aic Fertiliser Statistics 2007 Report

agricultural industries confederation ®

Our Fertiliser Statistics for 2005-06 reflect the continuing slow decline in the use of all fertiliser nutrients in the UK. However, this factual information on fertiliser usage and trends, drawn largely from the British Survey of Fertiliser Practice and Defra statistics but also from internal AIC statistics, enables you to look behind the headlines to see the longer term trends on a nutrient-by-nutrient and individual crop basis.

Last year, we noted significant long-term declines in all three major nutrients on grassland. This trend is clearly continuing, especially on silage crops, reflecting the continued economic pressure on the dairy and beef sectors during the period.

In arable crops, the biggest cause for concern is the increasing imbalance between the amounts of phosphate and potash applied relative to the amounts removed by crops, although yield expectations and nitrogen application rates are maintained. This is not sustainable in the long-term and it is hoped that the upturn in arable fortunes will see reinvestment in the P&K status of arable soils.

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AIC Fertiliser Sector Head

Table 1: Areas of main crops and managed grass in the UK ('000 ha)

Growing season:	2001/02 5-yrs ago	2002/03	2003/04	2004/05	2005/06	1 year % change 2005-06	5 year % change 2002-06	crop area as % of total 2005/06
Wheat	1996	1837	1990	1867	**1833**	- 1.8	- 8.2	15.9
Barley	1101	1078	1010	938	**881**	- 6.1	- 20.0	7.6
Total cereals	3245	3056	3130	2920	**2861**	- 2.0	- 11.8	24.8
Potatoes	158	145	149	137	**141**	+ 2.9	- 10.8	1.2
Sugar beet	169	162	154	148	**131**	- 11.5	- 22.5	1.1
Oilseeds	369	492	528	564	**531**	- 5.9	+ 43.9	4.6
Peas/beans (dry)	249	235	242	239	**231**	- 3.3	- 7.2	2.0
Other crops (excl. grass)	383	384	387	427	**444**	+ 4.0	+ 15.9	3.9
Industrial crops on set-aside	76	84	60	77	**79**	+ 2.6	+ 3.9	0.7
Grass, < 5 yrs old	1243	1201	1246	1193	**1137**	- 4.7	- 8.5	9.9
Grass, 5 yrs old+	5519	5683	5620	5711	**5967**	+ 4.5	+ 8.1	51.8
Total UK area*	**11411**	**11442**	**11516**	**11416**	**11522**	**+ 0.9**	**+ 1.0**	**100.0**
Set-aside (total)	612	689	560	559	**513**	- 8.2	- 16.3	

* Area of potentially fertilised arable and managed grass, including industrial crops on set-aside

Source: Defra Statistics

Some charts in this report illustrate data for England and Wales because these are the longest-running data sets in the UK. Amalgamated GB data are only generally available since 1992.

