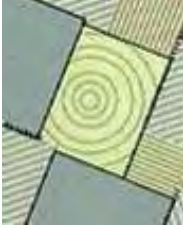


THE BRITISH SURVEY OF

Fertiliser Practice

FERTILISER USE ON FARM CROPS
FOR CROP YEAR 2007



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Further statistical analyses of the survey results are also available. For details and costs please contact.

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FOREWORD

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

The 2007 Survey was sponsored by the Department for Environment, Food and Rural Affairs (Defra) and the Scottish Government, Rural and Environment Research and Analysis Directorate (SG-RERAD). 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 2007, the Survey was co-ordinated by **dmrkynetec** Ltd., who was responsible for the survey design, data collection, statistical analysis and quality control monitoring.

March 2008

ACKNOWLEDGEMENTS

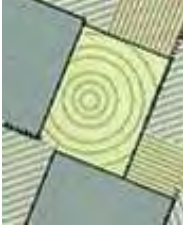
The sponsors gratefully acknowledge the co-operation of all farmers taking part in the 2007 British Survey of Fertiliser Practice.

The authors of the report 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).

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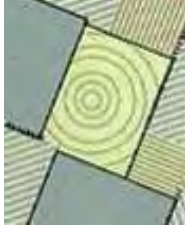
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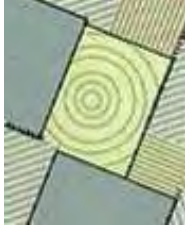


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EXECUTIVE SUMMARY

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 2007, responses from 1,331 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. Aggregated data have been obtained for Great Britain since 1983, the first year that the existing survey in England & Wales was extended to Scotland.

The main findings from the 2007 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 2006/2007 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 2007

	All Tillage	All Grass	All Crops and Grass
Total Nitrogen			
Overall application rate, 2007 (kg/ha)	148	65	105
Mean overall application rate, 2003-2007 (kg/ha)	149	74	109
Crop area receiving dressing, 2007 (%)	91	66	78
Straight Nitrogen			
Overall application rate, 2007 (kg/ha)	133	26	77
Mean overall application rate, 2003-2007 (kg/ha)	130	28	75
Crop area receiving dressing, 2007 (%)	82	26	53
Compound Nitrogen			
Overall application rate, 2007 (kg/ha)	15	39	28
Mean overall application rate, 2003-2007 (kg/ha)	19	47	34
Crop area receiving dressing, 2007 (%)	24	49	37
Total Phosphate			
Overall application rate, 2007 (kg/ha)	34	14	24
Mean overall application rate, 2003-2007 (kg/ha)	38	16	26
Crop area receiving dressing, 2007 (%)	54	51	52
Total Potash			
Overall application rate, 2007 (kg/ha)	47	18	32
Mean overall application rate, 2003-2007 (kg/ha)	52	21	35
Crop area receiving dressing, 2007 (%)	58	51	54
Total Sulphur			
Overall application rate, 2007 (kg/ha)	25	2	13
Mean overall application rate, 2003-2007 (kg/ha)	19	2	10
Crop area receiving dressing, 2007 (%)	42	5	22

Nitrogen

- The decline in total nitrogen application rates on all crops and grassland by around 2 kg/ha seen in the last five years continued in 2007 to 105 kg/ha. This continues the long term trend in declining nitrogen application rate observed on grassland since the end of the 1980s, whereas the rate on all tillage has remained relatively constant for the last 25 years.



- There were falls in the overall application rate of nitrogen on all the major tillage crops (bar winter barley where the rate was unchanged on 2006). Straight nitrogen on all major cereals (wheat and spring and winter barley) and oilseed rape showed an increased overall application rate from 2006. However, a drop in the overall rate of compound nitrogen in these crops and a slight reduction in the proportion of crop area receiving nitrogen dressings resulted in the overall rate for total nitrogen being the same or lower than last year.
- Overall rates of total nitrogen on grassland fell considerably from 72 kg/ha in 2006 to 65 kg/ha in 2007. This was due both to reductions in the average application rates of nitrogen fertilisers as well as a decline in the dressing cover of nitrogen on grassland. This represents the lowest total overall nitrogen rate reported for the whole survey period since 1983.

Phosphate

- Overall phosphate use on tillage crops and grassland in 2007 fell slightly compared to last year (by 1 kg/ha to 34 kg/ha and by 2 kg/ha to 14 kg/ha respectively), making the 2007 overall rates the lowest since the survey began (and around half of the overall rates recorded at its inception in the early 1980s). This is due in part to a slight decrease in the average application rate on both tillage and grassland, but is principally caused by a reduction in the proportion of land receiving a phosphate dressing. In 2007, just 54% of all tillage crops and 51% of grassland received a phosphate application, bringing the five-year means down to 60% and 56%, respectively.
- 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 and 38 kg/ha for the period 2003-07. 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 and 16 kg/ha for the period 2003-06.

Potash

- The average rate of potash use on tillage crops in 2007 was the same as 2006 (81 kg/ha) but a reduction in the crop area receiving potash applications meant the overall rate decreased by 2 kg/ha compared to last year. The overall rate on grassland fell by 3 kg/ha as a result of lower average rates and a reduction in the area receiving a dressing. Overall rates of potash on both tillage and grassland are currently at their lowest level since this data set started in 1983.
- 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 and 52 kg/ha in 2003-07. 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 2007. 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. Then, however, dressing covers for sulphur generally remained fairly static until 2002, since when they have increased steadily to reach 36%-46% for cereals and 70% for oilseed rape in 2007.
- In 2007, increases in both the average application rate for sulphur and a higher proportion of crop area receiving sulphur applications resulted in an increase in the overall application rate on tillage crops compared to 2006 (20 kg/ha). The dressing cover for oilseed rape and the major cereals rose to the highest proportion for the past 5 years.



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}

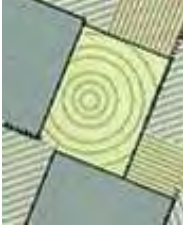
The current methods of survey design and implementation are the result of adaptation of the original design by Rothamsted Experimental Station, undertaken by Edinburgh Data Library at the University of Edinburgh between 1992 and 1998. From 1999 until 2003 design and analysis was undertaken by the Rural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

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. *International Fertiliser Society Proceedings* **437**, York.



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 2006 (the latest data that is available). 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 1331 holdings in 2007.

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 2007, 78% of the sample had also responded in 2006.

The responses are weighted to be representative of the national population by using the inverse of the achieved sampling fraction (ie. 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 2007 survey, England & Wales

	farm holdings in population in 2006	total crops and grass in 2006 (column %)	notional sampling fraction ^a (%)	target sample size	achieved sample size	achieved sample fraction ^b (%)
England & Wales						
Livestock						
(Robust types: specialist pigs, specialist poultry, dairy, cattle and sheep (LFA & lowland))						
crops & grass area						
20-50 ha	18411	7.4	0.49	90	97	0.53
51-100 ha	14323	12.3	1.05	151	129	0.90
101-200 ha	8021	13.0	1.99	160	138	1.72
200+ ha	2031	7.3	4.38	89	79	3.89
Total livestock	42786	40.0	1.14	490	443	1.04
Crops & mixed						
(Robust types: cereals, general cropping, mixed)						
crops & grass area						
20-50 ha	8201	3.4	0.51	42	47	0.57
51-100 ha	9441	8.2	1.07	101	97	1.03
101-200 ha	9014	15.4	2.09	189	189	2.10
200+ ha	7110	32.1	5.53	394	282	3.97
Total crops & mixed	33766	59.2	2.15	725	615	1.82
Horticulture						
(Robust type: horticulture)						
crops & grass area						
20-50 ha	720	0.3	1.57	11	11	1.53
51-100 ha	240	0.2	3.41	8	9	3.75
101-200 ha	115	0.2	6.85	8	3	2.61
200+ ha	37	0.2	20.66	8	4	10.82
Total horticulture	1112	0.8	3.15	35	27	2.43
Total for England & Wales	77664	100		1250	1085	1.40

^a The *notional sampling fraction* is found by expressing the *target sample size* as a percentage of the *farm holdings in population in 2006*

^b The *achieved sampling fraction* is found by expressing the *achieved sample size* as a percentage of the *farm holdings in population in 2006*

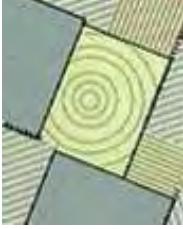


Table A2.2 Derivation of the stratified random sample for the 2007 survey, Scotland

	farm holdings in population in 2006	total crops and grass in 2006 (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	1116	2.4	0.54	6	10	0.90
51-100 ha	1406	6.5	1.15	16	19	1.35
101-200 ha	1331	11.9	2.23	30	27	2.03
200+ ha	641	13.3	5.18	33	27	4.21
Total cereal/general	4494	34.0	1.89	85	83	1.85
Livestock & mixed						
(Robust types: specialist pigs, specialist poultry, dairy, cattle and sheep (LFA & lowland), mixed)						
crops & grass area						
20-50 ha	3150	6.7	0.53	17	14	0.44
51-100 ha	3482	16.0	1.15	40	42	1.21
101-200 ha	2559	22.3	2.18	56	53	2.07
200+ ha	1044	21.0	5.03	52	54	5.17
Total livestock & mixed	10235	66.0	1.61	165	163	1.59
Total for Scotland	14729	100		250	246	1.67

A2.2 DATA COLLECTION

Data collection was undertaken between June and September 2007. 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 2006*

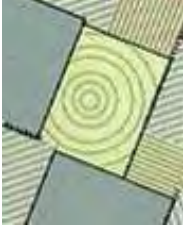
^b The *achieved sampling fraction* is found by expressing the *achieved sample size* as a percentage of the *farm holdings in population in 2006*



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 2006 to autumn 2007, corresponding to the 2007 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 2006. 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 or 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; **P₂O₅** for phosphate; **K₂O** for potash, **SO₃** 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). When combined with information from the national total crop area estimates in the June Agricultural Survey, these overall application rates provide a means of estimating the tonnage of fertiliser nutrient used during the survey year.

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.

<i>table number</i>	<i>robust group in table title</i>	<i>robust type name</i>	<i>robust number</i>
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 2007. 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 Agricultural Survey estimates for areas of individual major crops, crop groupings and total tillage and grassland categories in 2005/06 and 2006/07, and illustrates percentage changes in relative cropping areas over the past five years. There were about 10.6 million hectares of managed agricultural land in Britain in 2007, of which 4.3 million hectares (40%) were cultivated for tillage cropping and the remainder, 6.3 million hectares, were grassland (excluding rough grazing).

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. Extra payments are on offer to those who choose to take additional measures under either the Entry Level or Higher Level Stewardship schemes. One potential impact of both cross-compliance and the environmental stewardship schemes is that margins of fields will remain un-cropped. In this report, as was the case in 2005 and 2006, 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, 2006 – 2007

Crops	June 2006 '000s ha	June 2007 '000s ha	% change since 2006	% change since 2002	2007 crop areas as % of total tillage area
Wheat	1824	1807	-1.0	-9.1	42.0
Barley – winter	383	378	-1.3	-30.2	8.8
– spring	476	497	4.5	-6.4	11.6
Total cereals¹	2827	2836	0.3	-11.6	66.0
Oilseed rape – total	499	601	20.5	68.5	14.0
Sugar beet	130	125	-4.0	-26.1	2.9
Potatoes ²	135	135	-0.1	-10.8	3.1
Linseed	33	11	-66.4	-8.7	0.3
Peas/beans ³	231	161	-30.3	-35.3	3.7
Maize/other fodder	197	213	7.8	3.0	4.9
Vegetables	117	120	2.1	-2.2	2.8
Total tillage⁴	4290	4299	0.2	-5.5	100.0
Set-aside and bare fallow ⁵	661	603	-8.8	-6.0	
Grassland					2007 grass areas as % of total grass area
Less than 5 years old	1011	1054	4.3	-4.7	16.6
5 years and older	5290	5293	0.1	10.0	83.4
Total grass⁶	6301	6347	0.7	7.3	100.0
Total crops and grass⁷	10590	10646	0.5	1.7	

¹ including minor cereals (oats, rye, triticale, mixed corn).

² early + maincrop potatoes.

³ harvested dry for animal consumption or, for peas, human consumption.

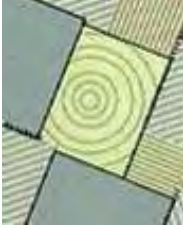
⁴ including other crops, but not bare fallow or set-aside.

⁵ including industrial crops.

⁶ managed grassland, excluding rough grazing.

⁷ total tillage + total grassland.

Source: Annual Defra/SG-RERAS/Welsh Assembly Government (WAG) June Agricultural Survey data



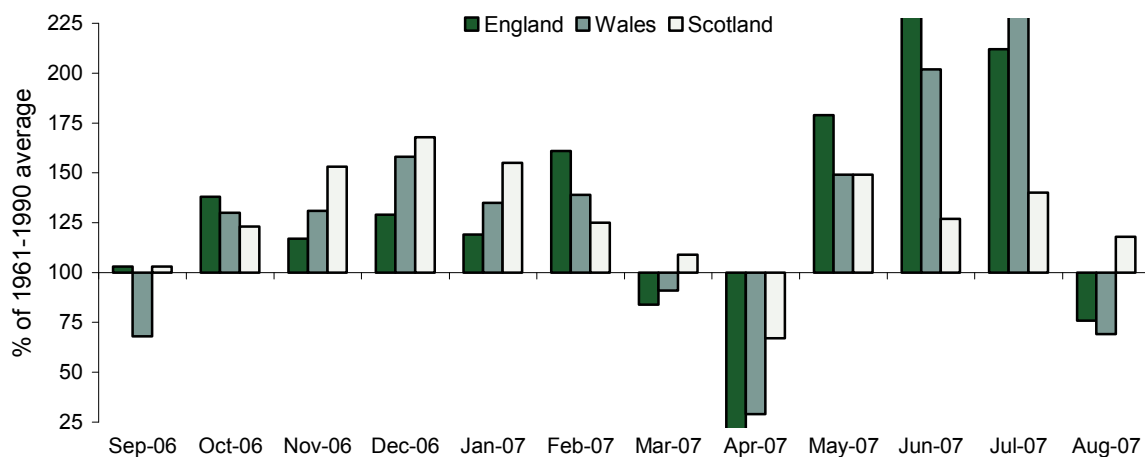
Unusual seasonal weather conditions can influence fertiliser usage in some years. For example:

- 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 hence affect nutrient requirements.

Autumn 2006 was warmer and wetter than average, contributing to 2006 being the warmest year on record for most areas of Great Britain. This trend continued into early 2007 before drying out through a relatively typical March through to an exceptionally warm and dry April, with new high temperature records set in all areas. April's heatwave gave way to the wettest summer on record with rainfall occasionally 300% of the average in England and Wales causing severe flooding in several areas throughout June and July.

Whilst the floods caused substantial problems for harvest and had an impact on both the resulting yield quality and quantity, they had little effect on the fertiliser applications for the 2007 crop, occurring as late in the year as they did.

Figure A3.1 Monthly rainfall as a % of the long term average⁶



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

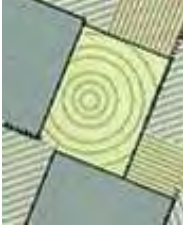
This commentary refers to rates of application in mainland Britain of fertilisers containing nitrogen (N), phosphate (P_2O_5), potash (K_2O) and sulphur (SO_3) on tillage crops and grassland (excluding rough grazing). Section B1 of the report covers the five-year period 2003-2007. Comments on longer term trends are made in Section B2, using data available from what were, prior to 1992, two separate Surveys of Fertiliser Practice, for England & Wales and for Scotland.

The estimates of overall application rates from the survey relate to usage on farms during the 2006-2007 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 8.8 million hectares in England & Wales and about 1.8 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 the final Section of this and earlier annual reports in conjunction with the summary tables of annual fertiliser use in the main text of the 1995 report⁷. A summary of data from earlier years is available in Chalmers 2001⁸.

⁷ Burnhill P. M., Chalmers A. G. and Fairgrieve J. (1996) *The British Survey of Fertiliser Practice: fertiliser use on farm crops 1995*. HMSO: Edinburgh.

⁸ 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 2007 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. The data shows continuing falls in overall application rates on all crops and grass for nitrogen, phosphate and potash. 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 2003 – 2007

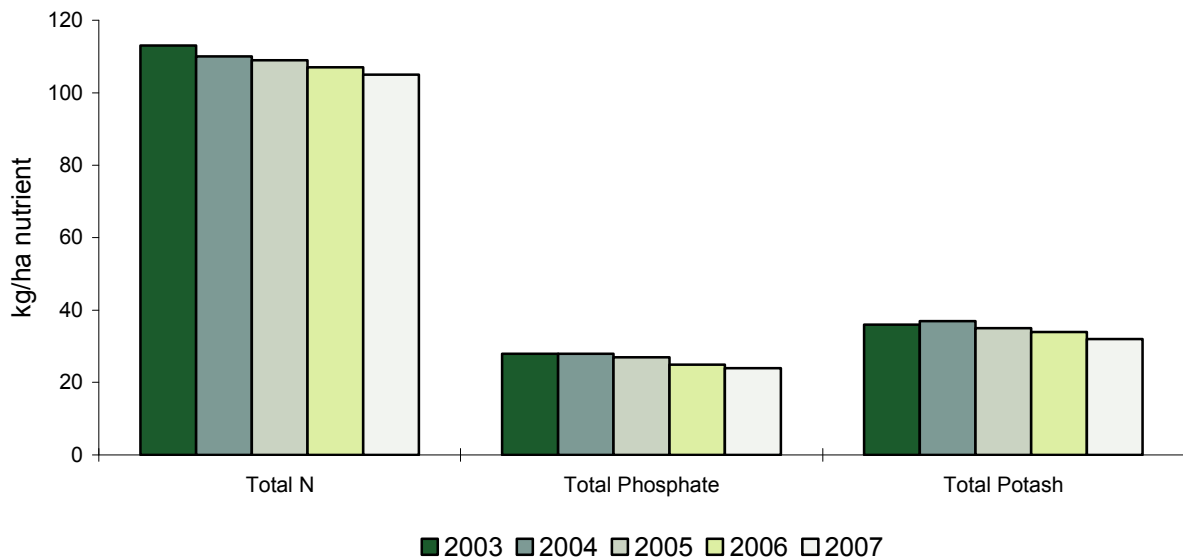


Table B1.1 Overall nitrogen use (kg/ha), Great Britain 2003 – 2007

Total nitrogen

	<i>tillage crops</i>	<i>grass</i>	<i>all crops and grass</i>
2003	149	83	113
2004	152	77	110
2005	150	74	109
2006	147	72	107
2007	148	65	105

Straight nitrogen

	<i>tillage crops</i>	<i>grass</i>	<i>all crops and grass</i>
2003	129	31	74
2004	132	27	73
2005	129	28	74
2006	128	28	74
2007	133	26	77

Compound nitrogen

	<i>tillage crops</i>	<i>grass</i>	<i>all crops and grass</i>
2003	20	53	38
2004	20	50	37
2005	20	47	35
2006	18	44	32
2007	15	39	28

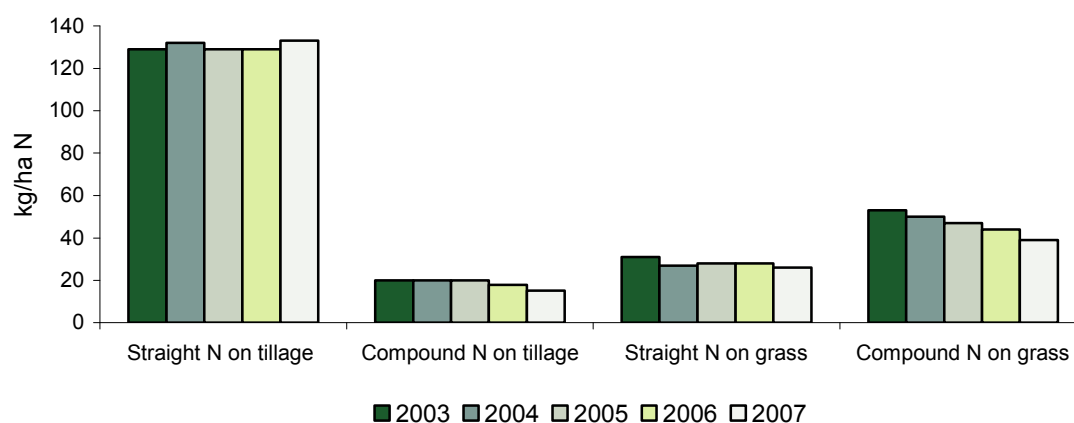


B1.1.1 NITROGEN

All crops and grassland

The total nitrogen use on all crops and grassland declined slightly in 2007 compared with the rates in 2006 (Figure B1.1), due to a decrease in the amount of straight and compound nitrogen applied to grass (Table B1.1). On tillage crops, a small decline in the amount of compound nitrogen was more than countered by an increase in the overall rate of straight nitrogen (Figure B1.2), giving a net increase in the total nitrogen applied to tillage crops.

