Fertiliser Statistics

July 2001 to June 2002. A summary by Chris Dawson

CROP AREAS

The 2001/02 year returned in some measure to normality, at least in respect of crop areas, following a year marked by the Foot and Mouth epidemic, and a 40% increase in set-aside area due to reduced autumn plantings - consequences of unusually high rainfall and flooding. The total cereal area is still around 30% of the total area of main crops and managed grassland. Wheat returned to a more typical level of 2 million hectares, but the barley area fell back, to its smallest since the mid 1950s (Table 1). Overall, the oilseed area reduced, but this is considered a seasonal change and not a trend. The increase seen in industrial oilseed cropping on set-aside is forecast to continue, CAP rules permitting.

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

Growing season:	1997/98 5-yrs ago	1998/99	1999/00	2000/01	2001/02	1 year % change 2001-02	5 year % change 1998-02	crop area as % of total 2001/02
Wheat	2045	1847	2086	1635	**1996**	+ 22.1	- 2.4	17.7
Barley	1255	1179	1128	1245	**1101**	- 11.6	- 12.3	9.8
Total cereals	3420	3141	3348	3014	**3245**	+ 7.7	- 5.1	28.7
Potatoes	164	178	166	165	**159**	- 3.6	- 3.0	1.4
Sugar beet	189	183	173	177	**169**	- 4.5	- 10.6	1.5
Oilseeds	606	627	404	435	**369**	- 15.2	- 39.1	3.3
Peas/beans (dry)	213	202	208	276	**249**	- 9.8	+ 16.9	2.2
Other crops (excl. grass)	380	377	367	388	**382**	- 1.5	+ 0.5	3.4
Industrial crops on setaside	30	120	72	48	**76**	+ 58.3	+ 153	0.7
Grass, < 5 yrs old	1303	1226	1226	1205	**1230**	+ 2.1	- 5.6	10.9
Grass, 5 yrs old+	5350	5449	5364	5584	**5422**	- 2.9	+ 1.3	48
Total UK area*	**11655**	**11503**	**11328**	**11292**	**11301**	**+ 0.1**	**- 3.0**	**100**
Setaside (total)	**313**	**572**	**567**	**800**	**611**	- 23.6	+ 95.2	

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

Source: DEFRA Statistics

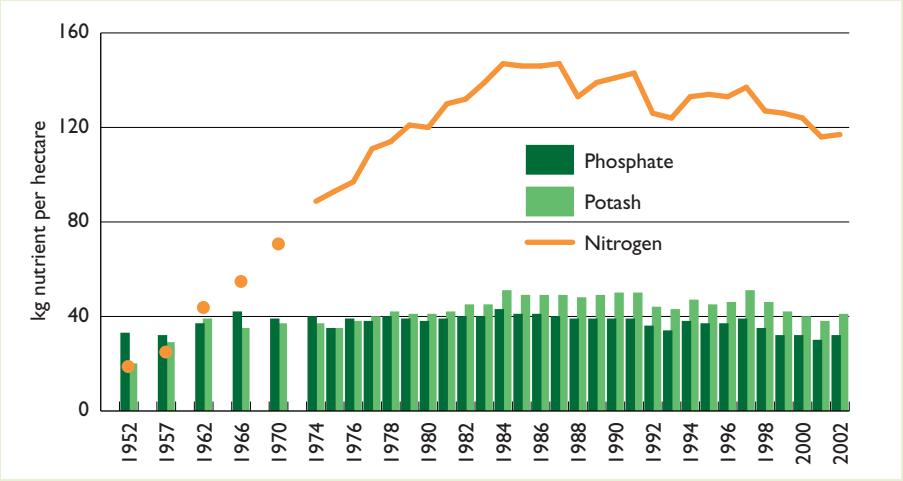
APPLICATION RATES

Overall* application rates on 'Arable and Grass' of the three major nutrients rose from the lower levels of the previous season. However, the long-term trend continues in decline (Figure 1). This figure shows the overall rates of application of nutrients to managed agricultural land in England and Wales, not the actual quantities of fertilisers used. The rates of use are very similar to those of 1977/78, but today productivity is significantly higher – wheat yields have risen by about 60%, barley and potatoes by about a third and sugar beet by almost 70%.

