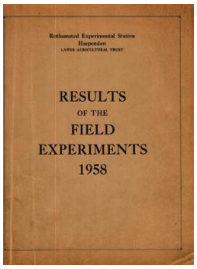
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1958

Full Table of Content



58/R/CB/2 and 58/W/CB/2 Barley - N and Residual Dung N P K and Salt

Rothamsted Research

Rothamsted Research (1959) *58/R/CB/2 and 58/W/CB/2 Barley - N and Residual Dung N P K and Salt ;* Yields Of The Field Experiments 1958, pp 90 - 92 **- DOI: https://doi.org/10.23637/ERADOC-1-181**

BARLEY

Residual effects of dung, N, P, K and salt to sugar beet 1957 and direct effect of N - Rothamsted (R) West Barnfield II and Woburn (W) Great Hill 1958.

Design: Half replicate of 4×2^5 arranged in 4 blocks of 16 plots each, the identity being $d(20 - 10 - 5 + 0)npksN = 1$, with certain high order interactions confounded with block differences.

Area of each plot (each field): 0.0167 acres. Area harvested: 0.0141 acres.

Treatments: All combinations of:-

Applied to sugar beet 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.
Salt: None; 5 cwt agricultural salt per acre.

Applied to barley 1958

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

Basal dressing (each field): $2\frac{1}{2}$ cwt compound fertilizer (16% P_2O_5, 16% K_2O) per acre combine drilled with seed.

Cultivations, etc.:

West Barnfield II (R). Ploughed: Jan 1. Seed combine drilled with basal fertilizers at 2 bushels per acre, nitrogen fertilizer applied: Mar 25. Sprayed with MCPB at 5 pints in 40 gallons per acre: May 28. Combine harvested: Aug 27. Variety: Proctor. Previous crop: Sugar beet.

Great Hill (W). Ploughed: Jan 27. Nitrogen fertilizer applied, seed combine drilled at 3 bushels per acre with basal fertilizer: Apr 9. Sprayed with MCPA at 5 pints in 40 gallons per acre: May 20. Combine harvested: Aug 26. Variety: Herta. Previous crop: Sugar beet.

Standard errors per plot, Grain (at 85% dry matter):

West Barnfield II (R): 1.48 cwt per acre or 3.9% (27 d.f.)
Great Hill (W): 1.48 cwt per acre or 5.8% (27 d.f.)

https://doi.org/10.23637/ERADOC-1-181

Summary of Results

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

	Dung to sugar beet 1957: tons per acre				
	None	5	10	20	Mean
	West Barnfield II (R)				
Mean (±0.37)	36.4	37.6	37.8	38.8	37.7
Applied to sugar beet 1957					
N: cwt per acre					
None (±0.52)	35.4	37.5	37.9	38.5	37.3
0.9	37.4	37.8	37.7	39.1	38.0
Difference (±0.74)	+2.0	+0.3	-0.2	+0.6	+0.7 (±0.37)
P_2O_5: cwt per acre					
None (±0.52)	36.0	37.4	37.1	38.1	37.1
0.75	36.8	37.9	38.5	39.5	38.2
Difference (±0.74)	+0.8	+0.5	+1.4	+1.4	+1.1 (±0.37)
K_2O: cwt per acre					
None (±0.52)	37.2	37.6	37.9	38.7	37.9
1.5	35.7	37.6	37.7	38.9	37.5
Difference (±0.74)	-1.5	0.0	-0.2	+0.2	-0.4 (±0.37)
Salt: cwt per acre					
None (±0.52)	36.6	37.7	38.1	38.8	37.8
5.0	36.3	37.5	37.5	38.9	37.5
Difference (±0.74)	-0.3	-0.2	-0.6	+0.1	-0.3 (±0.37)
Applied to barley 1958					
N: cwt per acre					
None (±0.52)	33.7	35.7	36.3	37.3	35.7
0.4	39.1	39.5	39.4	40.4	39.6
Difference (±0.74)	+5.4	+3.8	+3.1	+3.1	+3.9 (±0.37)

Responses to treatments cwt per acre

Response to	Applied to sugar beet 1957: N None	N 0.9	P_2O_5 None	P_2O_5 0.75	K_2O None	K_2O 1.5	Salt None	Salt 5.0	Applied to barley 1958: N None	N 0.4
					(±0.52)					
Applied to sugar beet 1957										
N	-	-	+1.3	+0.1	+1.1	+0.3	+1.1	+0.3	+2.1	-0.7
P_2O_5	+1.7	+0.5	-	-	+1.4	+0.8	+0.6	+1.6	+1.3	+0.9
K_2O	0.0	-0.8	-0.1	-0.7	-	-	-0.2	-0.6	-0.3	-0.5
Salt	+0.1	-0.7	-0.8	+0.2	-0.1	-0.5	-	-	-0.5	-0.1
Applied to barley 1958										
N	+5.2	+2.4	+4.0	+3.6	+3.9	+3.7	+3.6	+4.0	-	-

Mean dry matter % as harvested: 80.7

https://doi.org/10.23637/ERADOC-1-181

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

	Dung to sugar beet 1957: tons per acre				
	None	5	10	20	Mean
	Great Hill (W)				
Mean (±0.37)	25.0	25.6	26.0	25.5	25.5
Applied to sugar beet 1957					
N: cwt per acre					
None (±0.52)	24.4	25.2	25.9	25.5	25.3
0.9	25.6	25.9	26.2	25.5	25.8
Difference (±0.74)	+1.2	+0.7	+0.3	0.0	+0.5 (±0.37)
P_2O_5: cwt per acre					
None (±0.52)	25.2	25.1	26.1	25.2	25.4
0.75	24.8	26.1	26.0	25.8	25.7
Difference (±0.74)	-0.4	+1.0	-0.1	+0.6	+0.3 (±0.37)
K_2O: cwt per acre					
None (±0.52)	24.7	25.9	26.1	25.8	25.6
1.5	25.2	25.2	26.0	25.3	25.4
Difference (±0.74)	+0.5	-0.7	-0.1	-0.5	-0.2 (±0.37)
Salt: cwt per acre					
None (±0.52)	24.6	26.0	25.7	25.3	25.4
5.0	25.4	25.1	26.4	25.7	25.6
Difference (±0.74)	+0.8	-0.9	+0.7	+0.4	+0.2 (±0.37)
Applied to barley 1958					
N: cwt per acre					
None (±0.52)	19.4	19.8	20.4	19.8	19.8
0.4	30.5	31.4	31.7	31.2	31.2
Difference (±0.74)	+11.1	+11.6	+11.3	+11.4	+11.4 (±0.37)

Responses to treatments cwt per acre

	Applied to sugar beet 1957								Applied to barley 1958	
	N		P_2O_5		K_2O		Salt		N	
Response to	None	0.9	None	0.75	None	1.5	None	5.0	None	0.4
Applied to sugar beet 1957					(±0.52)					
N	-	-	+0.1	+0.9	-0.3	+1.3	+0.6	+0.4	+0.9	+0.1
P_2O_5	-0.1	+0.7	-	-	+0.6	0.0	+0.9	-0.3	+0.2	+0.4
K_2O	-1.0	+0.6	+0.1	-0.5	-	-	-0.2	-0.2	+0.4	-0.8
Salt	+0.3	+0.1	+0.8	-0.4	+0.2	+0.2	-	-	-0.2	+0.6
Applied to barley 1958										
N	+11.8	+11.0	+11.3	+11.5	+12.0	+10.8	+11.0	+11.8	-	-

Mean dry matter % as harvested: 80.0

https://doi.org/10.23637/ERADOC-1-181