aic agricultural industries confederation ®

Fertiliser Statistics

2006 Report

Our latest Fertiliser Statistics for 2004-05 once again provides independent facts about fertiliser usage and trends.

Each year there is some variation in usage, but longer-term patterns are the most useful indicator of changes in fertiliser application practice. Some interesting differences are developing between fertiliser practice on arable crops and grassland. Rates of all three major nutrients - nitrogen, phosphorus and potash - have declined significantly on grassland over the past 10 years. This is a likely response to economic and policy influences on the structure of livestock farming. More efficient utilisation of nutrients in animal manures is also expected to have played a part in recent years.

In the arable sector the pattern is quite different. The average application of nitrogen shows some increase while phosphate and potash show a marked decline. Information on soil reserves will be essential to ensure that the future fertility in arable soils is maintained and that P and K use is in balance with crop requirement and off-take.

Eileen Pullinger
AIC Fertiliser Sector Head

Andy Yates
AIC Fertiliser Statistics Committee Chairman

Table 1: Overall application rates of fertiliser, Great Britain

			kg/ha				
			2000/01	2001/02	2002/03	2003/04	2004/05
Arable	**Total Nitrogen**		**142**	**152**	**148**	**152**	**150**
	Compound N	N	25	23	22	20	20
	Straight N		117	129	126	132	130
	Total Phosphate	P_2O_5	**43**	**44**	**41**	**41**	**40**
	Total Potash	K_2O	**53**	**57**	**57**	**55**	**54**
Grass	**Total Nitrogen**		**94**	**92**	**83**	**77**	**74**
	Compound N	N	55	57	53	50	47
	Straight N		39	35	30	27	27
	Total Phosphate	P_2O_5	**18**	**17**	**18**	**17**	**16**
	Total Potash	K_2O	**24**	**23**	**22**	**22**	**20**
Arable & Grass	**Total Nitrogen**		**114**	**118**	**111**	**110**	**109**
	Compound N	N	41	42	40	37	35
	Straight N		73	76	71	73	74
	Total Phosphate	P_2O_5	**29**	**30**	**28**	**28**	**27**
	Total Potash	K_2O	**37**	**40**	**37**	**37**	**35**

Sources: British Survey of Fertiliser Practice and Defra Statistics

Table 2: Areas of main crops and managed grass in the UK ('000 ha)

The table gives an overview of the areas of the main crops, with recent and medium term changes. The area of wheat, the main UK arable crop, is relatively constant, while barley - the second major crop - shows some decline. The oilseed rape area continues to increase while pulses, which only occupy some 2% of the UK agricultural area, remain relatively constant. The overall ratio of arable (40%) to grassland (60%) remains constant, although the proportion of grass less than five years old continues to decline.

