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72/R/CS/76 and 72/W/CS/76 Rates of NPK Fertilisers - W. Wheat

Rothamsted Research

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72/R/CS/76 and 72/W/CS/76

RATES OF NPK FERTILISER

Object: To study the residual effects of a range of rates of compound NPK fertiliser, applied to potatoes in 1971, on the yield of wheat. The direct effects of nitrogen are also studied - Rothamsted (R) Long Hoos III and Woburn (W) Lansome II.

Sponsor: F.V. Widdowson.

The second year, winter wheat.

For previous year see 71/R&W/CS/76(t).

Design: 4 x 2 x 2 x 2 in 2 blocks of 8 plots split into 2.

Whole plot dimensions:

Long Hoos III (R) and Lansome II (W): 4.27 x 21.0. Sub plot area harvested: 0.00286.

Treatments: All combinations of:-

Whole plots: 1. Rates of compound fertiliser (13:13:20) to potatoes in 1971: 1260, 1880, 2510, 3140 kg.

2. Spacing of potatoes within the rows in 1971: 30 cm (12 inches), 45 cm (18 inches).

Sub plots: 3. Variety of potatoes in 1971:

Long Hoos III (R): King Edward (KE), Pentland Crown (PC).

Lansome II (W): Pentland Crown (PC), Record (R).

4. Nitrogen to wheat in 1972:

Long Hoos III (R): 38, 76 kg N as 'Nitro-Chalk'.

Lansome II (W): 63, 126 kg N as 'Nitro-Chalk'.

Basal applications:

Long Hoos III (R): Manures: None. Weedkillers: Ioxynil at 0.63 kg plus mecoprop at 1.89 kg in 220 l.

Lansome II (W): 2,4-D at 0.70 kg plus dichlorprop at 2.8 kg in 280 l.

Seed: Cappelle sown at 200 kg (R), 180 kg (W).

72/R/CS/76 and 72/W/CS/76

TABLES OF MEANS

LONG HDOS III (R)

COMPOUND FERTILISER (13:13:20) KG/HA (F)

	1260	1880	2510	3140	Mean
GRAIN: TONNES/HECTARE					
SPACING: CM					
30	7.07	7.08	7.39	7.43	7.24
45	6.98	7.23	7.19	7.43	7.21
VARIETY					
KE	7.10	7.21	7.29	7.24	7.21
PC	6.95	7.11	7.30	7.61	7.24
N: KG/HA					
38	6.76	6.90	6.99	7.35	7.00
76	7.30	7.41	7.60	7.50	7.45
Mean	7.03	7.16	7.29	7.43	7.23

STANDARD ERRORS OF DIFFERENCES

F SPACING VARIETY N

0.173 0.122 0.087 0.087

F F F
SPACING VARIETY N

0.244 0.212 0.212

0.174 0.174

Unless same level of
F

Mean D.M. %: 85.5

72/R/CS/76 and 72/W/CS/76

Cultivations, etc.:

Long Hoos III (R): Deep-tine cultivated twice: 6 Oct, 1971. Seed drilled: 11 Oct. N applied: 6 Apr, 1972. Weedkiller applied: 28 Apr. Combine harvested: 31 Aug.

Lansome II (W): Deep-tine cultivated on 2 occasions: 6 Oct and 9 Oct, 1971. Seed drilled: 22 Oct. N applied: 12 Apr, 1972. Weedkiller applied: 27 Apr. Combine harvested: 31 Aug.

NOTE: The percentage of N in the grain was determined.

Standard errors per plot. Grain, tonnes/hectare:

Long Hoos III (R): Whole plot: 0.244 or 3.4% (6 d.f.)

Sub plot: 0.247 or 3.4% (6 d.f.)

Lansome II (W): Whole plot: 0.314 or 7.4% (6 d.f.)

Sub plot: 0.421 or 9.9% (6 d.f.)

72/R/CS/76 and 72/W/CS/76

LANSOME II (W)

COMPOUND FERTILISER (13:13:20) KG/HA (F)

	1260	1880	2510	3140	Mean
GRAIN: TONNES/HECTARE					
SPACING: CM					
30	4.36	4.23	4.25	3.99	4.21
45	4.25	4.18	4.07	4.62	4.28
VARIETY					
PC	4.26	4.18	4.20	4.49	4.28
R	4.36	4.23	4.12	4.13	4.21
N: KG/HA					
63	3.79	3.72	3.82	3.97	3.83
126	4.82	4.69	4.50	4.65	4.67
Mean	4.31	4.21	4.16	4.31	4.25

STANDARD ERRORS OF DIFFERENCES

F SPACING VARIETY N

0.222 0.157 0.149 0.149

F F F
SPACING VARIETY N

0.314 0.306 0.306

0.298 0.298

Unless same level of
F

Mean D.M. %: 81.9