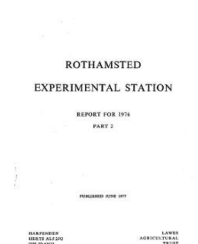


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Use of Fertilisers in England and Wales, 1976

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B. M. Church (1977) *Use of Fertilisers in England and Wales, 1976* ; Rothamsted Experimental Station Report For 1976, Part 2, pp 189 - 193 - DOI: <https://doi.org/10.23637/ERADOC-1-34454>

Use of Fertilisers in England and Wales, 1976

B. M. CHURCH

Continuing the series of annual surveys done by ADAS Soil Scientists and representatives of the Fertiliser Manufacturers Association in collaboration with the Statistics Department, Rothamsted (Church & Webber, 1971) a representative sample of 1380 farms was surveyed in England and Wales in 1976.

Efficiency of field work was increased in 1976 by excluding farms with less than 20 ha (50 acres) crops and grass and 'agriculturally insignificant holdings' with total inputs less than 275 standard man-days. Estimates of use per hectare given in reports for previous years must therefore be adjusted to be strictly comparable with those for 1976.

Estimated N use on grassland was slightly less in 1976 than in 1975, but more N was used per hectare on tillage crops, partly because the area under winter wheat recovered from the depressed levels of the previous year. The decline in use of P and K over the last three years was also checked (Table 1).

As preliminary estimates of fertiliser use were required by October, a random sub-sample of 800 farms was surveyed in June–July and the rest in August–September. Estimates of fertiliser use are for the 'crop year' October–September, so fertiliser use in the late summer had to be forecast for farms in the first half of the sample.

Due to the exceptionally low summer rainfall these forecasts, particularly for N on grassland, overestimated actual use as determined from the second half of the sample. However, the unadjusted estimates from the first half of the sample are themselves of interest because they suggest that N use on grassland would have been maintained, or possibly continued to increase in 1976 had this been a normal year (Table 2).

TABLE 1

Fertiliser use on tillage, leys and permanent grass, 1973–76 (kg ha⁻¹)

	Tillage			Leys			P.G.			All crops & grass		
	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
1973	89	54	60	129	44	32	63	26	16	87	43	39
1974	85	51	56	136	36	30	71	23	16	92	40	38
1975	87	46	51	142	34	28	77	20	16	96	35	34
1976*	96	50	56	141	35	32	71	22	14	97	38	37

* Estimates for previous years adjusted to be comparable with those for 1976.

TABLE 2

Estimated use of N in 1975 and 1976 (kg ha⁻¹)

	Tillage	Leys	P.G.	All crops & grass
1975	87	142	77	96
1976 Preliminary sample (including forecasts)	96	150	77	101
Final estimate	96	141	71	97

Estimates of average fertiliser use in 1976 and of the proportions of crop area getting different amounts of nutrients are given for major crops in Tables 3–6 on the following pages. Further details, in particular for grassland and for fruit and horticultural crops, will be reported elsewhere.

REFERENCE

CHURCH, B. M. & WEBBER, J. (1971) Fertiliser practice in England and Wales: a new series of surveys. *Journal of the Science of Food and Agriculture* 22, 1–7.

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TABLE 3
Fertiliser use in England and Wales, 1976

Fields	Hectares ('000)	Overall* (kg ha ⁻¹)				% Area receiving				Actual* (kg ha ⁻¹)		
		N	P ₂ O ₅	K ₂ O	FYM	N	P	K	FYM	N	P ₂ O ₅	K ₂ O
Spring wheat	28	85	42	35	12	88	79	12	86	48	44	
Winter wheat	1102	102	42	33	12	96	70	12	106	52	47	
Spring barley	1476	78	38	38	18	98	93	18	79	40	41	
Winter barley	271	97	43	38	12	99	81	12	98	48	46	
Spring oats	225	69	36	33	18	88	86	18	67	41	38	
Winter oats	258	75	42	37	19	94	87	19	80	48	45	
Mixed corn	43	49	43	36	22	93	90	22	54	46	40	
Maize	31	117	60	63	52	94	90	52	119	64	69	
Early potatoes	88	29	172	206	40	100	100	40	172	165	206	
Maincrop potatoes	431	138	177	250	37	98	98	37	179	178	254	
Sugar beet	208	155	81	173	30	97	97	30	156	83	178	
Swedes and turnips (stock)	55	64	86	66	39	91	86	39	72	95	77	
Mangolds	5	132	89	123	61	97	97	61	137	92	127	
Kale and cow cabbage	224	55	107	53	36	92	87	36	117	61	65	
Rape (stock)	34	134	85	46	9	92	75	9	138	93	61	
Beans (stock)	32	3	25	13	10	13	26	10	24	66	49	
Mixed roots and green crops	57	86	89	77	39	91	88	39	92	98	88	
Peas—vining	80	4	15	17	6	29	28	6	31	51	60	
Peas—harvested dry	59	25	39	31	7	62	54	7	31	64	58	
Broad beans	22	8	20	103	1	92	74	1	61	92	139	
Runner beans	25	5	98	80	8	56	62	8	159	98	129	
French beans	20	6	114	71	26	77	78	26	147	91	104	
Brussels sprouts	76	18	261	168	6	98	93	6	266	109	181	
Cabbages	134	18	180	85	28	88	87	28	182	96	173	
Cauliflower	56	10	174	93	25	92	70	25	190	132	218	
Carrots	38	9	64	53	12	77	77	12	82	68	109	
Onions	65	9	119	112	3	95	95	3	120	118	164	
Lettuce	46	7	163	75	27	100	94	27	164	78	171	
Oilseed rape	65	26	240	60	7	100	70	7	240	61	79	
Arable silage	67	23	83	42	37	91	85	37	91	49	46	
All tillage	9367	4076	96	50	18	88	82	18	102	57	68	
One year leys	117	45	137	29	27	95	48	27	145	54	50	
Two to seven year leys	3366	1842	141	35	42	65	64	42	156	54	50	
Permanent grass	4015	2908	71	22	31	66	41	31	107	49	35	
All crops and grass	16899	8885	97	38	27	69	65	27	116	55	58	