Figure B1.2 Overall straight and compound nitrogen use (kg/ha), Great Britain 2003 – 2007



Tillage crops

Straight N continues to be the main source of nitrogen on tillage crops. An increase in the proportion of tillage area receiving a straight nitrogen dressing as well as a slight increase in the average field application rate are responsible for a slight increase in the overall total nitrogen (148 kg/ha) compared to 2006.

Grassland

Overall total nitrogen use on grassland continued to show a decline, with a drop of 7 kg/ha from the previous year. The total nitrogen rate (65 kg/ha) was the lowest reported for the whole survey period since 1983 (see section B2). This may be related to the continuing decline in dairy cow numbers in Great Britain.

B1.1.2 PHOSPHATE AND POTASH

Phosphate

Table B1.2 shows overall phosphate levels for the past five years. The 2007 rates were not only the lowest in the past five years but also the lowest since this data set began in 1983 for both tillage (34 kg/ha) and grass (14 kg/ha). On tillage crops this was principally due to a fall in the area receiving phosphate fertiliser from 57% in 2006 to 54% in 2007 (five year mean 60%), but also a small decline in the average application rate. Likewise for grassland a small reduction in the average application rate was compounded by a more substantial decline in the area receiving phosphate fertiliser from 56% in 2006 to 51% in 2007 (five year mean 56%).

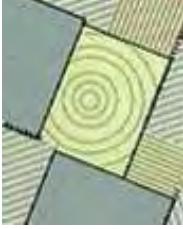


Table B1.2 Overall phosphate and potash use (kg/ha), Great Britain 2003 – 2007

Total phosphate				Total potash			
	<i>tillage crops</i>	<i>grass</i>	<i>all crops and grass</i>		<i>tillage crops</i>	<i>grass</i>	<i>all crops and grass</i>
2003	40	18	28	2003	54	22	36
2004	41	17	28	2004	55	22	37
2005	40	16	27	2005	53	20	35
2006	35	16	25	2006	49	21	34
2007	34	14	24	2007	47	18	32

Potash

As with phosphate, overall potash use in 2007 fell to the lowest ever recorded by the Survey on tillage crops (47 kg/ha) and grassland (18 kg/ha) alike. On tillage crops this fall was caused by a decrease in the tillage area receiving a dressing; 60% in 2006 to 58% in 2007. On grassland there was also a reduction in the area receiving potash (56% in 2006 down to 51% in 2007), further compounded by a 2 kg/ha fall in the average field application rate compared to last year.

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 2007 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 2003 – 2007

Total nitrogen

	<i>winter wheat</i>	<i>spring barley</i>	<i>winter barley</i>	<i>maincrop potatoes^a</i>	<i>oilseed rape^b</i>	<i>sugar beet</i>
2003	197	107	148	152	191	103
2004	197	104	144	154	202	95
2005	195	102	142	166	201	94
2006	192	101	136	142	191	99
2007	190	98	136	131	189	92

Straight nitrogen

	<i>winter wheat</i>	<i>spring barley</i>	<i>winter barley</i>	<i>maincrop potatoes^a</i>	<i>oilseed rape^b</i>	<i>sugar beet</i>
2003	186	61	128	37	179	91
2004	186	59	125	49	189	85
2005	183	58	128	43	184	85
2006	180	60	118	42	177	87
2007	182	61	124	30	181	82

Compound nitrogen

	<i>winter wheat</i>	<i>spring barley</i>	<i>winter barley</i>	<i>maincrop potatoes^a</i>	<i>oilseed rape^b</i>	<i>sugar beet</i>
2003	12	46	20	116	13	13
2004	11	45	19	105	13	10
2005	13	43	14	122	17	9
2006	12	41	18	100	14	13
2007	8	37	12	102	8	10

Total phosphate

	<i>winter wheat</i>	<i>spring barley</i>	<i>winter barley</i>	<i>maincrop potatoes^a</i>	<i>oilseed rape^b</i>	<i>sugar beet</i>
2003	39	44	41	130	38	34
2004	39	44	46	125	39	36
2005	37	40	42	153	40	37
2006	34	39	37	122	34	35
2007	31	36	35	130	30	41

Total potash

	<i>winter wheat</i>	<i>spring barley</i>	<i>winter barley</i>	<i>maincrop potatoes^a</i>	<i>oilseed rape^b</i>	<i>sugar beet</i>
2003	47	57	59	214	42	91
2004	48	57	62	201	46	104
2005	44	52	57	256	42	112
2006	41	60	54	197	38	109
2007	39	49	59	199	38	104

^a Figures for maincrop potatoes include second earlies.

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

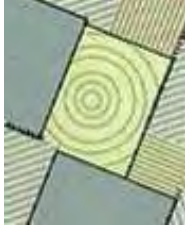


Table B1.4 Average field rates (kg/ha) on major tillage crops, Great Britain 2003– 2007

Total nitrogen

	winter wheat	spring barley	winter barley	maincrop potatoes ^a	oilseed rape ^b	sugar beet
2003	199	111	149	163	194	108
2004	199	106	145	158	203	103
2005	197	105	144	171	203	101
2006	194	103	139	151	193	108
2007	193	102	139	144	190	95

Straight nitrogen

	winter wheat	spring barley	winter barley	maincrop potatoes ^a	oilseed rape ^b	sugar beet
2003	193	90	143	122	185	105
2004	195	87	140	101	195	102
2005	190	89	137	104	191	100
2006	189	89	130	105	182	100
2007	189	91	135	76	183	89

Compound nitrogen

	winter wheat	spring barley	winter barley	maincrop potatoes ^a	oilseed rape ^b	sugar beet
2003	60	69	70	143	42	60
2004	63	66	66	131	52	64
2005	73	66	60	153	56	79
2006	71	65	67	130	53	84
2007	58	65	61	131	40	69

Total phosphate

	winter wheat	spring barley	winter barley	maincrop potatoes ^a	oilseed rape ^b	sugar beet
2003	64	54	60	149	60	63
2004	63	53	61	146	62	71
2005	61	51	61	168	63	73
2006	62	54	59	141	59	72
2007	62	51	58	149	61	77

Total potash

	winter wheat	spring barley	winter barley	maincrop potatoes ^a	oilseed rape ^b	sugar beet
2003	77	66	78	237	68	125
2004	78	65	79	231	72	130
2005	72	63	78	271	68	147
2006	75	76	76	211	69	143
2007	76	64	80	221	72	126

^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

Overall rates of total nitrogen (Table B1.3) decreased on all the major tillage crops except winter barley, which remained static. Average field rates (Table B1.4) showed a similar trend.

Winter wheat

The majority of the nitrogen on winter wheat continued to be applied in the straight form (96%).

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 2003 – 2007

Total nitrogen

	<i>winter wheat</i>		<i>spring barley</i>		<i>winter barley</i>	
	<i>milling</i>	<i>non-milling</i>	<i>malting</i>	<i>non-malting</i>	<i>malting</i>	<i>non-malting</i>
2003	215	191	114	99	145	152
2004	224	188	111	99	134	151
2005	224	186	111	95	130	152
2006	219	182	107	97	129	144
2007	212	184	107	96	129	145

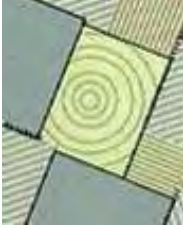
Nitrogen fertiliser requirements for winter wheat depend on the intended market end use (grain N levels), as well as upon soil type and the residual soil nitrogen fertility from previous cropping and manure practice⁹. Milling varieties are often grown as a second wheat and often receive extra nitrogen, 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 33% of the crop area in 2007 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 2003 – 2007, as estimated from the Survey

	<i>winter wheat</i>		<i>spring barley</i>		<i>winter barley</i>	
	<i>milling</i>	<i>non-milling</i>	<i>malting</i>	<i>non-malting</i>	<i>malting</i>	<i>non-malting</i>
2003	33	67	63	37	36	64
2004	30	70	60	40	33	67
2005	30	70	62	38	33	67
2006	34	66	57	43	30	70
2007	33	67	56	44	37	63

⁹ Anon (2000). *Fertiliser Recommendations for Agricultural and Horticultural Crops*. MAFF Reference Book 209 (Seventh edition). The Stationery Office, London.



Spring barley

Overall use of total nitrogen on spring barley declined to 98 kg/ha in 2007 which is the lowest for the five year period (mean: 102 kg/ha). For the third consecutive year the overall rate of straight nitrogen rose slightly again in 2007 to 61 kg/ha. However, the compound nitrogen rate decreased by 4 kg/ha to 37 kg/ha, the lowest value for the period. Average field rates for total nitrogen were 102 kg/ha in 2007, continuing their year-on-year decline since the value of 113 kg/ha in 2002.

Further analysis of the data by crop type (Table B1.5) shows the average rate applied to the spring malting crop was the same as last year (107 kg/ha). For non-malting crops the nitrogen application rate decreased from a high of 101 kg/ha in 2002 to a five-year low of 95 kg/ha in 2005. In 2006, the application rate on non-malting spring barley increased slightly to 97 kg/ha, but fell in 2007 to 96 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 13 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)¹⁰. 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 2003-2007 is 60%.

Winter barley

Since 2002 overall total nitrogen use on winter barley has steadily decreased from year to year, finishing on 136 kg/ha in 2006. This rate was maintained in 2007, a 6 kg/ha increase in the rate of straight nitrogen being offset by an equivalent decrease in the rate of compound nitrogen.

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 were unchanged from 2006 at 129 kg/ha and rose by 1 kg/ha to 145 kg/ha on non-malting crops in 2007 (Table B1.5).

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. 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 rose from the lowest percentage in 2006 (30%) to the highest percentage for the past five years in 2007 (37%). The five year mean for the period is 34% (Table B1.6).

¹⁰ Anon. (2000). *Fertiliser Recommendations for Agricultural and Horticultural Crops*. MAFF Reference Book 209 (Seventh edition). The Stationery Office, London..



Maincrop potatoes

Overall total nitrogen use on maincrop potatoes has fluctuated over the last five years. In 2007 it decreased by 11 kg/ha to 131 kg/ha, well below the five year mean of 149 kg/ha (Table B1.3). This decrease in 2007 appears to be partly due to a decrease in the average field rate of straight nitrogen (Table B1.4), as well as a decrease in the area receiving any nitrogen fertiliser (94% in 2006 compared with 91% in 2007). Overall, most of the nitrogen input for maincrop potatoes is applied in compound form (78%).

Oilseed rape

In 2007, overall total nitrogen use on oilseed rape, as a combined category for both the autumn and spring sown crop, decreased by 2 kg/ha to reach its lowest level in the last five years. The decrease was mainly due to reductions in the average field rate and area receiving compound nitrogen, which caused a net fall in the overall application rate of -6 kg/ha. Straight nitrogen actually increased in average application rate (+1 kg/ha) and dressing cover (+4%) resulting in a net increase in overall application rate of 4 kg/ha.

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 decreased by 1 kg/ha between 2006 and 2007. While the rate for spring crop appears to have decreased by 36 kg/ha, 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 which have lower statistical integrity 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 2003 – 2007

Total nitrogen (kg/ha)

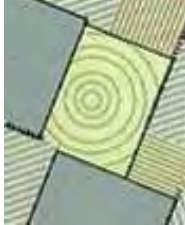
	<i>winter oilseed rape</i>	<i>spring oilseed rape*</i>
2003	206	141
2004	211	136
2005	206	153
2006	192	163
2007	191	127

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

As in the previous year, good conditions for establishment in August and September 2006 resulted in a high level of winter cropping in 2007. The lowest area of winter crops (81%) occurred in 2003. The high level of spring cropping in 2003 and 2004 was almost certainly due to the very dry conditions in the autumns of 2002 and 2003. Winter sown crops did not establish well and were often re-drilled with a spring crop.

Sugar beet

The overall nitrogen use on sugar beet fell considerably (-7 kg/ha) in 2007 to 92 kg/ha (five year mean 97 kg/ha). This decrease occurred in spite of an increase in the proportion of crop area receiving a nitrogen dressing (92% in 2006 compared with 96% in 2007) and is caused by a reduction of the average rates of both straight (-11 kg/ha) and compound nitrogen (-15 kg/ha).



B1.2.2 PHOSPHATE AND POTASH

Phosphate

The slight decrease in overall phosphate use on tillage crops in 2007 is not reflected uniformly across all the major arable crops (Table B1.3). Whilst overall phosphate use on cereals and oilseed rape decreased for the third year in succession, potatoes and sugar beet overall use rose compared to last year. In the case of potatoes the 2007 level of 130 kg/ha is close to the five year mean (132 kg/ha), whilst for sugar beet 41 kg/ha in 2007 is the highest overall rate over the past five years (mean 37 kg/ha for the period). Average field rates showed a similar pattern for most crops, apart from on oilseed rape, where levels rose by 2 kg/ha but were compromised by the crop area receiving a dressing falling from 57% in 2006 to 50% in 2007.

Potash

Overall potash use on tillage crops showed a slight decrease in 2007, associated with a reduction in the tillage area receiving a dressing (60% in 2006, down to 58% in 2007). However, average field rates on several major arable crops actually increased in 2007 (Table B1.4), with winter barley recording the highest level in the last five years (80 kg/ha) and oilseed rape equalling the highest rate in the last five years (72 kg/ha in 2004). Spring barley and sugar beet both recorded a decrease in the average field rates compared to last year.

Part of the reason for recent apparent fluctuations in estimates of nutrient application rates for sugar beet and potatoes may be because these crops are not always managed by the farmers themselves; 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. There have been further increases since then, with almost three-quarters of the oilseed rape crop now being treated (Table B1.8).

Table B1.8 Dressing cover (% area) and average application rate (kg/ha SO₃) of sulphur on cereals and oilseed rape, Great Britain 2003 – 2007

Dressing cover (%)

	winter wheat	winter barley	spring barley	oilseed rape
2003	30	35	27	54
2004	38	37	27	57
2005	41	34	32	59
2006	43	42	32	64
2007	46	44	36	70

Average field rate (kg/ha SO₃)

	winter wheat	winter barley	spring barley	oilseed rape
2003	53	53	48	74
2004	53	48	46	85
2005	55	52	41	82
2006	51	49	41	70
2007	51	53	43	80



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 were 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. However, it is clear that arable farmers in England & Wales are now more aware of the need to apply sulphur, categorised by the higher percentage dressing cover figures for all major tillage crops in 2007.

Table B1.9 Dressing cover (% area) of sulphur on cereals and oilseed rape by region, 2003 – 2007

		<i>winter wheat</i>	<i>winter barley</i>	<i>spring barley</i>	<i>oilseed rape</i>
England & Wales	2003	29	34	27	55
	2004	37	35	25	57
	2005	41	33	31	59
	2006	42	41	32	63
	2007	46	45	38	72
Scotland*	2003	42	39	28	49
	2004	59	57	29	60
	2005	41	37	33	61
	2006	52	60	31	83
	2007	56	39	32	53

* 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 2003 – 2007

	<i>straight nitrogen</i>	<i>compound nitrogen</i>	<i>total nitrogen</i>	<i>total phosphate</i>	<i>total potash</i>
2003	31	53	83	18	22
2004	27	51	77	17	22
2005	28	47	74	16	20
2006	28	44	72	16	21
2007	26	39	65	14	18

The 7 kg/ha drop in overall total nitrogen use on grassland in 2007 was a result of a fall in the average rate (-4 kg/ha) and a reduction in the dressing cover (Table B1.11), which at 66% is the lowest value for the last five years (mean 69% for the period). In 2007 compound nitrogen was applied to approximately double the area of grassland as straight nitrogen, but, where it was applied, the compound nitrogen was applied at about three-quarters of the rate of straight nitrogen.

There has been some fluctuation in the dressing cover for straight and compound nitrogen over the past five years (means of 26% and 54%, respectively), but the trend for average field rates has been essentially downwards for both types over the same period.

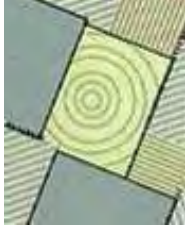


Table B1.11 Dressing cover (%) and average application rate (kg/ha) of fertiliser on grassland, Great Britain 2003 – 2007

Dressing cover (%)

	<i>straight nitrogen</i>	<i>compound nitrogen</i>	<i>total nitrogen</i>	<i>total phosphate</i>	<i>total potash</i>
2003	27	56	70	57	57
2004	25	58	70	59	59
2005	26	54	68	55	55
2006	28	55	70	56	56
2007	26	49	66	51	51

Average field rate (kg/ha)

	<i>straight nitrogen</i>	<i>compound nitrogen</i>	<i>total nitrogen</i>	<i>total phosphate</i>	<i>total potash</i>
2003	114	94	119	31	39
2004	107	88	109	29	38
2005	107	87	109	29	37
2006	102	80	103	28	37
2007	103	79	99	27	35

Average field rates for phosphate and potash were at their lowest level for the five year period in 2007, falling to 27 kg/ha for phosphate and 35 kg/ha for potash, compared with a mean for the period of 29 kg/ha and 37 kg/ha, respectively. The dressing cover for phosphate has fluctuated over the past five years, but has remained identical to potash throughout this period. 2007 was no exception, with dressing cover for both nutrients falling to 51% (five year mean: 56%).

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 2007 are presented in Section C. The Survey estimates of annual distributions of the total grassland area between grazing and cutting management regimes since 2003 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.

Table B1.12 Grassland utilisation (% of grass area), Great Britain 2003 – 2007

	<i>grazed^a</i>	<i>silage^b</i>	<i>hay^b</i>
2003	93	29	10
2004	94	29	11
2005	93	28	13
2006	91	31	11
2007	92	30	12

Nearly all grassland is grazed at some stage during the season (Table B1.12) and the proportion in 2007 (92%) is close to the five year mean of 93%.

^a May also be cut.

^b May also be grazed.



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 2003 – 2007

Total nitrogen

	overall application rate			average field rate			
	grazed ^a	silage ^b	hay ^b	grazed ^a	silage ^b	hay ^b	
2003	81	130	69	2003	115	150	100
2004	75	121	61	2004	107	137	91
2005	74	124	52	2005	108	140	83
2006	72	113	53	2006	102	130	86
2007	63	106	47	2007	97	128	81

Straight nitrogen

	overall application rate			average field rate			
	grazed ^a	silage ^b	hay ^b	grazed ^a	silage ^b	hay ^b	
2003	29	43	31	2003	114	117	100
2004	26	40	27	2004	107	113	92
2005	27	40	20	2005	107	111	90
2006	28	44	23	2006	102	108	81
2007	26	40	19	2007	101	118	75

Compound nitrogen

	overall application rate			average field rate			
	grazed ^a	silage ^b	hay ^b	grazed ^a	silage ^b	hay ^b	
2003	51	87	38	2003	91	117	76
2004	49	81	34	2004	85	107	72
2005	46	84	32	2005	86	114	68
2006	44	70	30	2006	79	100	70
2007	38	66	28	2007	76	99	73

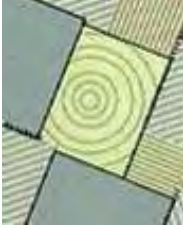
During the period 2003-2007, even though overall total nitrogen rates for the silage and hay categories have fluctuated slightly, all grass categories show a decrease. The changes in overall application rate of total nitrogen appear to be due both to a decline in the average field rate and reductions in the dressing cover receiving nitrogen.

There has been a declining trend in the overall use of straight nitrogen on all grass categories over the previous five years despite a slight increase in 2006. The rates for hay are the most variable, but the 2007 rate of 19 kg/ha is the lowest for the period. Compound nitrogen inputs have also shown some small fluctuation during the last five years, but the general trend is downward and have ended on a five-year low for all categories of management. The five year means for the overall compound nitrogen rate are 46, 78 and 32 kg/ha for grazed grass, silage and hay respectively, a fall of around 3 kg/ha on last year's five year mean across all grass types.

The fall in nitrogen use on grassland throughout the period is likely to be related to decreases in livestock numbers which has 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 2003 – 2007

Total phosphate

	overall application rate				average field rate		
	grazed ^a	silage ^b	hay ^b		grazed ^a	silage ^b	hay ^b
2003	17	27	16	2003	30	37	31
2004	17	26	14	2004	29	36	29
2005	16	25	14	2005	28	35	28
2006	15	24	15	2006	27	35	30
2007	13	21	11	2007	26	31	30

Total potash

	overall application rate				average field rate		
	grazed ^a	silage ^b	hay ^b		grazed ^a	silage ^b	hay ^b
2003	21	43	18	2003	37	57	36
2004	21	42	18	2004	36	53	36
2005	19	40	17	2005	35	51	34
2006	20	38	16	2006	35	52	34
2007	17	33	15	2007	33	48	37

Overall phosphate rates declined over the period 2003-2007 (Table B1.14). In 2007, the rates across all grass types were the lowest for the period. The corresponding five-year means for grazed grass, silage and hay were 16, 25 and 14 kg/ha, respectively. Average field rates showed a similar pattern. Grass cut for silage is more likely to receive phosphate (67% in 2007) than grazed grass (50%) or hay (37%).

Like phosphate, overall potash rates have declined between 2003 and 2007 to reach a five year low across all types of grassland. Five year means were 20, 39 and 17 kg/ha for grazed grass, silage and hay, respectively. Average field rates show a similar trend. Again grass cut for silage is more likely to receive potash (69% in 2007) than grazed grass (50%) or hay (40%).



