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# Yields of the Field Experiments 1976

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## 76/R/AG/6 Agdell - Potatoes , Barley

### Rothamsted Research

Rothamsted Research (1977) *76/R/AG/6 Agdell - Potatoes , Barley ; Yields Of The Field Experiments 1976*, pp 30 - 35 - DOI: <https://doi.org/10.23637/ERADOC-1-15>

76/R/AG/6

AGDELL

Object: To study, by crop yields and soil analyses, the residual values of phosphate and potash applied in the period 1848-1951 and further dressings since 1964.

The seventh year of revised scheme, barley and potatoes.

For previous years see 'Details' 1967, 68/A/4, 69/R/AG/6, 70/R/AG/6(t), 71/R/AG/6(t), 72/R/AG/6(t) and 73-75/R/AG/6.

Treatments: All combinations of:-

Whole plots

1. OLDRESD Fertilisers and organic manures applied to roots every fourth year, in the period 1848-1948:

NONE	None
PKNAMG	P K Na Mg
NPKNAMGC	N P K Na Mg C

N: 48 kg N as sulphate of ammonia  
 P: 41 kg P as superphosphate  
 K: 224 kg K as sulphate of potash  
 Na: 16 kg Na as sulphate of soda  
 Mg: 11 kg Mg as sulphate of magnesia  
 C: Castor meal at 2240 kg supplying about 112 kg N

2. OLDROTN Rotation 1848-1951:

FALLOW	With fallow: Roots (turnips or swedes), barley, fallow, wheat
LEGUME	With legume: Roots, barley, legume (clover or beans), wheat

Half plots

3. 1964RESD Residues of 1964 treatments:

P	P
K	K

Quarter plots

4. PREVCROP Previous cropping 1958-69 on P-test half plots, 1958-70 on K-test half plots:

ARABLE	Arable or fallow
GRASS	Grass

Sixteenth plots

5. P205 64 K20 64 Rates of 1964 treatments (kg):

		P205 to P-test half plots	K20 to K-test half plots
0	0	None	None
500	315	500	315
1000	630	1000	630
2000	1260	2000	1260
			30

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Sixty fourth plots

6. P205 70 2 On P-test half plots:

Residues of P205 applied 1970-72 to barley (total, kg)

0	0
375	375

On K-test half plots:

K20 73 6 K20 applied to potatoes 1976 (kg) cumulative to dressings in 1973-75:

(0) 0	(0) 0
(620) 250	(620) 250

K20 73 6 K20 applied to barley (kg):

(0) 0	(0) 0
(620) 0	(620) 0

Strips of sixty fourth plots:

7. On P-test half plots:

N 76 N (kg) to barley 1976 (cumulative to dressings 1973-1975)

63	63
94	94

On K-test half plots:

CROP Crops in 1976

POTATOES Potatoes  
BARLEY Barley

Sub plot dimensions: Plots 1, 2, 3 and 4 - 6.04 x 3.02. Plots 5, 6 - 5.43 x 3.02.

Standard applications:

P-test half plots:

Barley: Manures: None. Weedkillers: Ioxynil at 0.42 kg with mecoprop at 1.26 kg in 280 l.

K-test half plots:

Barley: Manures: N at 95 kg as 'Nitro-Chalk'. P205 at 120 kg as superphosphate. Weedkillers: Ioxynil at 0.42 kg with mecoprop at 1.3 kg in 280 l.

Potatoes: Manures: N at 250 kg as 'Nitro-Chalk'. P205 at 190 kg as superphosphate. Weedkiller: Linuron at 0.84 kg in 280 l. Insecticides: Menazon ('Saphicol' at 0.7 l in 280 l) applied twice. Fungicide: Mancozeb at 1.3 kg in 280 l applied with second insecticide spray.



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Seed: Barley: Julia, dressed with ethirimol, sown at 190 kg.  
Potatoes: King Edward.

Cultivations, etc.: - All plots: Heavy spring-tine cultivated: 23 Oct, 1975.  
Ploughed: 7 Nov. Spring-tine cultivated: 8 Mar, 1976.

