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71/R/CS/1 Levels of N and K - Potatoes

Rothamsted Research

Rothamsted Research (1972) *71/R/CS/1 Levels of N and K - Potatoes ; Yields Of The Field Experiments 1971*, pp 125 - 127 - DOI: <https://doi.org/10.23637/ERADOC-1-97>

71/R/CS/1

LEVELS OF N AND K

Object: To study the effects of N, P and K fertilisers, applied to grass 1958 - 1967 and of fresh P and K applied 1971, on yields of potatoes - Harwoods Piece.

The 14th year, potatoes.

For previous years see 58/Cg/2(t), 59/Cg/2(t), 60/Ci/1, 61/Dg/1, 62/C/11, 63/C/7, 64/C/6(t), 65/C/6(t), 66/C/5, 67/C/4, 68/C/4(t), 69/R/CS/1(t) and 70/R/CS/1(t).

Whole plot dimensions: 2.13 x 16.5. Sub plot area harvested: 0.00095.

Treatments:-

Whole plots:- P and K, cumulative with treatments applied to grass 1958 - 1967.

P: None (P0), 125 (P1), 251 (P2) kg P2O5 as granular superphosphate.

K: None (K0), 125 (K1), 251 (K2) kg K2O as muriate of potash.

N residues : Nitrogen treatments to grass 1958 - 1967:

None (R0), 38 (R1), 75 (R2), 113 (R3) kg N for each cut.

Half plots: K cumulative since 1969: None (K0), 125 kg (KK) K2O as muriate of potash.

Basal applications: 7530 kg ground chalk. 188 kg N as 'Nitro-Chalk' broadcast by drill.

Weedkillers: Paraquat at 0.28 kg ion in 225 l. Linuron at 0.84 kg plus paraquat at 0.42 kg ion in 427 l.

Fungicide: Mancozeb at 1.34 kg in 438 l.

Insecticide: Demeton-s-methyl at 245 g applied with the fungicide.

Cultivations, etc.: Paraquat applied: 18 Sept, 1970. Chalked: 21 Sept.

Ploughed: 29 Oct. P and K and basal N applied, K applied to half plots, all plots rotary cultivated, potatoes planted: 6 Apr, 1971.

Linuron plus paraquat applied: 10 May. Grubbed: 4 June. Rotary

ridged: 7 June. Fungicide plus insecticide applied: 24 June.

Haulm destroyed mechanically: 26 Aug. Lifted: 16 Sept. Variety: King Edward.

NOTE: The percentages of P and K in tubers, and of P, K and Mg in the leaves in July, were determined.

Standard errors per plot. Total tubers, tonnes/hectare.

Whole plot: 2.44 or 12.4% (33 d.f.)

Sub plot: 2.86 or 14.5% (36 d.f.)

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SUMMARY OF RESULTS

TOTAL TUBERS: TONNES/HECTARE

1969 - 71

	KD	KK	Mean
	(1) and (2)		(±1.22)
N P K			
0 1 0	10.4	21.8	16.1
1 1 0	9.7	20.4	15.0
1 1 1	18.0	23.1	20.5
1 1 2	22.3	27.8	25.0
2 1 0	8.3	20.0	14.1
2 1 1	19.0	26.1	22.5
2 1 2	21.0	24.7	22.9
3 1 0	7.8	20.7	14.3
3 1 1	17.1	21.5	19.3
3 1 2	21.5	24.0	22.7
3 0 2	19.1	22.5	20.8
3 2 2	21.2	23.9	22.5
Mean (±0.41)	16.3	23.0	19.6

(1) (±1.58) For use in vertical and diagonal comparisons only

(2) (±1.43) For use in horizontal and interaction comparisons only

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% WARE: 3.81 CM (1.5 INCH) RIDDLE

1969 - 71

	KD	KK	Mean
N P K			
0 1 0	64.9	82.4	73.7
1 1 0	66.6	78.7	72.7
1 1 1	78.4	81.9	80.1
1 1 2	83.5	84.7	84.1
2 1 0	56.0	80.6	68.3
2 1 1	78.7	82.9	80.8
2 1 2	78.6	84.6	81.6
3 1 0	58.7	78.7	68.7
3 1 1	80.0	79.7	79.9
3 1 2	81.7	83.0	82.3
3 0 2	83.4	83.6	83.5
3 2 2	77.1	79.9	78.5
Mean	74.0	81.7	77.9