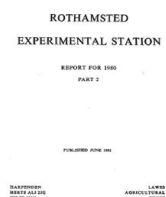


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Rothamsted Experimental Station Report for 1980 Part 2



[Full Table of Content](#)

Use of Fertilisers in England and Wales, 1980

B. M. Church

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Use of Fertilisers in England and Wales, 1980

B. M. CHURCH

Continuing the series of surveys done by staff of the ADAS Regional Soil Scientists in collaboration with representatives of the Fertiliser Manufacturers' Association and with Rothamsted (Church & Lewis, 1977), a sample of 1342 farms in England and Wales was surveyed during 1980. Comparative estimates of average fertiliser use per ha on tillage crops and grassland for the last 3 years are shown in Table 1.

Because of a change in the population sampled in 1980, and to improve comparability with the latest results, figures quoted for 1978 and 1979 in Table 1 differ somewhat from those in the previous paper (Church, 1980a); this will be discussed further in the full report on the 1980 survey which should be available shortly after this paper appears. Meanwhile, these data show a continuing increase in N use per ha crops and grass in 1980. As in the previous year, use of straight N per ha on the area in tillage cropping has increased by as much as a sixth and there has also been some increase in N applied in compound fertilisers to grassland (Table 1). Again, use of P and K per ha shows little change over the past year.

TABLE 1

Fertiliser use on tillage crops and grassland (kg ha⁻¹), 1978–80

	Tillage crops			Grassland			All crops and grass		
	1978	1979	1980	1978	1979	1980	1978	1979	1980
N Straight	53	66	77	67	71	69	60	69	73
Compound	51	46	44	45	45	50	47	45	47
Total	104	112	121	112	116	119	107	114	120
P ₂ O ₅	51	49	49	26	25	27	37	36	37
K ₂ O	56	53	54	24	26	26	39	38	40

TABLE 2

Fertiliser use on winter wheat and spring barley (kg ha⁻¹), 1978–80

	Winter wheat			Spring barley		
	1978	1979	1980	1978	1979	1980
N Straight	106	117	126	21	26	24
Compound	19	18	19	62	62	63
Total	125	135	145	83	88	87
P ₂ O ₅	44	46	46	38	37	37
K ₂ O	37	38	39	39	39	40

Much of the increased use of straight N on tillage crops is due to winter cereals. The proportion of the total cereal area winter sown is estimated at 64% in 1980 compared with 59% in 1979. The average total N dressing on winter wheat was 145 kg ha⁻¹ in 1980 (126 kg ha⁻¹ as straight N and the rest as compound fertiliser in the seedbed) compared with 135 kg ha⁻¹ in 1979 (Table 2). About 40% of this crop now gets two or more top dressings (Church, 1980b).

ROTHAMSTED REPORT FOR 1980, PART 2

Estimates of the average use of fertilisers on individual farm crops and of the proportions of crop area getting different amounts of nutrients in 1980 are given in Tables 3–6. Table 7 shows the proportion of the grassland area which is utilised in different ways, and average fertiliser applications for each pattern of utilisation. Table 8 shows the proportions of grassland, classified by utilisation, which got different amounts of N per ha during 1980 and demonstrates very clearly the association between grassland utilisation and N use per ha.

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USE OF FERTILISERS IN ENGLAND AND WALES, 1980

