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Yields of the Field Experiments 1958

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58/W/CB/7 Barley - N and Residual Dung N P and K

Rothamsted Research

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58/Cb/7.1

BARLEY

Residual effects of dung, N, P and K applied to potatoes 1957 and direct effect of N - Great Hill Woburn 1958.

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

Area of each plot: 0.0212 acres. Area harvested: 0.0141 acres.

Treatments. All combinations of:-

To potatoes 1957.

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 1958.

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

Basal dressing: $2\frac{1}{2}$ cwt compound fertilizer (16% P_2O_5 , 16% K_2O) per acre.

Cultivations, etc.: Ploughed: Dec 10, 1957. 'Nitro-Chalk' and basal fertilizer applied, seed drilled at 3 bushels per acre: Apr 9, 1958. Sprayed with MCPA at 5 pints in 40 gallons per acre: May 20. Combine harvested: Aug 27. Variety: Herta. Previous crop: Potatoes.

Standard error per plot.

Grain (at 85% dry matter): 3.25 cwt per acre or 14.7% (34 d.f.)*

*1 missing value.

58/Cb/7.2

Summary of Results

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

	Dung to potatoes 1957: tons per acre				Mean
	None	5	10	20	
Mean (± 0.81)	22.0	21.1	22.7	22.8	22.1
<u>Applied to potatoes 1957</u>					
N: cwt per acre					
None (± 1.15)	21.1	20.1	21.8	20.7	20.9
0.9	22.9	22.1	23.6	25.0	23.4
Difference (± 1.62)	+1.8	+2.0	+1.8	+4.3	+2.5 (± 0.81)
P ₂ O ₅ : cwt per acre					
None (± 1.15)	22.9	20.3	21.3	22.9	21.9
0.75	21.0	21.9	24.0	22.7	22.4
Difference (± 1.62)	-1.9	+1.6	+2.7	-0.2	+0.5 (± 0.81)
K ₂ O: cwt per acre					
None (± 1.15)	22.9	21.2	23.3	23.6	22.7
1.5	21.1	21.0	22.1	22.1	21.5
Difference (± 1.62)	-1.8	-0.2	-1.2	-1.5	-1.2 (± 0.81)
<u>Applied to barley 1958</u>					
N: cwt per acre					
None (± 1.15)	16.5	15.1	18.3	16.6	16.6
0.4	27.5	27.1	27.0	29.0	27.7
Difference (± 1.62)	+11.0	+12.0	+8.7	+12.4	+11.1 (± 0.81)

Responses to treatments
cwt per acre

Response to	Applied to potatoes 1957						Applied to barley 1958	
	N		P ₂ O ₅		K ₂ O		N	
	None	0.9	None	0.75	None	1.5	None	0.4
<u>Applied to potatoes 1957</u>								
N	-	-	+2.2	+2.8	+2.3	+2.7	+3.3	+1.7
P ₂ O ₅	+0.2	+0.8	-	-	+0.4	+0.6	+1.2	-0.2
K ₂ O	-1.4	-1.0	-1.3	-1.1	-	-	-1.5	-0.9
<u>Applied to barley 1958</u>								
N	+11.8	+10.2	+11.7	+10.3	+10.7	+11.3	-	-

Mean dry matter % as harvested: 80.7