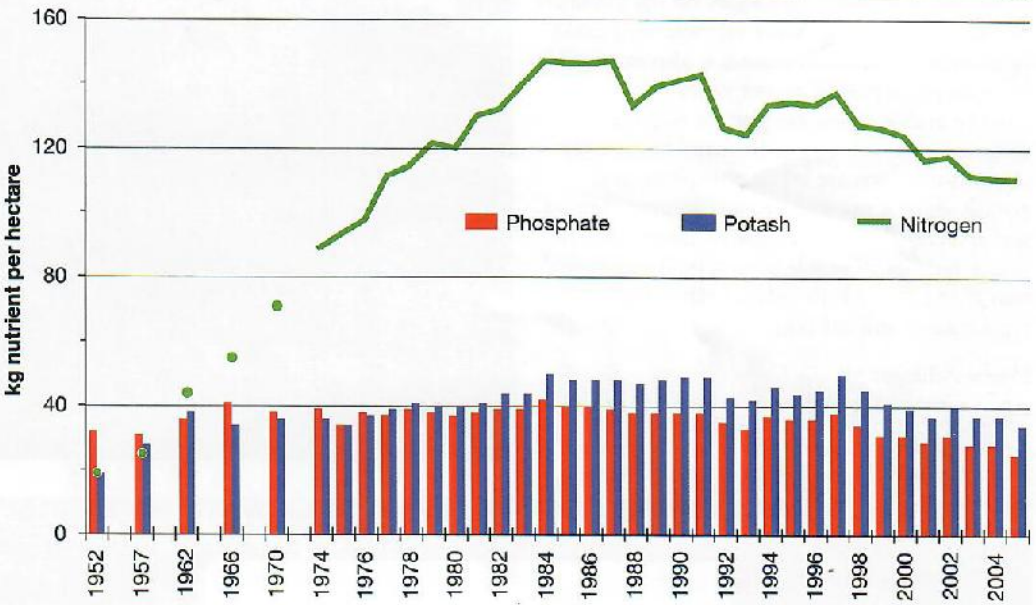
Growing season:	2000/01 5-yrs ago	2001/02	2002/03	2003/04	**2004/05**	1 year % change 2004-05	5 year % change 2001-05	crop area as % of total 2004/05
Wheat	1635	1996	1837	1990	**1869**	- 6.1	+ 14.3	16.4
Barley	1245	1101	1078	1010	**994**	- 1.6	- 20.2	8.7
Total cereals	3014	3245	3060	3133	**2928**	- 6.5	- 2.9	25.6
Potatoes	165	158	145	149	**137**	- 8.1	- 17.0	1.2
Sugar beet	177	169	162	154	**148**	- 3.9	- 16.4	1.3
Oilseeds	435	369	492	528	**564**	+ 6.8	+ 29.7	4.9
Peas/beans (dry)	276	249	235	242	**239**	- 1.2	- 13.4	2.1
Other crops (excl. grass)	388	383	384	387	**427**	+ 10.3	+ 10.1	3.7
Industrial crops on setaside	48	76	84	60	**77**	+ 28.3	+ 60.4	0.7
Grass, < 5 yrs old	1205	1243	1201	1246	**1193**	- 4.3	- 1.0	10.4
Grass, 5 yrs old+	5584	5519	5683	5620	**5711**	+ 1.6	+ 2.3	50.0
Total UK area*	**11292**	**11411**	**11446**	**11519**	**11424**	**- 0.8**	**+ 1.2**	**100.0**
Setaside (total)	**800**	**612**	**689**	**560**	**559**	- 0.2	- 30.1	

* Area of potentially fertilised arable and managed grass, including industrial crops on setaside.

Source: Defra Statistics

Figure 1: Changes in overall fertiliser nutrient application rates, England & Wales

The figure shows overall annual application rates of the three main nutrients, nitrogen (N), phosphate (P_2O_5) and potash (K_2O), applied to the England and Wales area of all crops and grass. It does not show fertiliser tonnage used, but instead illustrates overall practice in fertiliser use on farm. Note that the overall application rate of fertiliser phosphate is now some 25% lower than 50 years ago, when it was applied at the highest rate of all three nutrients. On the other hand, the nitrogen rate is now almost 4.5 times what it was then. Over the same period, wheat yields for example have risen from about 3 tonnes/ha to 8 tonnes/ha.



Source: British Survey of Fertiliser Practice

Table 3: UK consumption of fertiliser nutrients ('000 tonnes)

Growing season:	1994/95 10 yrs ago	2000/01	2001/02	2002/03	2003/04	2004/05	1 year % change 2004-05	10 year % change 1995-05
Nitrogen (N)	1348	1162	1197	1131	1130	1061	- 6.1	- 21.3
Phosphate (P_2O_5)	405	279	283	282	278	259	- 6.8	- 36.0
Potash (K_2O)	476	369	391	375	376	352	- 6.4	- 26.1
Total Plant Food	2229	1810	1871	1788	1784	1672	- 6.3	- 25.0

