ROTHAMSTED RESEARCH

Yields of the Field Experiments 1973

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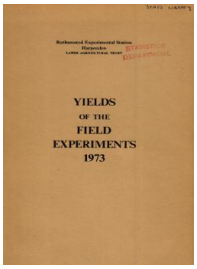

73/R/AG/6 - Agdell - Barley, Sugar Beet

Rothamsted Research

Rothamsted Research (1974) *73/R/AG/6 - Agdell - Barley, Sugar Beet ;* Yields Of The Field Experiments 1973, pp 31 - 41 **- DOI: https://doi.org/10.23637/ERADOC-1-98**

73/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 fourth year of revised scheme. Crops, barley and sugar beet.

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

Treatments: All combinations of:-

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

None	None
P K Na Mg	PKNaMg
N P K Na Mg C	NPKNaMgC

N: Sulphate of ammonia to supply 48 kg N
P: Superphosphate to supply 41 kg P
K: Sulphate of potash to supply 224 kg K
Na: Sulphate of soda to supply 16 kg Na
Mg: Sulphate of magnesia to supply 11 kg Mg
C: Castor meal at 2240 kg supplying about 112 kg N

2. Rotation 1848-1951 — OLDROTN

With fallow: Roots (turnips or swedes), barley, fallow, wheat	Fallow
With legume: Roots, barley, legume (clover or beans), wheat	Legume

Half plots: 3. Residues of 1964 treatments — 1964RESD

P	P
K	K

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

Arable or fallow	Arable
Grass	Grass

Sixteenth plots: 5. Rates of 1964 treatments (kg) — P20564 K2064

P205 to P-test half plots	K20 to K-test half plots	P20564	K2064
None	None	0	0
500	315	500	315
1000	630	1000	630
2000	1260	2000	1260

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Sixty fourth plots:

6. On P-test half plots: Residuals of P2O5 applied 1970-72 (total, kg) To barley	On K-test half plots: K2O applied 1973 (kg) To barley	To s.beet	P2O5(70-2) Barley	K2O73 Barley	S.Beet
None	None	None	0	0	0
375	60	310	375	60	310

Strips of sixty fourth plots:

7. On P-test half plots: N (kg) to barley 1973	On K-test half plots: Crops in 1973	N73	CROP
63	Barley	63	Barley
94	Sugar beet	94	Sugrbeet

Sub plot dimensions: Plots 1, 2, 3 and 4 - 6.04 x 3.02. Plots 5, 6 - 5.43 x 3.02. Area harvested: Barley: P-test plots: 0.00087, K-test plots: 0.00074, sugar beet: 0.00077.

Standard applications:

Barley: Manures: None on P-test half plots. (30:13:0) at 320 kg on K-test half plots. Weedkillers: Dichlorprop plus MCPA ('Mephetol Plus' at 5.6 l in 340 l).

Sugar beet: Manures: N at 190 kg as 'Nitro-Chalk. P2O5 at 125 kg as superphosphate. MgO at 100 kg as kieserite. Insecticide: Menazon ('Saphi-Col' at 0.7 l in 340 l).

Seed: Barley: Julia, dressed with ethirimol, sown at 160 kg.
Sugar beet: Klein E sown at 5.6 kg.

Cultivations etc.:- All plots ploughed: 27 Oct, 1972.

Barley: Manures applied, seed sown: 13 Mar, 1973. Weedkiller applied: 11 May. Harvested: 10 Aug.

Sugar beet: Manures applied: 19 Mar, 1973. Power harrowed: 21 Mar. Seed sown: 22 Mar. Singled: 30 May. Insecticide applied: 14 June, 6 July, 23 July. Lifted: 17-24 Oct.

