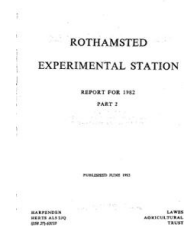


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Use of Fertilizers in England and Wales, 1982

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Use of fertilizers in England and Wales, 1982

B. M. CHURCH

Continuing the series of annual surveys done by staff of the ADAS Regional Soil Scientists, with representatives of the Fertiliser Manufacturers' Association and Rothamsted (Church and Lewis, 1977), a random sample of 1350 farms in England and Wales was surveyed during 1982. The survey estimates show small increases between 1981 and 1982 in use of N and P per hectare crops and grass, with a proportionately somewhat larger increase in use of K (Table 1).

Although metric units were officially adopted for agriculture in 1976, all but about 10% of farmers in 1982 chose to report fertilizer use in hundredweights or units per acre. It seems likely, however, that most farmers reckon 50 kg bags as hundredweights and this is assumed, perhaps belatedly, in reporting the 1982 results. Apart from sampling errors, Table 1 may therefore understate use in 1982 relative to that in 1981 by about 1½%.

TABLE 1
Fertilizer use on tillage crops and grassland (kg ha⁻¹), 1979–82

	Tillage crops				Grassland				All crops and grass			
	1979	1980	1981	1982	1979	1980	1981	1982	1979	1980	1981	1982
N Straight	66	77	92	99	71	69	74	71	69	73	83	85
Compound	46	44	43	42	45	50	51	52	45	47	47	47
Total	112	121	135	141	116	119	125	123	114	120	130	132
P ₂ O ₅	49	49	51	55	25	27	25	24	36	37	38	39
K ₂ O	53	54	56	61	26	26	26	28	38	40	41	44

TABLE 2
Fertilizer use on winter wheat and spring barley (kg ha⁻¹), 1979–82

	Winter wheat				Spring barley			
	1979	1980	1981	1982	1979	1980	1981	1982
N Straight	117	126	144	148	26	24	37	34
Compound	18	19	18	18	62	63	61	60
Total	135	145	162	166	88	87	98	94
P ₂ O ₅	46	46	49	51	37	37	37	38
K ₂ O	38	39	42	45	39	40	40	41

Increases in fertilizer use between 1981 and 1982 seem to have been mainly on the area in tillage cropping, with the estimated use of N per hectare on grassland marginally less on the farms surveyed in 1982. Estimated year to year changes in use of P and K have recently been only of the same order as the survey sampling errors, but estimates for the last 4 years are consistent with a gradual increase in use of these nutrients per hectare since 1979.

On individual tillage crops, use of straight N, and of P and K, per hectare on winter wheat have continued to increase, but on spring barley the increased use of straight N recorded in 1981 was no more than sustained in 1982 (Table 2). About 70% of the cereal area in 1982 was winter sown.

The average amounts of fertilizer nutrients used per hectare in 1982 on individual

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tillage crops, and on grassland classified according to utilization, and the proportions of each crop which got different amounts of nutrient are summarized in Tables 3–8 at the end of this paper.

REFERENCE

CHURCH, B. M. & LEWIS, D. A. (1977) Fertilizer use on farm crops in England and Wales: Information from the Survey of Fertilizer Practice 1942–1976. *Outlook on Agriculture* 9, 186–193.

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TABLE 3
Fertilizer use in England and Wales, 1982

