mineral fertiliser, not because of manure use, but because the amount of grass production required does not warrant fertiliser input.

**Table D3.2 Average fertiliser application rate on grassland with and without applications of organic manure by robust type group, Great Britain 2010**

| | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| **Cereals** | | | | | | | | |
| Grass under 5 years old * | 117 | 105 | 29 | 31 | 80 | 45 | 11 | 152 |
| Grass 5 years and over * | 112 | 71 | 27 | 21 | 38 | 26 | 23 | 394 |
| All grass | 114 | 81 | 28 | 24 | 58 | 32 | 34 | 546 |
| **Dairy** | | | | | | | | |
| Grass under 5 years old | 169 | 173 | 26 | 41 | 51 | 61 | 147 | 63 |
| Grass 5 years and over | 153 | 118 | 26 | 21 | 39 | 25 | 269 | 179 |
| All grass | 158 | 126 | 26 | 24 | 42 | 30 | 416 | 242 |
| **General cropping** | | | | | | | | |
| Grass under 5 years old * | 109 | 95 | 88 | 42 | 43 | 50 | 14 | 87 |
| Grass 5 years and over * | 127 | 81 | 8 | 23 | 8 | 26 | 13 | 147 |
| All grass | 122 | 88 | 30 | 34 | 12 | 41 | 27 | 234 |
| **Mixed** | | | | | | | | |
| Grass under 5 years old | 167 | 119 | 42 | 30 | 92 | 43 | 67 | 134 |
| Grass 5 years and over | 104 | 78 | 36 | 21 | 43 | 28 | 53 | 199 |
| All grass | 133 | 91 | 38 | 24 | 65 | 33 | 120 | 333 |
| **Other livestock** | | | | | | | | |
| Grass under 5 years old | 109 | 98 | 26 | 37 | 37 | 37 | 163 | 154 |
| Grass 5 years and over | 83 | 63 | 22 | 19 | 27 | 22 | 430 | 567 |
| All grass | 89 | 68 | 23 | 22 | 30 | 24 | 593 | 721 |
| **All farm types** | | | | | | | | |
| Grass under 5 years old | 142 | 111 | 29 | 36 | 50 | 44 | 402 | 590 |
| Grass 5 years and over | 114 | 77 | 23 | 20 | 32 | 24 | 788 | 1488 |
| All grass | 121 | 84 | 25 | 24 | 36 | 28 | 1190 | 2078 |

Note: The values in “All farm types” exceed the sum of the components in the table as it also includes pig and poultry farms
* Note: small number of fields receiving manures

When looking at all farm types taken together, the rates of nitrogen, phosphate and potash fertiliser were higher on fields where manures were also used. Mineral fertiliser rates were also consistently higher on short term grass than permanent grassland.

As so many fields on dairy farms receive manure, a separate analysis was carried out to examine the influence of grass management (Table D3.3a).

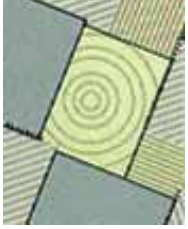


**Table D3.3a Average fertiliser application rate on dairy grassland with and without applications of organic manure, Great Britain 2010**

| | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| All cut for hay | 70 | 99 | 25 | 22 | 29 | 43 | 25 | 15 |
| All cut for silage | 163 | 144 | 27 | 35 | 50 | 53 | 277 | 77 |
| All grazings | 155 | 125 | 25 | 23 | 39 | 28 | 359 | 226 |

Application rates of mineral fertilisers are consistently higher for grass to be cut for silage.

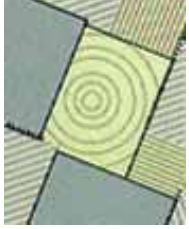
**Table D3.3b Average fertiliser application rate on dairy grassland with and without applications of organic manure, Great Britain 2006 – 2010**

| *all cut for hay* | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| *2006* | 86 | 84 | 30 | 21 | 41 | 24 | 37 | 13 |
| *2007* | 92 | 101 | 27 | 20 | 43 | 45 | 32 | 15 |
| *2008* | 107 | 97 | 23 | 21 | 22 | 25 | 29 | 12 |
| *2009* | 129 | 77 | 22 | 17 | 41 | 19 | 29 | 15 |
| *2010* | 70 | 99 | 25 | 22 | 29 | 43 | 25 | 15 |

| *all cut for silage* | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* | *with manure* | *without manure* |
| *2006* | 139 | 118 | 30 | 26 | 50 | 38 | 233 | 54 |
| *2007* | 162 | 151 | 31 | 28 | 53 | 57 | 253 | 64 |
| *2008* | 149 | 142 | 28 | 29 | 49 | 48 | 229 | 52 |
| *2009* | 154 | 127 | 29 | 32 | 48 | 44 | 280 | 66 |
| *2010* | 163 | 144 | 27 | 35 | 50 | 53 | 277 | 77 |