Erratum to 'Yields' 1972 72/R/AG/6 p.29

The NPK columns of means should be headed

1 2 not 2 1

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TABLES OF MEANS

BARLEY

P-TEST HALF PLOTS

GRAIN: TONNES/HECTARE

OLDRESD	OLDROTN		None		PKNaMg		NPKNaMgC		Mean
			Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Arable									
P205(70-2)	P20564	N73							
0	0	63	5.71	4.70	6.03	4.76	4.51	6.28	5.33
0	0	94	4.43	6.27	5.62	5.92	6.53	6.12	5.81
0	500	63	5.63	4.23	6.41	4.67	4.65	5.59	5.20
0	500	94	5.31	6.15	5.44	6.12	6.07	5.22	5.72
0	1000	63	5.87	4.79	6.34	4.98	4.80	6.63	5.57
0	1000	94	5.42	6.41	5.73	6.45	6.55	5.79	6.06
0	2000	63	5.72	4.76	6.30	5.15	5.06	5.89	5.48
0	2000	94	5.24	6.18	5.79	6.27	6.71	5.78	6.00
375	0	63	6.10	4.82	5.87	3.98	5.02	6.25	5.34
375	0	94	4.98	6.17	5.74	6.03	6.05	6.07	5.84
375	500	63	5.84	4.81	6.35	4.68	5.22	6.21	5.52
375	500	94	5.83	5.93	5.89	6.28	5.69	5.59	5.87
375	1000	63	5.86	4.80	6.31	5.54	5.37	6.49	5.72
375	1000	94	5.98	6.56	5.84	5.83	6.35	6.38	6.16
375	2000	63	6.05	4.54	6.37	5.17	5.19	5.79	5.52
375	2000	94	5.45	6.37	5.84	5.83	6.21	6.19	5.97
Mean			5.59	5.47	5.99	5.48	5.62	6.01	5.69

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BARLEY

P-TEST HALF PLOTS

GRAIN: TONNES/HECTARE

OLDRESD / OLDROTH			None		PKNaMg		NPKNaMgC		Mean
			Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Grass									
P205(70-2)	P50264	N73							
0	0	63	4.51	2.34	5.06	5.02	5.90	5.47	4.72
0	0	94	3.86	3.96	4.98	5.24	5.32	5.60	4.83
0	500	63	6.39	6.56	6.12	5.41	6.08	6.20	6.13
0	500	94	5.83	5.87	6.08	5.42	5.84	5.46	5.75
0	1000	63	6.81	6.57	6.42	6.11	5.53	6.45	6.31
0	1000	94	6.23	6.18	6.28	6.33	4.16	5.77	5.82
0	2000	63	6.14	6.47	6.36	6.40	5.72	6.56	6.27
0	2000	94	6.34	6.07	5.82	6.03	4.95	5.99	5.87
375	0	63	6.28	6.69	6.39	6.32	5.90	6.27	6.31
375	0	94	5.84	6.36	5.80	6.18	5.91	5.43	5.92
375	500	63	6.31	5.98	5.85	6.38	5.98	5.33	5.97
375	500	94	5.92	6.01	6.01	6.48	6.01	5.25	5.95
375	1000	63	6.39	6.29	6.43	6.03	5.61	6.65	6.23
375	1000	94	5.93	6.37	6.09	6.20	4.97	5.77	5.89
375	2000	63	6.25	6.40	6.42	6.21	6.08	6.59	6.32
375	2000	94	6.18	6.56	6.37	6.69	5.38	5.59	6.13
Mean			5.95	5.92	6.03	6.03	5.58	5.90	5.90