* The average application of any fertiliser component over all fields, including those receiving none of that component, 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	109	0	2	9	22	25	28	11	2	0	0	0	0
Winter wheat	2184	4	2	4	8	22	32	19	9	0	0	0	0
Spring barley	2745	2	1	9	26	41	16	4	1	0	0	0	0
Winter barley	538	1	2	3	10	35	33	11	5	0	0	0	0
Spring oats	225	11	3	16	30	30	6	3	1	0	0	0	0
Winter oats	258	6	6	14	20	26	22	3	2	0	0	0	0
Mixed corn	43	10	3	34	41	4	8	0	0	0	0	0	0
Maize	76	2	0	2	3	17	27	41	9	0	1	0	0
Early potatoes	88	0	0	2	0	5	4	18	57	7	5	3	0
Maincrop potatoes	431	1	2	1	1	1	4	8	58	20	4	1	0
Sugar beet	441	0	0	1	0	4	10	29	43	9	2	2	0
Swedes and turnips (stock)	210	12	3	25	26	15	8	6	4	1	0	0	0
Mangolds	51	3	2	2	6	22	12	23	19	2	4	7	0
Kale and cow cabbage	224	8	0	3	19	13	13	22	17	4	0	1	0
Rape (stock)	78	3	2	13	19	14	4	2	9	14	20	0	0
Beans (stock)	98	87	9	2	2	0	0	0	0	0	0	0	0
Mixed roots and green crops	57	7	0	19	22	9	19	11	10	4	0	0	0
Peas—vining	80	86	1	12	0	0	0	0	0	0	0	0	0
Peas—harvested dry	59	85	7	7	0	0	0	0	0	0	0	1	0
Broad beans	22	67	0	17	12	2	0	0	0	1	0	0	0
Runner beans	25	38	0	0	2	9	0	20	10	20	1	0	0
French beans	20	22	0	0	1	30	5	0	27	15	0	0	0
Brussels sprouts	76	2	0	1	0	6	12	3	16	11	19	28	0
Cabbages	134	1	0	2	4	6	9	8	31	27	5	7	0
Cauliflower	56	8	0	0	8	6	11	10	22	17	6	12	0
Carrots	38	23	0	11	15	37	9	0	4	0	0	0	0
Onions	65	0	0	7	6	35	20	10	11	7	3	2	0
Lettuce	46	0	0	10	5	11	3	4	25	38	0	5	0
Oilseed rape	65	0	0	0	1	0	0	6	12	32	38	9	1
Arable silage	67	9	0	18	16	27	11	13	3	0	0	3	0
All tillage	9367	6	1	7	15	26	20	11	9	2	1	1	0
One year leys	117	5	0	2	12	20	11	15	13	12	3	5	2
Two to seven year leys	3366	9	1	6	15	14	7	10	11	7	7	7	3
Permanent grass	4015	34	1	10	18	12	5	6	6	3	2	2	1
All crops and grass	16899	16	1	8	16	19	12	9	9	4	3	2	1

