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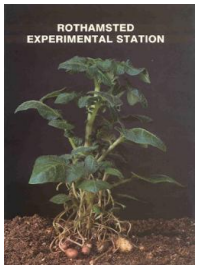

Use of Fertilizers in England and Wales, 1983

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Use of fertilizers in England and Wales, 1983

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During 1983 a random sample of 1357 farms was surveyed in England and Wales, continuing the series of annual surveys done through staff of the ADAS Regional Soil Scientists and representatives of the Fertiliser Manufacturers' Association in collaboration with Rothamsted (Church & Lewis, 1977).

Comparative estimates for recent years show that N use per hectare crops and grass increased again in 1983, and that the average rate of increase since 1980 has been about 5% a year. This increase has been mainly on tillage crops (about 8% a year) with rather little change in N use per hectare on grassland (Table 1). The increased N used is exclusively 'straight' N. Use of compound N, static overall, has increased somewhat on grassland since 1980 with a compensating reduction on tillage caused by the swing from spring to winter sown cereals.

TABLE 1

Fertilizer use on tillage crops and grassland (kg ha^{-1}), 1980–83

	Tillage crops				Grassland				All crops and grass			
	1980	1981	1982	1983	1980	1981	1982	1983	1980	1981	1982	1983
N Straight	77	92	99	116	69	74	71	69	73	83	85	91
Compound	44	43	42	37	50	51	52	57	47	47	47	48
Total	121	135	141	153	119	125	123	126	120	130	132	139
P_2O_5	49	51	55	54	27	25	24	26	37	38	39	39
K_2O	54	56	61	60	26	26	28	28	40	41	44	44

TABLE 2

Fertilizer use on winter wheat and spring barley (kg ha^{-1}), 1980–83

	Winter wheat				Spring barley			
	1980	1981	1982	1983	1980	1981	1982	1983
N Straight	126	144	148	165	24	37	34	49
Compound	19	18	18	16	63	61	60	58
Total	145	162	166	181	87	98	94	107
P_2O_5	46	49	51	51	37	37	38	40
K_2O	39	42	45	46	40	40	41	45

Use of P and K per hectare, little changed overall since 1980, has also increased on tillage crops by 2–3% a year, again partly because of increases in the winter sown cereal area, but showed no estimated increase in 1983.

Straight N use on winter wheat, averaging 165 kg ha^{-1} in 1983, was about 10% more than in 1982 and almost a third more than in 1980. As in 1981, following a wet spring, there was a very large increase in use of straight N on spring barley. Although year-to-year differences have certainly been accentuated by weather conditions, it is clear that there has been a strong upward trend in use of straight N on spring barley since 1980, following several years when there was little change in practice on spring cereals, and that this has been accompanied by a much smaller reduction in use of compound N.

The average amounts of fertilizer nutrients used per hectare in 1983 on individual tillage crops and grassland and the proportions of each crop which got different amounts of nutrient are summarized in Tables 3–6 at the end of this paper.

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TABLE 3

Fertilizer use in England and Wales, 1983

	Fields	Hectares ('000)	Overall* (kg ha^{-1})			% Area receiving				Actual* (kg ha^{-1})		
			N	P_2O_5	K_2O	N	P	K	FYM	N	P_2O_5	K_2O
Spring wheat	70	21	140	37	36	99	83	76	10	141	44	47
Winter wheat	2488	1580	181	51	46	100	85	77	11	182	60	60
Spring barley	1687	761	107	40	45	99	95	94	17	108	42	48
Winter barley	1519	806	150	52	54	100	91	90	13	150	57	60
Spring oats	103	25	70	30	31	94	93	89	12	74	33	35
Winter oats	147	48	108	50	53	99	97	96	16	109	52	56
Mixed corn	21	9	86	49	50	100	100	100	15	86	49	50
Early potatoes	57	16	191	197	234	100	100	100	44	191	197	234
Maincrop potatoes	317	90	203	206	268	99	99	100	43	204	209	269
Sugar beet	431	199	155	73	160	97	98	99	23	159	74	162
Swedes (stock)	72	14	51	97	72	92	93	90	47	56	105	80
Turnips (stock)	69	18	76	70	63	97	91	90	40	78	76	70
Kale and cow cabbage	82	20	103	39	51	93	83	83	61	111	47	62
Rape for stockfeed	42	11	68	57	42	97	89	91	15	70	64	46
Beans for stockfeed	81	27	3	23	35	11	46	51	8	23	51	69
Other stockfeed	73	23	86	52	46	86	69	67	33	101	75	68
Peas for human consumption	226	83	5	30	30	22	49	49	9	23	61	61
Runner and French beans	30	8	96	70	81	85	89	95	5	112	78	86
Brussels sprouts	26	5	278	76	204	100	94	100	14	278	81	204
Cabbages	46	8	208	38	113	100	63	85	5	208	61	132
Cauliflower	32	6	226	86	182	100	95	98	30	226	90	186
Onions	49	11	150	74	141	94	81	97	15	160	92	146
Small fruit	97	13	100	35	90	92	63	86	8	109	56	104
Top fruit	122	23	64	13	27	69	31	37	14	94	44	72
Hops	34	6	178	61	191	100	88	100	55	178	69	191
Oilseed rape	349	210	272	61	58	99	93	89	3	275	65	66
All tillage	8795	4165	153	54	60	96	87	84	15	160	62	72
1 year leys	32	14	116	14	21	93	31	31	48	124	45	68
2–7 year leys	3150	1567	181	36	44	95	77	78	48	191	47	56
Permanent grass	4113	3053	98	21	21	74	57	55	36	132	38	38
All crops and grass	16090	8799	139	39	44	88	75	73	28	158	53	60