Table 2: Overall rates of fertiliser usage, Great Britain

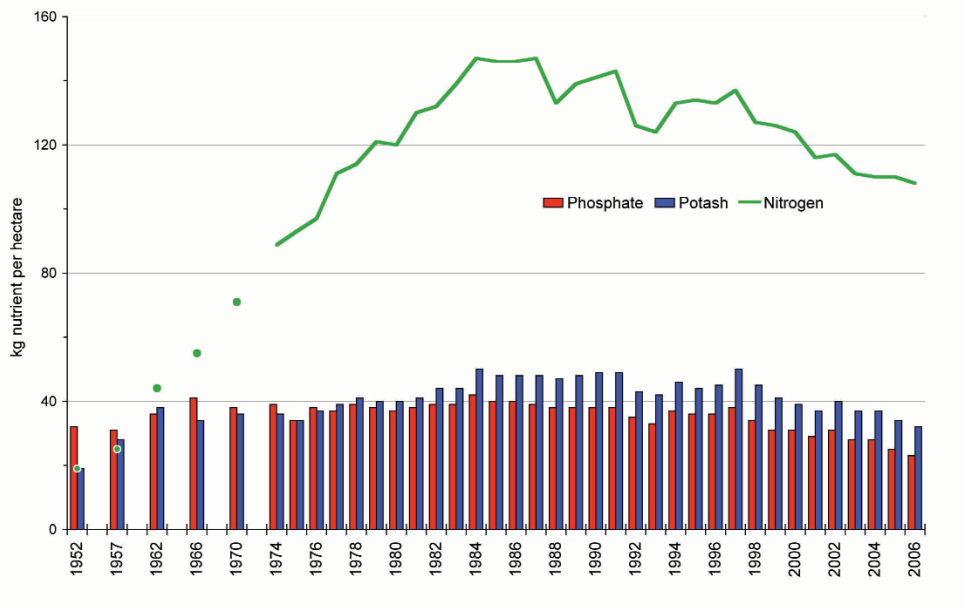
			kg/ha				
			2001/02	2002/03	2003/04	2004/05	2005/06
Arable	Total Nitrogen		152	148	152	150	147
	Compound N	N	23	22	20	20	18
	Straight N		129	126	132	130	129
	Total Phosphate	P_2O_5	44	41	41	40	35
	Total Potash	K_2O	57	57	55	54	49
Grass	Total Nitrogen		92	83	77	74	72
	Compound N	N	57	53	50	47	44
	Straight N		35	30	27	27	28
	Total Phosphate	P_2O_5	17	18	17	16	16
	Total Potash	K_2O	23	22	22	20	21
Arable & Grass	Total Nitrogen		118	111	110	109	107
	Compound N	N	42	40	37	35	33
	Straight N		76	71	73	74	74
	Total Phosphate	P_2O_5	30	28	28	27	25
	Total Potash	K_2O	40	37	37	35	34

Sources: British Survey of Fertiliser Practice and Defra Statistics

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

The decline in the overall application rates (kg/ha) of the main nutrients – nitrogen, phosphate and potash – continues. Although the decline in the rates for phosphate and potash apply generally, the decline in nitrogen use is mainly restricted to its use on grassland.

The decline in nutrient application rates illustrated in Figure 1 is confirmed in Table 3, which quantifies the amounts of fertiliser nutrients used in the UK. The average decline over the past 10 years approaches 30%, with phosphate particularly reduced. The total tonnage of fertiliser used depends not only on the rate of use, but also on total cropped area and crop mix. Total tonnage could increase if there was significant growth in biofuel crops on set-aside, and/or if the set-aside requirement is reduced.



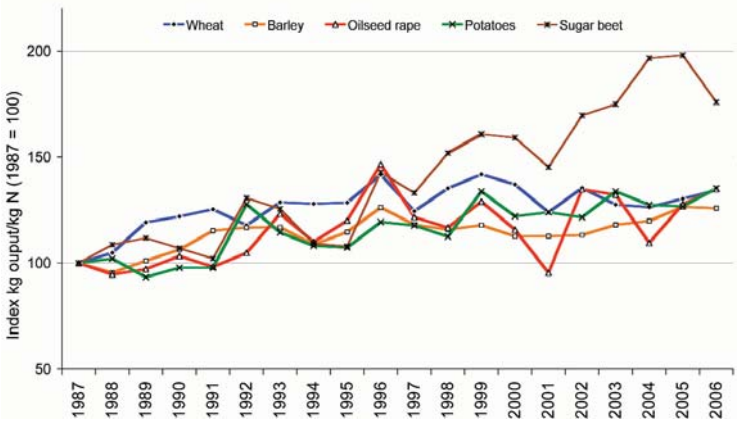
Source: British Survey of Fertiliser Practice

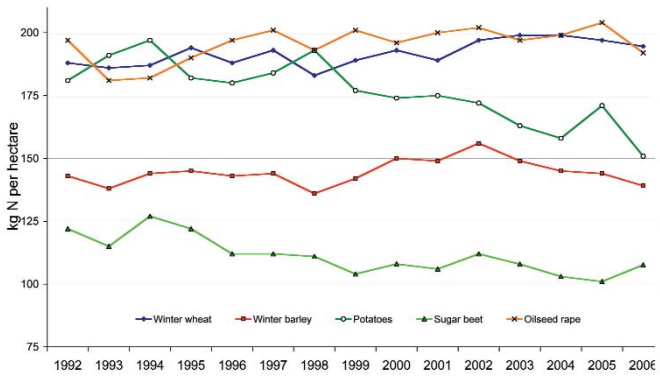
Table 3: UK consumption of fertiliser nutrients ('000 tonnes)