TABLE 3
Fertiliser use in England and Wales, 1980

	Fields	Hectares (⁰⁰⁰)	Overall* (kg ha ⁻¹)				% Area receiving				Actual* (kg ha ⁻¹)			
			N	P ₂ O ₅	K ₂ O		N	P	K	FYM	N	P ₂ O ₅	K ₂ O	
Spring wheat	107	43	106	37	35		98	86	82	8	108	43	43	
Winter wheat	2326	1317	145	46	39		99	86	76	13	146	53	51	
Spring barley	2073	1038	86	37	40		98	95	94	22	88	39	42	
Winter barley	1262	685	129	48	45		100	92	87	11	129	52	51	
Spring oats	161	46	68	31	32		89	83	82	21	77	37	39	
Winter oats	185	55	99	51	44		97	92	86	13	101	55	52	
Early potatoes	77	19	171	178	227		99	99	99	52	173	180	229	
Maincrop potatoes	377	100	185	185	259		98	98	98	48	188	188	264	
Sugar beet	457	201	137	65	144		93	91	91	25	148	72	158	
Swedes (stock)	77	14	55	109	71		84	90	84	42	65	121	85	
Turnips (stock)	70	17	65	61	48		98	74	71	39	66	83	67	
Kale and cow cabbage	164	34	115	53	54		94	90	87	53	122	59	62	
Rape for stockfeed	31	10	98	84	45		89	82	81	27	110	103	56	
Beans for stockfeed	103	41	6	30	19		17	45	31	7	36	66	63	
Other stockfeed	89	23	86	62	54		96	91	90	44	89	68	60	
Peas for human consumption	178	99	6	24	28		28	51	51	5	22	46	54	
Runner and French beans	30	6	58	55	42		44	72	55	9	131	77	76	
Brussels sprouts	28	7	228	110	156		86	86	86	21	266	128	181	
Cabbage	53	8	125	42	75		83	59	61	18	150	71	124	
Cauliflower	69	13	128	45	112		66	65	65	20	193	69	172	
Onions	38	5	130	87	121		89	72	72	11	146	120	167	
Small fruit	74	12	65	30	67		75	50	72	25	87	60	93	
Top fruit	107	34	106	9	30		78	33	41	7	137	27	73	
Oilseed rape	154	98	254	51	38		99	92	67	4	256	55	57	
All tillage	8767	4048	121	49	54		95	88	83	18	127	56	65	
1 year leys	23	8	152	40	44		98	58	55	20	155	69	80	
2-7 year leys	2967	1583	167	35	37		93	70	70	43	178	50	53	
Permanent grass	3395	2730	93	21	20		73	52	51	36	127	41	39	
All crops and grass	15152	8370	120	37	40		87	73	70	28	138	51	57	

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

ROTHAMSTED REPORT FOR 1980, PART 2

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	107	2	2	10	39	14	12	18	1	0	0	0
Winter wheat	2326	1	1	3	7	12	24	46	5	1	0	0
Spring barley	2073	2	1	19	38	22	7	4	0	0	0	0
Winter barley	1262	0	0	3	12	24	32	25	1	1	0	0
Spring oats	161	11	0	30	34	8	4	2	0	0	0	0
Winter oats	185	3	1	18	19	22	10	14	3	0	0	0
Early potatoes	77	1	0	3	6	4	6	66	14	1	1	0
Maincrop potatoes	377	2	1	1	1	5	5	50	24	9	1	0
Sugar beet	457	7	0	1	9	12	28	31	8	1	0	0
Swedes (stock)	77	16	0	20	17	7	3	3	0	1	0	0
Turnips (stock)	70	2	1	43	27	6	1	0	1	0	0	0
Kale and cow cabbage	164	6	0	11	20	21	15	12	4	7	0	0
Rape for stockfeed	31	11	0	32	17	15	6	8	9	0	2	0
Beans for stockfeed	103	83	8	6	0	0	0	0	0	0	0	0
Other stockfeed	89	4	2	23	24	11	11	8	2	0	0	0
Peas for human consumption	178	72	22	1	1	1	0	0	0	0	0	0
Runner and French beans	30	56	7	0	2	15	3	17	1	0	1	0
Brussels sprouts	28	14	0	0	15	0	0	13	5	13	26	14
Cabbage	53	17	0	5	15	11	17	16	4	4	8	0
Cauliflower	69	34	0	6	8	2	5	11	14	5	12	0
Onions	38	11	0	8	22	14	8	14	15	0	5	0
Small fruit	74	25	19	18	8	2	3	2	3	8	0	0
Top fruit	107	22	1	6	16	3	23	8	16	0	1	0
Oilseed rape	154	1	0	3	0	1	1	9	15	47	23	0
All tillage	8767	5	1	8	17	16	18	25	4	2	1	0
1 year leys	23	2	0	29	15	0	5	13	21	12	2	0
2–7 year leys	2967	7	1	11	12	7	11	13	10	8	12	4
Permanent grass	3395	27	0	16	12	5	9	8	4	3	4	1
All crops and grass	15152	13	1	12	15	11	14	17	5	4	4	1