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BARLEY

K-TEST HALF PLOTS

GRAIN: TONNES/HECTARE

OLDRES		None		PKNaMg		NPKNaMgC		
OLDROTN		Fallow	Legume	Fallow	Legume	Fallow	Legume	Mean
PREVCROP Arable								
K2073	K2064							
0	0	4.67	4.79	5.20	4.96	5.45	6.09	5.19
0	315	4.85	5.69	4.81	6.08	6.14	5.08	5.44
0	630	4.85	5.02	4.95	5.82	5.41	5.86	5.32
0	1260	5.12	5.01	5.05	5.47	5.45	4.58	5.11
60	0	4.61	4.47	4.25	4.99	5.67	6.09	5.01
60	315	4.76	5.04	4.77	5.76	5.76	4.99	5.18
60	630	4.87	5.22	4.74	5.31	5.33	6.06	5.26
60	1260	4.75	4.86	5.12	5.29	5.65	4.96	5.11
Mean		4.81	5.01	4.86	5.46	5.61	5.46	5.20
PREVCROP Grass								
K2073	K2064							
0	0	5.56	5.78	5.65	6.43	7.59	6.55	6.26
0	315	6.07	6.07	5.76	6.69	6.93	6.58	6.35
0	630	5.54	6.00	5.72	5.94	6.55	6.01	5.96
0	1260	6.23	5.62	5.67	6.21	6.36	5.61	5.95
60	0	6.21	6.01	6.24	6.66	6.70	6.39	6.37
60	315	6.28	6.27	6.01	6.51	7.17	6.61	6.47
60	630	5.32	5.59	5.87	6.03	6.83	6.37	6.00
60	1260	5.22	6.11	5.60	5.75	6.25	6.14	5.84
Mean		5.80	5.93	5.81	6.28	6.80	6.28	6.15

Mean D.M. % 84.7

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BARLEY

K-TEST HALF PLOTS

STRAW: TONNES/HECTARE

OLDRESD / OLDROTN		None		PKNaMg		NPKNaMgC		Mean
		Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Arable								
K2073	K2064							
0	0	2.62	2.94	3.50	3.52	3.11	4.20	3.31
0	315	2.86	3.72	3.00	3.76	3.74	2.79	3.31
0	630	2.76	3.24	2.91	3.66	3.24	3.44	3.21
0	1260	3.00	3.09	3.36	3.62	2.86	2.52	3.08
60	0	2.47	3.10	2.18	2.87	3.06	3.85	2.92
60	315	2.79	3.32	2.88	3.83	2.64	2.70	3.03
60	630	2.78	2.77	3.09	3.56	2.70	4.19	3.18
60	1260	3.10	3.01	3.11	3.71	3.49	2.47	3.15
Mean		2.80	3.15	3.00	3.57	3.10	3.27	3.15
PREVCROP Grass								
K2073	K2064							
0	0	2.90	3.34	2.68	3.27	3.25	3.56	3.17
0	315	3.56	3.92	3.54	4.06	4.37	4.00	3.91
0	630	3.33	3.48	3.61	4.63	4.09	5.10	4.04
0	1260	4.01	4.49	3.32	4.52	4.28	4.58	4.20
60	0	3.17	3.39	3.14	3.67	3.99	3.94	3.55
60	315	4.10	3.86	3.78	4.49	5.14	4.44	4.30
60	630	3.37	4.44	3.54	4.45	3.95	5.11	4.14
60	1260	3.23	4.04	4.11	4.85	4.52	5.14	4.32
Mean		3.46	3.87	3.46	4.24	4.20	4.48	3.95

Mean D.M. % 72.9

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SUGAR BEET

ROOTS (WASHED): TONNES/HECTARE

OLDRESD		None		PKNaMg		NPKNaMgC		
OLDROTN		Fallow	Legume	Fallow	Legume	Fallow	Legume	Mean
PREVCROP Arable								
K2073	K2064							
0	0	45.9	37.0	41.3	43.4	48.4	48.0	44.0
0	315	43.8	37.0	44.5	48.3	43.6	43.0	43.4
0	630	45.0	40.5	49.6	47.6	45.2	46.1	45.7
0	1260	38.5	43.2	44.3	50.0	43.4	49.7	44.8
310	0	39.6	33.0	31.1	52.4	49.1	47.1	42.0
310	315	38.8	41.7	42.7	51.6	44.5	44.8	44.0
310	630	43.3	40.7	47.9	51.8	46.9	48.3	46.5
310	1260	48.5	39.5	47.4	46.2	48.2	50.7	46.7
Mean		42.9	39.1	43.6	48.9	46.1	47.2	44.6
PREVCROP Grass								
K2073	K2064							
0	0	40.5	36.2	33.3	37.9	35.7	29.8	35.6
0	315	41.9	44.4	46.1	44.3	44.0	41.4	43.7
0	630	39.1	41.3	44.7	48.8	43.1	41.3	43.0
0	1260	46.3	51.0	46.7	39.5	46.3	43.0	45.5
310	0	42.0	41.4	45.3	42.6	50.7	41.0	43.8
310	315	46.2	42.8	39.2	49.6	44.5	42.6	44.1
310	630	42.6	47.0	42.7	42.5	47.8	44.8	44.6
310	1260	42.8	50.3	48.3	50.0	49.4	47.9	48.1
Mean		42.7	44.3	43.3	44.4	45.2	41.5	43.5