Growing season:	1995/96 10 yrs ago	2001/02	2002/03	2003/04	2004/05	2005/06	1 year % change 2005-06	10 year % change 1996-06
Nitrogen (N)	1333	1197	1131	1130	1061	1003	- 5.5	- 24.8
Phosphate (P_2O_5)	394	283	282	278	259	235	- 9.3	- 40.4
Potash (K_2O)	471	391	375	376	352	325	- 7.7	- 31.0
Total Plant Food	2198	1871	1788	1784	1672	1563	- 6.5	- 28.9

Source: AIC Statistics

Figure 2: Changes in the apparent efficiency in the use of nitrogen, England & Wales

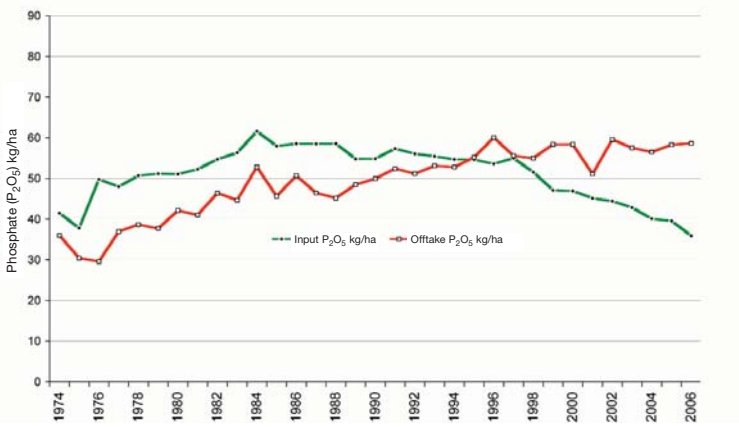


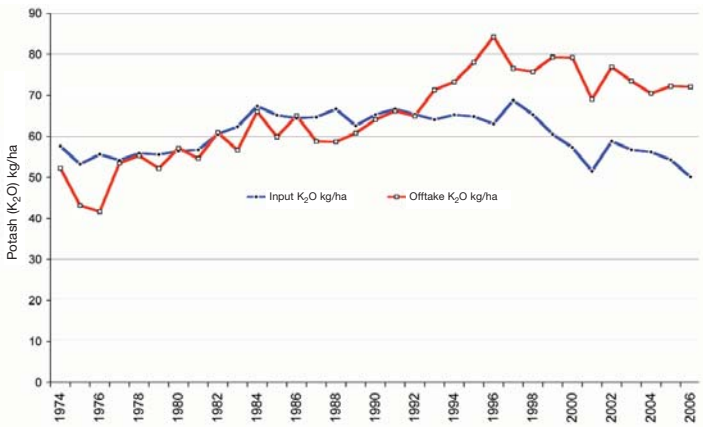


Source: British Survey of Fertiliser Practice, Defra Statistics

The chart on the left illustrates the changes in the relative output for a number of arable crops per unit of nitrogen fertiliser input. General improvements are apparent over the past 20 years, although this was more marked in the 1980s. In the past decade N fertiliser rates on the major crops remained relatively constant (see chart on right), although those on potatoes and to a lesser extent sugar beet fell during the period. However, except for sugar beet, the expected steady yield improvements were not seen. The reasons for this are not clear, but reductions in phosphate and potash application rates, possible growing significance of sulphur deficiencies and perhaps the lack of increase in the rates of application of N to cereals are all possible contributors.

Figure 3: Input and offtake balances for the major arable crops in England and Wales