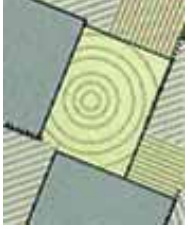
| *all grazings* | *nitrogen* | | *phosphate* | | *potash* | | *fields in sample* | |
|---|---|---|---|---|---|---|---|---|
| *2006* | 136 | 129 | 28 | 25 | 43 | 27 | 351 | 143 |
| *2007* | 148 | 128 | 26 | 25 | 41 | 34 | 364 | 159 |
| *2008* | 137 | 135 | 26 | 26 | 41 | 35 | 315 | 147 |
| *2009* | 146 | 115 | 28 | 22 | 42 | 27 | 375 | 194 |
| *2010* | 155 | 125 | 25 | 23 | 39 | 28 | 359 | 226 |

Mineral fertiliser application rates of nitrogen are variable over the 5 year period 2006-2010 irrespective of the grass management system. Data for grass cut for hay should be treated with caution as the number of fields managed this way are low. Average field rates of phosphate are more stable, particularly on manured fields, in the range of 27-31 kg/ha for fields cut for silage and 25-28 kg/ha on all grazed fields. Potash average field rates for silage and grazed grass were in the range 48-53 kg/ha and 39-43 kg/ha respectively.



In recent years there has been a great deal of promotional activity aimed at encouraging farmers to make adjustments to fertiliser inputs where manures are used. When making comparisons of the data presented in this report a number of factors should be taken into account:

- the extent to which individual farmers have accounted for the nutrients in the manures cannot be judged from these data,
- the data presented for 'with/without' manure are not a paired comparison of otherwise identical fields,
- fields which have not received manures may be on farms which have no manure and are thus managed in a different way,
- in grassland systems, fields which have not received manures may be managed differently (e.g. grazed only) compared with manured fields which may be cut more than once as well as grazed,
- for tillage crops, the overall fertiliser rate means that some fields are included which have received no fertiliser. For the 'with manure' data, it may indicate that the manure was judged to supply all the fertiliser which was required,
- for grassland, the average fertiliser rate has been used so as to avoid distorting the data by inclusion of 'unmanaged' grass, which receives no fertiliser, although this has the effect of excluding any fields on which no fertiliser was applied because the manure was considered sufficient, thus obscuring a substitution effect,
- the dataset of fields where manures are used includes fields which may have received only a very small amount of manure (see section D2). On those fields receiving large dressings, there may be a greater adjustment in mineral fertiliser,
- where reductions in phosphate and potash fertiliser have not been made, this may indicate a desire to build up soil reserves of these nutrients.



## D4 SPREADING PRECISION AND RECORD KEEPING

Farmers were asked a series of questions about the care taken in application of fertilisers and manures and in record keeping. The results are presented in this section.

In 2010, 36% of farmers indicated they check the accuracy of mineral fertiliser spreaders by using catch trays on an annual basis (Table D4.1). Farmers checking more frequently than this total 5%, checking at each change of fertiliser. Thirty two percent of farmers never check their spreaders for accuracy.

**Table D4.1 Frequency of spread pattern checks using a catch tray, Great Britain 2006-2010**

| | *No spreader* | *It is factory set & doesn't need checking* | *At each change of fertiliser type* | *Once a year* | *Less than once a year* | *Never checked* | *Contract applied* | *Other* |
|---|---|---|---|---|---|---|---|---|
| *2006* | 3 | 10 | 5 | 38 | 11 | 21 | 5 | 7 |
| *2007* | 4 | 9 | 7 | 36 | 13 | 22 | 5 | 4 |
| *2008* | 8 | 8 | 7 | 37 | 11 | 23 | 4 | 2 |
| *2009* | 6 | 7 | 5 | 36 | 10 | 23 | 10 | 2 |
| *2010* | 9 | 7 | 5 | 36 | 9 | 25 | 9 | 0 |

Practices of checking are generally consistent over the five year period 2006-2010. The exception to this is an increase in contract applications which have risen from 5% of farms in 2006 to 9% of farms in 2010.