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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	109	12	6	59	14	6	0	0	1	2	0	0	0
Winter wheat	2184	19	2	35	37	5	1	0	1	1	0	0	0
Spring barley	2745	4	7	72	14	1	0	0	0	0	0	0	0
Winter barley	538	11	6	45	31	5	0	1	1	0	0	0	0
Spring oats	225	12	10	58	15	4	0	0	1	1	0	0	0
Winter oats	258	13	6	35	42	3	1	0	1	0	0	0	0
Mixed corn	43	7	5	72	4	8	3	0	0	2	0	0	0
Maize	76	6	0	30	41	18	0	2	3	0	0	0	0
Early potatoes	88	0	0	0	3	5	3	16	64	6	1	1	0
Maincrop potatoes	431	2	2	1	1	3	5	9	54	18	2	4	0
Sugar beet	441	3	1	10	31	27	16	5	7	0	0	0	0
Swedes and turnips (stock)	210	9	3	22	14	13	13	7	13	4	0	0	0
Mangolds	51	3	1	14	35	15	10	4	13	5	0	0	0
Kale and cow cabbage	224	13	2	26	35	17	4	2	2	0	0	0	0
Rape (stock)	78	8	2	29	30	5	0	6	9	4	6	1	0
Beans (stock)	98	61	1	9	20	4	1	0	4	0	0	0	0
Mixed roots and green crops	57	9	0	7	22	25	14	8	13	3	0	0	0
Peas—vining	80	71	0	18	10	0	0	0	1	0	0	0	0
Peas—harvested dry	59	38	3	20	24	8	0	0	6	1	0	0	0
Broad beans	22	8	0	1	47	20	5	19	0	0	0	0	0
Runner beans	25	44	0	2	6	29	0	19	0	0	0	0	0
French beans	20	23	0	0	5	48	24	1	0	0	0	0	0
Brussels sprouts	76	8	0	11	14	29	5	10	21	0	2	0	0
Cabbages	134	12	1	9	31	9	11	15	11	0	0	0	0
Cauliflower	56	30	0	0	17	4	12	15	8	15	0	0	0
Carrots	38	23	0	39	11	12	9	3	3	0	0	0	0
Onions	65	5	0	9	16	30	7	3	25	4	0	0	0
Lettuce	46	4	0	12	39	22	18	1	4	0	0	0	1
Oilseed rape	65	2	0	14	72	8	3	0	0	1	0	0	0
Arable silage	67	15	12	41	25	2	3	1	0	1	0	0	0
All tillage	9367	12	4	44	24	6	2	1	4	1	0	0	0
One year leys	117	47	4	27	11	7	1	1	2	0	0	0	0
Two to seven year leys	3366	34	11	32	11	3	2	2	3	2	0	0	0
Permanent grass	4015	55	11	23	4	1	1	1	3	1	0	0	0
All crops and grass	16899	31	8	35	15	4	2	1	3	1	0	0	0

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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	109	21	51	19	6	0	0	0	0	0	0	0
Spring wheat	2184	30	36	27	5	0	0	0	0	0	0	0
Winter wheat	2745	7	65	18	3	0	0	0	0	0	0	0
Spring barley	538	19	45	27	5	1	0	0	0	0	0	0
Winter barley	225	14	60	17	3	0	0	0	0	0	0	0
Spring oats	258	17	40	34	2	1	0	0	0	0	0	0
Winter oats	43	10	65	18	0	3	0	0	0	0	0	0
Mixed corn	76	10	24	35	22	0	7	3	0	0	0	0
Maize	88	0	2	0	0	2	10	41	13	22	8	1
Early potatoes	431	2	1	0	1	1	9	24	24	36	20	3
Maincrop potatoes	441	3	1	8	8	11	6	23	27	7	5	2
Sugar beet												
Swedes and turnips (stock)	210	13	26	19	16	11	3	6	2	0	0	0
Mangolds	51	3	4	30	10	10	8	15	10	8	1	0
Kale and cow cabbage	224	13	1	30	17	5	4	1	1	0	0	0
Rape (stock)	78	25	39	21	5	0	0	0	0	6	0	0
Beans (stock)	98	74	0	10	15	0	0	0	0	0	0	0
Mixed roots and green crops	57	12	10	27	15	9	7	12	3	0	0	0
Peas—vining	80	72	9	17	0	2	0	0	0	0	0	0
Peas—harvested dry	59	46	12	25	9	4	0	0	0	0	1	0
Broad beans	22	26	1	2	0	8	54	10	0	0	0	0
Runner beans	25	38	0	5	30	0	4	21	3	0	0	0
French beans	20	22	0	17	6	24	30	0	1	0	0	0
Brussels sprouts	76	7	0	1	8	17	9	30	13	6	5	2
Cabbages	134	10	1	7	8	9	16	30	6	4	1	6
Cauliflower	56	26	0	0	0	4	1	39	13	7	11	0
Carrots	38	23	0	4	11	16	9	12	1	3	0	0
Onions	65	5	4	2	12	16	14	21	19	2	5	2
Lettuce	46	1	1	16	8	2	1	40	30	0	0	0
Oilseed rape	65	30	0	46	6	0	0	0	0	6	0	0
Arable silage	67	18	33	24	3	2	2	0	0	0	0	0
All tillage	9367	18	42	20	5	2	1	3	3	2	1	0
One year leys	117	52	19	16	2	3	0	1	0	0	0	0
Two to seven year leys	3366	36	30	12	6	4	2	0	1	0	0	0
Permanent grass	4015	59	24	5	2	0	0	0	0	0	0	0
All crops and grass	16899	35	33	14	4	2	1	1	1	1	1	0