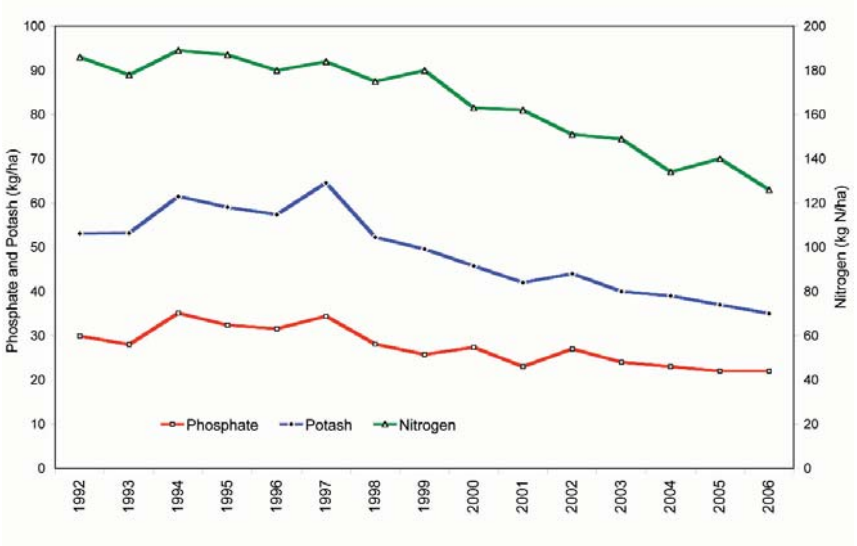


Source: British Survey of Fertiliser Practice, Defra Statistics

The imbalance between inputs and offtakes of phosphate and potash on arable farms continues to grow. The values since 1974 shown in the two charts take no account of manures. The recent conspicuous divergence between inputs and offtakes is not a sustainable trend. It is likely that the reduction in inputs is due to economic pressure, but the average application rates for phosphate and potash to arable land are lower now than they were in 1974. There are indications that soil fertility (nutrient reserve levels) is falling, as would be expected. This is likely to result in reduced efficiency in nitrogen use by crops (cereals, oilseeds, sugar beet and potatoes). As was noted in last year's report the historical N: PK input relationship is not being maintained.

Figure 4: Overall nutrient use on grass for silage, England and Wales

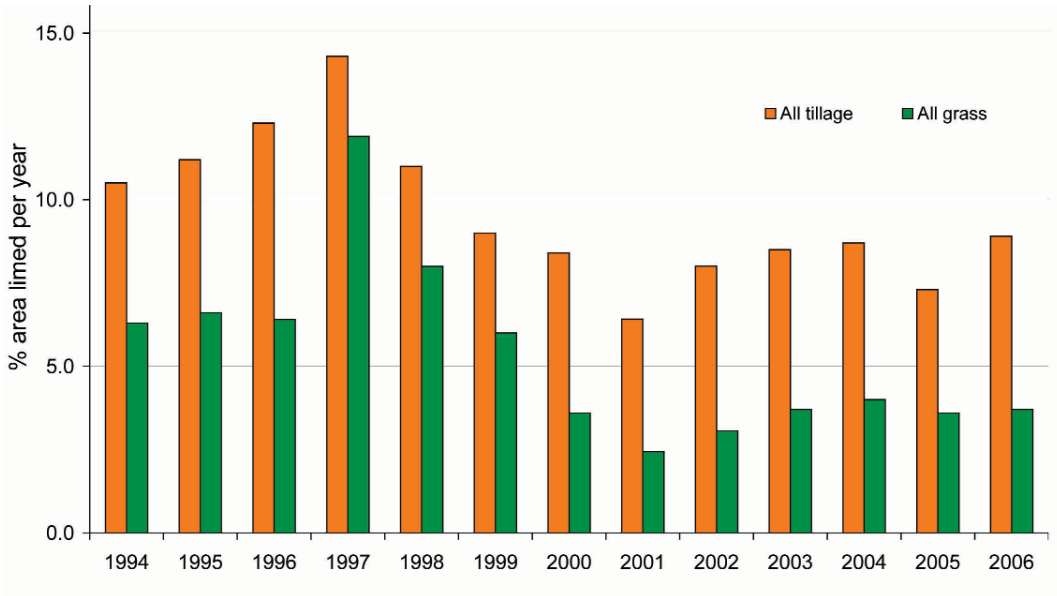
The significant reduction in application rates of all three nutrients to grass cut for silage is no doubt a result of pressure to reduce overall farm stocking levels and severe economic pressure. However there is evidence that this lower level of fertiliser can result in silage of reduced quality. The pattern of fertiliser nutrient use on grass does not show the divergence between applications of nitrogen and phosphate and potash seen in the arable sector.