**Table D4.2a Record keeping methods for fertiliser and manure applications on farms where each respective nutrient type was applied during the 2009/10 crop year, Great Britain 2010**

| | *manufactured fertilisers* | | *organic manures* | |
|---|---|---|---|---|
| | *farms* | *farms %* | *farms* | *farms %* |
| Computer program | 16990 | 22.3 | 7626 | 12.7 |
| Farm diary | 31373 | 41.1 | 21231 | 35.5 |
| Farm notebook/pocketbook | 17315 | 22.7 | 9495 | 15.9 |
| File record sheet (file in the office) | 16247 | 21.3 | 10436 | 17.4 |
| Other paper record | 3758 | 4.9 | 2179 | 3.6 |
| No records kept | 4587 | 6.0 | 4855 | 8.1 |

Note: more than one method may be used

Farm diaries continue to be the most common method for recording both fertiliser and manure use (Table D4.2a). Computers were used for recording fertiliser applications on 22% of farms, whereas no records were kept on 6% of farms. Record keeping of each type is lower for organic manures than for manufactured fertilisers.

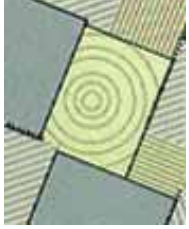
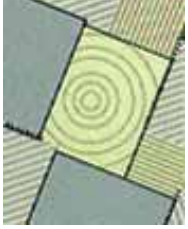


**Table D4.2b Record keeping methods for fertiliser and manure applications on farms where each respective nutrient type was applied in the crop year, Great Britain 2006-2010**

| | | *Computer program* | *Farm diary* | *Farm notebook/ pocket-book* | *File record sheet (file in the office)* | *Other paper record* | *No records kept* |
|---|---|---|---|---|---|---|---|
| manufactured fertilisers | *2006* | 20 | 39 | 25 | 22 | 4 | 10 |
| | *2007* | 21 | 40 | 29 | 21 | 4 | 6 |
| | *2008* | 18 | 41 | 29 | 28 | 0 | 5 |
| | *2009* | 19 | 43 | 27 | 19 | 3 | 5 |
| | *2010* | 22 | 41 | 23 | 21 | 5 | 6 |
| organic manures | *2006* | 9 | 29 | 15 | 13 | 3 | 9 |
| | *2007* | 12 | 29 | 18 | 13 | 2 | 10 |
| | *2008* | 8 | 33 | 19 | 17 | 0 | 10 |
| | *2009* | 9 | 37 | 19 | 13 | 3 | 7 |
| | *2010* | 13 | 35 | 16 | 17 | 4 | 8 |

Recording methods for manufactured fertilisers are show minor variations across the five year period 2006-2010. For organic manures, records of some type were kept on 90-93% of farms for the five year period.



# APPENDIX 1 - SURVEY STATISTICS

## APP 1.1 SAMPLING VARIATION

**Table App 1.1 Standard errors of application rates for the major crops in 2010**

### Great Britain

| | standard errors for overall application rates (kg/ha) | | | | | standard error for average field rates (kg/ha) | | | | | fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | |
| winter wheat | 2.3 | 2.7 | 1.3 | 1.2 | 1.6 | 2.1 | 2.3 | 4.4 | 1.4 | 1.9 | 1660 |
| oilseed rape | 2.6 | 2.9 | 1.2 | 1.6 | 1.9 | 2.5 | 2.6 | 4.3 | 1.7 | 2.0 | 572 |
| winter barley | 2.5 | 2.9 | 1.8 | 1.7 | 2.2 | 2.3 | 2.4 | 4.3 | 1.7 | 2.2 | 475 |
| spring barley | 2.0 | 2.6 | 1.8 | 1.4 | 1.7 | 1.7 | 2.2 | 2.1 | 1.4 | 1.7 | 646 |
| m/c potatoes | 7.4 | 6.0 | 8.3 | 8.6 | 13.1 | 7.2 | 7.3 | 7.8 | 8.4 | 12.3 | 120 |
| sugar beet | 4.5 | 4.8 | 2.4 | 3.9 | 7.5 | 3.9 | 4.0 | 9.5 | 5.3 | 7.3 | 105 |
| all tillage crops | 2.1 | 2.5 | 1.1 | 1.0 | 1.2 | 2.0 | 2.1 | 1.8 | 1.2 | 1.7 | 4609 |
| all grass | 1.9 | 1.6 | 1.2 | 0.4 | 0.6 | 2.0 | 2.5 | 1.6 | 0.8 | 1.2 | 3522 |

