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74/R/CS/148 Slow-release N - Potatoes

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74/R/CS/148

SLOW-RELEASE N

Object: To compare a slow-release form of nitrogen with a conventional form, at a range of rates, using potatoes as the test crop - Pastures.

Sponsors: D. Cox, T.M. Addiscott.

The first year, potatoes.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 4.27 x 16.2. Area harvested: 0.00230.

Treatments: All combinations of:-

1. Form of nitrogen fertiliser:	N FORM
'Gold N', sulphur-coated urea	Gold N
'Nitro-Chalk', ammonium nitrate/calcium carbonate	Nitro C
2. Rate of nitrogen fertiliser (kg N):	N RATE
None	0
50	50
100	100
150	150
200	200
250	250
300	300
350	350
400	400

Basal applications: Manures: (0:20:20) at 800 kg, muriate of potash at 270 kg. Weedkillers: Linuron at 1.2 kg and paraquat at 0.42 kg ion in 450 l. Fungicide: Mancozeb at 1.3 kg in 450 l on two occasions. Insecticide: Demeton-s-methyl at 0.25 kg applied with mancozeb on first occasion.

Seed: Pentland Crown.

Cultivations, etc.:- Ploughed: 23 Nov, 1973. Spring-tine cultivated: 17 Apr, 1974. Basal manures applied: 25 Apr. N treatments applied: 26 Apr. Spike rotary cultivated, seed planted: 30 Apr. Weedkiller applied: 21 May. Grubbed: 19 June. Rotary ridged: 21 June. Fungicide and insecticide applied: 11 July. Fungicide applied: 2 Aug. Haulm mechanically destroyed: 16 Sept. Sprayed with undiluted BOV at 220 l: 17 Sept. Lifted: 30 Oct.

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Previous crops: Barley 1972, wheat 1973.

NOTES: Leaf samples were taken on 3 July for N determinations. Scores for tuber formation were made on 18 June. Visual scores for senescence were made on 13 Sept.

Standard error per plot.

Total tubers, tonnes/hectare: 2.97 or 4.6% (18 d.f.)

TABLES OF MEANS

	N RATE									Mean
	0	50	100	150	200	250	300	350	400	
TOTAL TUBERS: TONNES/HECTARE										
N FORM										
Gold N	57.3	61.4	61.7	65.4	68.8	68.4	68.4	66.3	64.7	
Nitro C	60.1	65.3	67.3	69.5	67.3	68.0	65.8	69.5	66.6	
Mean	51.1	58.7	63.3	64.5	67.4	68.0	68.2	67.1	67.9	64.0

STANDARD ERRORS OF DIFFERENCES

N FORM	N RATE	N FORM N RATE
1.05	2.10	2.97

PERCENTAGE WARE: 3.81 CM (1.5 INCH) RIDDLE

N FORM										
Gold N	99.2	99.4	99.4	99.2	99.4	99.2	99.3	98.8	99.2	
Nitro C	99.2	99.3	99.2	99.2	99.1	99.3	99.2	99.1	99.2	
Mean	98.8	99.2	99.3	99.3	99.2	99.2	99.3	99.3	98.9	99.2