Barley: P applied to K-test half plots: 16 Oct, 1975. All N applied and seed sown: 11 Mar, 1976. Weedkiller applied: 7 May. Combine harvested: 15 July.

Potatoes: Standard N, P and test K applied: 29 Mar. Rotary cultivated and potatoes planted: 31 Mar. Grubbed and rotary ridged: 13 Apr.

Weedkiller applied: 6 May. Insecticide applied: 10 June. Insecticide with fungicide applied: 5 July.

Lifted: 21 Sept.

K-TEST HALF PLOTS

BARLEY

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

PREVCROP ARABLE

	OLDRES	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT	FALLOW		FALLOW	LEGUME	FALLOW	
K20 73 6	K20 64						
(0)0	0	4.40	4.43	4.72	3.99	4.08	4.63
	315	4.84	4.56	4.37	4.66	4.69	4.57
	630	5.40	4.67	3.89	5.29	4.66	5.08
	1260	5.17	4.93	4.85	5.30	5.13	5.08
(620)0	0	4.66	4.42	4.17	5.03	4.87	5.38
	315	5.11	4.86	4.30	4.22	5.21	4.47
	630	4.92	4.51	4.58	4.58	3.85	4.42
	1260	4.11	3.97	3.94	4.18	4.42	4.84

PREVCROP GRASS

	OLDRES	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT	FALLOW		FALLOW	LEGUME	FALLOW	
K20 73 6	K20 64						
(0)0	0	2.56	3.55	4.15	4.08	4.15	4.23
	315	4.82	5.13	3.64	4.46	4.52	4.94
	630	4.32	4.94	4.93	5.39	3.01	5.10
	1260	4.20	4.95	4.54	4.44	5.29	4.74
(620)0	0	3.24	3.43	4.03	4.30	3.71	4.35
	315	4.29	4.32	2.96	3.42	3.60	4.10
	630	4.37	4.43	4.32	4.44	3.05	3.42
	1260	3.74	3.95	4.41	4.04	4.07	4.83

GRAIN MEAN DM% 85.1

PLOT AREA HARVESTED 0.00085

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P-TEST HALF PLOTS

BARLEY

GRAIN TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

PREVCROP ARABLE

		OLDRES	NONE	PKNAMG	NPKNAMGC			
		OLDROT	FALLOW	FALLOW	LEGUME	FALLOW	LEGUME	
P205 70 2	P205 64	N 76						
0	0	63	3.20	2.86	3.61	3.58	3.01	3.11
		94	2.15	2.52	4.04	3.87	3.14	2.86
	500	63	3.21	3.34	3.67	3.48	3.27	3.56
		94	3.29	2.93	4.52	3.73	4.04	3.27
	1000	63	3.48	3.99	3.21	3.73	3.26	3.47
		94	3.80	4.15	4.28	4.10	3.41	3.05
	2000	63	3.63	4.04	3.86	3.98	3.48	3.39
		94	3.40	4.22	4.55	4.38	3.85	3.53
375	0	63	3.49	3.54	3.56	3.40	3.11	3.05
		94	2.85	4.05	4.13	3.85	3.80	3.35
	500	63	3.58	3.73	3.70	3.99	3.62	3.66
		94	3.80	3.91	4.40	3.71	4.22	3.52
	1000	63	3.75	3.72	3.67	4.26	3.15	3.83
		94	2.62	3.95	4.38	4.32	2.92	3.63
	2000	63	3.72	3.90	4.22	4.08	3.43	3.45
		94	3.95	4.42	4.70	4.22	4.05	3.47