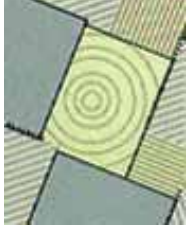
### England & Wales

| | standard errors for overall application rates (kg/ha) | | | | | standard error for average field rates (kg/ha) | | | | | fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | |
| winter wheat | 2.4 | 2.8 | 1.2 | 1.3 | 1.6 | 2.2 | 2.4 | 4.8 | 1.5 | 2.0 | 1563 |
| oilseed rape | 2.7 | 3.0 | 1.3 | 1.7 | 1.9 | 2.6 | 2.6 | 5.2 | 1.8 | 2.2 | 536 |
| winter barley | 2.6 | 3.2 | 1.8 | 1.8 | 2.4 | 2.4 | 2.6 | 5.2 | 1.9 | 2.5 | 407 |
| spring barley | 2.6 | 3.3 | 2.2 | 1.6 | 2.0 | 2.2 | 2.5 | 3.5 | 2.1 | 2.5 | 399 |
| m/c potatoes | 7.8 | 6.9 | 9.1 | 9.8 | 14.5 | 7.5 | 7.5 | 8.4 | 9.5 | 13.4 | 97 |
| sugar beet | 4.5 | 4.8 | 2.4 | 3.9 | 7.5 | 3.9 | 4.0 | 9.5 | 5.3 | 7.3 | 105 |
| all tillage crops | 2.3 | 2.7 | 1.0 | 1.0 | 1.3 | 2.2 | 2.2 | 2.5 | 1.4 | 2.0 | 4001 |
| all grass | 2.2 | 1.9 | 1.2 | 0.4 | 0.7 | 2.4 | 2.9 | 2.0 | 0.9 | 1.6 | 2864 |

### Scotland

| | standard errors for overall application rates (kg/ha) | | | | | standard error for average field rates (kg/ha) | | | | | fields in sample |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | *total N* | *strt N* | *comp N* | *total $P_2O_5$* | *total $K_2O$* | |
| winter wheat | 6.9 | 9.4 | 7.4 | 4.1 | 5.7 | 6.9 | 7.3 | 10.9 | 3.5 | 5.1 | 97 |
| oilseed rape | 9.9 | 10.7 | 4.5 | 6.2 | 6.7 | 9.9 | 10.7 | 4.9 | 5.0 | 6.1 | 36 |
| winter barley | 6.8 | 7.8 | 5.9 | 4.4 | 5.1 | 6.8 | 6.2 | 7.5 | 3.7 | 4.3 | 68 |
| spring barley | 2.8 | 3.3 | 2.7 | 1.9 | 2.4 | 2.6 | 3.1 | 2.5 | 1.7 | 2.2 | 247 |
| m/c potatoes | 20.4 | 11.6 | 20.8 | 17.8 | 30.9 | 20.4 | 25.1 | 20.5 | 17.8 | 30.9 | 23 |
| all tillage crops | 3.4 | 4.1 | 2.5 | 2.0 | 2.6 | 3.3 | 4.4 | 2.4 | 2.0 | 2.4 | 608 |
| all grass | 3.4 | 2.3 | 2.9 | 1.0 | 1.3 | 3.1 | 4.2 | 2.7 | 1.4 | 1.6 | 658 |

The standard errors quoted in Table App 1.1 are a measure of the standard deviation of the mean, and are used to judge the accuracy of the results for each cell in the table. This is a standard statistical process where the standard deviation of each cell is calculated first and then divided by the square root of the number of data points within that cell. Approximate 95% confidence limits will be the quoted value +/- 2 standard errors.



## APP 1.2 RESPONSE RATE

Tables App 1.2 and App 1.3 summarise information regarding the response received to the main and reserve samples.