B1.3.3 SULPHUR

In 2007, only 5% of the total grassland area received a sulphur dressing (mean 6% for 2003-2007 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, and after a gentle increase in recent years on grazed grass and grass cut for silage, both have fallen in 2007 to their 2004 level.

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 2003 – 2007

Dressing cover (%)

	<i>grazed</i> ^a	<i>silage</i> ^b	<i>hay</i> ^b	<i>all grass</i>
2003	4	10	6	5
2004	5	10	5	6
2005	5	11	6	6
2006	7	14	4	7
2007	5	10	4	5

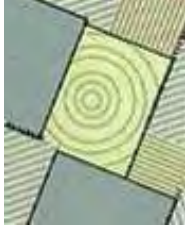
Average application rate per year (kg/ha SO₃)

	<i>grazed</i> ^a	<i>silage</i> ^b	<i>hay</i> ^b	<i>all grass</i>
2003	37	44	44	40
2004	36	37	29	38
2005	34	39	47	37
2006	38	35	23	38
2007	45	47	28	43

Estimated average field rates of sulphur application show sharp increases across all sward management systems compared to last year, with grazed grass and grass cut for silage reaching their highest rates for the past five years (45 kg/ha and 47 kg/ha, respectively). This brings the five year means to 38, 40 and 34 kg/ha SO₃ 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 total nitrogen, phosphate and potash use on tillage crops and grassland in Great Britain since 1983, when the survey in Scotland started.

Table B2.1 Total overall nitrogen application rates (kg/ha), England & Wales 1969 - 2007 and Scotland and Great Britain 1983 – 2007

	<i>tillage crops</i>			<i>grass</i>			<i>all crops and grass</i>		
	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>
1969	84	-	-	65	-	-	-	-	-
1970	88	-	-	74	-	-	-	-	-
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



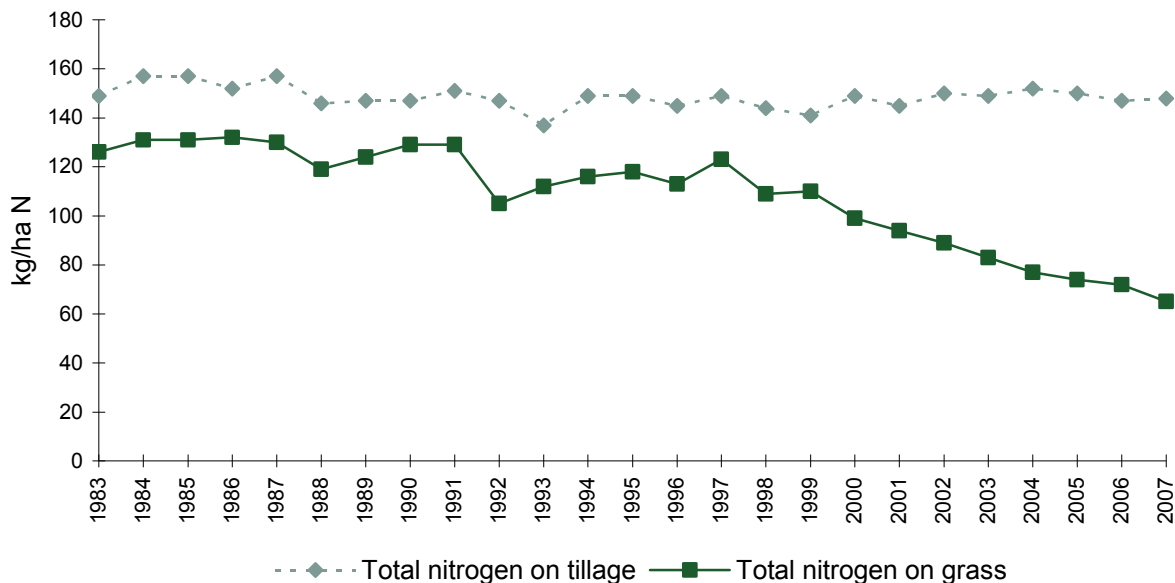
The aggregated data for Great Britain follow a similar pattern to that observed for England & Wales because a large proportion of both the tillage and grassland areas in Britain is located in England & Wales. Overall total nitrogen rates for tillage crops and grassland in England & Wales since 1969 and 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 widespread introduction of set-aside, the overall rate of total nitrogen on tillage land has 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).

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, which may be as a consequence of declining dairy populations.

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 – 2007



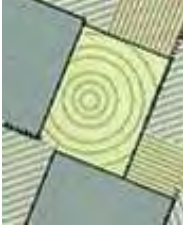
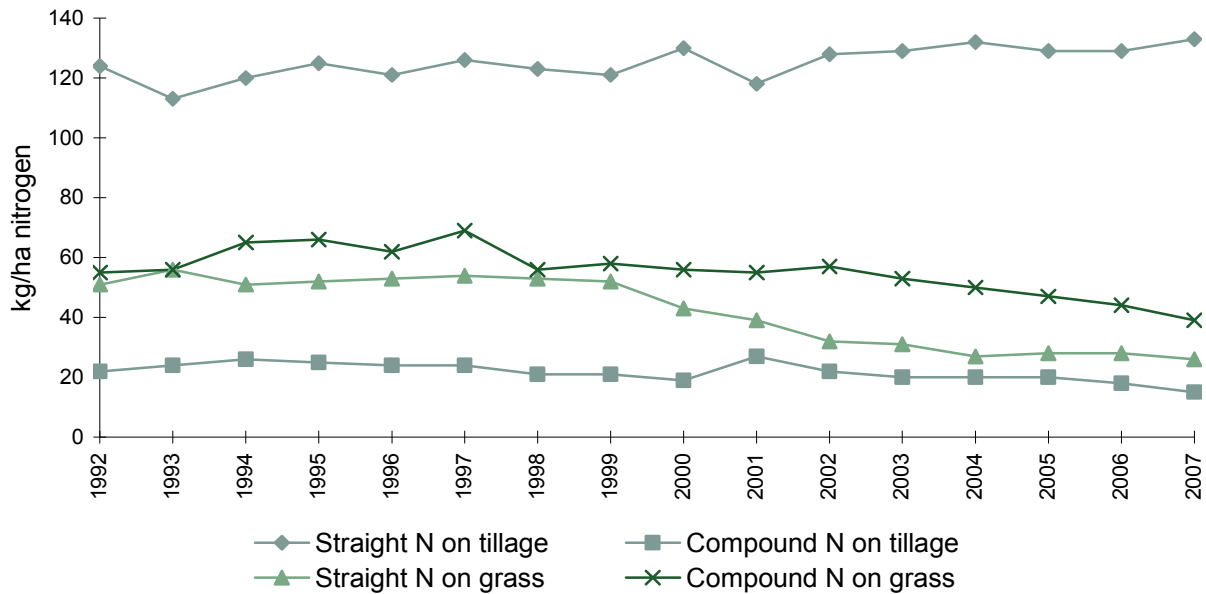


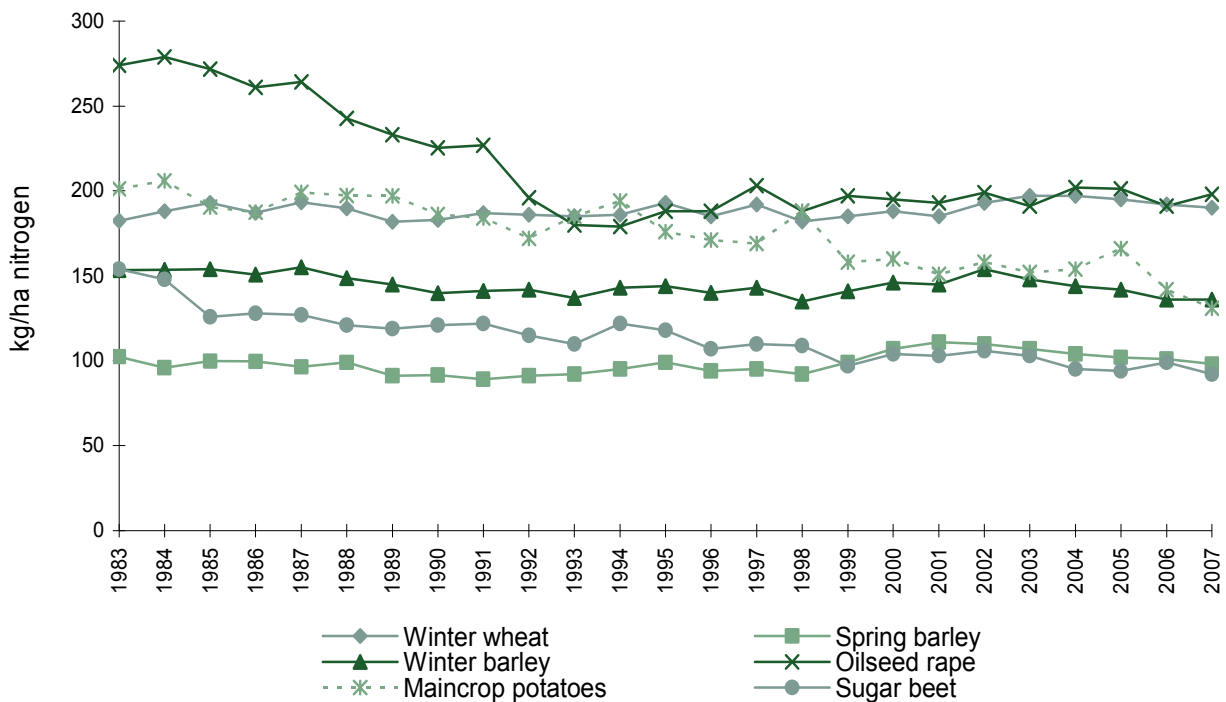
Figure B2.2 Overall application rates (kg/ha) of straight and compound nitrogen on tillage crops and grassland, Great Britain 1992 – 2007



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 – 2007



Reductions in the nitrogen dressing cover on combinable arable crops rather than a decrease in the average application rate accounts for much of the reduction in the overall rates of application of nitrogen.



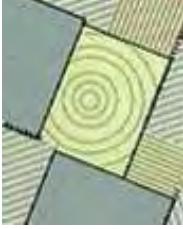
B2.1.2 AUTUMN AND WINTER APPLICATIONS OF NITROGEN FERTILISER

The British Survey of Fertiliser Practice is able to monitor the extent to which standard agronomic advice is being adopted. 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. Despite some fluctuations, the Great Britain values have fallen below 10% for both crops for the past five years and the overall trend in this period is one of continued decline with the proportion of 2007 dressing cover at an all time low. The area receiving autumn nitrogen is now 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 1988 – 1998 and Great Britain 1999 – 2007

	<i>winter wheat</i>	<i>winter barley</i>	<i>winter oilseed rape</i>	
	<i>dressing cover</i>	<i>dressing cover</i>	<i>dressing cover</i>	<i>application rate</i>
<i>England & Wales</i>				
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
<i>Great Britain</i>				
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



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 - 2007 and Scotland and Great Britain 1983 – 2007

	<i>tillage crops</i>			<i>grass</i>			<i>all crops and grass</i>		
	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>	<i>England & Wales</i>	<i>Scotland</i>	<i>Great Britain</i>
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

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 2007 rate of 34 kg/ha is the lowest rate recorded since Great Britain records began.

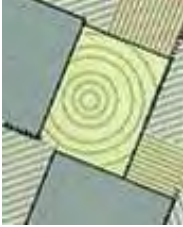


The overall rate of phosphate on grassland was highest in 1983, at 28 kg/ha, and then application remained relatively stable at 23-25 kg/ha between 1985 and 1997, apart from a temporary recorded drop to 21 kg/ha in 1992-93. However, overall phosphate use has decreased gradually since 1997 to a level of 14 kg/ha in 2007, 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 16 kg/ha for the period 2003-07.

Table B2.4 Overall potash application rates (kg/ha), England & Wales 1969 - 2007 and Scotland and Great Britain 1983 – 2007

	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

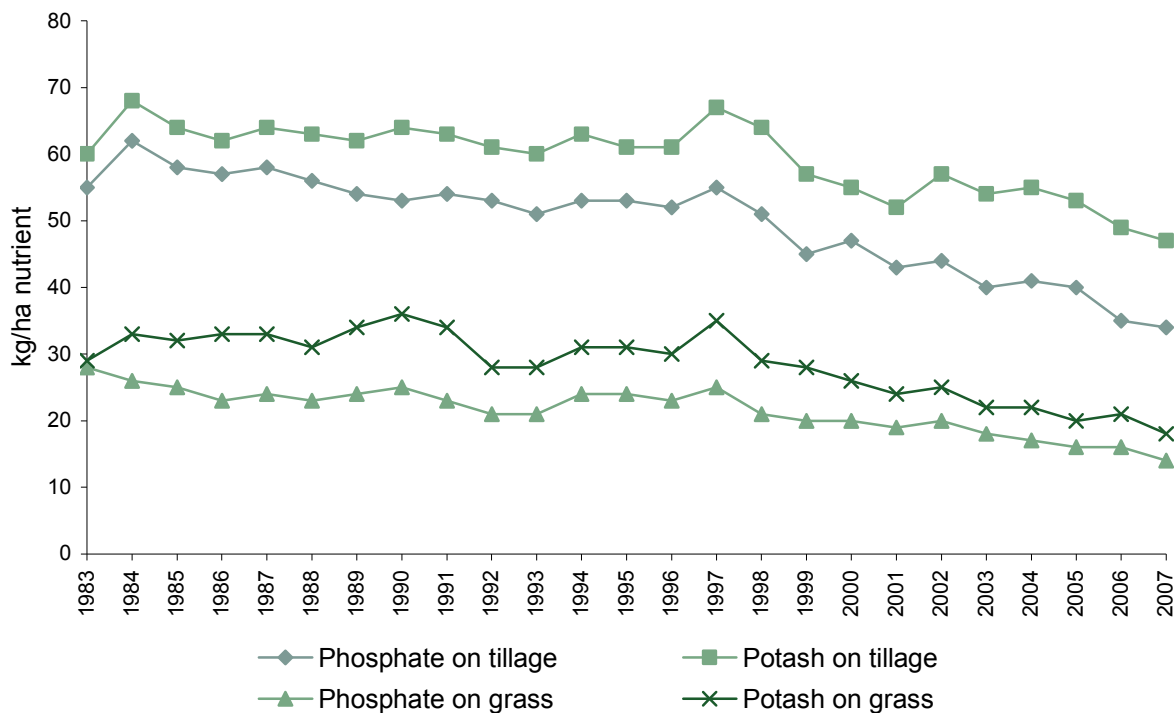
Overall potash use on tillage crops declined slightly between 1983 and 1997, with a five-year mean of 64 kg/ha in 1983-87, 63 kg/ha in 1988-1992, 62 kg/ha in 1993-1997, and 57 kg/ha in 1998-2002. Between 2003 and 2007, overall potash use on tillage crops averaged 52 kg/ha, the rate of 47 kg/ha in 2007 being the lowest level recorded since 1983 (a 31% fall from the peak value of 68 kg/ha in 1984).



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 2007. 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 were approximately double those used on grassland.

Figure B2.4 Overall application rates (kg/ha) phosphate and potash on tillage crops and grassland, Great Britain 1983 – 2007



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.

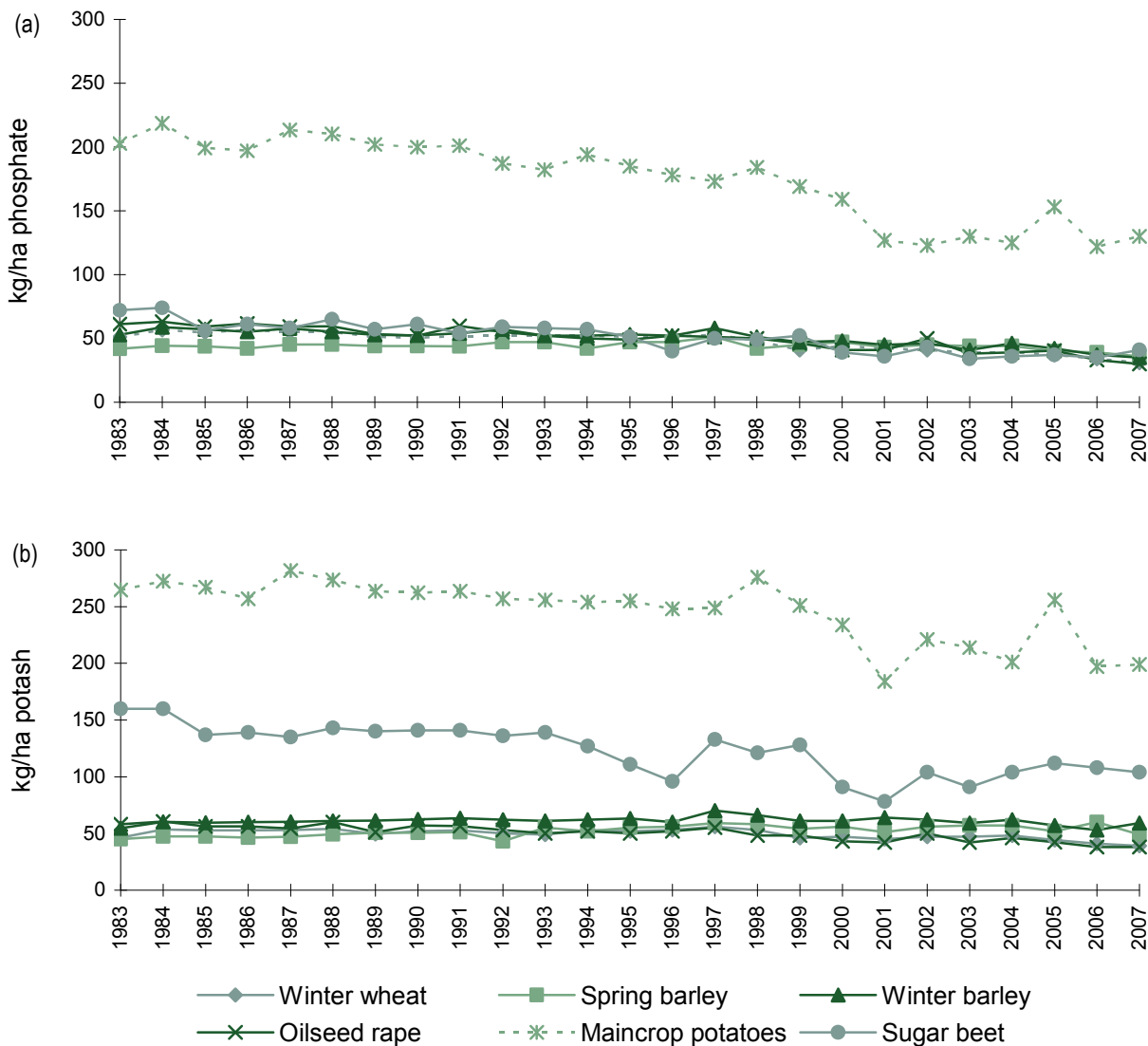
Phosphate use on most major tillage crops has shown a gradual net decline over the survey period. The net decline of phosphate on potatoes has been more dramatic

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). This downward trend continued with a fall to 37 and 42 kg/ha for winter wheat and winter barley respectively for the 2003-2007 period. In contrast however, phosphate use rose slightly on spring barley between 1983 and 1997, but has declined since then. 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, and rates have continued to decline in 2003-2007.

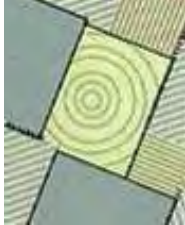


On winter wheat, the mean overall potash rates were very similar for the five year periods 1983-87, 1988-92 and 1993-97 at 52, 52 and 53 kg/ha, respectively but there was a reduction to 48 kg/ha in 1998-2002. For barley, the same periods have seen an increase in potash use from 59 kg/ha (winter barley) 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 2003-2007 suggest the downward trend may be continuing (mean: 42, 217, 104 kg/ha).

Figure B2.5 Overall application rates (kg/ha) of (a) phosphate and (b) potash on major arable crops, Great Britain 1983 – 2007



Much of the reduction in the overall rates of application of phosphate and potash to combinable arable crops results more from a decrease in the dressing cover than from a reduction in the average application rates.



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- 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.