*The average application of any fertilizer component over all fields including those receiving none is termed 'overall'. The average excluding fields with none of the component is termed 'actual'.

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TABLE 4

Percentages of crop area getting different amounts of N (kg ha^{-1})

	Fields	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Spring wheat	70	1	4	3	1	11	10	25	30	15	0	0	0
Winter wheat	2488	0	1	0	1	3	4	15	40	28	6	1	0
Spring barley	1687	1	1	6	17	19	23	22	10	1	0	0	0
Winter barley	1519	0	1	2	2	6	12	25	43	8	0	0	0
Spring oats	103	6	8	18	33	17	11	6	1	1	0	0	0
Winter oats	147	1	3	6	9	27	28	10	10	5	1	0	0
Mixed corn	21	0	0	23	24	1	48	0	4	0	0	0	0
Early potatoes	57	0	0	0	1	1	13	8	34	23	18	0	0
Maincrop potatoes	317	1	1	1	1	2	5	6	32	26	21	4	0
Sugar beet	431	3	1	0	1	7	16	26	32	11	1	2	0
Swedes (stock)	72	8	11	41	22	11	7	0	0	0	0	0	0
Turnips (stock)	69	3	2	14	41	24	5	5	5	0	0	0	0
Kale and cow cabbage	82	7	0	11	16	16	8	29	8	3	0	0	0
Rape for stockfeed	42	3	1	29	39	21	0	6	1	0	0	0	0
Beans for stockfeed	81	89	8	2	0	0	0	0	0	0	0	0	0
Other stockfeed	73	14	12	14	7	17	4	11	14	5	0	1	0
Peas for human consumption	226	78	16	6	0	0	0	0	0	0	0	0	0
Runner and French beans	30	15	15	0	0	7	27	24	13	0	0	0	0
Brussels sprouts	26	0	0	0	0	3	0	1	6	8	45	37	0
Cabbages	46	0	0	4	3	3	2	17	17	21	12	19	2
Cauliflower	32	0	0	0	3	1	7	12	7	23	43	4	0
Onions	49	6	1	3	12	8	11	18	14	6	22	0	0
Small fruit	97	8	1	15	22	4	15	9	26	0	0	0	0
Top fruit	122	31	3	9	12	28	3	7	4	1	0	2	0
Hops	34	0	0	0	6	7	1	16	38	17	7	7	0
Oilseed rape	349	1	1	1	2	0	0	2	5	11	38	40	0
All tillage	8795	4	2	3	5	7	10	17	29	15	5	3	0
1 year leys	32	7	1	11	29	11	0	18	5	5	10	4	0
2–7 year leys	3150	5	2	7	9	8	8	9	12	12	10	13	4
Permanent grass	4113	26	3	12	13	11	6	7	9	5	4	4	1
All crops and grass	16090	12	2	7	9	9	9	12	19	11	6	5	1

TABLE 5

Percentages of crop area getting different amounts of P_2O_5 (kg ha^{-1})

