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Yields of the Field Experiments 1960

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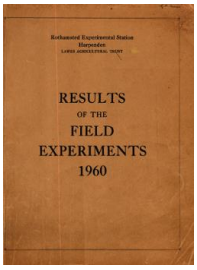

60/R/A/4 Agdell - Grass and Multiple Crops

Rothamsted Research

Rothamsted Research (1961) *60/R/A/4 Agdell - Grass and Multiple Crops ;* Yields Of The Field Experiments 1960, pp 10 - 13 **- DOI: https://doi.org/10.23637/ERADOC-1-180**

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GRASS AND MULTIPLE CROPPING AND DIRECT AND RESIDUAL P

AGDELL 1960

For history, treatments, etc., see "Details of the Classical and Long Term Experiments" 1956.

Multiple cropping 1960

In order to measure the residues of 1959 applications the sub plots were split to carry the phosphate treatments described below.

Rotation (commencing 1959): barley, potatoes, sugar beet.

Area of each sub plot (acres): 0.0017. Area harvested (approx.): Barley - 0.0009, Potatoes - 0.0007, Sugar beet - 0.0008.

Treatments (per acre).

To sub plots receiving no P_2O_5 in 1959: none; 0.25 cwt P_2O_5.
To sub plots receiving 0.25 cwt P_2O_5 in 1959: 1.00; 1.50 cwt P_2O_5.
To sub plots receiving 1.00 cwt P_2O_5 in 1959: none; 1.50 cwt P_2O_5.

Note: P_2O_5 applied as superphosphate.

Basal dressings. To grass: as 1959.

To potatoes and sugar beet: 1.2 cwt N per acre as sulphate of ammonia and 1.2 cwt K_2O per acre as sulphate of potash.

To barley: 0.6 cwt N per acre as sulphate of ammonia and 0.6 cwt K_2O per acre as sulphate of potash.

Cultivations, etc.: All plots ploughed: Nov 23, 1959.

Grass. Seed drilled at 40 lb per acre: Apr 8, 1960. 'Nitro-Chalk' applied: May 19. Sprayed with CMPP at 5 pints in 18 gallons per acre; parts of plots 4, 5 and 6 re-drilled: June 30. Part of plot 3 re-drilled: July 7. Plots 1 and 2 cut, other plots topped: July 22. 'Nitro-Chalk' applied: July 26. Plots 1 and 2 cut (2nd cut), plots 3, 4, 5 and 6 cut (1st cut): Sept 26. Variety: S37 Cocksfoot.

Barley. Treatment fertilisers applied: Apr 7, 1960. Seed drilled at 3 bushels per acre; basal NK applied: Apr 8. Sprayed with CMPP at 4 pints in 25 gallons per acre: May 30. Harvested: Aug 18 - 25. Variety: Proctor.

Potatoes. Rotary cultivated: Apr 14, 1960. Ridged: Apr 19. Fertilisers applied; potatoes hand planted: Apr 20. Earthed up: June 9. Sprayed with copper fungicide at 5 lb in 40 gallons per acre: July 15 and Aug 10. Sprayed with demeton methyl at 12 fluid oz in 25 gallons per acre: July 27. Lifted: Sept 27. Variety: Majestic (chitted).

Sugar beet. Fertilisers applied: Apr 7, 1960. Seed drilled at 20 lb per acre: Apr 8. Dusted with aldrin against flea beetle: May 7. Singled: June 8. Sprayed with demeton methyl at 12 fluid oz in 25 gallons per acre: June 22, July 15 and July 27. Harvested: Oct 18. Variety: Klein E.

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Summary of Results

Manure to turnips until 1948	None since 1848		Mineral manure* no nitrogen		Mineral* and nitrogeneous manure+		
Plot	5	6	3	4	1	2	
Rotation	Fallow	Clover	Fallow	Clover	Fallow	Clover	Mean
Grass dry matter: cwt per acre							
1st cut	0.0	0.0	0.0	0.0	12.9	9.4	3.7
2nd cut	7.1	11.0	36.4	36.1	36.4	35.6	27.1
Total of 2 cuts	7.1	11.0	36.4	36.1	49.3	45.0	30.8
Barley grain (at 85% dry matter): cwt per acre							
P_2O_5 cwt per acre 1959 1960							
None None	10.7	10.3	22.6	23.4	22.8	20.7	18.4
None 0.25	12.0	13.3	22.4	24.4	23.1	20.9	19.4
0.25 1.00	14.0	19.4	27.3	26.4	24.4	24.8	22.7
0.25 1.50	14.8	23.3	27.6	26.5	25.1	24.0	23.6
1.00 None	15.1	18.5	24.7	24.6	23.4	22.3	21.4
1.00 1.50	17.2	25.0	27.2	26.1	24.9	25.6	24.3
Mean	14.0	18.3	25.3	25.2	23.9	23.0	21.6
Barley straw (at 85% dry matter): cwt per acre							
1959 1960							
None None	15.2	11.7	23.3	22.3	26.0	24.6	20.5
None 0.25	14.8	14.2	21.5	22.1	24.3	23.9	20.1
0.25 1.00	16.8	18.0	26.6	24.6	25.5	25.9	22.9
0.25 1.50	17.1	19.7	25.4	24.3	25.7	26.0	23.0
1.00 None	17.1	17.6	23.9	21.9	25.2	23.4	21.5
1.00 1.50	18.5	21.6	25.9	24.7	24.9	26.6	23.7
Mean	16.6	17.1	24.4	23.3	25.3	25.1	22.0

Mean dry matter % as harvested: Grain 71.9
Straw 45.4

*P, K, Na, Mg.