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SUGAR BEET

SUGAR PERCENTAGE

OLDRESD OLDNTN		None		PKNaMg		NPKNaMgC		Mean
		Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Arable								
K2073	K2064							
0	0	17.1	16.8	16.4	16.7	16.3	17.0	16.7
0	315	17.1	16.6	16.1	15.8	16.2	16.3	16.4
0	630	16.5	16.9	16.6	15.8	16.9	17.0	16.6
0	1260	17.2	17.1	16.2	17.3	16.6	16.8	16.9
310	0	17.5	16.1	17.0	17.0	16.8	17.4	17.0
310	315	17.4	17.3	16.8	17.1	16.2	17.3	17.0
310	630	17.2	17.5	16.8	17.1	16.9	17.0	17.1
310	1260	17.2	17.4	16.8	17.2	16.4	16.9	17.0
Mean		17.2	16.9	16.6	16.8	16.5	17.0	16.8
PREVCROP Grass								
K2073	K2064							
0	0	14.9	14.9	15.8	15.5	14.9	14.9	15.2
0	315	15.3	16.2	16.4	15.8	15.9	15.5	15.9
0	630	15.6	16.0	16.6	16.0	16.6	15.9	16.1
0	1260	16.4	15.6	16.5	16.1	16.1	16.1	16.2
310	0	16.3	15.6	15.8	16.0	15.9	16.2	16.0
310	315	16.7	17.1	16.6	17.1	16.3	15.9	16.6
310	630	16.9	16.3	16.7	15.8	16.1	15.9	16.3
310	1260	16.8	16.0	16.8	16.8	16.6	15.6	16.4
Mean		16.1	16.0	16.4	16.1	16.1	15.8	16.1

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SUGAR BEET

TOTAL SUGAR: TONNES/HECTARE

OLDRESD		None		PKNaMg		NPKNaMgC		
OLDROTN		Fallow	Legume	Fallow	Legume	Fallow	Legume	Mean
PREVCROP	Arable							
K2073	K2064							
0	0	7.84	6.20	6.76	7.25	7.90	8.16	7.35
0	315	7.50	6.13	7.16	7.65	7.09	7.02	7.09
0	630	7.43	6.84	8.22	7.55	7.62	7.82	7.58
0	1260	6.62	7.39	7.19	8.63	7.18	8.33	7.56
310	0	6.95	5.30	5.27	8.92	8.24	8.21	7.15
310	315	6.74	7.22	7.17	8.84	7.21	7.77	7.49
310	630	7.46	7.11	8.04	8.87	7.93	8.19	7.93
310	1260	8.36	6.86	7.97	7.93	7.91	8.59	7.94
Mean		7.36	6.63	7.22	8.21	7.63	8.01	7.51
PREVCROP	Grass							
K2073	K2064							
0	0	6.05	5.41	5.25	5.88	5.34	4.44	5.40
0	315	6.42	7.20	7.54	7.01	7.01	6.44	6.94
0	630	6.10	6.62	7.41	7.80	7.15	6.58	6.94
0	1260	7.61	7.98	7.73	6.37	7.48	6.92	7.35
310	0	6.83	6.44	7.18	6.80	8.09	6.67	7.00
310	315	7.71	7.32	6.50	8.45	7.28	6.75	7.34
310	630	7.21	7.66	7.15	6.69	7.68	7.12	7.25
310	1260	7.18	8.06	8.12	8.38	8.22	7.47	7.90
Mean		6.89	7.09	7.11	7.17	7.28	6.55	7.01