PREVCROP GRASS

		OLDRES	NONE	PKNAMG	NPKNAMGC			
		OLDROT	FALLOW	FALLOW	LEGUME	FALLOW	LEGUME	
P205 70 2	P205 64	N 76						
0	0	63	1.67	1.14	1.38	2.02	3.23	2.05
		94	2.60	1.26	3.24	2.16	3.32	2.13
	500	63	3.52	3.57	4.29	2.33	3.56	2.80
		94	2.94	3.61	3.77	2.76	3.55	3.11
	1000	63	3.95	4.00	3.88	3.15	3.80	3.55
		94	3.15	3.06	4.29	3.89	4.16	3.78
	2000	63	4.52	3.95	4.63	4.25	3.95	4.00
		94	3.62	4.43	4.39	4.68	4.09	4.45
375	0	63	3.18	2.90	2.80	3.11	3.49	2.46
		94	2.87	2.73	3.58	3.33	3.74	2.89
	500	63	3.41	3.84	4.66	3.01	3.89	3.51
		94	3.01	3.48	4.44	3.90	3.93	3.84
	1000	63	3.58	4.30	4.17	3.91	3.92	3.55
		94	4.15	3.92	4.61	4.29	3.79	3.74
	2000	63	4.21	4.69	4.28	3.41	4.22	3.49
		94	4.08	4.81	4.87	4.76	4.39	4.58

GRAIN MEAN DM% 80.5

PLOT AREA HARVESTED 0.00085

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K-TEST HALF PLOTS

POTATOES

TOTAL TUBERS TONNES/HECTARE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

PREVCROP ARABLE

K20 73 6 (0)0	OLDRES D	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT N	FALLOW		FALLOW	LEGUME	FALLOW	
	K20 64						
	0	6.5	8.2	18.6	17.9	10.3	16.3
	315	8.2	7.2	16.0	14.1	14.8	10.0
	630	7.5	10.0	15.2	19.9	15.1	11.4
	1260	3.2	12.0	11.6	17.3	12.3	12.2
(620)250	0	6.6	15.5	18.8	22.4	16.8	21.3
	315	10.0	14.5	26.2	16.5	23.2	16.0
	630	10.3	17.6	16.6	21.1	19.4	18.5
	1260	7.8	13.0	20.1	16.0	23.2	14.0

PREVCROP GRASS

K20 73 6 (0)0	OLDRES D	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT N	FALLOW		FALLOW	LEGUME	FALLOW	
	K20 64						
	0	6.2	6.5	5.8	4.1	9.9	7.8
	315	4.6	6.8	16.5	7.5	11.0	12.6
	630	10.4	8.3	7.7	14.0	14.2	17.0
	1260	10.2	1.8	14.4	16.2	15.9	18.9
(620)250	0	16.3	16.8	7.3	16.2	23.7	20.7
	315	18.5	12.1	16.0	17.7	24.0	16.0
	630	12.2	14.4	12.2	14.6	21.4	22.2
	1260	11.0	11.9	20.2	14.2	25.3	20.8



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POTATOES

K-TEST HALF PLOTS

PERCENTAGE WARE 3.81 CM(1.5 INCH) RIDDLE

\*\*\*\*\* TABLES OF MEANS \*\*\*\*\*

PREVCROP ARABLE

	OLDRES	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT	FALLOW		FALLOW	LEGUME	FALLOW	
K20 73 6 (0)0	K20 64						
	0	71.8	63.3	85.2	89.4	81.7	82.1
	315	75.5	64.4	79.1	74.2	64.0	77.5
	630	88.9	62.5	86.1	84.3	78.7	71.8
(620)250	1260	89.5	78.5	82.5	78.2	74.6	80.2
	0	77.2	82.8	84.1	89.0	86.1	79.8
	315	86.7	82.2	86.9	77.4	80.9	86.4
	630	87.1	90.6	89.5	83.1	80.1	79.5
	1260	78.7	82.7	85.5	80.0	83.0	80.7

PREVCROP GRASS

	OLDRES	NONE	LEGUME	PKNAMG	NPKNAMGC		LEGUME
	OLDROT	FALLOW		FALLOW	LEGUME	FALLOW	
K20 73 6 (0)0	K20 64						
	0	50.7	62.8	37.5	41.1	56.6	36.4
	315	69.1	75.6	73.5	61.2	46.4	59.5
	630	68.8	56.0	66.0	67.2	68.2	62.2
(620)250	1260	73.0	54.5	79.8	82.9	76.1	69.2
	0	83.7	83.2	54.0	71.2	79.1	82.0
	315	87.4	78.1	85.5	79.0	73.3	75.5
	630	65.3	62.4	71.9	70.0	72.4	69.2
	1260	74.2	85.3	84.1	85.6	83.9	77.9

SUB PLOT AREA HARVESTED 0.00069