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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 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	66	24	32	35	121	40	62	80	10	20	42
Winter wheat	98	50	52	14	193	62	76	190	31	39	1897
Spring barley	96	71	76	31	102	51	64	98	36	49	661
Winter barley	97	61	74	14	139	58	80	136	35	59	550
Oats	90	57	60	18	105	54	77	94	31	46	204
Rye/triticale/Durum wheat	49	13	15	28	116	42	38	57	6	6	37
Potatoes (seed or earlies)	79	71	79	18	99	121	179	78	86	141	28
Potatoes (maincrop)	91	87	90	33	144	149	221	131	130	199	122
Sugar beet	96	53	83	31	95	77	126	92	41	104	167
Spring oilseed rape	100	26	37	0	127	51	68	127	13	25	17
Winter oilseed rape	100	50	53	11	191	61	72	191	31	38	629
Linseed	92	20	39	0	74	51	69	68	10	27	14
Forage maize	80	60	49	90	64	63	66	51	38	32	195
Rootcrops for stockfeed	87	78	77	60	97	108	83	85	85	63	64
Leafy forage crops	69	52	66	38	81	40	55	56	21	37	45
Arable silage/other fodder crops	49	33	39	43	94	46	62	46	15	24	83
Peas - human consumption	2	38	33	0	26	59	65	1	22	22	47
Peas - animal consumption	8	30	49	7	55	73	94	4	22	46	50
Beans - animal consumption	3	26	34	4	31	57	84	1	15	29	136
Vegetables (brassicae)	84	87	89	36	156	88	127	131	77	113	48
Vegetables (other)	63	76	72	15	119	96	133	75	73	95	115
Soft Fruit	65	67	65	0	49	25	73	32	17	48	13
Top Fruit	80	44	48	0	135	53	115	108	23	55	24
Other tillage	60	26	30	11	95	61	79	57	16	24	79
All tillage	91	54	58	19	162	64	81	148	34	47	5267
Grass under 5 years old	78	58	59	40	129	34	54	101	20	32	1040
Grass 5 years and over	63	49	49	34	91	25	30	57	12	14	2382
All grass	66	51	51	35	99	27	35	65	14	18	3422
All crops and grass	78	52	54	27	134	45	59	105	24	32	8689

Source: British Survey of Fertiliser Practice 2007

Table GB1.2 Use of straight fertiliser, Great Britain 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	58	2	10	125	26	72	72	1	7	42
Winter wheat	96	8	11	189	87	88	182	7	9	1897
Spring barley	67	3	7	91	71	78	61	2	6	661
Winter barley	92	1	14	135	75	90	124	1	12	550
Oats	82	2	10	101	70	94	83	2	10	204
Rye/triticale/Durum wheat	45	7	6	121	52	36	55	4	2	37
Potatoes (seed or earlies)	14	0	19	108	0	173	15	0	33	28
Potatoes (maincrop)	39	2	16	76	160	230	30	3	38	122
Sugar beet	92	1	30	89	52	102	82	1	31	167
Spring oilseed rape	100	0	11	117	0	94	117	0	10	17
Winter oilseed rape	99	7	11	185	76	85	183	6	10	629
Linseed	92	0	19	68	0	79	62	0	15	14
Forage maize	32	2	15	78	68	96	25	2	14	195
Rootcrops for stockfeed	26	0	3	113	0	71	29	0	2	64
Leafy forage crops	30	0	13	74	0	90	22	0	11	45
Arable silage/other fodder crops	27	0	5	90	0	107	24	0	5	83
Peas - human consumption	0	9	3	0	73	30	0	7	1	47
Peas - animal consumption	8	1	20	55	63	116	4	1	23	50
Beans - animal consumption	1	3	13	51	81	122	1	3	16	136
Vegetables (brassicae)	43	5	5	102	55	94	44	3	5	48
Vegetables (other)	51	14	18	96	127	102	49	18	19	115
Soft Fruit	35	2	35	43	60	75	15	1	27	13
Top Fruit	78	14	3	128	58	151	99	8	5	24
Other tillage	49	6	12	106	74	110	52	5	13	79
All tillage	82	6	12	161	84	94	133	5	11	5267
Grass under 5 years old	38	0	3	121	98	95	47	0	3	1040
Grass 5 years and over	23	1	1	95	80	86	22	1	1	2382
All grass	26	1	1	103	83	90	26	1	1	3422
All crops and grass	53	3	6	146	84	94	77	3	6	8689

Source: British Survey of Fertiliser Practice 2007

Table GB1.3 Use of compound fertiliser, Great Britain 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	14	22	22	52	41	57	7	9	13	42
Winter wheat	14	42	42	58	57	71	8	24	30	1897
Spring barley	58	68	69	65	50	63	37	34	43	661
Winter barley	19	60	62	61	57	75	12	35	47	550
Oats	24	55	55	46	53	67	11	29	37	204
Rye/triticale/Durum wheat	4	6	10	53	29	40	2	2	4	37
Potatoes (seed or earlies)	66	71	71	96	121	153	63	86	108	28
Potatoes (maincrop)	77	86	83	131	148	195	102	127	161	122
Sugar beet	14	52	53	69	78	139	10	40	73	167
Spring oilseed rape	21	26	26	49	51	58	10	13	15	17
Winter oilseed rape	20	44	44	40	57	65	8	25	29	629
Linseed	12	20	20	49	51	59	6	10	12	14
Forage maize	58	59	34	45	62	52	26	36	18	195
Rootcrops for stockfeed	71	78	74	78	108	83	56	85	61	64
Leafy forage crops	46	52	53	71	40	47	33	21	25	45
Arable silage/other fodder crops	32	33	35	69	46	55	22	15	19	83
Peas - human consumption	2	28	30	26	55	69	1	16	21	47
Peas - animal consumption	0	29	29	0	74	79	0	22	23	50
Beans - animal consumption	3	23	21	19	53	62	1	12	13	136
Vegetables (brassicae)	84	82	84	103	90	129	87	74	109	48
Vegetables (other)	31	64	58	83	86	131	26	55	77	115
Soft Fruit	65	65	65	25	24	32	17	15	21	13
Top Fruit	37	30	45	23	50	113	8	15	51	24
Other tillage	16	23	18	29	46	58	4	11	11	79
All tillage	24	49	48	62	61	76	15	29	37	5267
Grass under 5 years old	55	57	58	98	34	51	54	19	29	1040
Grass 5 years and over	48	48	48	74	24	29	35	12	14	2382
All grass	49	50	50	79	26	34	39	13	17	3422
All crops and grass	37	49	49	74	42	53	28	21	26	8689

Source: British Survey of Fertiliser Practice 2007

Table GB1.4 Use of lime, Great Britain 2007

	Crop area receiving dressing (%)						Average application rate (tonnes of product/ha)						Fields limed	Fields in sample
	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All		
Spring wheat	1.9	-	0.1	-	5.0	7.0	3.4	-	1.0	-	2.5	2.5	5	42
Winter wheat	4.1	0.8	0.4	0.1	0.7	6.1	6.8	5.2	3.8	2.5	15.1	6.8	103	1897
Spring barley	10.1	0.3	5.0	0.2	0.7	16.3	4.7	6.1	4.6	9.0	8.5	5.1	100	661
Winter barley	3.8	0.6	1.1	0.1	0.6	6.2	4.0	5.3	4.8	2.8	4.5	4.2	47	550
Oats	1.7	-	0.5	-	0.0	2.2	3.8	-	4.0	-	4.5	3.9	12	204
Rye/triticale/Durum wheat	-	-	-	-	-	-	-	-	-	-	-	-	1	37
Potatoes (seed or earlies)	-	-	-	-	-	-	-	-	-	-	-	-	1	28
Potatoes (maincrop)	-	-	-	-	-	-	-	-	-	-	-	-	3	122
Sugar beet	4.2	7.3	1.0	10.8	-	23.3	4.1	2.8	3.9	9.6	-	7.0	42	167
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	-	-	3	17
Winter oilseed rape	5.3	1.2	0.7	0.3	1.6	9.1	5.9	5.4	4.3	3.7	1.7	5.4	57	629
Linseed	-	-	-	-	-	-	-	-	-	-	-	-	1	14
Forage maize	13.4	1.5	0.3	-	2.4	17.6	3.9	2.2	4.5	-	4.0	3.9	27	195
Rootcrops for stockfeed	3.4	-	3.8	-	3.2	10.4	3.7	-	4.5	-	1.0	3.0	8	64
Leafy forage crops	14.8	-	3.8	1.6	7.5	27.8	3.1	-	3.4	4.5	2.5	3.3	12	45
Arable silage/other fodder crops	5.4	-	2.4	0.1	1.1	9.1	4.3	-	4.5	4.5	3.4	4.3	13	83
Peas - human consumption	-	-	-	-	-	-	-	-	-	-	-	-	4	47
Peas - animal consumption	-	-	-	-	-	-	-	-	-	-	-	-	2	50
Beans - animal consumption	-	-	-	-	-	-	-	-	-	-	-	-	3	136
Vegetables (brassicae)	34.1	-	0.0	-	1.1	35.2	4.5	-	-	-	0.4	3.8	6	48
Vegetables (other)	15.3	-	0.0	0.7	0.3	16.3	4.8	-	-	4.5	0.6	4.3	10	115
Soft Fruit	-	-	-	-	-	-	-	-	-	-	-	-	0	13
Top Fruit	-	-	-	-	-	-	-	-	-	-	-	-	3	24
Other tillage	2.4	-	1.3	2.3	2.8	8.7	4.5	-	4.9	10.0	5.0	5.7	6	79
All tillage	5.3	0.9	1.2	0.5	0.9	8.8	5.4	4.6	4.3	7.4	6.1	5.4	469	5267
Grass under 5 years old	3.2	0.2	1.1	-	1.1	5.5	4.3	4.5	3.9	-	4.9	4.3	59	1040
Grass 5 years and over	0.9	0.2	0.3	0.0	1.1	2.5	4.0	4.0	3.9	3.2	7.6	5.1	94	2382
All grass	1.3	0.2	0.4	0.0	1.1	3.1	4.1	4.1	3.9	3.2	6.8	4.8	153	3422
All crops and grass	3.2	0.5	0.8	0.2	1.0	5.8	5.1	4.5	4.2	7.1	6.4	5.3	622	8689

Source: British Survey of Fertiliser Practice 2007

Table GB2.1 Average fertiliser practice by grassland utilisation, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Grazed not mown	60	46	44	23	82	23	24	49	10	11	1615
Grazed mown	76	59	61	54	117	30	45	89	18	27	1417
All grazings	65	50	50	34	97	26	33	63	13	17	3032
Cut for silage - grazed	82	67	69	62	127	30	47	104	20	32	1033
Cut for silage - not grazed	87	67	70	57	134	37	55	116	25	39	246
All cut for silage	83	67	69	61	128	31	48	106	21	33	1279
Cut for hay - grazed	56	35	36	28	77	28	33	43	10	12	422
Cut for hay - not grazed	74	48	59	20	94	37	48	70	18	28	103
All cut for hay	59	37	40	27	81	30	37	47	11	15	525
All mowings	77	59	61	53	119	31	46	91	19	29	1741
All grass	66	51	51	35	99	27	35	65	14	18	3422

Source: British Survey of Fertiliser Practice 2007

Table GB3.0 Product use by month of application, Great Britain 2007

(a) Product use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total product ('000 tonnes)
Straight N	0	0	0	0	0	2	33	43	15	4	2	1	2235
Straight P	17	3	10	0	1	7	33	15	5	4	1	4	61
Straight K	5	5	10	8	6	16	29	13	4	3	0	1	121
Compounds	6	6	2	1	1	4	24	30	12	7	3	5	1769
All fertilisers	3	3	1	1	1	3	29	36	13	5	2	3	4200

(b) Nutrient use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total nutrient ('000 tonnes)
Nitrogen	1	0	0	0	0	2	29	43	16	5	2	2	1015
Phosphate	11	10	4	1	2	6	24	24	8	3	2	6	229
Potash	8	9	4	2	3	8	25	23	8	4	2	4	308
Total	4	3	1	0	1	4	28	36	13	5	2	3	1552

Note: 'Product' refers to the total tonnage of the products used by the farmers in the survey year 2007.

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

(e.g. 100 kg of a 20 : 20 : 10 compound contains 20 kg of N, 10 kg of P₂O₅ and 10 kg of K₂O, while 100 kg of ammonium nitrate, one of the straight N products, contains typically 34.5 kg of N).

Table GB3.1 Product type as percentage of all product used by crop group, Great Britain 2007

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	28.8	46.9	5.4	21.3	41.9	14.7	38.3	25.5	24.0	22.4	29.1	25.2	35.0
Urea	4.9	9.8	0.8	3.3	15.6	3.2	8.9	2.8	4.4	2.6	3.7	3.0	7.4
Calcium Ammonium Nitrate (CAN)	2.1	2.4	0.1	0.5	4.1	3.9	3.9	2.4	1.5	2.0	0.0	2.1	2.5
Urea Ammonium Nitrate (UAN)	5.3	10.2	0.7	2.7	10.1	1.8	8.1	1.2	0.8	1.3	11.6	1.3	6.4
Other Straight N	0.5	2.0	0.2	0.0	5.6	0.8	2.1	1.9	0.5	2.0	0.0	1.6	2.0
Triple Superphosphate (TSP)	0.7	1.3	0.6	0.5	1.4	2.0	1.3	0.6	0.3	0.2	0.0	0.5	1.1
Other Straight P	0.0	0.1	0.0	0.0	0.1	0.5	0.1	0.7	0.0	0.6	0.0	0.6	0.3
Muriate of Potash (MOP)	2.5	2.7	5.0	1.1	2.6	4.1	2.8	0.7	1.2	0.8	0.9	0.7	2.3
Other Straight K	0.3	0.4	0.7	26.8	0.2	3.9	1.9	0.8	0.0	0.2	0.0	0.7	1.6
PK	7.4	14.7	6.1	26.9	9.7	12.9	13.2	3.9	4.1	4.2	15.6	4.1	10.9
NK	2.9	1.9	2.1	0.9	0.9	3.4	2.0	5.0	4.2	8.1	11.2	5.4	2.8
Low N (<19% N)	24.3	4.3	75.1	12.5	6.1	34.2	13.0	4.4	4.8	4.0	4.0	4.4	10.8
High N (>=19% N)	20.1	3.2	2.9	1.0	1.2	13.5	5.4	50.0	54.3	51.6	23.2	50.2	16.6
Other	0.1	0.2	0.2	2.7	0.5	1.0	0.4	0.1	0.0	0.0	0.6	0.1	0.3
Total product ('000 tonnes)	276	1697	82	107	487	180	2830	1222	116	678	19	1370	4200

Source: British Survey of Fertiliser Practice 2007

Table GB3.2 Use of product type by crop group, Great Britain 2007

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	7.0	70.6	0.5	2.1	17.2	2.6	77.2	90.2	8.2	46.4	1.3	22.8	1437
Urea	4.5	63.3	0.2	1.4	27.5	3.0	89.9	92.2	8.5	38.0	0.7	10.1	327
Calcium Ammonium Nitrate (CAN)	13.0	53.0	0.1	1.6	22.2	10.1	10.1	94.7	4.4	59.4	0.0	24.7	67
Urea Ammonium Nitrate (UAN)	5.2	71.1	0.2	1.0	21.5	1.0	95.1	67.3	5.6	47.1	19.0	4.9	328
Other Straight N	2.5	47.4	0.3	0.0	44.4	5.5	81.6	100.0	17.8	66.3	0.0	18.4	81
Triple Superphosphate (TSP)	5.8	63.7	1.3	0.5	15.3	13.6	86.5	98.3	1.4	15.7	0.0	13.5	52
Other Straight P	4.6	61.2	0.0	0.0	13.4	20.8	60.6	100.0	0.0	40.7	0.0	39.4	9
Muriate of Potash (MOP)	7.0	55.5	7.1	1.6	14.7	14.1	91.6	87.7	10.6	70.1	1.1	8.4	75
Other Straight K	2.7	17.2	0.9	56.7	2.6	20.0	87.4	100.0	0.0	34.4	0.0	12.6	46
PK	5.5	63.1	1.7	8.5	12.7	8.6	91.1	82.0	4.8	48.3	9.6	8.9	418
NK	22.7	48.3	4.8	2.0	11.1	11.1	40.0	79.8	10.7	78.1	3.1	60.0	115
Low N (<19% N)	24.7	23.5	20.0	4.7	10.1	17.0	83.9	92.4	7.8	45.3	0.6	16.1	350
High N (>=19% N)	45.2	34.4	2.0	0.6	3.5	14.3	11.9	89.5	8.7	49.0	0.7	88.1	880
Other	4.3	19.6	1.4	33.7	17.0	24.0	94.5	93.4	0.0	17.9	6.6	5.5	15
All Fertilisers	9.8	60.0	2.9	3.8	17.2	6.4	67.4	89.2	8.5	49.5	1.4	32.6	4200

Source: British Survey of Fertiliser Practice 2007

Table GB3.3 Product use by month of application, Great Britain 2007

row %	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total product ('000 tonnes)
Ammonium Nitrate	0.0	1.8	30.0	42.8	17.0	3.7	1.9	1.5	0.6	0.1	0.1	0.0	1437
Urea	0.2	1.5	35.2	46.7	9.6	5.3	1.2	0.3	0.0	0.0	0.0	0.0	327
Calcium Ammonium Nitrate (CAN)	0.0	1.5	32.1	35.6	17.2	5.4	5.4	2.4	0.4	0.0	0.0	0.0	67
Urea Ammonium Nitrate (UAN)	0.0	2.6	34.8	43.8	15.8	1.9	0.4	0.0	0.4	0.0	0.0	0.0	328
Other Straight N	0.3	2.9	58.0	28.4	5.8	3.2	0.9	0.6	0.1	0.0	0.0	0.0	81
Triple Superphosphate (TSP)	0.8	8.6	29.4	16.8	5.3	4.4	1.3	4.6	16.0	11.1	11.1	0.0	52
Other Straight P	2.7	0.0	51.2	4.8	5.4	0.0	0.0	1.0	19.7	2.4	2.4	1.0	9
Muriate of Potash (MOP)	5.6	18.8	29.8	19.4	5.1	2.2	0.6	1.1	5.8	7.1	7.1	1.9	75
Other Straight K	6.3	10.3	28.3	2.2	2.5	3.2	0.0	1.1	3.2	14.7	14.7	18.7	46
PK	4.2	10.9	17.0	4.5	1.6	0.3	0.8	8.0	20.4	7.2	7.2	2.8	418
NK	0.0	3.3	17.1	20.5	25.2	22.9	4.4	5.5	1.0	0.0	0.0	0.0	115
Low N (<19% N)	1.5	3.8	35.4	36.5	8.3	2.0	0.8	2.9	4.6	1.3	1.3	0.1	350
High N (>=19% N)	0.0	1.1	22.7	41.2	16.8	9.4	3.9	3.8	1.0	0.0	0.0	0.0	880
Other	16.3	16.4	29.1	16.5	6.6	1.7	0.0	0.0	9.3	2.0	2.0	0.0	15
All Fertilisers	0.8	3.4	28.6	36.2	13.5	4.9	2.0	2.7	3.3	1.3	1.3	0.5	4200

Source: British Survey of Fertiliser Practice 2007

Table GB4.1 Average fertiliser practice on cereal farms, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	46	16	19	20	163	58	75	75	9	14	12
Winter wheat	99	54	52	10	201	65	72	198	35	37	1038
Spring barley	95	62	68	23	111	59	73	105	37	50	231
Winter barley	98	67	73	7	145	61	83	142	41	61	227
Oats	90	57	61	14	111	56	83	100	32	51	93
Rye/triticale/Durum wheat	65	26	21	30	139	38	22	90	10	5	15
Potatoes (seed or earlies)	-	-	-	-	-	-	-	-	-	-	3
Potatoes (maincrop)	88	85	85	14	123	122	169	108	103	143	20
Sugar beet	97	49	84	30	93	102	128	90	50	107	61
Spring oilseed rape	100	12	26	0	124	42	79	124	5	21	13
Winter oilseed rape	99	52	53	9	193	63	70	192	33	38	403
Linseed	93	11	39	0	74	43	75	68	5	29	8
Forage maize	55	49	35	65	62	52	56	34	25	20	18
Rootcrops for stockfeed	89	84	100	25	143	107	68	126	90	68	11
Leafy forage crops	65	13	69	0	61	60	86	40	8	59	6
Arable silage/other fodder crops	24	30	33	22	73	41	68	17	12	22	19
Peas - human consumption	0	64	39	0	0	63	49	0	40	19	16
Peas - animal consumption	6	30	43	6	21	87	117	1	26	50	30
Beans - animal consumption	5	26	34	4	31	57	92	1	15	31	96
Vegetables (brassicae)	-	-	-	-	-	-	-	-	-	-	1
Vegetables (other)	21	48	43	0	167	61	56	34	29	24	20
Soft Fruit	-	-	-	-	-	-	-	-	-	-	1
Top Fruit	-	-	-	-	-	-	-	-	-	-	1
Other tillage	72	27	25	11	114	71	80	82	19	20	29
All tillage	92	53	55	11	178	64	76	164	34	41	2372
Grass under 5 years old	56	38	38	6	106	58	75	59	22	29	189
Grass 5 years and over	47	19	21	2	77	30	38	36	6	8	383
All grass	49	24	25	3	85	41	52	42	10	13	572
All crops and grass	84	48	49	10	168	62	73	141	30	36	2944