USE OF FERTILISERS IN ENGLAND AND WALES, 1980

TABLE 5

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

	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Fields	107	14	7	52	27	0	0	0	0	0	0	0
Spring wheat	2326	14	3	28	45	8	0	0	0	0	0	0
Winter wheat	2073	5	8	68	17	2	0	0	0	0	0	0
Spring barley	1262	8	3	33	48	7	0	0	0	0	0	0
Winter barley	161	17	11	58	12	1	0	0	0	0	0	0
Spring oats	185	8	4	28	40	17	1	0	0	0	0	0
Winter oats												
Early potatoes	77	1	0	0	2	9	12	7	16	10	2	1
Maincrop potatoes	377	2	1	0	1	3	3	5	23	6	3	0
Sugar beet	457	9	1	14	42	20	5	3	0	0	0	0
Swedes (stock)	77	10	3	8	17	15	14	4	4	6	3	0
Turnips (stock)	70	26	7	25	6	7	7	6	1	0	1	0
Kale and cow cabbage	164	10	5	29	34	15	4	2	0	0	0	0
Rape for stockfeed	31	18	0	16	36	3	1	7	1	11	0	0
Beans for stockfeed	103	55	2	5	29	4	1	2	0	0	0	0
Other stockfeed	89	9	14	29	17	18	4	2	3	3	0	0
Peas for human consumption	178	49	7	17	23	4	1	0	0	0	0	0
Runner and French beans	30	28	0	0	23	44	5	0	0	0	0	0
Brussels sprouts	28	14	0	2	5	37	8	10	23	0	0	0
Cabbage	53	41	0	7	29	15	4	4	0	0	0	0
Cauliflower	69	35	1	10	32	12	10	0	0	0	0	0
Onions	38	28	0	0	20	15	1	11	11	0	0	0
Small fruit	74	50	9	14	8	14	0	4	0	0	0	0
Top fruit	107	67	24	3	3	3	0	0	0	0	0	0
Oilseed rape	154	8	3	17	66	3	1	0	0	0	0	0
All tillage	8767	12	5	37	34	7	1	1	1	0	0	0
1 year leys	23	42	1	16	17	19	0	2	0	0	0	0
2–7 year leys	2967	30	15	30	13	5	3	1	1	0	0	0
Permanent grass	3395	48	16	24	6	2	1	1	0	0	0	0
All crops and grass	15152	27	10	31	21	5	1	2	1	0	0	0

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 6

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

	0	<25	25—	50—	75—	100—	125—	150—	200—	250—	300—	400+
Fields	107	18	4	54	24	0	0	0	0	0	0	0
Spring wheat	107	18	4	54	24	0	0	0	0	0	0	0
Winter wheat	2326	24	4	34	31	7	1	0	0	0	0	0
Spring barley	2073	6	5	63	24	3	0	0	0	0	0	0
Winter barley	1262	13	3	37	41	7	1	0	0	0	0	0
Spring oats	161	18	6	63	12	2	0	0	0	0	0	0
Winter oats	185	14	2	34	37	13	0	0	0	0	0	0
Early potatoes	77	1	0	0	2	1	4	9	15	29	18	1
Maincrop potatoes	377	2	0	1	0	0	1	1	18	40	29	0
Sugar beet	457	9	0	2	7	8	16	8	20	7	1	0
Swedes (stock)	77	16	0	17	21	20	12	6	2	0	0	0
Turnips (stock)	70	29	5	24	7	24	8	1	1	0	0	0
Kale and cow cabbage	164	13	3	29	35	8	7	3	1	0	0	0
Rape for stockfeed	31	19	3	28	38	9	0	4	0	0	0	0
Beans for stockfeed	103	69	0	7	17	3	1	2	0	0	0	0
Other stockfeed	89	10	9	35	21	14	5	2	2	1	0	0
Peas for human consumption	178	49	2	18	22	8	1	2	0	0	0	0
Runner and French beans	30	45	0	14	7	26	3	2	1	0	0	0
Brussels sprouts	28	14	0	0	0	2	11	14	30	1	8	0
Cabbage	53	39	0	1	11	9	5	13	3	1	0	0
Cauliflower	69	35	1	3	1	3	10	6	24	0	4	0
Onions	38	28	0	0	1	0	3	29	16	0	4	0
Small fruit	74	28	0	16	10	18	7	7	1	0	0	0
Top fruit	107	59	0	7	21	9	0	3	0	0	0	0
Oilseed rape	154	33	5	12	46	2	2	1	0	0	0	0
All tillage	8767	17	3	37	28	6	2	1	2	2	1	0
1 year leys	23	45	1	8	9	23	8	6	0	0	0	0
2-7 year leys	2967	30	11	28	15	8	4	2	0	0	0	0
Permanent grass	3395	49	13	26	7	3	1	0	0	0	0	0
All crops and grass	15152	30	8	32	18	5	2	1	1	1	0	0