+Rape dust (or castor meal + ammonium sulphate).

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Plot		5	6	3	4	1	2	
Rotation		Fallow	Clover	Fallow	Clover	Fallow	Clover	Mean
Potatoes, total tubers tons per acre								
P_2O_5 cwt per acre								
1959	1960							
None	None	5.74	6.66	18.15	14.60	18.27	19.22	13.77
None	0.25	9.08	9.08	18.94	16.46	19.45	20.36	15.56
0.25	1.00	12.72	11.97	20.40	19.65	22.26	23.12	18.35
0.25	1.50	13.77	14.60	20.56	19.53	22.42	23.52	19.07
1.00	None	9.47	9.87	17.72	16.57	19.10	20.36	15.52
1.00	1.50	13.77	14.64	21.03	19.81	22.81	23.60	19.28
Mean		10.75	11.13	19.46	17.77	20.71	21.69	16.92
Sugar beet, Roots (washed): tons per acre								
1959	1960							
None	None	9.89	7.28	15.99	11.51	11.91	16.06	12.11
None	0.25	12.02	8.99	16.15	13.51	12.20	16.92	13.30
0.25	1.00	15.30	12.41	16.98	13.49	14.21	15.86	14.71
0.25	1.50	16.44	14.50	15.64	12.94	14.49	15.43	14.91
1.00	None	14.24	12.52	15.21	12.18	14.12	14.98	13.88
1.00	1.50	15.39	14.16	15.33	15.74	14.80	16.30	15.29
Mean		13.88	11.64	15.88	13.23	13.62	15.92	14.03
Sugar beet, Sugar percentage								
1959	1960							
None	None	15.3	14.5	15.8	15.5	14.8	15.7	15.3
None	0.25	15.5	14.6	15.3	15.5	14.8	15.7	15.2
0.25	1.00	16.3	15.1	16.2	15.4	15.4	15.7	15.7
0.25	1.50	16.0	15.3	16.1	15.5	15.5	16.0	15.7
1.00	None	16.2	15.6	16.0	16.0	15.0	15.8	15.8
1.00	1.50	16.2	15.4	16.1	16.0	15.3	15.6	15.8
Mean		15.9	15.1	15.9	15.6	15.1	15.7	15.6
Sugar beet, Total sugar: cwt per acre								
1959	1960							
None	None	30.4	21.0	50.5	35.8	35.2	50.4	37.2
None	0.25	37.1	26.4	49.6	41.9	36.1	53.1	40.7
0.25	1.00	49.8	37.4	54.9	41.4	43.9	49.6	46.2
0.25	1.50	52.4	44.2	50.3	40.2	45.0	49.2	46.9
1.00	None	46.2	39.2	48.5	39.0	42.4	47.3	43.8
1.00	1.50	49.7	43.6	49.2	50.3	45.0	51.0	48.1
Mean		44.3	35.3	50.5	41.4	41.3	50.1	43.8

*P, K, Na, Mg.
+Rape dust (or castor meal + ammonium sulphate).

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Manure to turnips until 1948		None since 1848		Mineral manure* no nitrogen		Mineral* and nitrogenous manure+		
Plot		5	6	3	4	1	2	
Rotation		Fallow	Clover	Fallow	Clover	Fallow	Clover	Mean
P_2O_5 cwt per acre		Sugar beet, Tops: tons per acre						
1959	1960							
None	None	14.14	9.60	17.58	17.28	16.91	16.78	15.38
None	0.25	15.40	13.69	18.21	17.78	18.85	18.31	17.04
0.25	1.00	18.75	19.16	18.22	19.45	18.72	16.57	18.48
0.25	1.50	19.46	20.01	15.00	18.52	19.52	16.44	18.16
1.00	None	16.89	16.15	14.40	15.40	17.85	14.40	15.85
1.00	1.50	18.49	18.71	15.50	19.86	19.49	18.15	18.37
Mean		17.19	16.22	16.48	18.05	18.55	16.77	17.21
		Sugar beet, Plant number: thousands per acre						
1959	1960							
None	None	33.0	36.3	37.2	34.5	33.3	31.8	34.4
None	0.25	36.0	34.3	33.0	34.2	32.7	33.6	34.0
0.25	1.00	34.0	34.7	36.9	33.9	34.2	31.8	34.2
0.25	1.50	34.7	35.7	36.9	32.4	32.7	34.2	34.4
1.00	None	34.0	33.4	34.5	32.7	34.2	31.2	33.3
1.00	1.50	35.3	36.4	32.7	34.2	33.6	32.4	34.1
Mean		34.5	35.1	35.2	33.6	33.4	32.5	34.1

*P, K, Na, Mg.

+Rape dust (or castor meal + ammonium sulphate).