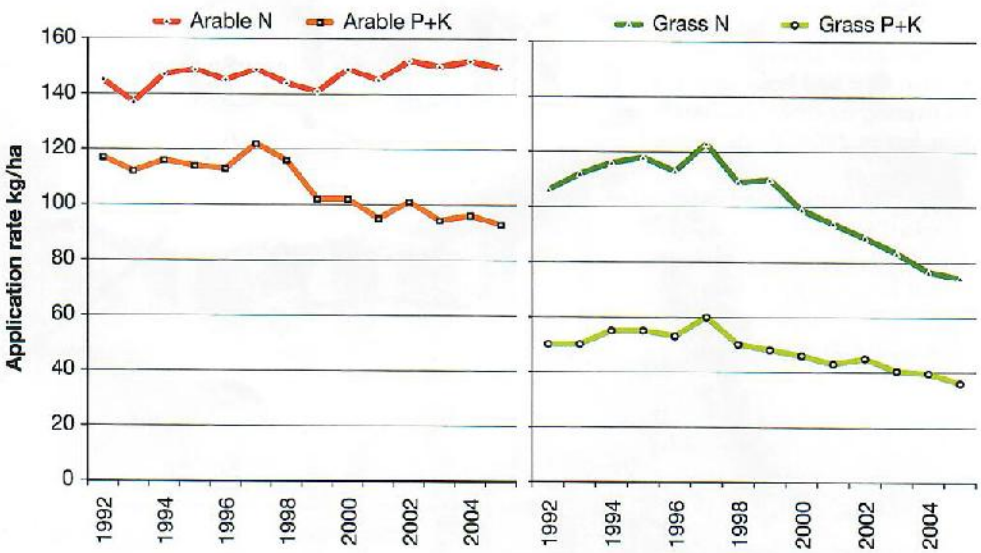
Source: AIC Statistics

The continuing recent decline in the tonnage of fertiliser used on farm in the UK is shown in the table, which quantifies a fall over the last ten years of 25%. A reduction of more than 6% can be seen over the last year alone.

Figure 2: Application rates of nutrients to arable crops compared with grassland in GB

There are significant differences between arable crops and grassland in the trends in average application rates of the three main nutrients. Application rates for all three nutrients applied to grassland have declined significantly. This can be attributed to economic and policy influences, and might be expected to be related to manure use, although see Figure 4.

The pattern in the arable sector is quite different, where the average application rate of nitrogen shows some increase. However phosphate and potash, usually applied separately from nitrogen on most arable land, show a marked decline. This trend has been continuing for some years and the lack of a relationship between application of nitrogen and of phosphate/potash is a cause for concern.

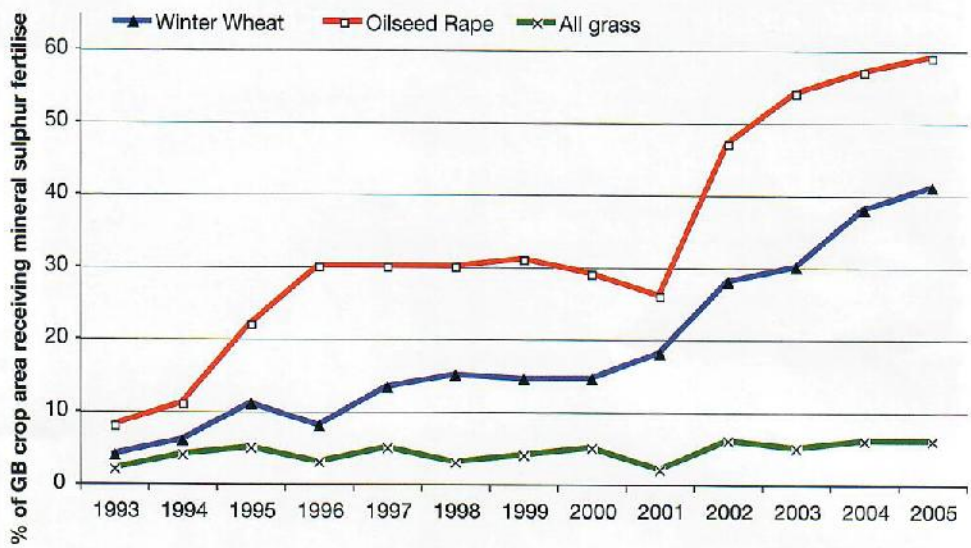


Source: British Survey of Fertiliser Practice

Figure 3: Areas of oilseed rape, wheat and grass receiving sulphur fertiliser in GB

The huge reduction in emissions of sulphur dioxide over the past 20 years has led to sulphur-containing fertilisers being required over most of the UK. All protein, plant or animal, needs both nitrogen and sulphur, usually in a ratio of about 12:1, ie for each 12kg of N applied, 1kg of S (or 2.5kg SO_3) is required.