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	67	123	30	30		100	75	69	13	123	40	44	
Winter wheat	2743	166	51	45		99	88	80	10	167	58	55	
Spring barley	1874	94	38	41		98	94	93	24	96	41	44	
Winter barley	1506	145	51	51		100	92	91	11	145	56	59	
Spring oats	130	67	35	39		92	91	91	18	73	39	43	
Winter oats	184	111	56	52		100	94	93	8	111	59	56	
Mixed corn	35	60	32	31		90	73	73	26	67	43	43	
Rye	32	112	44	53		100	99	99	1	112	45	54	
Early potatoes	83	189	192	234		100	100	99	38	190	192	237	
Maincrop potatoes	373	199	199	267		99	99	99	35	200	201	269	
Sugar beet	473	144	67	159		99	97	100	25	145	68	160	
Swedes (stock)	110	55	99	68		90	98	90	42	61	100	76	
Turnips (stock)	58	61	53	45		86	78	77	36	71	67	58	
Kale and cow cabbage	94	112	45	51		98	85	88	52	114	53	58	
Rape for stockfeed	26	90	61	47		93	85	85	26	97	72	55	
Beans for stockfeed	98	13	27	21		14	41	36	5	87	66	59	
Other stockfeed	85	71	54	53		77	82	78	34	92	65	67	
Peas for human consumption	157	5	26	26		23	47	45	5	24	55	59	
Broad beans	20	18	36	52		34	58	58	0	51	61	89	
Runner and French beans	43	67	60	46		50	65	65	9	134	93	72	
Brussels sprouts	54	246	105	181		100	93	99	21	246	112	183	
Cabbages	57	186	96	153		97	92	92	16	192	104	166	
Cauliflower	67	169	51	124		98	69	69	6	173	74	179	
Onions	50	104	132	177		95	94	94	1	110	141	189	
Small fruit	100	65	38	82		89	76	84	8	73	49	97	
Top fruit	94	64	7	12		76	35	37	2	84	20	32	
Oilseed rape	311	265	59	50		100	95	80	2	265	62	62	
All tillage	9293	141	55	61		96	89	86	15	147	61	71	
1 year leys	24	148	36	51		88	79	79	36	169	45	65	
2-7 year leys	2949	173	31	41		93	73	73	47	185	43	56	
Permanent grass	3682	96	19	20		77	54	54	36	125	36	38	
All crops and grass	15948	132	39	44		89	75	73	28	148	52	61	

* 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	67	0	0	7	8	8	31	16	28	0	0	0	0
Winter wheat	2743	1	1	1	3	5	8	13	45	20	2	1	0
Spring barley	1874	2	1	11	24	23	18	12	7	1	0	0	0
Winter barley	1506	0	1	1	2	7	13	31	40	4	0	0	0
Spring oats	130	8	7	22	28	19	8	6	2	0	0	0	0
Winter oats	184	0	3	6	11	16	23	21	19	2	0	0	0
Mixed corn	35	10	6	32	30	8	13	0	0	2	0	0	0
Rye	32	0	0	32	2	0	24	24	2	16	0	0	0
Early potatoes	83	0	0	0	0	0	6	3	54	32	4	0	0
Maincrop potatoes	373	1	1	0	2	1	2	6	36	39	8	5	0
Sugar beet	473	1	0	2	2	6	13	41	29	4	2	0	0
Swedes (stock)	110	10	14	20	35	10	6	3	0	0	0	0	0
Turnips (stock)	58	14	2	23	25	27	5	3	1	0	0	0	0
Kale and cow cabbage	94	2	0	10	23	17	17	17	7	3	0	0	0
Rape for stockfeed	26	7	0	13	34	26	10	0	0	11	0	0	0
Beans for stockfeed	98	86	7	1	1	0	0	0	1	4	0	0	0
Other stockfeed	85	23	7	17	9	10	16	7	9	1	0	0	0
Peas for human consumption	157	77	15	7	1	0	0	0	0	0	0	0	0
Broad beans	20	66	16	5	4	5	4	0	0	0	0	0	0
Runner and French beans	43	50	8	0	0	0	8	15	17	2	0	0	0
Brussels sprouts	54	0	0	0	6	2	8	2	19	8	16	33	3
Cabbages	57	3	0	0	7	6	24	15	15	10	4	1	15
Cauliflower	67	2	0	0	1	0	13	30	35	3	10	6	0
Onions	50	5	0	8	32	12	5	20	4	10	2	1	0
Small fruit	100	11	0	38	6	30	6	5	3	0	1	0	0
Top fruit	94	24	11	8	8	31	5	8	6	0	0	0	0
Oilseed rape	311	0	0	0	2	1	2	1	6	16	38	33	0
All tillage	9293	4	2	4	8	9	11	16	29	11	3	2	0
1 year leys	24	12	0	6	12	3	2	16	35	4	1	3	6
2–7 year leys	2949	7	1	10	11	8	5	9	12	10	9	13	5
Permanent grass	3682	23	2	16	12	11	6	7	9	5	3	5	1
All crops and grass	15948	11	2	9	10	10	8	12	19	9	4	5	1