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

Source: British Survey of Fertiliser Practice 2007

Table GB4.2 Average fertiliser practice on general cropping farms, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	88	0	34	31	117	0	70	102	0	24	7
Winter wheat	99	45	52	10	178	59	84	177	26	44	486
Spring barley	97	68	75	9	101	47	68	97	32	51	156
Winter barley	98	52	79	2	132	51	78	129	26	62	129
Oats	92	67	72	7	94	50	74	86	33	53	44
Rye/triticale/Durum wheat	63	13	13	0	89	70	105	56	9	14	5
Potatoes (seed or earlies)	96	82	96	19	100	123	175	96	101	168	17
Potatoes (maincrop)	93	89	92	32	148	155	233	138	137	214	91
Sugar beet	97	59	83	28	97	68	125	95	40	103	99
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	2
Winter oilseed rape	100	50	60	14	187	52	75	187	26	45	146
Linseed	90	38	38	0	74	56	56	66	21	21	6
Forage maize	70	59	45	56	67	66	51	47	39	23	20
Rootcrops for stockfeed	90	42	14	73	82	253	124	73	106	18	10
Leafy forage crops	-	-	-	-	-	-	-	-	-	-	4
Arable silage/other fodder crops	70	8	20	0	88	62	84	62	5	17	8
Peas - human consumption	3	29	32	0	26	56	73	1	17	23	29
Peas - animal consumption	17	17	58	7	95	20	56	16	3	32	13
Beans - animal consumption	0	29	41	2	0	58	61	0	17	25	19
Vegetables (brassicae)	100	97	100	34	156	84	120	155	81	120	41
Vegetables (other)	72	82	77	15	120	102	141	87	84	109	78
Soft Fruit	67	69	67	0	49	25	73	33	17	49	12
Top Fruit	80	46	47	0	136	53	113	108	24	53	22
Other tillage	46	19	30	7	74	53	87	34	10	26	43
All tillage	91	54	64	12	149	69	99	136	37	63	1487
Grass under 5 years old	67	42	42	15	129	38	56	86	16	24	117
Grass 5 years and over	56	27	26	10	73	21	28	41	6	8	210
All grass	59	31	31	11	91	28	39	54	9	12	327
All crops and grass	86	50	58	12	142	64	93	121	32	54	1814

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

Source: British Survey of Fertiliser Practice 2007

Table GB4.3 Average fertiliser practice on dairy farms, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	63	63	63	90	58	29	38	37	18	24	7
Winter wheat	99	47	66	46	164	54	79	162	26	52	70
Spring barley	89	79	81	65	77	39	45	68	31	37	45
Winter barley	100	65	86	53	130	60	67	130	39	58	43
Oats	100	57	57	68	98	68	86	98	39	50	7
Rye/triticale/Durum wheat	61	0	28	32	54	0	43	33	0	12	5
Potatoes (seed or earlies)	-	-	-	-	-	-	-	-	-	-	0
Potatoes (maincrop)	-	-	-	-	-	-	-	-	-	-	2
Sugar beet	-	-	-	-	-	-	-	-	-	-	0
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	1
Winter oilseed rape	100	32	13	58	169	42	151	169	14	20	5
Linseed	-	-	-	-	-	-	-	-	-	-	0
Forage maize	93	74	59	99	60	60	65	56	44	39	83
Rootcrops for stockfeed	100	84	84	61	80	39	69	80	33	58	5
Leafy forage crops	73	38	38	38	107	28	28	78	11	11	5
Arable silage/other fodder crops	75	61	75	83	85	44	57	64	27	43	18
Peas - human consumption	-	-	-	-	-	-	-	-	-	-	0
Peas - animal consumption	-	-	-	-	-	-	-	-	-	-	0
Beans - animal consumption	-	-	-	-	-	-	-	-	-	-	1
Vegetables (brassicae)	-	-	-	-	-	-	-	-	-	-	0
Vegetables (other)	-	-	-	-	-	-	-	-	-	-	1
Soft Fruit	-	-	-	-	-	-	-	-	-	-	0
Top Fruit	-	-	-	-	-	-	-	-	-	-	0
Other tillage	-	-	-	-	-	-	-	-	-	-	1
All tillage	93	64	67	71	104	55	66	96	35	44	299
Grass under 5 years old	90	63	66	78	169	34	66	151	21	44	229
Grass 5 years and over	89	65	68	65	135	27	37	120	17	25	485
All grass	89	65	67	69	143	28	44	128	18	29	714
All crops and grass	90	65	67	69	137	32	47	123	21	31	1013

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

Source: British Survey of Fertiliser Practice 2007

Table GB4.4 Average fertiliser practice on other livestock farms, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	-	-	-	-	-	-	-	-	-	-	2
Winter wheat	99	68	74	53	162	52	86	160	36	64	62
Spring barley	98	92	95	73	87	48	55	85	44	52	109
Winter barley	100	90	99	30	106	46	73	106	41	73	29
Oats	86	56	56	32	92	41	42	79	23	23	19
Rye/triticale/Durum wheat	-	-	-	-	-	-	-	-	-	-	0
Potatoes (seed or earlies)	-	-	-	-	-	-	-	-	-	-	1
Potatoes (maincrop)	-	-	-	-	-	-	-	-	-	-	0
Sugar beet	-	-	-	-	-	-	-	-	-	-	0
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	0
Winter oilseed rape	-	-	-	-	-	-	-	-	-	-	4
Linseed	-	-	-	-	-	-	-	-	-	-	0
Forage maize	79	68	62	98	63	75	62	50	51	38	19
Rootcrops for stockfeed	100	100	100	63	70	95	89	70	95	89	21
Leafy forage crops	74	63	66	53	81	30	35	60	19	23	24
Arable silage/other fodder crops	63	34	43	44	112	30	34	71	10	15	12
Peas - human consumption	-	-	-	-	-	-	-	-	-	-	1
Peas - animal consumption	-	-	-	-	-	-	-	-	-	-	0
Beans - animal consumption	-	-	-	-	-	-	-	-	-	-	3
Vegetables (brassicae)	-	-	-	-	-	-	-	-	-	-	1
Vegetables (other)	-	-	-	-	-	-	-	-	-	-	0
Soft Fruit	-	-	-	-	-	-	-	-	-	-	0
Top Fruit	-	-	-	-	-	-	-	-	-	-	0
Other tillage	-	-	-	-	-	-	-	-	-	-	0
All tillage	94	78	83	60	105	51	64	98	40	53	307
Grass under 5 years old	85	72	72	36	103	29	41	87	21	29	289
Grass 5 years and over	58	53	51	34	69	23	25	40	12	13	1009
All grass	61	55	54	34	75	24	27	46	13	15	1298
All crops and grass	63	57	56	36	78	26	30	49	15	17	1605

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

Table GB4.5 Average fertiliser practice on mixed farms, Great Britain 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	63	46	37	32	145	40	69	92	18	25	14
Winter wheat	96	42	44	30	191	56	77	183	23	34	236
Spring barley	98	81	84	49	100	46	52	97	37	44	118
Winter barley	94	52	51	34	148	65	81	139	34	42	118
Oats	82	43	45	32	104	54	60	86	23	27	41
Rye/triticale/Durum wheat	17	0	2	39	124	0	90	21	0	2	11
Potatoes (seed or earlies)	100	100	100	30	97	119	190	97	119	190	7
Potatoes (maincrop)	80	80	80	66	116	106	146	93	85	117	8
Sugar beet	77	0	83	73	78	0	119	60	0	99	7
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	1
Winter oilseed rape	100	36	36	18	193	57	68	193	20	24	71
Linseed	-	-	-	-	-	-	-	-	-	-	0
Forage maize	69	38	34	90	73	74	77	51	28	26	54
Rootcrops for stockfeed	65	65	65	73	130	101	84	85	66	55	17
Leafy forage crops	35	58	58	73	62	32	46	21	19	26	6
Arable silage/other fodder crops	42	22	23	50	118	64	76	49	14	17	26
Peas - human consumption	-	-	-	-	-	-	-	-	-	-	1
Peas - animal consumption	0	68	80	22	0	59	66	0	40	53	7
Beans - animal consumption	0	22	17	5	0	46	62	0	10	11	15
Vegetables (brassicae)	41	68	68	33	150	113	169	62	77	114	5
Vegetables (other)	55	75	75	41	61	84	171	34	63	128	16
Soft Fruit	-	-	-	-	-	-	-	-	-	-	0
Top Fruit	-	-	-	-	-	-	-	-	-	-	1
Other tillage	44	22	22	55	127	1	25	56	0	5	6
All tillage	88	49	51	39	153	57	74	135	28	37	786
Grass under 5 years old	75	50	52	28	123	33	50	92	16	26	212
Grass 5 years and over	59	38	38	14	86	28	36	51	11	13	289
All grass	64	42	42	18	99	30	41	64	12	17	501
All crops and grass	75	45	46	28	128	44	58	96	20	27	1287

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

Source: British Survey of Fertiliser Practice 2007

Table EW1.1 Total fertiliser use, England & Wales 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	60	13	17	29	122	35	48	74	4	8	32
Winter wheat	98	49	50	14	194	62	74	191	30	37	1766
Spring barley	93	49	58	22	105	50	63	98	25	36	398
Winter barley	97	58	71	13	139	56	79	135	33	57	487
Oats	90	51	54	16	105	52	76	95	26	41	161
Rye/triticale/Durum wheat	51	13	15	30	114	38	31	58	5	5	35
Potatoes (seed or earlies)	80	63	79	37	108	117	182	86	74	145	19
Potatoes (maincrop)	91	88	91	36	146	154	224	132	135	204	98
Sugar beet	96	53	83	31	95	77	126	92	41	104	167
Spring oilseed rape	100	15	27	0	126	37	71	126	6	19	16
Winter oilseed rape	100	49	52	11	192	60	71	191	30	37	573
Linseed	92	20	39	0	74	51	69	68	10	27	14
Forage maize	80	60	49	90	64	63	66	52	38	32	191
Rootcrops for stockfeed	78	60	66	52	128	80	77	100	48	51	35
Leafy forage crops	60	35	56	27	84	49	72	50	17	41	26
Arable silage/other fodder crops	47	30	37	44	93	46	64	44	14	23	73
Vining peas (for human consumption)	2	39	34	0	26	59	65	1	23	22	44
Field peas (harvested dry)	8	30	49	7	55	73	94	4	22	46	50
Field beans (harvested dry)	4	26	34	4	31	57	85	1	15	29	131
Vegetables (brassicae)	88	91	94	34	156	88	127	138	80	119	46
Vegetable Other	62	76	71	16	125	96	133	77	73	95	102
Soft Fruit	77	80	77	0	75	36	109	58	29	84	9
Top Fruit	80	44	48	0	135	53	115	108	23	55	24
Other tillage	63	27	32	12	95	61	79	59	16	25	75
All tillage	91	50	54	17	167	64	82	152	32	44	4572
Grass less than five years old	76	51	53	47	138	35	59	105	18	31	757
Grass five years and over	61	46	46	36	92	24	30	56	11	14	2005
All grass	63	47	47	38	101	26	35	64	12	17	2762
All crops and grass	77	48	51	28	140	46	60	108	22	30	7334

Source: British Survey of Fertiliser Practice 2007

Table EW1.2 Use of straight fertiliser, England & Wales 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	58	3	8	123	26	39	71	1	3	32
Winter wheat	96	9	11	191	87	87	184	8	10	1766
Spring barley	78	6	11	102	72	78	80	4	8	398
Winter barley	91	1	15	136	75	91	125	1	14	487
Oats	87	3	11	101	70	88	89	2	10	161
Rye/triticale/Durum wheat	47	8	6	119	52	36	56	4	2	35
Potatoes (seed or earlies)	29	0	17	108	0	240	31	0	40	19
Potatoes (maincrop)	40	2	16	81	160	246	32	4	40	98
Sugar beet	92	1	30	89	52	102	82	1	31	167
Spring oilseed rape	100	0	12	124	0	94	124	0	12	16
Winter oilseed rape	99	8	11	186	76	84	184	6	9	573
Linseed	92	0	19	68	0	79	62	0	15	14
Forage maize	32	2	15	78	68	96	25	2	14	191
Rootcrops for stockfeed	44	0	5	114	0	71	50	0	4	35
Leafy forage crops	34	0	19	85	0	90	29	0	17	26
Arable silage/other fodder crops	25	0	5	87	0	107	22	0	6	73
Peas - human consumption	0	9	3	0	73	30	0	7	1	44
Peas - animal consumption	8	1	20	55	63	116	4	1	23	50
Beans - animal consumption	1	3	13	51	81	122	1	3	16	131
Vegetables (brassicae)	46	5	5	102	55	94	46	3	5	46
Vegetables (other)	54	14	20	97	134	102	52	19	20	102
Soft Fruit	65	3	65	43	60	75	28	2	49	9
Top Fruit	78	14	3	128	58	151	99	8	5	24
Other tillage	52	7	12	106	74	110	55	5	14	75
All tillage	85	7	12	166	85	93	141	6	12	4572
Grass under 5 years old	46	0	3	126	132	95	58	1	3	757
Grass 5 years and over	24	0	1	97	60	86	23	0	1	2005
All grass	27	0	1	105	71	90	29	0	1	2762
All crops and grass	56	4	7	151	84	93	84	3	6	7334

Source: British Survey of Fertiliser Practice 2007

Table EW1.3 Use of compound fertiliser, England & Wales 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Spring wheat	5	10	10	52	37	54	3	4	5	32
Winter wheat	12	40	40	58	56	69	7	22	27	1766
Spring barley	28	43	47	66	47	59	19	20	28	398
Winter barley	16	57	59	66	56	73	10	32	43	487
Oats	13	48	48	46	50	64	6	24	31	161
Rye/triticale/Durum wheat	4	5	9	53	15	28	2	1	2	35
Potatoes (seed or earlies)	52	63	63	105	117	167	55	74	105	19
Potatoes (maincrop)	76	86	84	132	153	196	100	131	164	98
Sugar beet	14	52	53	69	78	139	10	40	73	167
Spring oilseed rape	9	15	15	24	37	52	2	6	8	16
Winter oilseed rape	17	42	42	42	56	65	7	24	27	573
Linseed	12	20	20	49	51	59	6	10	12	14
Forage maize	58	59	34	45	62	53	26	36	18	191
Rootcrops for stockfeed	48	60	60	104	80	77	50	48	47	35
Leafy forage crops	27	35	37	81	49	63	22	17	24	26
Arable silage/other fodder crops	30	30	32	73	46	55	22	14	18	73
Peas - human consumption	2	29	31	26	55	69	1	16	21	44
Peas - animal consumption	0	29	29	0	74	79	0	22	23	50
Beans - animal consumption	3	22	21	19	54	62	1	12	13	131
Vegetables (brassicae)	88	86	88	103	90	129	91	77	114	46
Vegetables (other)	27	62	57	89	87	132	24	54	75	102
Soft Fruit	77	77	77	39	35	46	30	27	35	9
Top Fruit	37	30	45	23	50	113	8	15	51	24
Other tillage	16	24	19	29	46	58	5	11	11	75
All tillage	18	43	43	63	60	77	11	26	33	4572
Grass under 5 years old	48	50	52	100	34	55	48	17	28	757
Grass 5 years and over	45	45	46	73	24	29	33	11	13	2005
All grass	46	46	47	77	26	33	35	12	16	2762
All crops and grass	32	45	45	73	42	54	23	19	24	7334

Source: British Survey of Fertiliser Practice 2007

Table EW1.4 Use of lime, England & Wales 2007

	Crop area receiving dressing (%)						Average application rate						Fields limed	Fields in sample
	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All		
Spring wheat	-	-	-	-	-	-	-	-	-	-	-	-	1	32
Winter wheat	4.2	0.9	0.5	0.1	0.5	6.1	7.1	5.2	3.8	2.5	14.3	6.8	94	1766
Spring barley	3.5	0.5	2.2	0.3	0.3	6.9	3.8	6.1	4.2	9.0	0.3	4.4	26	398
Winter barley	3.9	0.6	1.2	0.1	0.7	6.6	4.0	5.3	4.8	2.8	4.5	4.3	43	487
Oats	0.9	-	0.7	-	0.0	1.6	3.2	-	4.0	-	4.5	3.6	8	161
Rye/triticale/Durum wheat	-	-	-	-	-	-	-	-	-	-	-	-	1	35
Potatoes (seed or earlies)	-	-	-	-	-	-	-	-	-	-	-	-	1	19
Potatoes (maincrop)	-	-	-	-	-	-	-	-	-	-	-	-	3	98
Sugar beet	4.2	7.3	1.0	10.8	-	23.3	4.1	2.8	3.9	9.6	-	7.0	42	167
Spring oilseed rape	-	-	-	-	-	-	-	-	-	-	-	-	3	16
Winter oilseed rape	5.3	1.3	0.6	0.4	1.7	9.2	6.0	5.4	4.7	3.7	1.7	5.5	52	573
Linseed	-	-	-	-	-	-	-	-	-	-	-	-	1	14
Forage maize	13.1	1.5	0.3	-	2.0	17.0	3.9	2.2	4.5	-	3.8	3.8	25	191
Rootcrops for stockfeed	-	-	-	-	-	-	-	-	-	-	-	-	4	35
Leafy forage crops	15.9	-	4.1	2.4	11.5	33.9	3.0	-	4.5	4.5	2.5	3.4	9	26
Arable silage/other fodder crops	3.0	-	1.6	0.1	1.2	6.0	3.9	-	4.3	4.5	3.4	4.0	10	73
Peas - human consumption	-	-	-	-	-	-	-	-	-	-	-	-	4	44
Peas - animal consumption	-	-	-	-	-	-	-	-	-	-	-	-	2	50
Beans - animal consumption	-	-	-	-	-	-	-	-	-	-	-	-	2	131
Vegetables (brassicae)	35.7	-	-	-	1.2	36.9	4.5	-	-	-	0.4	3.8	6	46
Vegetables (other)	14.1	-	-	0.8	0.3	15.1	5.8	-	-	4.5	0.6	4.8	8	102
Soft Fruit	-	-	-	-	-	-	-	-	-	-	-	-	0	9
Top Fruit	-	-	-	-	-	-	-	-	-	-	-	-	3	24
Other tillage	2.5	-	1.3	2.4	3.0	9.2	4.5	-	4.9	10.0	5.0	5.7	6	75
All tillage	4.5	1.0	0.7	0.5	0.8	7.7	5.7	4.6	4.3	7.4	4.8	5.5	354	4572
Grass under 5 years old	2.7	0.2	1.4	-	1.2	5.5	4.5	4.5	4.0	-	2.5	4.0	43	757
Grass 5 years and over	0.8	0.2	0.3	0.0	0.8	2.1	4.0	4.0	4.1	3.2	4.4	4.1	72	2005
All grass	1.1	0.2	0.5	0.0	0.9	2.7	4.2	4.1	4.0	3.2	3.8	4.0	115	2762
All crops and grass	2.8	0.6	0.6	0.3	0.8	5.2	5.4	4.5	4.2	7.1	4.3	5.2	469	7334

Table EW1.5 Percentage of crop area by field application rate - Nitrogen, England & Wales 2007

row %	kg/ha																	Fields in sample	
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-		400+
Spring wheat	40	0	12	2	15	5	9	3	2	9	4	-	-	-	-	-	-	-	32
Winter wheat	2	0	1	2	4	4	6	16	20	20	12	5	3	2	-	-	-	-	1766
Spring barley	7	1	7	11	18	25	27	5	1	-	-	-	-	-	-	-	-	-	398
Winter barley	3	0	3	5	11	14	27	22	9	3	2	1	1	1	-	-	-	-	487
Oats	10	0	7	13	21	22	17	7	0	1	-	-	-	-	-	-	-	-	161
Rye/triticale/Durum wheat	49	0	10	9	6	12	0	0	9	0	4	1	-	-	-	-	-	-	35
Potatoes (seed or earlies)	20	0	9	11	4	39	5	2	7	1	2	-	-	-	-	-	-	-	19
Potatoes (maincrop)	9	1	9	5	15	6	6	14	13	5	12	1	3	-	-	-	-	-	98
Sugar beet	4	2	11	17	18	29	15	3	1	-	-	-	-	-	-	-	-	-	167
Spring oilseed rape	0	0	5	0	6	23	44	22	-	-	-	-	-	-	-	-	-	-	16
Winter oilseed rape	0	0	1	4	1	3	6	18	20	22	14	7	2	-	-	-	-	-	573
Linseed	8	0	13	32	28	19	-	-	-	-	-	-	-	-	-	-	-	-	14
Forage maize	20	18	12	22	14	5	7	2	-	-	-	-	-	-	-	-	-	-	191
Rootcrops for stockfeed	22	0	7	10	20	19	5	0	6	0	0	0	7	-	-	-	-	-	35
Leafy forage crops	40	0	19	9	11	7	11	3	-	-	-	-	-	-	-	-	-	-	26
Arable silage/other fodder crops	53	6	1	14	8	2	5	5	4	1	-	-	-	-	-	-	-	-	73
Peas - human consumption	98	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44
Peas - animal consumption	92	3	1	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	50
Beans - animal consumption	96	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	131
Vegetables (brassicae)	12	7	0	5	2	7	11	35	2	1	11	4	0	1	1	-	-	-	46
Vegetables (other)	38	0	0	6	19	12	5	12	0	5	1	0	0	0	2	-	-	-	102
Soft Fruit	23	0	5	7	65	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Top Fruit	20	10	1	1	0	15	14	28	0	11	-	-	-	-	-	-	-	-	24
Other tillage	37	6	1	16	11	14	10	0	0	4	-	-	-	-	-	-	-	-	75
All tillage	9	1	3	5	7	8	10	14	14	13	8	4	2	1	-	-	-	-	4572
Grass under 5 years old	24	1	6	10	13	8	10	8	6	5	3	2	1	2	1	1	-	-	757
Grass 5 years and over	39	2	16	15	8	6	5	3	2	1	1	1	-	-	-	-	-	-	2005
All grass	37	2	14	14	9	6	6	4	3	2	1	1	0	1	1	-	-	-	2762
All crops and grass	23	1	8	10	8	7	8	9	8	8	5	2	1	1	-	-	-	-	7334

