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Yields of the Field Experiments 1957

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57/W/CB/6 Barley - N and Residual Dung N P K

Rothamsted Research

Rothamsted Research (1958) *57/W/CB/6 Barley - N and Residual Dung N P K ; Yields Of The Field Experiments 1957*, pp 85 - 86 - DOI: <https://doi.org/10.23637/ERADOC-1-177>

57/Cb/6.1

BARLEY

Residual effects of dung, N, P and K applied to potatoes 1956 and direct effect of N - Butt Close Woburn 1957.

Design: 4 randomized blocks of 16 plots each, certain high order interactions being confounded with block differences.

Area of each plot: 0.0210 acres. Area harvested: 0.0141 acres.

Treatments: All combinations of:-

To potatoes 1956

Dung: None; 5; 10; 20 tons per acre ploughed in.

N: None; 0.9 cwt N per acre as sulphate of ammonia.

P: None; 0.75 cwt P_2O_5 per acre as superphosphate.

K: None; 1.5 cwt K_2O per acre as muriate of potash.

To barley 1957

N: None; 0.4 cwt N per acre as 'Nitro-Chalk'.

Basal dressing: 0.2 cwt P_2O_5 , 0.4 cwt K_2O as compound fertilizer (10% P_2O_5 , 20% K_2O) per acre.

Cultivations, etc.: Ploughed: Dec 10, 1956. Nitrogen fertilizer applied: Mar 18, 1957. Seed combine drilled with basal fertilizer at $2\frac{1}{2}$ bushels per acre: Mar 19. Sprayed with MCPA at 2 pints in 20 gallons per acre: May 23. Combine harvested: Aug 19. Variety: Herta. Previous crop: Potatoes.

Standard error per plot.

Grain (at 85% dry matter): 4.12 cwt per acre or 18.9% (35 d.f.)

Summary of Results

Grain (at 85% dry matter): cwt per acre

	Dung to potatoes 1956:				Mean
	None	tons per acre			
		5	10	20	
Mean (± 1.03)	19.6	20.0	22.4	25.2	21.8
<u>Applied to potatoes 1956</u>					
N: cwt per acre					
None (± 1.46)	19.4	18.6	21.0	25.2	21.0
0.9 (± 1.46)	19.8	21.4	23.8	25.3	22.6
Difference (± 2.06)	+0.4	+2.8	+2.8	+0.1	+1.6 (± 1.03)
P ₂ O ₅ : cwt per acre					
None (± 1.46)	19.6	18.5	23.8	26.0	22.0
0.75 (± 1.46)	19.6	21.4	21.0	24.4	21.6
Difference (± 2.06)	0.0	+2.9	-2.8	-1.6	-0.4 (± 1.03)
K ₂ O: cwt per acre					
None (± 1.46)	19.4	20.3	23.3	26.3	22.3
1.5 (± 1.46)	19.9	19.7	21.5	24.1	21.3
Difference (± 2.06)	+0.5	-0.6	-1.8	-2.2	-1.0 (± 1.03)
<u>Applied to barley 1957</u>					
N: cwt per acre					
None (± 1.46)	16.4	16.7	19.7	23.9	19.2
0.4 (± 1.46)	22.9	23.3	25.1	26.6	24.4
Difference (± 2.06)	+6.5	+6.6	+5.4	+2.7	+5.2 (± 1.03)

Responses to treatments
cwt per acre

Response to	Applied to potatoes 1956						Applied to barley 1957	
	None	N 0.9	P ₂ O ₅ None	P ₂ O ₅ 0.75	K ₂ O None	K ₂ O 1.5	None	N 0.4
<u>Applied to potatoes 1956</u>								
			(± 1.46)					
N	-	-	+1.2	+1.8	+1.2	+1.8	+1.9	+1.1
P ₂ O ₅	-0.7	-0.1	-	-	+1.2	-2.0	-1.2	+0.4
K ₂ O	-1.3	-0.7	+0.6	-2.6	-	-	+0.4	-2.4
<u>Applied to barley 1957</u>								
N	+5.7	+4.9	+4.5	+6.1	+6.7	+3.9	-	-

Mean dry matter % as harvested: 82.1