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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	67	25	12	47	16	0	0	0	0	0	0	0
Spring wheat	2743	12	3	28	48	1	0	1	0	0	0	0
Winter wheat	1874	6	16	58	18	1	0	0	0	0	0	0
Spring barley	1506	8	3	30	50	1	0	0	0	0	0	0
Winter barley	130	9	21	53	15	1	0	0	0	0	0	0
Spring oats	184	6	4	26	49	14	0	0	0	0	0	0
Winter oats	35	27	7	41	23	0	0	0	0	0	0	0
Mixed corn	32	1	34	32	13	4	0	0	0	0	0	0
Rye												
Early potatoes	83	0	0	0	1	1	4	44	34	9	1	0
Maincrop potatoes	373	1	1	0	3	2	4	31	40	12	3	1
Sugar beet	473	3	6	16	44	24	2	3	0	0	0	0
Swedes (stock)	110	2	7	26	14	10	8	16	2	3	0	0
Turnips (stock)	58	22	21	7	11	4	13	1	0	0	0	0
Kale and cow cabbage	94	15	16	35	17	7	1	0	0	0	0	0
Rape for stockfeed	26	15	8	42	15	5	0	2	6	2	0	0
Beans for stockfeed	98	59	0	10	23	4	0	0	0	0	0	0
Other stockfeed	85	18	10	29	23	7	6	1	1	0	0	0
Peas for human consumption	157	53	2	23	17	2	0	0	0	0	0	0
Broad beans	20	42	0	7	44	6	0	0	1	0	0	0
Runner and French beans	43	35	0	6	32	6	2	11	0	0	0	0
Brussels sprouts	54	7	0	2	16	21	35	18	2	0	0	0
Cabbages	57	8	0	15	10	8	33	11	0	0	0	0
Cauliflower	67	31	0	11	28	23	4	1	0	0	0	0
Onions	50	6	2	1	13	6	5	45	6	1	0	0
Small fruit	100	24	16	31	21	2	0	1	0	0	0	0
Top fruit	94	65	32	1	1	0	1	0	0	0	0	0
Oilseed rape	311	5	1	23	61	5	3	1	0	0	0	0
All tillage	9293	11	6	32	38	7	1	2	2	0	0	0
1 year leys	24	21	13	36	27	3	0	0	0	0	0	0
2–7 year leys	2949	27	24	30	11	4	1	1	0	0	0	0
Permanent grass	3682	46	29	17	4	1	0	1	1	0	0	0
All crops and grass	15948	25	17	27	22	5	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	67	31	8	43	16	0	0	2	0	0	0	0
Winter wheat	2743	20	3	31	36	9	1	0	0	0	0	0
Spring barley	1874	7	12	53	26	2	1	0	0	0	0	0
Winter barley	1506	9	2	32	44	8	2	1	0	0	0	0
Spring oats	130	9	19	48	19	6	0	0	0	0	0	0
Winter oats	184	7	3	36	38	16	0	0	0	0	0	0
Mixed corn	35	27	7	44	20	2	0	0	0	0	0	0
Rye	32	1	28	17	32	18	4	0	0	0	0	0
Early potatoes	83	1	0	0	0	0	3	2	39	23	14	0
Maincrop potatoes	373	1	0	1	1	1	1	9	23	33	25	4
Sugar beet	473	0	0	1	5	14	13	22	22	7	0	0
Swedes (stock)	110	10	3	35	15	14	10	8	0	0	0	0
Turnips (stock)	58	23	20	14	25	11	4	2	0	0	0	0
Kale and cow cabbage	94	12	13	32	23	13	5	1	2	0	0	0
Rape for stockfeed	26	15	12	43	20	7	0	0	4	0	0	0
Beans for stockfeed	98	64	0	16	14	5	1	0	0	0	0	0
Other stockfeed	85	22	8	24	21	13	9	1	2	1	0	0
Peas for human consumption	157	55	2	17	19	3	3	0	0	0	0	0
Broad beans	20	42	0	3	24	6	20	5	1	0	0	0
Runner and French beans	43	35	0	5	44	10	3	0	0	0	0	0
Brussels sprouts	54	1	0	0	0	7	29	9	34	18	0	0
Cabbages	57	8	0	7	3	4	14	21	33	2	1	0
Cauliflower	67	31	0	1	1	8	3	8	36	1	0	0
Onions	50	6	2	0	5	1	2	41	25	14	0	0
Small fruit	100	16	2	16	10	2	42	4	0	0	0	0
Top fruit	94	63	2	6	2	1	1	0	0	0	0	0
Oilseed rape	311	20	1	13	58	4	1	1	0	0	0	0
All tillage	9293	14	5	31	32	7	2	2	3	2	1	0
1 year leys	24	21	4	37	17	13	3	0	0	0	0	0
2–7 year leys	2949	27	18	23	16	6	4	2	1	0	0	0
Permanent grass	3682	46	25	18	6	2	2	0	0	0	0	0
All crops and grass	15948	27	14	25	20	5	2	0	1	1	0	0