Source: British Survey of Fertiliser Practice 2007

Table EW1.6 Percentage of crop area by field application rate - Phosphate, England & Wales 2007

row %	kg/ha																	Fields in sample	
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-		400+
Spring wheat	87	1	9	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
Winter wheat	51	6	8	22	10	2	0	1	-	-	-	-	-	-	-	-	-	-	1766
Spring barley	51	8	13	19	7	1	-	-	-	-	-	-	-	-	-	-	-	-	398
Winter barley	42	9	8	29	9	2	-	-	-	-	-	-	-	-	-	-	-	-	487
Oats	49	10	9	20	12	-	-	-	-	-	-	-	-	-	-	-	-	-	161
Rye/triticale/Durum wheat	87	5	6	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35
Potatoes (seed or earlies)	37	0	3	2	3	38	11	2	2	0	2	0	0	1	-	-	-	-	19
Potatoes (maincrop)	12	2	7	8	7	8	11	9	16	1	10	1	4	1	0	0	2	-	98
Sugar beet	47	3	15	19	10	2	2	-	-	-	-	-	-	-	-	-	-	-	167
Spring oilseed rape	85	5	4	0	6	-	-	-	-	-	-	-	-	-	-	-	-	-	16
Winter oilseed rape	51	6	10	21	9	3	-	-	-	-	-	-	-	-	-	-	-	-	573
Linseed	80	0	12	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Forage maize	40	6	9	28	11	3	3	-	-	-	-	-	-	-	-	-	-	-	191
Rootcrops for stockfeed	40	5	15	8	9	15	0	7	-	-	-	-	-	-	-	-	-	-	35
Leafy forage crops	65	7	13	8	0	6	-	-	-	-	-	-	-	-	-	-	-	-	26
Arable silage/other fodder crops	70	6	12	10	0	0	0	1	-	-	-	-	-	-	-	-	-	-	73
Peas - human consumption	61	5	7	20	4	3	-	-	-	-	-	-	-	-	-	-	-	-	44
Peas - animal consumption	70	4	3	11	9	0	0	3	-	-	-	-	-	-	-	-	-	-	50
Beans - animal consumption	74	0	8	14	1	1	-	-	-	-	-	-	-	-	-	-	-	-	131
Vegetables (brassicae)	9	5	11	12	31	12	11	10	-	-	-	-	-	-	-	-	-	-	46
Vegetables (other)	24	3	5	12	20	21	3	11	1	-	-	-	-	-	-	-	-	-	102
Soft Fruit	20	5	71	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Top Fruit	56	10	1	25	0	8	-	-	-	-	-	-	-	-	-	-	-	-	24
Other tillage	73	6	7	6	4	3	1	-	-	-	-	-	-	-	-	-	-	-	75
All tillage	50	6	9	21	9	3	1	1	-	-	-	-	-	-	-	-	-	-	4572
Grass under 5 years old	49	20	20	7	2	0	0	1	-	-	-	-	-	-	-	-	-	-	757
Grass 5 years and over	54	27	15	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2005
All grass	53	26	16	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2762
All crops and grass	52	16	12	12	5	1	0	1	-	-	-	-	-	-	-	-	-	-	7334

Table EW1.7 Percentage of crop area by field application rate - Potash, England & Wales 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Spring wheat	83	0	9	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	32
Winter wheat	50	4	6	15	15	6	2	1	-	-	-	-	-	-	-	-	-	-	1766
Spring barley	42	6	11	17	19	3	0	1	-	-	-	-	-	-	-	-	-	-	398
Winter barley	29	6	9	19	18	13	4	2	-	-	-	-	-	-	-	-	-	-	487
Oats	46	6	11	9	14	5	4	6	-	-	-	-	-	-	-	-	-	-	161
Rye/triticale/Durum wheat	85	5	9	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	35
Potatoes (seed or earlies)	21	0	3	0	0	0	3	46	2	0	21	2	0	3	-	-	-	-	19
Potatoes (maincrop)	9	2	2	7	7	3	7	2	2	2	17	15	3	9	3	5	0	6	98
Sugar beet	17	6	4	14	17	12	8	6	9	1	1	2	0	1	0	0	0	1	167
Spring oilseed rape	73	5	4	0	8	11	-	-	-	-	-	-	-	-	-	-	-	-	16
Winter oilseed rape	48	4	9	15	16	4	2	1	-	-	-	-	-	-	-	-	-	-	573
Linseed	61	0	4	20	14	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Forage maize	51	7	12	12	10	3	0	6	-	-	-	-	-	-	-	-	-	-	191
Rootcrops for stockfeed	34	4	23	7	10	13	3	6	-	-	-	-	-	-	-	-	-	-	35
Leafy forage crops	44	2	18	5	21	10	-	-	-	-	-	-	-	-	-	-	-	-	26
Arable silage/other fodder crops	63	4	10	14	4	0	2	1	0	1	-	-	-	-	-	-	-	-	73
Peas - human consumption	66	2	10	8	10	4	-	-	-	-	-	-	-	-	-	-	-	-	44
Peas - animal consumption	51	0	10	18	11	0	2	3	0	0	0	0	0	5	-	-	-	-	50
Beans - animal consumption	66	1	6	10	7	2	1	7	-	-	-	-	-	-	-	-	-	-	131
Vegetables (brassicae)	6	1	9	7	15	8	26	2	16	0	10	-	-	-	-	-	-	-	46
Vegetables (other)	29	3	2	10	12	11	3	13	9	0	3	0	0	0	0	0	4	-	102
Soft Fruit	23	5	7	0	0	0	65	-	-	-	-	-	-	-	-	-	-	-	9
Top Fruit	52	11	1	0	0	0	14	11	11	-	-	-	-	-	-	-	-	-	24
Other tillage	68	5	9	6	0	4	0	6	-	-	-	-	-	-	-	-	-	-	75
All tillage	46	4	8	14	15	6	2	2	1	-	-	-	-	-	-	-	-	-	4572
Grass under 5 years old	47	12	17	8	6	4	3	2	-	-	-	-	-	-	-	-	-	-	757
Grass 5 years and over	54	24	16	4	2	1	-	-	-	-	-	-	-	-	-	-	-	-	2005
All grass	53	22	16	4	2	1	1	-	-	-	-	-	-	-	-	-	-	-	2762
All crops and grass	49	13	12	9	9	4	1	1	-	-	-	-	-	-	-	-	-	-	7334

Source: British Survey of Fertiliser Practice 2007

Table EW2.1 Average fertiliser practice by grassland utilisation, England & Wales 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Grazed not mown	57	42	41	26	85	22	25	48	9	10	1274
Grazed mown	74	56	57	55	116	29	43	85	16	25	1222
All grazings	63	47	47	38	99	25	33	62	12	16	2496
Cut for silage - grazed	80	63	66	65	127	29	45	102	19	30	863
Cut for silage - not grazed	82	58	64	67	136	34	60	111	20	38	151
All cut for silage	81	63	65	65	128	30	47	103	19	31	1014
Cut for hay - grazed	55	34	35	28	77	27	33	42	9	11	394
Cut for hay - not grazed	63	23	41	22	79	33	51	50	8	21	65
All cut for hay	56	33	36	28	77	28	35	43	9	12	459
All mowings	74	55	57	55	117	30	45	87	16	26	1428
All grass	63	47	47	38	101	26	35	64	12	17	2762

Source: British Survey of Fertiliser Practice 2007

Table EW2.2 Percentage of grass area by field application rate - Nitrogen, England & Wales 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	43	2	18	15	7	5	3	2	1	1	1	1	0	0	1	-	-	-	1274
Grazed mown	26	1	9	15	11	9	9	6	4	3	2	1	1	1	-	-	-	-	1222
All grazings	37	2	14	15	9	6	5	4	2	2	1	1	0	1	1	-	-	-	2496
Cut for silage - grazed	20	1	8	14	11	11	10	8	5	4	3	2	1	2	1	-	-	-	863
Cut for silage - not grazed	18	0	5	13	15	3	11	13	9	9	3	0	0	1	0	0	1	-	151
All cut for silage	19	1	7	14	12	10	11	8	6	5	3	2	1	2	-	-	-	-	1014
Cut for hay - grazed	45	2	15	15	12	4	5	1	-	-	-	-	-	-	-	-	-	-	394
Cut for hay - not grazed	37	0	17	18	18	1	1	2	5	-	-	-	-	-	-	-	-	-	65
All cut for hay	44	2	15	16	13	3	5	2	1	-	-	-	-	-	-	-	-	-	459
All mowings	26	1	9	15	12	8	9	6	4	4	2	1	1	1	-	-	-	-	1428
All grass	37	2	14	14	9	6	6	4	3	2	1	1	0	1	1	-	-	-	2762

Source: British Survey of Fertiliser Practice 2007

Table EW2.3 Percentage of grass area by field application rate - Phosphate, England & Wales 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	58	27	12	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1274
Grazed mown	44	27	20	7	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1222
All grazings	53	27	15	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2496
Cut for silage - grazed	37	30	23	8	1	1	-	-	-	-	-	-	-	-	-	-	-	-	863
Cut for silage - not grazed	42	20	29	2	6	1	-	-	-	-	-	-	-	-	-	-	-	-	151
All cut for silage	37	29	24	7	2	1	-	-	-	-	-	-	-	-	-	-	-	-	1014
Cut for hay - grazed	66	20	11	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	394
Cut for hay - not grazed	77	11	8	0	4	-	-	-	-	-	-	-	-	-	-	-	-	-	65
All cut for hay	67	19	11	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	459
All mowings	45	26	21	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1428
All grass	53	26	16	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2762

Source: British Survey of Fertiliser Practice 2007

Table EW2.4 Percentage of grass area by field application rate - Potash, England & Wales 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	59	24	13	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1274
Grazed mown	43	21	20	7	4	3	1	1	-	-	-	-	-	-	-	-	-	-	1222
All grazings	53	23	16	4	2	1	-	-	-	-	-	-	-	-	-	-	-	-	2496
Cut for silage - grazed	34	23	22	9	6	4	1	1	-	-	-	-	-	-	-	-	-	-	863
Cut for silage - not grazed	36	10	27	5	9	5	6	2	-	-	-	-	-	-	-	-	-	-	151
All cut for silage	35	21	23	8	6	4	2	1	-	-	-	-	-	-	-	-	-	-	1014
Cut for hay - grazed	65	17	13	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	394
Cut for hay - not grazed	59	9	20	3	5	2	0	1	-	-	-	-	-	-	-	-	-	-	65
All cut for hay	64	16	14	4	1	1	-	-	-	-	-	-	-	-	-	-	-	-	459
All mowings	43	19	21	7	5	3	1	1	-	-	-	-	-	-	-	-	-	-	1428
All grass	53	22	16	4	2	1	1	-	-	-	-	-	-	-	-	-	-	-	2762

Source: British Survey of Fertiliser Practice 2007

Table EW3.0 Product use by month of application, England & Wales 2007

(a) Product use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	total product ('000 tonnes)
Straight N	0	0	0	0	0	2	33	42	15	4	1	1	2055
Straight P	18	3	11	0	1	8	34	10	5	4	1	4	56
Straight K	5	5	10	9	6	16	30	11	4	3	0	1	115
Compounds	8	6	3	1	2	5	25	25	11	7	3	5	1334
All fertilisers	4	3	1	1	1	4	30	34	13	5	2	3	3574

(b) Nutrient use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total nutrient ('000 tonnes)
Nitrogen	1	0	0	0	0	2	31	41	16	5	2	2	877
Phosphate	13	10	5	1	2	7	25	19	7	3	1	6	180
Potash	10	9	5	2	3	10	25	18	8	4	2	5	247
Total	4	3	2	1	1	4	29	34	13	5	2	3	1304

Note: 'Product' refers to the total tonnage of the products used by the farmers in the survey year 2007.

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

(e.g. 100 kg of a 20 : 20 : 10 compound contains 20 kg of N, 10 kg of P₂O₅ and 10 kg of K₂O, while 100 kg of ammonium nitrate, one of the straight N products, contains typically 34.5 kg of N).

Table EW3.1 Product type as percentage of all product used by crop group, England & Wales 2007

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	36.0	47.1	6.2	21.3	40.7	16.2	39.5	27.6	26.1	24.9	30.3	27.6	36.8
Urea	8.2	10.3	1.1	3.3	16.8	3.5	9.9	3.0	4.7	2.9	3.9	3.3	8.3
Calcium Ammonium Nitrate (CAN)	3.4	2.5	0.1	0.5	4.5	4.4	4.4	2.9	1.9	2.6	0.0	2.7	2.8
Urea Ammonium Nitrate (UAN)	7.4	10.6	0.6	2.7	10.5	2.0	8.8	1.4	1.0	1.4	12.1	1.6	7.1
Other Straight N	0.8	2.1	0.0	0.0	5.9	0.9	2.3	2.3	0.6	2.6	0.0	2.1	2.3
Triple Superphosphate (TSP)	1.0	1.4	0.7	0.5	1.5	2.3	1.4	0.3	0.1	0.2	0.0	0.3	1.2
Other Straight P	0.1	0.2	0.0	0.0	0.1	0.5	0.2	0.9	0.0	0.8	0.0	0.8	0.3
Muriate of Potash (MOP)	4.0	2.7	5.6	1.1	2.7	4.7	3.0	0.8	1.3	0.9	1.0	0.9	2.5
Other Straight K	0.3	0.4	0.7	26.8	0.2	4.5	2.1	1.0	0.0	0.2	0.0	0.9	1.8
PK	10.7	14.1	7.3	26.9	10.0	14.3	13.6	4.4	4.1	4.8	16.3	4.6	11.5
NK	2.7	1.9	1.5	0.9	1.0	3.9	1.9	5.6	4.5	9.5	11.7	6.3	2.9
Low N (<19% N)	6.5	3.4	73.0	12.5	4.4	28.6	9.5	3.8	2.5	3.5	4.2	3.5	8.1
High N (>=19% N)	18.8	3.1	2.9	1.0	1.2	13.2	4.6	46.0	53.1	45.5	20.0	45.4	14.0
Other	0.0	0.2	0.3	2.7	0.5	1.2	0.5	0.1	0.0	0.0	0.7	0.1	0.4
Total product ('000 tonnes)	132	1572	65	107	456	169	2502	982	94	531	18	1072	3574

Source: British Survey of Fertiliser Practice 2007

Table EW3.2 Use of product type by crop group, Great Britain 2007

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	4.6	72.5	0.5	2.3	17.3	2.8	78.0	92.6	8.5	47.2	1.5	22.0	1285
Urea	4.2	63.3	0.2	1.4	27.8	3.0	90.7	92.4	9.0	36.9	0.8	9.3	319
Calcium Ammonium Nitrate (CAN)	12.6	52.6	0.1	1.6	22.6	10.4	10.4	94.6	4.4	59.9	0.0	25.2	65
Urea Ammonium Nitrate (UAN)	4.1	71.9	0.1	1.1	21.9	1.0	95.2	66.1	6.0	46.5	20.2	4.8	315
Other Straight N	2.0	45.5	0.0	0.0	46.6	5.9	80.6	100.0	17.8	66.3	0.0	19.4	76
Triple Superphosphate (TSP)	5.5	63.8	1.3	0.5	15.4	13.6	93.0	96.5	1.3	25.3	0.0	7.0	48
Other Straight P	5.0	66.2	0.0	0.0	14.5	14.3	58.7	100.0	0.0	40.7	0.0	41.3	9
Muriate of Potash (MOP)	6.1	56.4	6.3	1.7	14.5	15.0	91.5	87.1	11.0	69.2	1.2	8.5	71
Other Straight K	1.4	16.7	0.6	58.4	2.3	20.6	87.9	100.0	0.0	29.0	0.0	12.1	44
PK	4.7	61.6	1.9	9.3	13.2	9.3	91.1	82.7	4.0	48.4	10.6	8.9	382
NK	15.2	48.2	4.8	2.7	14.5	14.7	36.6	82.5	10.5	77.8	3.5	63.4	95
Low N (<19% N)	4.0	27.6	24.9	7.7	12.8	23.0	81.3	98.9	4.5	49.4	0.9	18.7	222
High N (>=19% N)	24.6	48.8	1.7	0.8	4.4	19.7	11.1	92.2	9.4	48.0	0.7	88.9	630
Other	2.0	20.0	1.5	34.5	17.4	24.6	96.4	89.4	0.0	0.0	10.6	3.6	14
All Fertilisers	5.3	62.8	2.6	4.3	18.2	6.8	70.0	91.5	8.8	49.5	1.6	30.0	3574

Source: British Survey of Fertiliser Practice 2007

Table EW3.3 Product use by month of application, England & Wales 2007

row %	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total product ('000 tonnes)
Ammonium Nitrate	0.0	1.8	31.0	42.1	17.1	3.9	1.6	1.6	0.6	0.0	0.0	0.0	1285
Urea	0.2	1.5	35.6	46.9	9.1	5.2	1.3	0.3	0.0	0.0	0.0	0.0	319
Calcium Ammonium Nitrate (CAN)	0.0	1.5	32.7	34.7	17.3	5.4	5.4	2.5	0.4	0.0	0.0	0.0	65
Urea Ammonium Nitrate (UAN)	0.0	2.6	35.7	43.1	15.6	2.0	0.4	0.0	0.4	0.0	0.0	0.0	315
Other Straight N	0.3	2.8	59.7	26.3	6.1	3.1	0.9	0.6	0.1	0.0	0.0	0.0	76
Triple Superphosphate (TSP)	0.8	9.3	30.5	11.2	5.7	4.8	1.4	4.9	17.4	12.0	12.0	0.0	48
Other Straight P	2.8	0.0	53.6	5.0	0.9	0.0	0.0	1.1	20.6	2.5	2.5	1.0	9
Muriate of Potash (MOP)	5.9	19.2	30.4	17.0	5.0	2.4	0.6	1.2	6.2	7.5	7.5	2.0	71
Other Straight K	6.6	10.6	28.0	2.1	1.6	3.3	0.0	1.1	3.4	14.3	14.3	19.3	44
PK	4.2	10.8	16.8	4.4	1.7	0.4	0.8	8.6	20.8	7.8	7.8	3.1	382
NK	0.0	4.0	16.8	18.3	24.5	25.0	5.0	5.0	1.3	0.0	0.0	0.0	95
Low N (<19% N)	2.2	5.6	39.0	29.7	7.5	2.5	0.7	2.8	5.6	2.0	2.0	0.1	222
High N (>=19% N)	0.0	1.6	26.3	37.3	16.2	8.9	3.9	4.5	1.3	0.0	0.0	0.0	630
Other	17.0	17.2	30.4	17.3	2.4	1.8	0.0	0.0	9.7	2.1	2.1	0.0	14
All Fertilisers	0.9	3.7	30.2	34.3	13.1	4.8	1.8	2.8	3.6	1.5	1.5	0.6	3574

Source: British Survey of Fertiliser Practice 2007

Table EW4.1a Average fertiliser practice on tillage and grassland by GOR, England & Wales 2007

		Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
		N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
North West	All tillage	88	62	70	44	121	61	85	106	38	60	134
	All grass	76	64	65	50	87	22	30	65	14	19	281
	All crops and grass	77	64	66	49	92	27	38	71	17	25	415
North East	All tillage	94	70	73	5	171	54	72	161	38	52	214
	All grass	55	41	42	26	81	27	35	45	11	15	184
	All crops and grass	72	54	55	17	132	42	56	95	23	31	398
Eastern	All tillage	92	48	46	7	162	69	83	148	33	38	735
	All grass	39	12	12	10	67	27	30	26	3	4	93
	All crops and grass	85	43	42	8	157	68	81	134	30	34	828
Yorkshire and the Humber	All tillage	92	46	60	19	170	65	97	158	30	58	739
	All grass	62	44	46	49	119	31	48	74	14	22	272
	All crops and grass	80	45	55	31	155	52	81	124	24	44	1011
West Midlands	All tillage	91	60	66	28	155	60	82	141	36	54	346
	All grass	68	50	53	29	100	22	35	68	11	18	273
	All crops and grass	78	54	58	29	126	39	57	98	21	33	619
East Midlands	All tillage	90	45	49	12	176	68	80	159	31	39	878
	All grass	46	21	21	34	114	26	40	52	6	8	228
	All crops and grass	79	39	42	17	167	62	75	132	24	31	1106
South West	All tillage	88	55	57	35	157	64	77	139	35	44	734
	All grass	67	47	47	49	109	28	38	73	13	18	664
	All crops and grass	75	50	51	44	130	43	54	98	21	28	1398
South East	All tillage	90	41	44	15	179	60	72	161	25	32	682
	All grass	41	18	21	11	99	32	36	41	6	8	313
	All crops and grass	70	32	35	13	159	53	63	111	17	22	995
Wales	All tillage	92	83	88	47	117	56	83	108	46	73	110
	All grass	73	66	64	44	101	26	31	74	17	20	454
	All crops and grass	74	67	66	44	103	28	36	76	19	24	564

Source: British Survey of Fertiliser Practice 2007

Table EW4.1b Average fertiliser practice on tillage and grassland by BSFP region, England & Wales 2007

		Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
		N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Wessex	All tillage	87	49	53	28	174	68	84	152	33	44	413
	All grass	63	35	35	39	104	29	37	65	10	13	251
	All crops and grass	75	42	44	33	146	52	66	110	22	29	664
Anglia	All tillage	92	48	46	7	162	69	83	148	33	38	735
	All grass	39	12	12	10	67	27	30	26	3	4	93
	All crops and grass	85	43	42	8	157	68	81	134	30	34	828
Northern	All tillage	92	66	69	15	142	48	65	131	32	45	254
	All grass	73	63	63	44	83	23	30	61	14	19	359
	All crops and grass	78	64	65	36	101	30	40	79	19	26	613
North East	All tillage	93	51	63	18	174	66	96	162	33	61	824
	All grass	59	42	45	44	114	30	45	67	13	20	359
	All crops and grass	78	47	55	29	154	52	78	120	24	43	1183
North Mercia	All tillage	88	44	73	34	143	56	90	127	25	65	164
	All grass	66	48	53	37	89	20	30	59	9	16	155
	All crops and grass	73	47	59	36	109	30	52	79	14	30	319
South Mercia	All tillage	90	64	55	25	161	60	73	145	38	40	260
	All grass	60	40	39	18	112	24	40	68	9	16	182
	All crops and grass	75	51	47	21	141	46	59	105	23	28	442
East Midland	All tillage	90	45	49	12	176	68	80	159	31	39	878
	All grass	46	21	21	34	114	26	40	52	6	8	228
	All crops and grass	79	39	42	17	167	62	75	132	24	31	1106
South East	All tillage	90	41	44	15	179	60	72	161	25	32	682
	All grass	41	18	21	11	99	32	36	41	6	8	313
	All crops and grass	70	32	35	13	159	53	63	111	17	22	995
South West	All tillage	91	70	71	56	116	60	70	105	42	50	252
	All grass	74	56	57	59	110	28	39	81	16	22	368
	All crops and grass	77	59	60	58	112	36	47	86	21	28	620
Wales	All tillage	92	83	88	47	117	56	83	108	46	73	110
	All grass	73	66	64	44	101	26	31	74	17	20	454
	All crops and grass	74	67	66	44	103	28	36	76	19	24	564

Source: British Survey of Fertiliser Practice 2007

Table SC1.1 Total fertiliser use, Scotland 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Winter wheat	99	81	89	12	175	68	87	172	55	77	131
Spring barley	98	94	96	41	99	52	65	98	49	62	263
Winter barley	100	91	96	15	140	69	85	140	63	81	63
Oats	87	79	84	21	107	58	79	94	46	67	43
Potatoes	90	83	83	15	126	128	202	114	106	168	33
Winter oilseed rape	100	69	77	13	182	63	76	182	43	59	56
Other crops	68	68	68	36	84	75	75	57	51	51	106
All tillage	96	86	90	29	125	61	77	120	53	70	695
Grass less than five years old	82	74	73	24	110	34	45	91	25	33	283
Grass five years and over	74	64	61	20	85	27	29	64	17	18	377
All grass	77	67	65	21	94	29	35	72	20	23	660
All crops and grass	84	74	74	24	107	43	54	90	32	40	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.2 Use of straight fertiliser, Scotland 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Winter wheat	91	1	7	165	50	116	151	1	8	131
Spring barley	55	0	3	73	49	78	40	0	2	263
Winter barley	92	0	3	126	0	75	116	0	2	63
Oats	63	0	6	101	0	136	64	0	8	43
Potatoes	27	0	17	54	0	153	14	0	27	33
Winter oilseed rape	100	0	10	165	0	113	165	0	12	56
Other crops	23	3	3	98	58	120	23	2	3	106
All tillage	66	1	5	117	53	108	77	0	5	695
Grass less than five years old	22	1	1	99	32	96	22	0	1	283
Grass five years and over	19	1	0	81	117	69	15	2	0	377
All grass	20	1	0	87	105	93	17	1	0	660
All crops and grass	37	1	2	107	92	106	39	1	2	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.3 Use of compound fertiliser, Scotland 2007

	Crop area receiving dressing (%)			Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Winter wheat	39	80	82	55	69	84	22	55	69	131
Spring barley	89	94	93	64	52	64	58	49	60	263
Winter barley	51	91	93	47	69	85	24	63	79	63
Oats	65	79	79	45	58	74	29	46	59	43
Potatoes	83	83	78	119	128	181	99	106	141	33
Winter oilseed rape	59	69	73	29	63	65	17	43	47	56
Other crops	60	68	65	58	72	74	34	49	48	106
All tillage	70	86	86	61	61	75	43	52	64	695
Grass less than five years old	73	74	73	95	34	44	69	25	32	283
Grass five years and over	63	63	61	77	24	29	48	15	18	377
All grass	66	66	64	83	28	34	55	18	22	660
All crops and grass	67	73	72	75	42	52	50	31	37	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.4 Use of lime, Scotland 2007

	Crop area receiving dressing (%)					Average application rate							Fields limed	Fields in sample
	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All	Ground limestone	Ground chalk	Magnesian limestone	Sugar beet lime	Other	All		
Winter wheat	2.9	-	-	-	3.5	6.4	4.2	-	-	-	17.0	7.0	9	131
Spring barley	17.2	-	8.0	-	1.1	26.3	4.8	-	4.8	-	10.8	5.4	74	263
Winter barley	-	-	-	-	-	-	-	-	-	-	-	-	4	63
Oats	-	-	-	-	-	-	-	-	-	-	-	-	4	43
Potatoes	-	-	-	-	-	-	-	-	-	-	-	-	0	33
Winter oilseed rape	5.0	-	2.9	-	-	8.0	4.5	-	3.4	-	-	4.0	5	56
Other crops	12.2	-	3.1	-	4.8	20.1	3.7	-	3.4	-	3.1	3.5	19	106
All tillage	10.7	-	4.3	-	1.6	16.7	4.6	-	4.3	-	9.9	5.1	115	695
Grass less than five years old	4.1	-	0.4	-	1.0	5.4	3.6	-	3.4	-	10.2	5.2	16	283
Grass five years and over	1.4	-	0.3	-	2.6	4.3	4.4	-	3.4	-	13.4	8.3	22	377
All grass	2.2	-	0.3	-	2.1	4.6	4.0	-	3.4	-	12.5	7.0	38	660
All crops and grass	5.3	-	1.8	-	1.9	9.0	4.4	-	4.2	-	11.3	5.6	153	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.5 Percentage of crop area by field application rate - Nitrogen, Scotland 2007

row %	kg/ha																	Fields in sample	
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-		400+
Winter wheat	1	0	3	6	5	3	7	16	30	15	6	4	5	-	-	-	-	-	131
Spring barley	2	0	9	12	23	37	13	4	1	1	-	-	-	-	-	-	-	-	263
Winter barley	0	2	3	2	8	22	20	16	14	9	4	-	-	-	-	-	-	-	63
Oats	13	1	6	16	22	15	22	-	-	-	-	-	-	4	-	-	-	-	43
Potatoes	10	17	0	14	9	13	3	3	12	6	4	5	2	2	-	-	-	-	33
Winter oilseed rape	0	0	0	5	6	2	10	17	23	23	5	3	1	3	-	-	-	-	56
Other crops	32	3	10	23	13	3	10	3	0	1	0	0	0	0	0	1	-	-	106
All tillage	4	1	6	10	16	22	12	8	10	6	2	1	1	1	-	-	-	-	695
Grass less than five years old	18	3	4	21	14	11	7	6	8	6	2	1	1	-	-	-	-	-	283
Grass five years and over	26	2	11	29	11	7	6	4	2	1	1	1	-	-	-	-	-	-	377
All grass	23	2	9	26	12	8	7	4	4	3	1	1	-	-	-	-	-	-	660
All crops and grass	16	2	8	21	14	13	8	6	6	4	1	1	1	-	-	-	-	-	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.6 Percentage of crop area by field application rate - Phosphate, Scotland 2007

row %	kg/ha																	Fields in sample	
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-		400+
Winter wheat	19	0	19	28	28	5	-	-	-	-	-	-	-	-	-	-	-	-	131
Spring barley	6	11	27	45	10	-	-	-	-	-	-	-	-	-	-	-	-	-	263
Winter barley	9	0	9	45	36	2	-	-	-	-	-	-	-	-	-	-	-	-	63
Oats	21	3	23	49	0	4	-	-	-	-	-	-	-	-	-	-	-	-	43
Potatoes	17	4	12	7	8	13	8	3	13	6	3	0	4	-	-	-	-	-	33
Winter oilseed rape	31	1	17	33	15	3	-	-	-	-	-	-	-	-	-	-	-	-	56
Other crops	32	8	15	24	4	5	5	5	0	0	0	0	0	0	2	-	-	-	106
All tillage	14	6	22	38	15	2	1	-	-	-	-	-	-	-	-	-	-	-	695
Grass less than five years old	26	25	36	8	2	2	-	-	-	-	-	-	-	-	-	-	-	-	283
Grass five years and over	36	32	27	4	0	0	0	0	1	-	-	-	-	-	-	-	-	-	377
All grass	33	30	30	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	660
All crops and grass	26	21	27	17	6	1	-	-	-	-	-	-	-	-	-	-	-	-	1355

Source: British Survey of Fertiliser Practice 2007

Table SC1.7 Percentage of crop area by field application rate - Potash, Scotland 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Winter wheat	11	2	8	15	33	23	6	1	-	-	-	-	-	-	-	-	-	-	131
Spring barley	4	8	16	37	26	5	4	-	-	-	-	-	-	-	-	-	-	-	263
Winter barley	4	2	5	12	51	26	-	-	-	-	-	-	-	-	-	-	-	-	63
Oats	16	0	22	23	11	23	0	4	-	-	-	1	-	-	-	-	-	-	43
Potatoes	17	4	12	0	6	3	0	6	0	5	11	11	7	12	0	0	0	4	33
Winter oilseed rape	23	7	13	18	21	6	10	2	-	-	-	-	-	-	-	-	-	-	56
Other crops	32	5	14	16	14	9	4	5	-	-	-	-	-	-	-	-	-	-	106
All tillage	10	6	14	26	26	11	4	1	-	-	-	-	-	-	-	-	-	-	695
Grass less than five years old	27	20	29	12	5	3	2	1	-	-	-	-	-	-	-	-	-	-	283
Grass five years and over	39	28	24	4	2	1	1	-	-	-	-	-	-	-	-	-	-	-	377
All grass	35	26	26	7	3	2	1	-	-	-	-	-	-	-	-	-	-	-	660
All crops and grass	26	18	21	14	11	5	2	1	-	-	-	-	-	-	-	-	-	-	1355

Source: British Survey of Fertiliser Practice 2007

Table SC2.1 Average fertiliser practice by grassland utilisation, Scotland 2007

	Crop area receiving dressing (%)				Average field rate (kg/ha)			Overall application rate (kg/ha)			Fields in sample
	N	P ₂ O ₅	K ₂ O	FYM	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Grazed not mown	70	60	57	11	74	24	22	52	14	13	341
Grazed mown	91	85	85	46	124	35	54	113	30	46	195
All grazings	75	66	63	19	88	27	32	67	18	20	536
Cut for silage - grazed	93	87	87	47	127	35	54	118	30	47	170
Cut for silage - not grazed	95	81	80	42	131	40	49	124	32	39	95
All cut for silage	93	85	84	45	128	37	53	120	31	44	265
Cut for hay - grazed	68	64	61	23	90	36	47	61	23	29	28
Cut for hay - not grazed	92	88	88	18	110	39	45	101	34	40	38
All cut for hay	84	80	79	20	105	38	46	88	30	36	66
All mowings	92	83	83	43	125	37	53	115	31	44	313
All grass	77	67	65	21	94	29	35	72	20	23	660

Source: British Survey of Fertiliser Practice 2007

Table SC2.2 Percentage of grass area by field application rate - Nitrogen, Scotland 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	30	3	12	33	8	6	4	3	1	-	-	-	-	-	-	-	-	-	341
Grazed mown	9	1	2	13	23	14	9	9	8	7	2	1	1	-	-	-	-	-	195
All grazings	25	2	10	28	11	8	5	4	3	2	1	1	1	-	-	-	-	-	536
Cut for silage - grazed	7	0	2	12	22	15	10	10	8	8	3	1	1	-	-	-	-	-	170
Cut for silage - not grazed	5	1	1	14	20	8	17	6	15	10	3	-	-	-	-	-	-	-	95
All cut for silage	7	1	2	13	21	12	13	8	11	9	3	1	1	-	-	-	-	-	265
Cut for hay - grazed	32	3	2	17	27	6	6	2	7	-	-	-	-	-	-	-	-	-	28
Cut for hay - not grazed	8	0	4	8	28	23	15	4	5	4	-	-	-	-	-	-	-	-	38
All cut for hay	16	1	4	11	28	18	12	3	6	2	-	-	-	-	-	-	-	-	66
All mowings	8	1	2	13	22	13	12	8	10	8	3	1	1	-	-	-	-	-	313
All grass	23	2	9	26	12	8	7	4	4	3	1	1	-	-	-	-	-	-	660

Source: British Survey of Fertiliser Practice 2007

Table SC2.3 Percentage of grass area by field application rate - Phosphate, Scotland 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	40	36	21	3	0	0	0	0	1	-	-	-	-	-	-	-	-	-	341
Grazed mown	15	18	56	9	1	1	-	-	-	-	-	-	-	-	-	-	-	-	195
All grazings	34	31	29	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	536
Cut for silage - grazed	13	17	58	10	0	1	1	-	-	-	-	-	-	-	-	-	-	-	170
Cut for silage - not grazed	19	23	36	15	4	3	1	-	-	-	-	-	-	-	-	-	-	-	95
All cut for silage	15	19	50	11	2	2	1	-	-	-	-	-	-	-	-	-	-	-	265
Cut for hay - grazed	36	21	33	4	7	-	-	-	-	-	-	-	-	-	-	-	-	-	28
Cut for hay - not grazed	12	20	56	8	0	3	0	2	-	-	-	-	-	-	-	-	-	-	38
All cut for hay	20	20	48	6	2	2	0	1	-	-	-	-	-	-	-	-	-	-	66
All mowings	17	20	49	11	2	2	1	-	-	-	-	-	-	-	-	-	-	-	313
All grass	33	30	30	5	1	1	-	-	-	-	-	-	-	-	-	-	-	-	660

Source: British Survey of Fertiliser Practice 2007

Table SC2.4 Percentage of grass area by field application rate - Potash, Scotland 2007

row %	kg/ha																		Fields in sample
	0	<25	25-	50-	75-	100-	125-	150-	175-	200-	225-	250-	275-	300-	325-	350-	375-	400+	
Grazed not mown	43	33	21	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	341
Grazed mown	15	10	40	16	7	5	6	0	1	-	-	-	-	-	-	-	-	-	195
All grazings	37	27	25	6	2	1	1	-	-	-	-	-	-	-	-	-	-	-	536
Cut for silage - grazed	13	10	40	16	8	5	6	0	1	-	-	-	-	-	-	-	-	-	170
Cut for silage - not grazed	20	16	30	16	12	6	-	-	-	-	-	-	-	-	-	-	-	-	95
All cut for silage	16	12	37	16	9	6	4	0	1	-	-	-	-	-	-	-	-	-	265
Cut for hay - grazed	39	6	36	11	2	0	6	-	-	-	-	-	-	-	-	-	-	-	28
Cut for hay - not grazed	12	16	40	25	2	0	0	5	-	-	-	-	-	-	-	-	-	-	38
All cut for hay	21	13	39	20	2	0	2	3	-	-	-	-	-	-	-	-	-	-	66
All mowings	17	12	37	16	9	5	4	1	1	-	-	-	-	-	-	-	-	-	313
All grass	35	26	26	7	3	2	1	-	-	-	-	-	-	-	-	-	-	-	660

Source: British Survey of Fertiliser Practice 2007

Table SC3.0 Product use by month of application, Scotland 2007

(a) Product use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total product ('000 tonnes)
Straight N	0	2	1	0	0	2	21	50	17	3	4	1	180
Straight P	0	0	0	0	0	0	14	76	10	0	0	0	4
Straight K	0	2	7	0	0	9	25	45	12	0	0	0	6
Compounds	2	4	0	0	0	1	19	46	15	7	3	3	435
All fertilisers	2	4	0	0	0	1	20	47	15	6	3	2	626

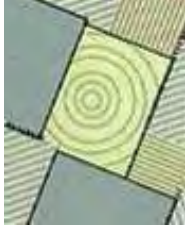
(b) Nutrient use

row %	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total nutrient ('000 tonnes)
Nitrogen	0	1	0	0	0	1	18	50	17	6	4	2	138
Phosphate	5	8	0	0	1	2	22	43	11	4	2	3	49
Potash	4	8	1	0	1	3	21	42	11	5	2	2	61
Total	2	4	0	0	0	2	20	46	15	5	3	2	248

Note: 'Product' refers to the total tonnage of the products used by the farmers in the survey year 2007.

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

(e.g. 100 kg of a 20 : 20 : 10 compound contains 20 kg of N, 10 kg of P₂O₅ and 10 kg of K₂O, while 100 kg of ammonium nitrate, one of the straight N products, contains typically 34.5 kg of N).



SECTION D

USE OF ORGANIC MANURES – GREAT BRITAIN, 2007

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 have been 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 1331 farms in the survey, around two thirds (894) used organic manures on at least one field on the farm, the details are shown in Table D1.1.

Table D1.1 Numbers and percentage (%) of farms using each type of manure in Great Britain, 2007

<i>manure type</i>	<i>none</i>	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>pig FYM</i>	<i>pig slurry</i>	<i>sheep FYM</i>	<i>layer manure</i>	<i>broiler/turkey litter</i>	<i>duck FYM</i>	<i>other</i>
Farms in sample	439	735	270	25	24	21	31	32	4	78
Farms in population	30221	52101	18635	1189	1131	1721	1528	1747	173	3664
Farms in population %	33%	56%	20%	1%	1%	2%	2%	2%	-	4%
Volume ('000,000 t; m ³)	n/a	33.8	34.3	1.0	1.9	0.4	0.9	0.4	-	2.7
Volume %	n/a	45%	45%	1%	3%	0%	1%	0%	-	4%

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

Cattle manure from beef and dairy farms is by far the largest volume of manure type generated in Great Britain. 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 D1.2.

Table D1.2 Estimated volume of exported manures, Great Britain 2007

<i>manure type</i>	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>other</i>	<i>total</i>
Farms in sample	19	7	4	30
Farms in population	1223	533	-	2029
Exported volume ('000,000 t; m ³)	0.6	0.2	-	0.8
Average volume per farm (t;m ³)	455	450	-	414

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.

Of the farms surveyed, 894 reported use of either farm or non-farm manure and, of these, 162 had imported some/all of it. The details are given in Table D1.3. Of those that imported manure, 21 imported more than one type.

Table D1.3a Number of farms importing farm manures (solids and liquids), showing quantity imported, Great Britain 2007

<i>manure type</i>	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>pig FYM</i>	<i>pig slurry</i>	<i>layer manure</i>	<i>broiler/turkey litter</i>	<i>duck FYM</i>	<i>total</i>
Farms in sample	36	7	10	7	20	33	1	114
Farms in population	2394	552	414	386	1002	1581	-	6426
Imported volume ('000,000 t; m ³)	1.4	0.1	0.4	0.1	0.3	0.5	-	2.8
Average volume per farm (t; m ³)	582	125	860	329	329	342	-	443

Table D1.3b Number of farms importing non-farm manures (solids and liquids), showing quantity imported, Great Britain 2007

<i>manure type</i>	<i>sewage sludge</i>				<i>composted green manure</i>	<i>other</i>	<i>total</i>
	<i>digested liquid</i>	<i>digested cake</i>	<i>thermally dried</i>	<i>lime stabilised</i>			
Farms in sample	3	27	7	19	5	12	73
Farms in population	-	1041	365	580	370	777	3231
Imported volume ('000,000 t; m ³)	-	1.1	0.2	0.6	1.7	0.7	4.5
Average volume per farm (t; m ³)	-	1101	449	1082	4689	841	1379

Note: some farmers imported more than one type of manure

The amount of imported non-farm manures has increased each year since 2003. This is attributable to both an increase in usage per farm (1379 tonnes;m³ compared with 1070 tonnes;m³ in 2003) and to a substantial increase in the number of farms importing (73 compared with 23 in 2003). Cattle FYM and poultry manure continued to be the farm produced manures most likely to be imported.

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 across all farm robust types for both types of slurry.