	Fields	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Spring wheat	70	17	18	41	18	2	4	0	0	0	0	0	0
Winter wheat	2488	15	3	21	51	8	1	0	0	0	0	0	0
Spring barley	1687	5	18	53	21	2	1	0	1	0	0	0	0
Winter barley	1519	8	5	27	52	7	1	0	0	0	0	0	0
Spring oats	103	7	33	52	7	1	0	0	0	0	0	0	0
Winter oats	147	3	15	27	49	5	1	0	0	0	0	0	0
Mixed corn	21	0	12	45	20	22	0	0	0	0	0	0	0
Early potatoes	57	0	0	0	1	7	6	7	35	24	12	8	0
Maincrop potatoes	317	1	1	1	1	3	2	6	32	27	21	5	0
Sugar beet	431	2	2	20	37	24	7	3	3	1	0	0	0
Swedes (stock)	72	7	2	7	26	13	22	9	8	3	2	0	0
Turnips (stock)	69	9	15	29	7	11	10	13	5	0	1	0	0
Kale and cow cabbage	82	17	19	31	25	4	4	0	0	0	0	0	0
Rape for stockfeed	42	11	10	40	21	9	3	0	1	2	0	4	0
Beans for stockfeed	81	54	3	21	18	2	2	0	0	0	0	0	0
Other stockfeed	73	31	10	20	13	13	3	3	1	5	0	0	0
Peas for human consumption	226	51	3	23	13	6	2	0	0	1	1	0	0
Runner and French beans	30	11	0	22	31	16	18	3	0	0	0	0	0
Brussels sprouts	26	6	0	8	23	48	15	0	0	0	0	0	0
Cabbages	46	37	0	34	10	14	4	0	1	0	0	0	0
Cauliflower	32	5	0	7	39	33	4	1	12	0	0	0	0
Onions	49	19	0	22	11	12	15	11	9	0	0	0	0
Small fruit	97	37	13	23	17	7	2	2	0	0	0	0	0
Top fruit	122	69	19	4	2	1	0	5	0	0	0	0	0
Hops	34	12	0	14	51	2	20	0	1	0	0	0	0
Oilseed rape	349	6	2	12	68	7	1	2	2	0	0	0	0
All tillage	8795	13	7	27	41	7	2	1	2	1	1	0	0
1 year leys	32	69	6	14	10	2	0	0	0	0	0	0	0
2–7 year leys	3150	23	23	31	14	4	2	1	2	0	0	0	0
Permanent grass	4113	43	29	19	5	1	1	1	1	0	0	0	0
All crops and grass	16090	25	17	25	23	4	1	1	2	1	0	0	0

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TABLE 6

Percentages of crop area getting different amounts of K_2O (kg ha^{-1})

	Fields	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Spring wheat	70	24	17	37	14	2	0	5	0	0	0	0	0
Winter wheat	2488	23	2	21	43	9	1	0	0	0	0	0	0
Spring barley	1687	6	14	44	29	5	0	0	1	0	0	0	0
Winter barley	1519	10	4	22	51	9	2	0	1	0	0	0	0
Spring oats	103	11	28	49	8	4	0	0	0	0	0	0	0
Winter oats	147	4	14	26	43	8	2	0	2	0	0	0	0
Mixed corn	21	0	8	50	20	22	0	0	0	0	0	0	0
Early potatoes	57	0	0	0	1	2	9	2	20	28	20	15	4
Maincrop potatoes	317	0	1	0	1	0	1	5	10	28	21	27	5
Sugar beet	431	1	1	1	8	13	13	10	25	19	6	2	1
Swedes (stock)	72	10	2	9	37	21	16	5	0	1	0	0	0
Turnips (stock)	69	10	14	30	12	15	7	5	7	1	0	0	0
Kale and cow cabbage	82	17	11	29	33	2	3	1	1	4	0	0	0
Rape for stockfeed	42	9	13	46	20	12	0	0	0	0	0	0	0
Beans for stockfeed	81	49	3	22	19	1	0	1	0	5	0	0	0
Other stockfeed	73	33	14	15	19	8	7	0	1	0	2	0	0
Peas for human consumption	226	51	0	18	21	8	1	0	0	0	0	0	0
Runner and French beans	30	5	3	10	51	0	12	19	0	0	0	0	0
Brussels sprouts	26	0	0	0	12	0	7	5	14	39	23	0	0
Cabbages	46	15	0	5	8	23	1	21	15	10	3	0	0
Cauliflower	32	2	0	5	11	11	13	1	23	14	13	0	7
Onions	49	3	0	0	16	14	12	23	17	2	4	9	0
Small fruit	97	14	1	12	12	32	7	11	8	2	2	0	0
Top fruit	122	63	8	7	8	3	8	1	0	0	2	0	0
Hops	34	0	6	0	12	0	0	1	36	17	8	20	0
Oilseed rape	349	11	2	8	64	9	3	1	2	0	0	0	0
All tillage	8795	16	5	23	37	8	2	1	2	2	1	1	0
1 year leys	32	69	3	10	2	7	8	0	1	0	0	0	0
2–7 year leys	3150	22	18	24	18	8	5	3	2	0	0	0	0
Permanent grass	4113	45	23	20	7	3	1	1	0	0	0	0	0
All crops and grass	16090	27	14	22	23	6	2	1	1	1	1	0	0

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