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TABLE 7
Fertilizer use on grassland classified by utilization

	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	175	3	174	21	22		89	59	56	25	195	35	38
Paddock grazed and mown	85	1	174	24	38		87	57	60	55	199	42	63
Strip grazed	152	2	201	21	23		94	68	68	54	213	31	34
Strip grazed and mown	149	2	188	29	50		99	74	80	62	191	39	62
Set stocked	771	13	172	21	24		86	59	58	31	199	35	41
Set stocked and mown	426	6	180	29	49		96	73	78	58	188	40	63
Cut for seed	26	0	136	43	53		87	66	72	10	156	65	74
Cut for dried grass	26	0	279	10	18		99	30	25	52	280	33	72
Cut for silage	1058	14	201	37	63		99	82	87	65	204	45	72
Cut for hay	96	1	82	14	18		75	46	46	11	108	31	39
Cut for hay and grazed†	1069	14	82	23	25		91		71	58	90	33	35
Other grazings	2541	41	76	20	15		71	51	48	24	107	40	32
Not stated/not used	135	3	61	18	9		62	37	33	23	99	47	27
All grass	6709		123	24	28		83	61	61	39	148	39	46

* 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'.

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

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

	Fields	0	<25	25–	50–	75–	100–	125–	150–	200–	250–	300–	400+
Paddock grazed	175	11	1	13	10	7	3	7	14	9	3	16	8
Paddock grazed and mown	85	13	0	2	19	1	4	4	12	16	13	12	4
Strip grazed	152	6	0	2	7	6	9	11	11	13	8	23	4
Strip grazed and mown	149	1	0	2	6	6	9	15	26	7	12	14	1
Set stocked	771	14	2	8	9	9	4	8	9	9	8	14	7
Set stocked and mown	426	4	1	9	10	9	4	9	14	10	13	14	4
Cut for seed	26	13	0	6	5	10	6	17	31	2	5	6	0
Cut for dried grass	26	1	0	7	0	1	0	0	3	15	28	26	18
Cut for silage	1058	1	0	4	6	8	6	9	21	14	12	17	2
Cut for hay	96	25	3	8	8	18	8	17	4	7	1	1	0
Cut for hay and grazed*	1069	9	2	24	19	17	10	9	6	3	1	0	0
Other grazings	2541	29	3	18	14	10	5	6	6	4	2	3	1
Not stated/not used	135	38	11	12	4	12	5	7	7	1	0	3	0
All grass	6709	17	2	14	12	10	6	8	10	7	5	8	2

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