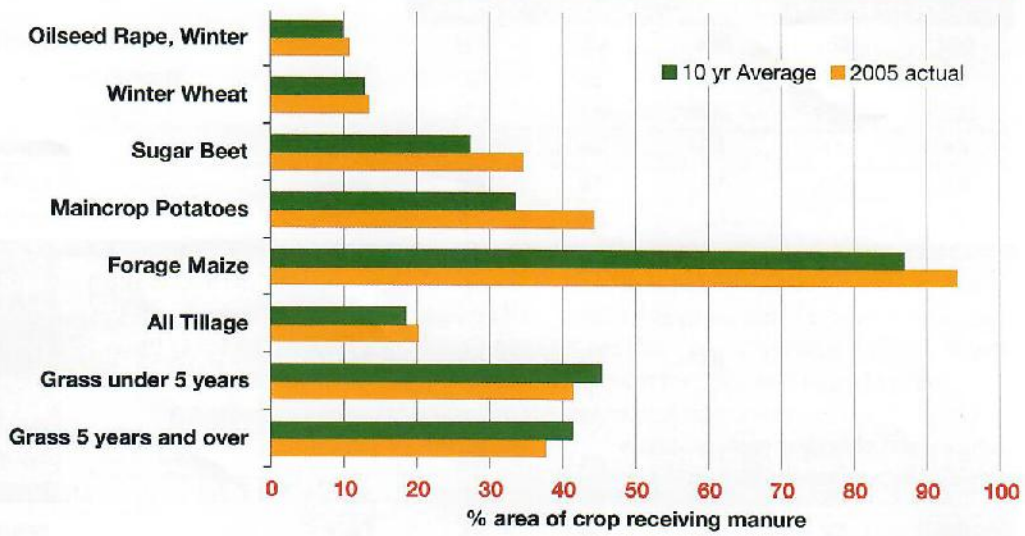
Brassicas also require S to produce additional S-containing products which provide natural defences against attack, eg glucosinolates. For sheep, extra S is required due to the high S content in wool. The chart shows that only about 60% of the high S-requiring oilseed rape and only 40% of the wheat crop received a sulphur application in 2004/05. However this modest coverage seems high compared to grassland applications, which have yet to reach 7%.



Source: British Survey of Fertiliser Practice

Figure 4: Percentages of crop areas receiving organic manures in Great Britain

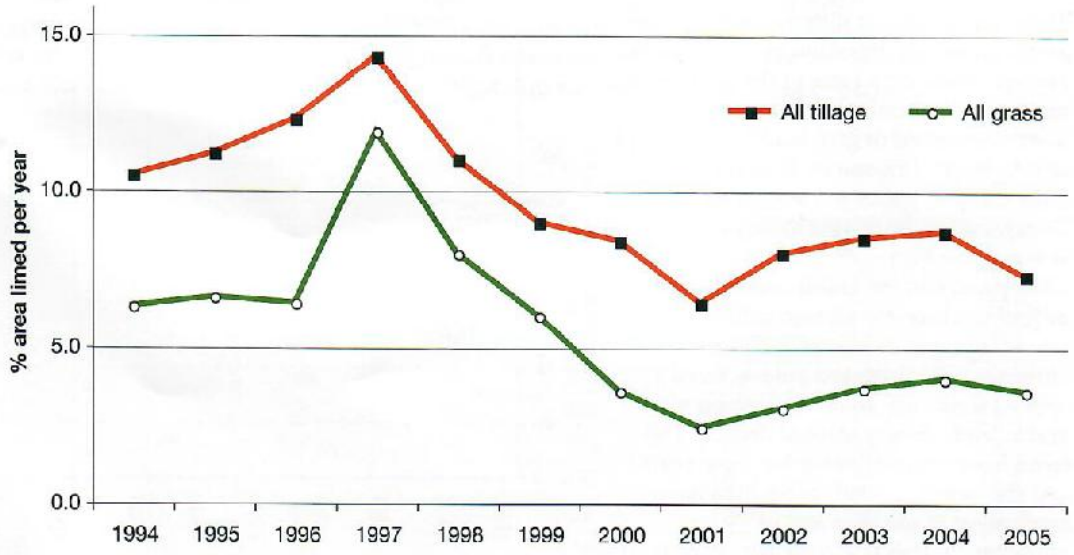
The chart shows the percentage area of different crops receiving a dressing of organic manures in 2004/05, compared with the 10-year average. Of the arable crops, forage maize is not surprisingly the most frequently dressed, followed by potatoes and sugar beet. In each year on average about 20% of arable land receives organic manures. It is perhaps surprising to note that only about 40% of grassland receives manure, although 60% of grassland, cut for silage or hay during 2004/05, was dressed. A dressing of manure was applied to 24% of land used only for grazing.