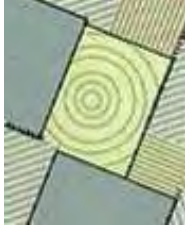


Table D1.4 Number and percentage (%) of farms using each type of application method by slurry type and robust farm type, Great Britain 2007

robust farm type	farms in sample	farms in population	percentage of farms						
			broadcast	band spread	shallow injection	deep injection	rain	gun	rotating boom
Cattle slurry									
Cereals	25	1188	82	12	0	0	6	0	
General cropping	15	746	99	1	0	0	0	0	
Dairy	164	11325	85	9	3	0	2	1	
Other livestock	136	9833	89	8	0	0	1	2	
Mixed	42	1976	89	0	3	0	7	1	
TOTAL	382	25066	87	8	2	0	2	1	
Pig slurry									
Cereals	8	364	93	7	0	0	0	0	
General cropping	7	230	90	10	0	0	0	0	
Dairy	1	26	-	-	-	-	-	-	
Other livestock	3	235	-	-	-	-	-	-	
Mixed	6	219	100	0	0	0	0	0	
TOTAL	25	1073	78	4	18	0	0	0	
Both	5	133	93	7	0	0	0	0	
Grand Total	407	26139	87	8	2	0	2	1	

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. Around 20% of fields receiving manures got more than one application but since two-thirds of these fields are grass and manure on grass fields is seldom incorporated (unless they are destined for re-seeding), grass fields have been excluded from the incorporation analysis. Tables D1.5a and D1.5b give estimates of the volume and area of manure/slurry incorporation on tillage fields by manure type and immediacy of incorporation. Of the farm-produced manures, poultry manure is the most extensively incorporated (around 90% of all poultry manure spread), with almost all of it incorporated within a week of spreading on tillage fields. Conversely, cattle slurry is the least likely farm manure type to be incorporated on tillage (C70%) and also the latest (almost a third incorporated after 1 week, where incorporation occurs). Differences in the proportion of area and volume of manure/slurry being incorporated at each timing can suggest different agronomic practices. For instance, around 91% of the incorporated volume of pig slurry occurs within 24 hours, but this equates to only 71% of the incorporated area. This difference suggests that pig slurry incorporated later than 24 hours is applied at a lower rate than that incorporated sooner.

Table D1.5 Percentage of incorporated of organic manure volume and area on tillage fields by incorporation time and manure/slurry type, Great Britain 2007

manure type	incorporation time after spreading										total applied area '000 ha	total volume applied '000,000t;m ³
	not incorporated		within 6 hours		between 6 and 24 hours		between 1 and 7 days		more than 1 week			
	%area	%vol	%area	%vol	%area	%vol	%area	%vol	%area	%vol		
FYM	15	14	3	3	21	24	47	46	14	14	640	13.8
Cattle slurry	32	30	3	4	15	16	29	31	21	19	116	3.9
Pig slurry	17	15	25	20	34	57	14	8	9	0	35	1.3
Poultry FYM	10	7	8	8	53	42	28	41	1	2	120	1.2
Other	49	56	11	10	24	18	13	10	3	6	107	2.6



Farmers were asked to indicate what proportion of their livestock manures had been spread by a contractor (Table D1.6). Farmers with poultry manure were most likely to use a contractor to apply at least some of their manure and this represents nearly 60% of the total poultry manure applications. Pig slurry was the manure type least likely to be applied by contractor.

Table D1.6 Use of contractors to spread manure/slurry in current season, Great Britain 2007

	<i>% of farms using a contractor</i>	<i>% volume applied by contractor</i>	<i>average % of contractor-applied manure, where contractor is used</i>
FYM	31	26	93
Cattle slurry	32	20	82
Pig slurry	39	7	88
Poultry manure	54	59	98
Other	32	26	97

D2. USE OF ORGANIC MANURES

At a field level, farmers were asked about how often fields received organic manures. Of all the fields surveyed, 72% did not receive manure in the current year. On farms where some manure was used, 41% of fields received at least one application of at least one type of manure or slurry. For fields that were known to have received manure in the past, the average frequency of application is shown in Table D2.1.

Table D2.1 Average number of years between organic manure applications where manure has been applied in the past, Great Britain 2007

	<i>1 year</i>	<i>2 years</i>	<i>3 years</i>	<i>4 years</i>	<i>5 years</i>	<i>6 years</i>	<i>>6 years</i>
% of fields	34	15	16	11	11	6	8

The proportion of fields receiving each of the main types of manure is shown in Table D2.2.

Table D2.2 Percentage of fields receiving each organic manure type, Great Britain 2007

	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>pig FYM</i>	<i>pig slurry</i>	<i>sheep FYM</i>	<i>layer manure</i>	<i>broiler/turkey litter</i>	<i>duck FYM</i>	<i>other</i>
% of all fields	20	10	0	0	0	1	1	0	1
% of all fields where organic manure is applied	61	29	1	1	1	2	2	0	3

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

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 as 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 D2.3.

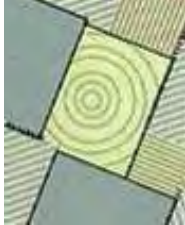


Table D2.3 Typical dry matter and nutrient content of different organic manure types¹¹

<i>type</i>	<i>dry matter (%)</i>	<i>total N (kg/t; kg/m³)</i>	<i>total P₂O₅ (kg/t; kg/m³)</i>	<i>total K₂O (kg/t; kg/m³)</i>
Cattle FYM	25	6.0	3.5	8.0
Pig FYM	25	7.0	7.0	5.0
Sheep FYM	25	6.0	2.0	3.0
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	2.7	1.2	3.1
Pig slurry	4	4.0	2.0	2.5
Digested liquid sewage sludge	4	2.0	1.5	-
Digested cake	25	7.5	9.0	-
Thermally dried	95	35.0	45.0	-
Lime stabilised	40	6.0	8.0	-
Composted green manure	65	7.0	2.8	5.3

Using these typical values it is possible to estimate the average application rate for nitrogen on fields receiving manures. In Table D2.4, crops receiving manure applications have been classified as either “winter sown”, “spring sown” or “grass” (details given in Table D2.6) and their average application of nitrogen calculated accordingly.

Table D2.4 Estimated average rates of total nitrogen from organic manure applications to winter sown and spring sown crops and grassland by manure type, Great Britain 2007

	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>pig FYM</i>	<i>pig slurry</i>	<i>sheep FYM</i>	<i>layer manure</i>	<i>broiler/turkey litter</i>	<i>duck FYM</i>	<i>other</i>
Winter sown									
Avg nitrogen field rate (kg/ha)	127	75	125	182	-	171	177	182	156
Avg manure rate (t; m ³ /ha)	21	28	18	46	-	11	6	28	24
Volume ('000 t; '000 m ³)	5.0	0.9	0.3	0.9	-	0.4	0.2	0.1	1.4
Fields in sample	324	46	18	27	4	33	23	7	67
Spring sown									
Avg nitrogen field rate (kg/ha)	141	102	156	148	-	196	233	-	180
Avg manure rate (t; m ³ /ha)	23	39	22	37	-	12	8	-	24
Volume ('000 t; '000 m ³)	7.3	2.8	0.6	0.4	-	0.3	0.1	-	0.6
Fields in sample	473	114	22	20	1	21	21	1	23
Grass									
Avg nitrogen field rate (kg/ha)	89	64	136	98	81	106	100	-	77
Avg manure rate (t; m ³ /ha)	15	24	19	25	14	7	3	-	3
Volume ('000 t; '000 m ³)	20.9	30.4	0.1	0.6	0.3	0.1	0.0	-	0.0
Fields in sample	831	753	7	18	20	20	13	0	8

The majority of cattle applications were made to grassland, reflecting the practice of utilising the manure within the farm on which it is produced. Conversely, organic manures with a high nitrogen content (such as poultry manures and certain treated sewage sludges) appear to be favoured on tillage land.

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



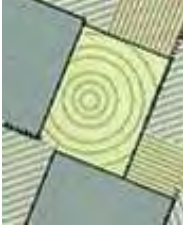
The time of year when manure was applied is shown in Table D2.5. as a proportion of fields receiving manure applications. Once again the crops have been classified as either “winter sown”, “spring sown” or “grass”. This segmentation highlights the prevalence of applications in August and September for winter sown crops (prior to drilling), whereas spring sown and grass fields are predominantly treated between November and April.

Table D2.5 Percentage of fields receiving each organic manure type by sowing season and timing, Great Britain 2007

	<i>cattle FYM</i>	<i>cattle slurry</i>	<i>pig FYM</i>	<i>pig slurry</i>	<i>sheep FYM</i>	<i>layer manure</i>	<i>broiler/ turkey litter</i>	<i>duck FYM</i>	<i>other</i>
Winter sown									
August	22	20	11	21	20	28	28	43	39
September	49	43	60	24	80	43	72	0	38
October	13	11	14	13	0	0	0	0	13
Winter (Nov, Dec, Jan)	5	1	4	8	0	0	0	0	0
Spring (Feb, Mar, Apr)	7	22	7	34	0	21	0	0	2
Summer (May, Jun, Jul)	4	3	4	0	0	8	0	57	8
Spring sown									
August	1	0	0	0	0	0	0	0	14
September	3	4	4	0	100	0	0	0	0
October	6	2	0	0	0	9	0	0	26
Winter (Nov, Dec, Jan)	18	21	23	47	0	19	15	100	17
Spring (Feb, Mar, Apr)	65	67	72	53	0	50	85	0	43
Summer (May, Jun, Jul)	7	7	0	0	0	22	0	0	0
Grass									
August	8	4	0	11	1	7	11	-	12
September	8	4	29	11	21	0	0	-	0
October	10	3	43	0	0	10	0	-	0
Winter (Nov, Dec, Jan)	29	33	0	16	10	12	9	-	0
Spring (Feb, Mar, Apr)	36	42	29	39	65	48	80	-	72
Summer (May, Jun, Jul)	9	14	0	23	3	23	0	-	17

Table D2.6 Classification of “winter sown”, “spring sown” and “grass” crops

<i>crop group</i>	<i>crops included</i>				
Winter sown	Rye/triticale (for grain)	Winter barley	Winter oats	Winter oilseed rape	Winter wheat
	Beans for human consumption (broad, french, runner etc.)			Beetroot	Broccoli
	Calabrese/broccoli	Carrots	Cauliflower	Courgette/marrows	Peas
Spring sown	Flax	Forage maize	Leeks	Lettuce	Linseed
	Onions	Other outdoor vegetables	Parsnips	Potatoes	Spring barley
	Spring oilseed rape	Spring wheat	Sugar beet	Swedes/turnips	Sweetcorn
Grass	Grass five years and over	Grass less than five years old			



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 be reduced¹². 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 D3.1 shows the overall fertiliser rates for the main tillage crops in Great Britain, with and without manure inputs.

Table D3.1 Overall field rate of manufactured fertiliser application to tillage crops in Great Britain, with and without applications of organic manure, 2007

	nitrogen		phosphate		potash		fields in sample	
	with manure	without manure	with manure	without manure	with manure	without manure	with manure	without manure
Winter wheat	168	194	21	33	36	40	291	1583
Spring barley	94	103	41	36	51	49	214	433
Winter barley	108	141	34	36	46	62	93	453
Potatoes (maincrop)	109	144	91	151	141	230	39	82
Sugar beet	79	99	11	50	81	110	45	120
Spring oilseed rape *	-	127	-	13	-	25	0	17
Winter oilseed rape	181	191	19	32	39	37	79	549
Peas - animal consumption *	0	5	0	24	25	48	6	44
Beans - animal consumption *	0	1	24	15	35	29	9	120
Forage maize	51	61	40	28	33	25	170	20

* Note small number of fields receiving manures.

For all the major tillage crops the overall rate of nitrogen from manufactured mineral fertiliser is consistently higher on fields where organic manures were not applied. Application rate increases in nitrogen ranged from 6% for winter oilseed rape through to 32% for maincrop potatoes. This is also predominantly the case for phosphate and potash fertiliser application rates. Whilst this was most dramatically illustrated by a 355% increase in the rate of phosphate on un-manured sugar beet fields, sugar beet is not a crop with high phosphate requirements. The overall rate of nutrient applications were higher on un-manured potato fields by 66% and 63% for phosphate and potash respectively. However certain crops such as field beans, forage maize and winter oilseed rape showed a reduction in the overall rates for these nutrients on un-manured land. 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.

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.

¹² Anon. (2000). *Fertiliser Recommendations for Agricultural and Horticultural Crops*. MAFF Reference Book 209 (Seventh edition). The Stationery Office, London.



Table D3.2 Average fertiliser application rate on grassland with and without applications of organic manure by robust type group, Great Britain 2007

	<i>nitrogen</i>		<i>phosphate</i>		<i>potash</i>		<i>fields in sample</i>	
	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>
Cereals								
Grass under 5 years old	91	107	38	55	57	74	11	157
Grass 5 years and over	59	77	38	30	38	38	13	350
All grass	72	85	38	39	51	52	24	507
Dairy								
Grass under 5 years old	173	158	35	31	69	58	160	55
Grass 5 years and over	145	120	27	25	41	29	293	165
All grass	152	127	29	26	48	34	453	220
General cropping								
Grass under 5 years old	121	130	30	39	39	58	17	93
Grass 5 years and over	81	71	22	21	31	27	20	182
All grass	92	90	24	29	32	41	37	275
Mixed								
Grass under 5 years old	136	117	31	33	52	50	59	130
Grass 5 years and over	80	87	29	27	26	34	45	222
All grass	105	97	30	29	40	40	104	352
Other livestock								
Grass under 5 years old	122	91	33	26	49	35	115	157
Grass 5 years and over	78	63	24	23	27	23	404	541
All grass	85	68	25	23	30	25	519	698

* Note small number of fields

In the dairy sector, 68% of all grassland receiving some mineral fertiliser also received manure applications, compared with 43% on other livestock farms (predominantly sheep and beef in lowland and less favoured areas) and 24% on mixed farms (livestock and cropping). Intriguingly, in almost all cases, the rate of nitrogen, phosphate and potash fertiliser was 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 D3.3). This shows that in both England & Wales and Scotland fields cut for silage are most likely to receive manures, 82% and 88%, respectively compared with 69% and 72% for grazed grass. In England & Wales, smaller dressings of phosphate fertiliser were made to silage fields where manure had been applied. In Scotland, only grazed grass had sufficient fields with and without manure for comparison, indicating the average rate of mineral fertiliser applied was higher in the presence of manure.

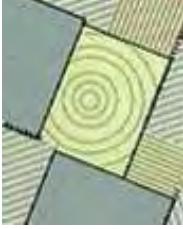


Table D3.3 Average fertiliser application rate on dairy grassland with and without applications of organic manure, Great Britain 2007

	<i>nitrogen</i>		<i>phosphate</i>		<i>potash</i>		<i>fields in sample</i>	
	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>	<i>with manure</i>	<i>without manure</i>
All cut for hay	85	78	31	29	36	37	131	347
All cut for silage	133	120	31	33	48	49	657	542
All grazings	117	83	26	25	37	30	1028	1810

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 these data there are a number of factors which 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.

Around a third (33%) of farmers check the accuracy of mineral fertiliser spreaders with catch trays on an annual basis (Table D4.1). This is a substantial drop from 45% of farmers in 2006 and a marked change in the trend of an increasing tendency to check over the last few years (32% in 2004 and 41% in 2005.) Six percent of farmers check at each change of fertiliser type.

Table D4.1 Frequency of spread pattern checks using a catch tray, Great Britain 2007

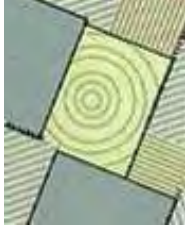
<i>response</i>	<i>percentage of farms</i>
Not answered	6
It is factory set & doesn't need checking	8
At each change of fertiliser type	6
Less than once a year	12
Once a year	33
Never checked	21
Other	14

Farm diaries continue to be the most common methods for recording both fertiliser and manure use (Table D4.2). No fertiliser records were kept on 8% of farms; this compares with 7% in 2006, 10% in 2005, 18% in 2004 and 22% in 2001 when this question was previously asked in the survey.

Table D4.2 Record keeping methods for fertiliser and manure applications on farms where each respective nutrient type was applied during the 2006/07 crop year in Great Britain 2007

	<i>manufactured fertilisers</i>		<i>organic manures</i>	
	<i>farms</i>	<i>farms %</i>	<i>farms</i>	<i>farms %</i>
Computer program	9286	15	7362	16
Farm diary	24571	39	18253	39
Farm notebook/pocketbook	17056	27	11442	25
File record sheet (file in the office)	9537	15	7823	17
Other paper record	2239	4	1351	3
No records kept	5167	8	6562	14

Note: more than one method may be used



APPENDIX 1 - SURVEY STATISTICS

App 1.1 SAMPLING VARIATION

Table App 1.1 Standard errors of application rates for the major crops in 2007

Great Britain	standard errors for overall application rates (kg/ha)					standard error for average field rates (kg/ha)					fields in sample
	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	
winter wheat	2.5	2.8	1.3	1.3	1.7	2.4	2.4	4.4	1.5	1.8	1897
oilseed rape	2.9	3.0	1.2	1.7	2.2	2.8	2.8	3.7	1.8	2.6	646
winter barley	2.6	3.1	1.7	1.7	2.4	2.4	2.5	4.5	1.6	2.3	550
spring barley	2.0	2.6	1.9	1.4	1.7	1.8	2.3	1.9	1.3	1.6	661
m/c potatoes	8.2	5.4	8.1	9.0	12.5	7.5	10.3	7.6	8.4	11.7	122
sugar beet	4.1	4.2	2.7	7.3	13.1	3.7	3.5	6.2	12.0	14.7	167
all tillage crops	2.0	2.4	1.1	1.0	1.3	2.0	2.1	1.8	1.2	1.9	5267
all grass	1.9	1.5	1.3	0.5	0.7	2.0	2.7	1.8	0.9	1.3	3422

England & Wales	standard errors for overall application rates (kg/ha)					standard error for average field rates (kg/ha)					fields in sample
	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	
winter wheat	2.7	3.0	1.3	1.3	1.8	2.5	2.5	5.0	1.6	2.0	1766
oilseed rape	2.9	3.1	1.2	1.8	2.3	2.8	2.9	4.9	2.0	2.9	589
winter barley	2.8	3.4	1.7	1.7	2.7	2.6	2.8	5.3	1.7	2.6	487
spring barley	2.7	3.4	2.2	1.7	2.2	2.3	2.6	3.2	2.0	2.2	398
m/c potatoes	9.1	6.6	9.0	10.4	14.1	8.2	11.9	8.6	9.7	13.1	98
sugar beet	4.1	4.2	2.7	7.3	13.1	3.7	3.5	6.2	12.0	14.7	167
all tillage crops	2.3	2.7	1.1	1.1	1.5	2.2	2.2	2.5	1.5	2.4	4572
all grass	2.2	1.8	1.4	0.5	0.8	2.4	3.0	2.3	1.1	1.6	2762

Scotland	standard errors for overall application rates (kg/ha)					standard error for average field rates (kg/ha)					fields in sample
	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	<i>total</i> N	<i>strt</i> N	<i>comp</i> N	<i>total</i> P ₂ O ₅	<i>total</i> K ₂ O	
winter wheat	7.3	8.5	4.6	4.0	4.4	6.6	7.1	9.5	2.9	3.4	131
oilseed rape	11.8	11.6	3.6	5.2	6.6	11.8	11.6	3.9	3.9	6.0	57
winter barley	6.8	8.2	4.9	4.1	4.3	6.8	6.4	7.8	3.0	3.5	63
spring barley	3.1	3.6	2.6	1.8	2.4	3.0	4.1	2.3	1.6	2.2	263
m/c potatoes	19.4	5.7	18.0	17.2	28.0	18.7	10.0	16.6	16.1	26.8	24
all tillage crops	3.6	4.2	2.3	1.8	2.3	3.5	4.9	2.4	1.7	2.2	695
all grass	3.7	2.6	3.1	1.3	1.5	3.4	6.3	3.0	1.3	1.8	660

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.

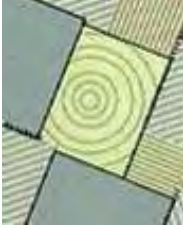
Table App 1.2 Response to main and reserve samples in 2007

	2007	% total
Target sample	1500	100
2006 panelists agreeing to re-contact in 2007	1177	78
Achieved 'Main' sample from 2006 panel	958	64
Achieved additional 'Main' sample	140	9
Achieved '1 st reserve' sample	130	9
Achieved '2 nd reserve' sample	70	5
Achieved '3 rd reserve' sample	33	2
Total achieved	1331	89
Total number of refusals/non-contact	1255	
Total number of farms approached	2586	

Table App 1.3 Response to main and reserve samples for 2003 - 2007

<i>Net response rate</i>	2003 %	2004 %	2005 %	2006 %	2007 %
Overall achieved rate	84	84	89	88	89
Achieved % of total contact attempts	61	55	59	46	51
Main sample	71	87	85	85	72
Reserve sample(s)	29	13	15	15	28
<i>Main reason for refusal</i>	2003 %	2004 %	2005 %	2006 %	2007 %
Too busy	38	23	35	30	15
Not interested	16	7	13	10	10
Do not do surveys	10	4	6	8	4
Want payment	1	1	2	2	1
Too much paperwork	3	1	3	2	1
Other ^a	32	64	41	48	59

^a includes non-contact.



APPENDIX 2

App 2.1 ENGLISH COUNTIES WITHIN BSFP AND DEFRA REGIONS

List of English counties indicating the BSFP and Government Office Regions¹³ 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

¹³ <http://www.statistics.gov.uk/geography/gor.asp>



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.¹⁴

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
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.

¹⁴ <http://statistics.defra.gov.uk/esg/pdf/farmclass.pdf>