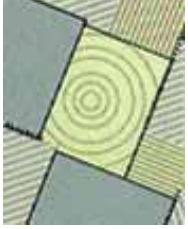
**Table App 1.2 Response to main and reserve samples in 2010**

| | *2010* | *% total* |
|---|---|---|
| Target sample | 1500 | 100 |
| 2009 panellists agreeing to re-contact in 2010 | 1320 | 84 |
| Achieved 'Main' sample from 2008 panel | 970 | 65 |
| Achieved additional 'Main' sample | 165 | 11 |
| Achieved '1st reserve' sample | 133 | 9 |
| Achieved '2nd reserve' sample | 65 | 4 |
| Achieved '3rd reserve' sample | 33 | 2 |
| **Total achieved** | **1366** | **91** |
| Total number of refusals/non-contact | 1489 | |
| ***Total number of farms approached*** | ***2855*** | |

**Table App 1.3 Response to main and reserve samples for 2006 - 2010**

| *Net response rate* | *2006 %* | *2007 %* | *2008 %* | *2009 %* | *2010 %* |
|---|---|---|---|---|---|
| Overall achieved rate | 88 | 89 | 88 | 92 | 91 |
| Achieved % of total contact attempts | 46 | 51 | 48 | 53 | 48 |
| Main sample | 85 | 72 | 84 | 81 | 83 |
| Reserve sample(s) | 15 | 28 | 16 | 19 | 17 |
| *Main reason for refusal* | *2006 %* | *2007 %* | *2008 %* | *2009 %* | *2010 %* |
| Too busy | 30 | 19 | 18 | 18 | 15 |
| Not interested | 10 | 8 | 9 | 14 | 10 |
| Do not do surveys | 8 | 3 | 3 | 3 | 3 |
| Want payment | 2 | 1 | 1 | 0 | 0 |
| Too much paperwork | 2 | 1 | 0 | 1 | 0 |
| Non contact | 22 | 24 | 43 | 36 | 55 |
| Other [a] | 26 | 44 | 26 | 27 | 16 |

[a] includes late submission, contributed enough and incorrect telephone number

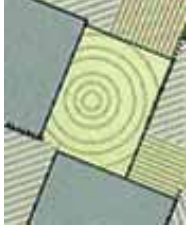


# APPENDIX 2

## APP 2.1 ENGLISH COUNTIES WITHIN BSFP AND DEFRA REGIONS

List of English counties indicating the BSFP and Government Office Regions within which they fall.

| | County | BSFP REGION | GOR |
|---|---|---|---|
| 1 | Bedfordshire | Anglia | Eastern |
| 2 | Berkshire | South-East | South East |
| 3 | Buckinghamshire | South-East | South East |
| 4 | Cleveland | North-East | North East |
| 5 | Cambridgeshire | Anglia | Eastern |
| 6 | Cheshire | North Mercia | North West |
| 7 | Cornwall | South-West | South West |
| 8 | Cumbria | Northern | North West |
| 9 | Derbyshire | East Midlands | East Midlands |
| 10 | Devon | South-West | South West |
| 11 | Dorset | Wessex | South West |
| 12 | Durham | North-East | North East |
| 13 | Essex | Anglia | Eastern |
| 14 | Gloucestershire | South Mercia | South West |
| 15 | Hampshire | South-East | South East |
| 16 | Isle of Wight | South-East | South East |
| 17 | Hereford & Worcester | South Mercia | West Midlands |
| 18 | Hertfordshire | Anglia | Eastern |
| 20 | Kent | South-East | South East |
| 21 | Lancashire | Northern | North West |
| 22 | Leicestershire | East Midlands | East Midlands |
| 24 | Lincolnshire | Eastern | East Midlands |
| 25 | Merseyside | North Mercia | North West |
| 26/27 | Greater London(E) | South-East | London |
| 28 | Norfolk | Anglia | Eastern |
| 29 | Northamptonshire | East Midlands | East Midlands |
| 30 | Tyne and Wear | Northern | North East |
| 31 | Northumberland | Northern | North East |
| 32 | Nottinghamshire | East Midlands | East Midlands |
| 33 | Oxfordshire | South-East | South East |
| 34 | N Somerset and S Gloucestershire | Wessex | South West |
| 35 | Shropshire | North Mercia | West Midlands |
| 36 | Somerset | Wessex | South West |
| 37 | Staffordshire | North Mercia | West Midlands |
| 38 | Suffolk | Anglia | Eastern |
| 39 | Isles of Scilly | | |
| 40 | Surrey | South-East | South East |
| 41 | East Sussex | South-East | South East |
| 42 | West Sussex | South-East | South East |
| 43 | Warwickshire | South Mercia | West Midlands |
| 44 | Greater Manchester | North Mercia | North West |
| 45 | Wiltshire | Wessex | South West |
| 46 | West Midlands | South Mercia | West Midlands |
| 47 | South Yorkshire | North-East | Yorkshire and the Humber |
| 48 | North Yorkshire (Northallerton) | North-East | Yorkshire and the Humber |
| 49 | West Yorkshire | North-East | Yorkshire and the Humber |
| 50 | North Yorkshire (Beverley) | North-East | Yorkshire and the Humber |
| 51 | East Riding of Yorks and North Lincs | North-East | Yorkshire and the Humber |