USE OF FERTILISERS IN ENGLAND AND WALES, 1980

TABLE 7
Fertiliser use on grassland classified by utilisation

	Fields	% Grassland area	Overall* (kg ha ⁻¹)			% Area receiving				Actual* (kg ha ⁻¹)		
			N	P ₂ O ₅	K ₂ O	N	P	K	FYM	N	P ₂ O ₅	K ₂ O
Paddock grazed	108	2	212	20	20	89	47	48	34	238	42	42
Paddock grazed and mown	57	1	201	40	38	100	61	62	62	201	65	62
Strip grazed	193	3	213	27	28	96	62	61	40	221	44	46
Strip grazed and mown	166	3	171	29	43	97	74	79	81	176	39	55
Set stocked	520	9	179	26	25	90	55	56	33	199	47	45
Set stocked and mown	176	3	195	37	48	96	78	80	54	204	47	60
Cut for seed	44	0	181	55	51	100	96	93	5	181	57	55
Cut for silage	983	14	200	39	55	98	81	84	63	203	48	66
Cut for hay	131	1	65	16	15	73	34	32	20	89	46	47
Cut for hay and grazed†	1336	18	88	26	24	88	62	61	51	100	42	39
Other grazings	2563	44	75	22	15	66	50	46	23	114	43	33
Not stated/not used	122	2	80	34	17	64	50	40	23	124	68	43
All grass	6413		119	27	26	80	59	58	38	148	45	45

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

† Excluding fields intensively grazed as in the first 6 categories above.

ROTHAMSTED REPORT FOR 1980, PART 2

TABLE 8
Percentages of grassland area by utilisation getting different amounts of N (kg ha^{-1})

	Fields	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Paddock grazed	108	11	0	4	6	15	2	3	6	16	8	23	7
Paddock grazed and mown	57	0	0	0	6	13	16	11	8	19	3	21	3
Strip grazed	193	4	0	4	5	6	6	11	16	12	10	18	8
Strip grazed and mown	166	3	1	5	9	8	9	14	20	7	13	10	3
Set stocked	520	10	0	3	14	11	3	9	11	8	8	17	6
Set stocked and mown	176	4	0	1	9	9	3	17	15	6	18	14	4
Cut for seed	44	0	0	0	0	1	17	26	23	11	13	9	0
Cut for silage	983	2	0	1	6	8	7	12	19	15	10	16	4
Cut for hay	131	27	0	8	21	24	5	7	5	2	0	0	0
Cut for hay and grazed†	1336	12	0	8	27	19	9	10	8	2	2	2	0
Other grazings	2563	34	0	11	14	12	5	9	7	2	3	3	0
Not stated/not used	122	36	7	3	9	14	8	4	6	11	0	3	0
All grass	6413	20	0	7	15	12	6	10	10	6	5	7	2

† Excluding fields intensively grazed as in the first 6 categories above.