The overall application rate disguises the actual increase for nitrogen but a maintenance of levels for phosphate and potash on arable crops, whereas fertiliser nutrient rates on grassland continue to decline (Table 2). The proportion of nitrogen (N) applied as straight fertiliser remains at about 85% in the arable sector, whereas on grassland its use has fallen over the past 5 years from about 50% of total N to less than 40%.

*The overall application rate is calculated as the total quantity of nutrient used divided by the total extent of the related area, including any areas which receive no nutrient.

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



Source: British Survey of Fertiliser Practice

Table 2: Overall rates of fertiliser usage, Great Britain

			kg/ha				
			1997/98	1998/99	1999/00	2000/01	2001/02
Arable	Total Nitrogen		**146**	**143**	**151**	**142**	**152**
	Compound N	N	23	21	20	25	23
	Straight N		123	122	131	117	129
	Total Phosphate	P2O5	**52**	**48**	**46**	**43**	**44**
	Total Potash	K2O	**65**	**59**	**55**	**53**	**57**
Grass	Total Nitrogen		**110**	**115**	**100**	**94**	**92**
	Compound N	N	56	60	56	55	57
	Straight N		54	55	44	39	35
	Total Phosphate	P2O5	**21**	**22**	**20**	**18**	**17**
	Total Potash	K2O	**29**	**29**	**26**	**24**	**23**
Arable & Grass	Total Nitrogen		**126**	**127**	**124**	**114**	**118**
	Compound N	N	41	42	38	41	42
	Straight N		85	85	86	73	76
	Total Phosphate	P2O5	**35**	**33**	**31**	**29**	**30**
	Total Potash	K2O	**46**	**42**	**40**	**37**	**40**

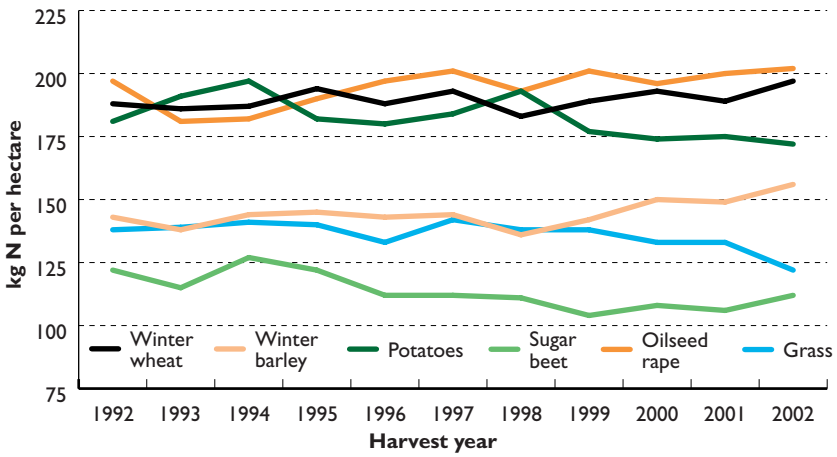
Sources: British Survey of Fertiliser Practice and DEFRA Statistics

NITROGEN

While the total nitrogen used over the past three seasons has risen and fallen in accordance with the fluctuations in crop areas, the average rates of nitrogen applied to certain specific crops have remained largely unchanged. Figure 2 shows the maintenance of applications generally on crops receiving nitrogen and a slight rise in the average rate for combinable crops, where yields and potential output continue to rise. The rise in nitrogen use is not unexpected, and indeed is considered insufficient by some analysts.

The average N rate on grass, having been relatively constant for several seasons, has shown significant decline over the past three years.

Figure 2: Application rates of nitrogen fertiliser when used on some major crops in Great Britain