Source: British Survey of Fertiliser Practice

Figure 5: Proportions of the main crop areas receiving lime in GB

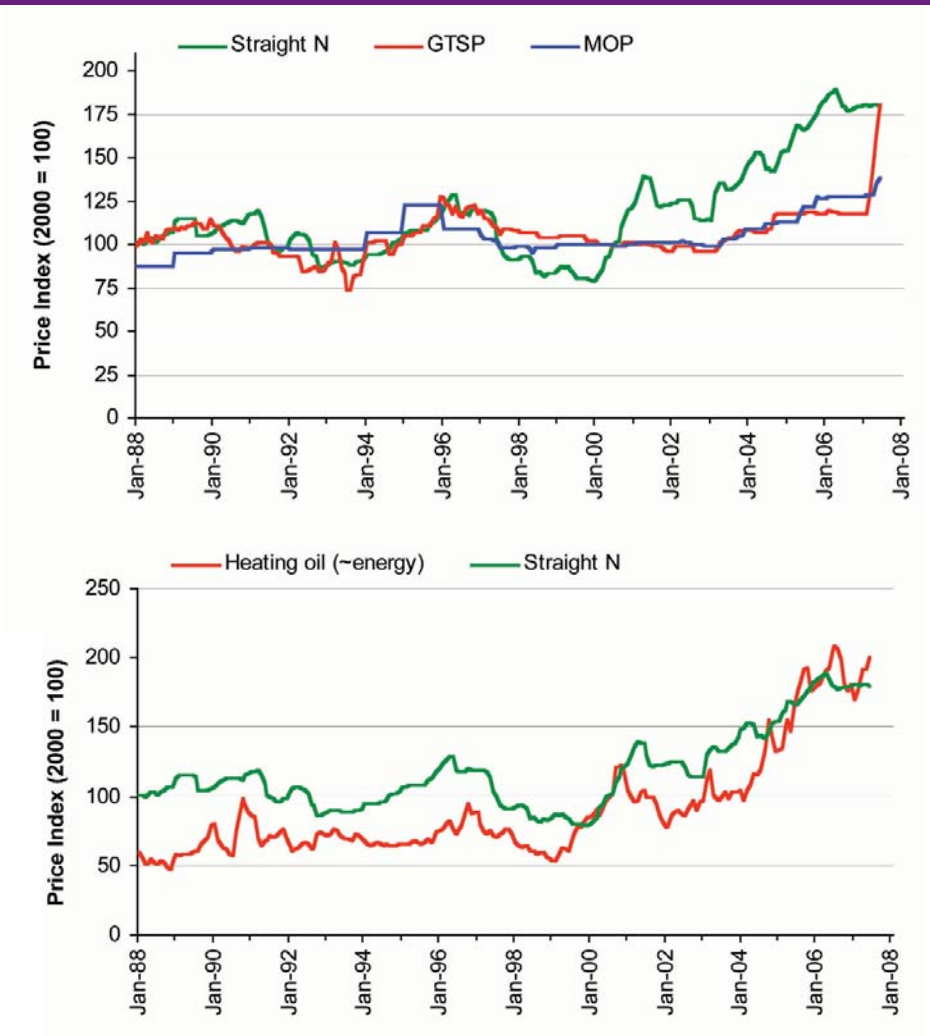
The proportions of arable and grassland in Britain dressed with a liming material fell significantly in the late 1990s, but recovered slightly and remained relatively constant over the past five seasons. This is not to say that sufficient lime is being applied to ensure a desirable pH value in arable and grassland soils. However the fact that the Representative Soil Sampling Scheme (RSSS) is no longer operating means that it is difficult to determine any trends in soil pH.



Source: British Survey of Fertiliser Practice

Figure 6: Trends in relative prices of fertiliser inputs in the UK

Despite rises in costs, fertiliser prices have remained relatively unchanged for most of the past two decades. Fertilisers are truly global products, and UK prices reflect global availability and demands, and therefore prices. Recent strong demand in the far east has had an effect on potash (MOP) prices, and a very significant effect on phosphate (GTSP) as can be seen in the chart to the left. Nitrogen (N) prices are affected by both world demand and world energy prices. The chart on the right illustrates the close relationship between energy price (eg heating oil) and nitrogen fertilisers.



Source: Defra Statistics

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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