Source: British Survey of Fertiliser Practice

Figure 5: Annual percentages of arable and grassland receiving lime in Great Britain

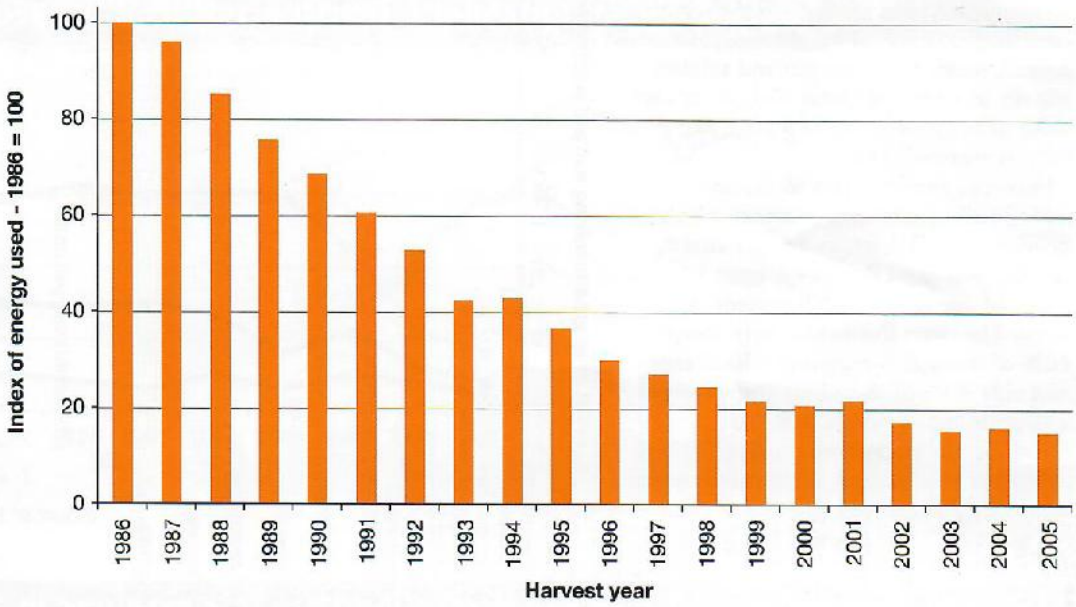
The annual percentage areas of arable and grassland which receive lime had been slowly recovering from the 2000/01 low, but in 2004/05 the upward trend was reversed. The areas dressed with lime had not returned to the levels seen 10 years ago, and the conclusion is that much of the country's agricultural land, especially in Scotland, is underlimed.



Source: British Survey of Fertiliser Practice

Figure 6: Energy content of fertiliser packaging materials in the UK

The chart shows a very significant reduction in the energy involved in fertiliser packaging over the past 20 years. The main reason is the reduction in use of 50kg bags and increasing use of intermediate bulk containers (IBCs, also known as 'big bags'), with some increase in the use of fertilisers in bulk. Initially the 500kg IBC was favoured, but the 600kg bag is now more widely used - it is a more suitable size for road transportation and requires less packaging. Almost 80% of fertiliser in the UK is now supplied in IBCs.



Source: British Survey of Fertiliser Practice

This summary uses Government data on land use, statistics and The British Survey of Fertiliser Practice (BSFP). The Survey, funded jointly by Defra and the Scottish Executive, Environment and Rural Affairs Department, is an independent annual report of fertiliser application rates providing data for farmers and environmentalists, regulators and the industry. It also provides information on lime use and organic manure application. The Survey shows generally good practice in Britain with mineral fertilisers being used closely in line with accepted recommendations.

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