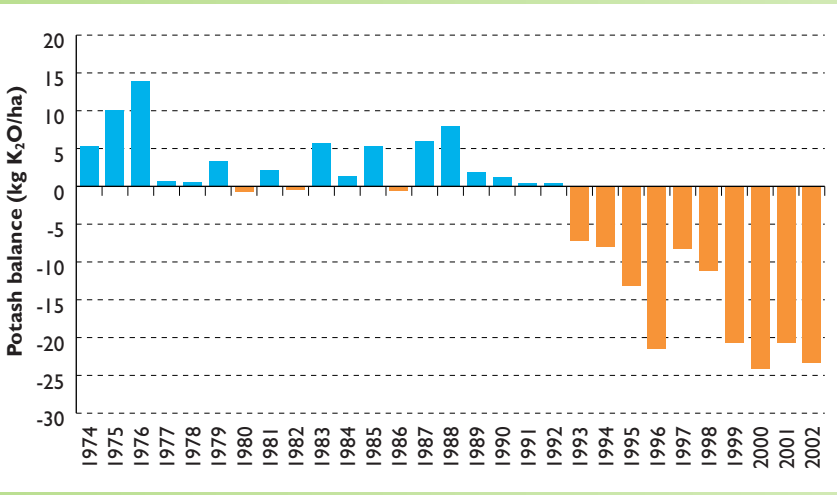


Source: British Survey of Fertiliser Practice

PHOSPHATE & POTASH

Without doubt growers understand that adequate reserves of phosphate (P) and potash (K) in their soils are essential to maintain soil fertility. However, the need to cut costs and the lack of perceived penalty from withholding these nutrients are reflected in a continuing decline in their use. For example, about 60% of the GB wheat area received a P or K dressing in 20001/02, compared with 70-75% five years ago. The annual balances per hectare between K inputs and removals (in harvested crop and straw) for fields growing cereals, oilseeds, potatoes and sugar beet in England & Wales is illustrated in Figure 3. This balance does not take account of nutrient contributions from organic manures which are being used on just 15% of fields. The current significant negative balance indicates a unsustainable depletion of the fertility of soils in these fields.

Figure 3: Annual potash balances in England and Wales for cereals, oilseed rape, potatoes and sugar beet

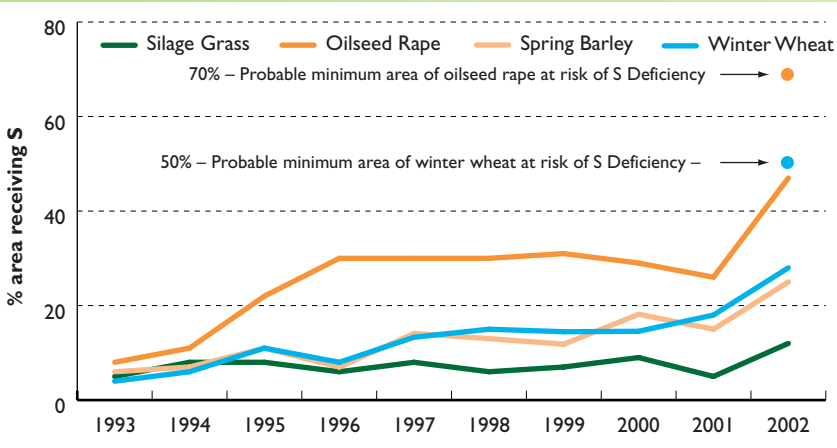


Sources: British Survey of Fertiliser Practice and DEFRA Statistics

SULPHUR

Sulphur dioxide emissions in the UK have been reduced by over 80% since 1970. As plant and animal proteins require sulphur; deficiency can have a major impact on yield, quality and performance, and impair efficient use of other nutrients, especially nitrogen. Deficiency symptoms are now seen in wheat even on heavy land if sulphur-containing fertilisers are not used. Figure 4 illustrates the percentage areas of some major crops receiving sulphur fertiliser. For oilseed rape and winter wheat, it also gives an indication of the % areas which are at risk of deficiency. After a period of little change, the BSFP suggests that the area receiving sulphur increased significantly in 2002.

Figure 4: Percentage area of some crops receiving sulphur fertiliser (Great Britain)