# APPENDIX 3

## APP 3.1 UK FARM CLASSIFICATION SYSTEM

UK farm classification system (Revised 2004): composition of robust, main and other types by constituent EC type.

| Robust types | Main types | Constituent EC types [a] |
|---|---|---|
| 1 Cereals | 1 Cereals | [1312] |
| 2 General Cropping | 2 General Cropping | [1412], 142, 143, [1443], 602, 603, 604, [6052] |
| 3 Horticulture | 3 Specialist fruit | 3211 |
| | 4 Specialist glass | 2012, 2022, 2032 |
| | 5 Specialist Hardy Nursery Stock | [3401] |
| | 6 Other horticulture | 2011, 2013, 2021, 2023, 2031,2033, 2034, 311, 312, 313, 314, [3402], 601, 6061, 6062 |
| 4 Specialist Pigs | 7 Specialist pigs | 5011, 5012, 5013 |
| 5 Specialist Poultry | 8 Specialist poultry | 5021, 5022, 5023 |
| 6 Dairy | 9 Dairy (LFA) | 411, 412 (LFA) |
| | 10 Dairy (lowland) | 411, 412 (non-LFA) |
| 7 LFA Grazing Livestock | 11 Specialist sheep (SDA) | 441 (SDA) |
| | 12 Specialist beef (SDA) | 421,422 (SDA) |
| | 13 Mixed Grazing Livestock(SDA) | 431, 432, 442, 443, [4443], [4444] (SDA) |
| | 14 Various Grazing Livestock (DA) | 421, 422, 431, 432, 441, 442, 443, [4443], [4444] (DA) |
| 8 Lowland Grazing Livestock [b] | 15 Various Grazing Livestock (lowland) | 421, 422, 431, 432, 441, 442, 443, [4443], [4444] (non-LFA) |
| 9 Mixed | 16 Cropping and dairy | 811, 812 |
| | 17 Cropping, cattle and sheep | [8132], [8142] |
| | 18 Cropping, pigs and poultry | 821 |
| | 19 Cropping and mixed livestock | 822, 8232 |
| | 20 Mixed livestock | 5031, 5032, 711, [7122], 721, 722, 723 |
| 10 Other [c] | 21 Specialist set-aside | [1311] |
| | 22 Specialist grass and forage | [1411], [1444], [4442], [6051], [7121], [8131], [8141] |
| | 23 Specialist horses | [4441] |
| | 24 Non-classifiable holdings: fallow | [91] |
| | 25 Non-classifiable holdings: other | [92] |

[a] 2004 EC Typology described in Commission Decision 85/377/EEC as amended by Commission Decisions 94/376/EC, 96/393/EC and 99/725/EC with minor modifications to adapt it to United Kingdom conditions. For a full list of EC types see here. These minor modifications are indicated by the EC farm type number being shown in square brackets. Definitions for these modified EC farm types are available from the Defra contact shown at the front of this publication. EC types 132, 133, 1441, 1442, 3212, 3213, 322, 323, 330, and 8231 have not been allocated in the classification, since these types of production do not occur in the United Kingdom at a significant level.

[b] Definitions of LFA (Less Favoured Area), lowland, SDA (Severely Disadvantaged Area), and DA (Disadvantaged Area) farms are available on request from the Defra contact shown at the front of this publication.

[c] Not included in the British Survey of Fertiliser Practice.