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Yields of the Field Experiments 1958

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58/W/CB/6 Barley - K and Residual N Fertilizers

Rothamsted Research

Rothamsted Research (1959) *58/W/CB/6 Barley - K and Residual N Fertilizers* ; Yields Of The Field Experiments 1958, pp 99 - 100 - DOI: <https://doi.org/10.23637/ERADOC-1-181>

BARLEY

Residual effects of nitrogenous fertilizers and direct effect of potash
- Long Hoos I, II and III 1958.

Design: 4 randomized blocks of 16 plots each, plots being split into 2
for the application of potash.

Area of each sub plot: 0.0038 acres. Area harvested: 0.0032 acres.

Treatments: All combinations of:-

Applied to ryegrass. (whole plots):

None (2 plots per block) together with all combinations of:-

Materials and methods of application

Applied in 1 single dressing:

Formalized casein, 12.2% N in 1956
" " 12.2% N in 1957
Casein, 12.6% N in 1956 and 1957

Applied in 4 dressings of one quarter the single rate:

Ammonium sulphate, 21.0% N in 1957
" " 21.0% N in 1956 and 1957
Urea, 43.5% N in 1956 and 1957
Calcium nitrate, 15.5% N in 1956 and 1957

Rates of application

0.75; 1.5 cwt N per acre

Applied to barley (1958). (sub plots):

K: None; 1.0 cwt K₂O per acre as muriate of potash.

Basal dressing: 3 cwt compound fertilizer (9% N, 18% P₂O₅) per acre
combine drilled with seed.

Cultivations, etc.: Ploughed: Nov 28, 1957. Seed combine drilled at
2½ bushels per acre, muriate of potash applied: Mar 22, 1958.

Sprayed with MCPA at 5 pints in 40 gallons per acre: May 27.

Harvested: Aug 11. Variety: Proctor. Previous crop: Ryegrass.

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

Whole plot: 2.10 cwt per acre or 7.8% (46 d.f.)

Sub plot: 1.76 cwt per acre or 6.6% (49 d.f.)

Summary of Results

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

Level of N in fertilizer: cwt per acre	Fertilizer								Mean
	None	Single dressing			Divided dressing				
		1956 F	1957 F	1957 & C	1957 A	1956 A	and U	1957 N	
Mean (± 0.74)	25.5	25.4	31.9	26.2	25.7	24.7	27.9	26.9	26.8
				(± 1.05)					
0.75	-	24.2	30.9	26.3	25.1	23.8	27.0	23.5	25.8
1.50	-	26.7	33.0	26.2	26.4	25.6	28.9	30.3	28.2
Diff. (± 1.48)		+2.5	+2.1	-0.1	+1.3	+1.8	+1.9	+6.8	+2.4
				(± 0.86)*					(± 0.56)
K ₂ O: cwt per acre									
None	25.9	25.0	31.5	25.3	25.6	23.7	28.0	26.0	26.4
1.0	25.1	25.8	32.4	27.1	25.9	25.7	27.9	27.8	27.2
Diff. (± 0.88)	-0.8	+0.8	+0.9	+1.8	+0.3	+2.0	-0.1	+1.8	+0.8
									(± 0.31)

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

Level of N in fertilizer: cwt per acre									
Mean	21.6	23.4	29.7	23.5	22.8	22.4	25.4	24.0	24.1
0.75	-	22.2	27.0	25.1	23.2	21.6	23.6	20.8	23.4
1.50	-	24.5	32.4	22.0	22.5	23.3	27.2	27.1	25.6
Diff.		+2.3	+5.4	-3.1	-0.7	+1.7	+3.6	+6.3	+2.2
K ₂ O: cwt per acre									
None	22.2	22.9	29.2	22.0	21.8	21.8	25.3	22.8	23.5
1.0	21.0	23.8	30.2	25.0	23.9	23.1	25.5	25.2	24.7
Diff.	-1.2	+0.9	+1.0	+3.0	+2.1	+1.3	+0.2	+2.4	+1.2

Treatments

- F = Formalized casein 12.2% N
- C = Casein 12.6% N
- A = Ammonium sulphate 21.0% N
- U = Urea 43.5% N
- N = Calcium nitrate 15.5% N

Mean dry matter % as harvested:
Grain, 77.3
Straw, 67.0

*For use in horizontal and diagonal comparisons only.