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SUGAR BEET

TOPS: TONNES/HECTARE

OLDRESD / OLDROTN		None		PKNaMg		NPKNaMgC		Mean
		Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Arable								
K2073	K2064							
0	0	22.8	22.8	27.0	24.7	31.7	33.5	27.1
0	315	19.5	26.8	23.5	35.2	31.1	29.9	27.7
0	630	23.5	22.8	24.7	30.5	31.1	32.9	27.6
0	1260	18.8	28.2	25.2	32.3	32.9	37.6	29.2
310	0	20.8	23.5	21.7	29.4	34.1	33.5	27.1
310	315	20.8	19.5	23.5	39.9	39.9	25.8	28.2
310	630	26.2	23.5	25.2	34.1	36.4	33.5	29.8
310	1260	23.5	22.8	25.2	25.8	35.2	36.4	28.2
Mean		22.0	23.7	24.5	31.5	34.1	32.9	28.1
PREVCROP Grass								
K2073	K2064							
0	0	41.6	37.6	28.8	39.3	46.4	42.3	39.3
0	315	41.6	30.2	37.6	39.3	43.4	43.4	39.3
0	630	28.9	25.5	28.8	35.2	38.7	44.6	33.6
0	1260	42.9	36.2	37.0	29.9	37.6	47.0	38.4
310	0	38.2	40.3	36.4	41.1	47.6	44.0	41.3
310	315	43.6	27.5	32.3	37.0	51.1	48.7	40.0
310	630	33.5	39.6	35.2	44.0	44.0	54.6	41.8
310	1260	36.9	37.6	35.2	43.4	44.0	51.1	41.4
Mean		38.4	34.3	33.9	38.7	44.1	47.0	39.4

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SUGAR BEET

PLANT NUMBER: THOUSANDS/HECTARE

OLDRESD	OLDROTN	None		PKNaMg		NPKNaMgC		Mean
		Fallow	Legume	Fallow	Legume	Fallow	Legume	
PREVCROP Arable								
K2073	K2064							
0	0	93.2	94.7	93.2	94.5	93.2	84.1	92.1
0	315	97.6	93.2	91.9	90.6	94.5	89.3	92.9
0	630	90.2	87.3	88.0	85.4	84.5	89.3	89.1
0	1260	91.7	93.2	84.1	86.7	97.1	94.5	91.2
310	0	99.1	82.8	60.8	94.5	95.8	88.0	86.8
310	315	99.1	84.3	91.9	88.0	89.3	88.0	90.1
310	630	93.2	82.8	89.3	88.0	94.5	85.4	88.9
310	1260	93.2	82.8	85.4	90.6	102.3	86.7	90.2
Mean		94.7	87.6	85.6	89.8	95.1	88.2	90.2
PREVCROP Grass								
K2073	**K2064**							
0	0	93.2	85.8	86.7	90.6	90.6	82.8	88.3
0	315	97.6	91.7	84.1	91.9	85.4	90.6	90.2
0	630	85.8	84.3	81.5	80.3	90.6	84.1	84.4
0	1260	90.2	91.7	91.9	77.7	93.2	89.3	89.0
310	0	94.7	81.4	88.0	90.6	89.3	89.3	88.9
310	315	97.6	91.7	64.7	90.6	88.0	88.0	86.8
310	630	93.2	84.3	84.1	77.7	89.3	89.3	86.3
310	1260	87.3	87.3	84.1	79.0	91.9	85.4	85.8
Mean		92.5	87.3	83.2	84.8	89.8	87.4	87.5

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