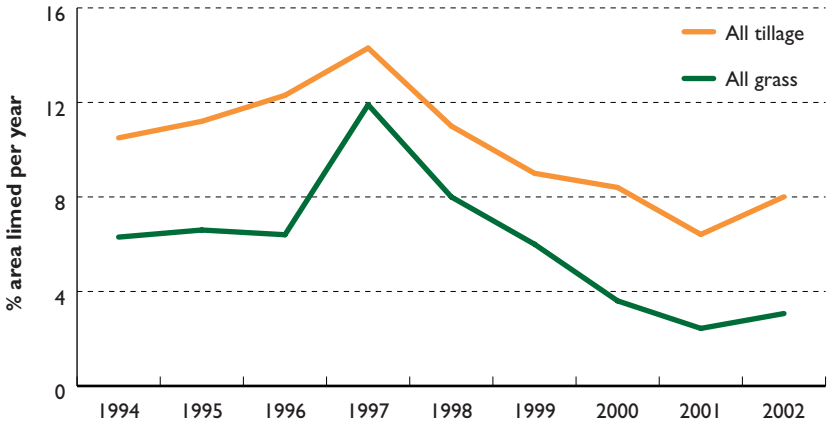


Sources: British Survey of Fertiliser Practice and Rothamsted Research

LIME

The recent decline in the area receiving lime in Britain appears to have been checked in 2002 (Figure 5) although the area is still considerably less than that calculated to require liming. The principal causes of acidification have not lessened, and it is reasonable to believe that significant areas of arable land, and more particularly grassland, are at a pH which could limit productivity.

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



Source: British Survey of Fertiliser Practice

ORGANIC MANURE

The proportion of the areas of different crops in Britain receiving organic manures has remained remarkably constant over the past 10 years – about 18% of all cropped arable land and 43% of managed grassland. Within the arable sector, some 12% of the wheat area receives manure, against 85% of forage maize.

TOTAL NUTRIENT USE

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

Nitrogen and potash use in the UK rose in 2001/02 due in the main to the increase in crop area over the previous season (Table 3). While phosphate volume increased slightly in 2001/02, over the past decade it has fallen by over 23%. The overall volumes of fertiliser nutrients used on arable crops were similar to those of two years ago, but there was a further reduction in the volumes used on grassland, particularly of nitrogen.

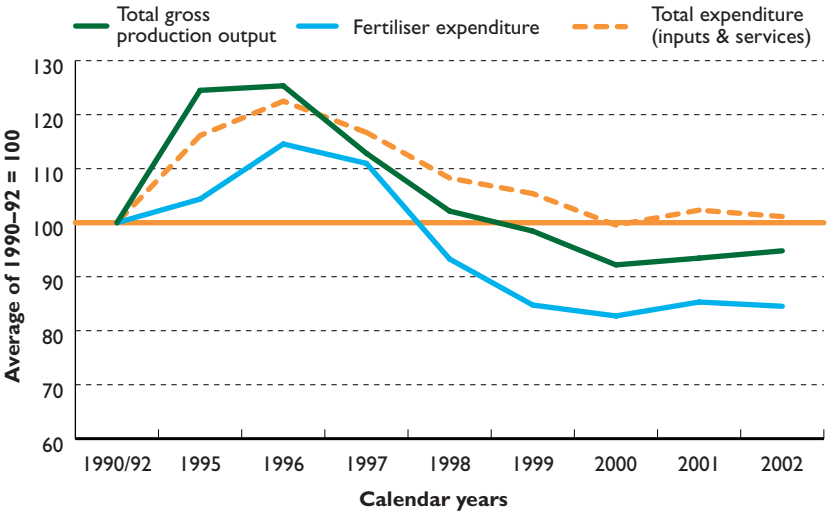
Growing season:	1991/92 10 yrs ago	1997/98	1998/99	1999/00	2000/01	1 year % 2001/02	10 year % change 2001-02	change 1992-02
Nitrogen (N)	1365	1375	1284	1268	1162	1197	+ 3.0	- 12.3
Phosphate (P205)...	371	383	347	317	279	283	+ 1.4	- 23.7
Potash (K20)...	441	487	451	409	369	391	+ 6.0	- 11.3
Total Plant Food	2178	2245	2082	1994	1810	1871	+ 3.4	- 14.4

Source: FMA Statistics

ECONOMICS

The recent low value of total gross output from UK agriculture is illustrated in Figure 6, which also compares relative expenditure on fertilisers with all inputs and services. In 2002 the annual expenditure on fertilisers was about 85% of 10 years before, mainly due to decreased volume. In relative terms the price of nitrogen has remained virtually static over this period. The total quantity of mineral plant nutrients used in UK agriculture is 28% less than it was in 1984/85. These pressures continue to drive structural change across the industry.

Figure 6: Relationship between value of farm production and input costs



Source: DEFRA, Agriculture in the UK 2002