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Yields of the Field Experiments 1977

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77/R/CS/206 Late N - Potatoes

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LATE N

Object: To study the effects of a range of fertilisers which release nitrogen later in the growing season than traditional forms on the growth, nitrogen uptake and yield of potatoes - Great Knott II.

Sponsors: T.M. Addiscott, J. Ashworth, A. Penny, F.V. Widdowson.

The first year, potatoes.

Design: 3 randomised blocks of 18 plots.

Whole plot dimensions: 4.27 x 13.1.

Treatments: All combinations of:-

1. N FORM Forms of nitrogen fertiliser:
- | | |
|----------|---|
| AA | Aqueous ammonia, injected before planting |
| AA+NITRA | Aqueous ammonia + nitrapyrin ('N-Serve') at 1 kg, injected before planting |
| AA+STC | Aqueous ammonia + sodium trithiocarbonate at 42 kg injected before planting |
| IB SMALL | IBDU (isobutylidene diurea), small granules to seedbed |
| IB LARGE | IBDU, large granules to seedbed |
| AN E+L | Ammonium nitrate, half in seedbed, half top-dressed |
| AN E | Ammonium nitrate, all in seedbed |

2. N RATE(1) Rates of nitrogen fertiliser (kg N):

200
300

plus four extra treatments given ammonium nitrate, all in the seedbed (kg N):

N RATE(2)

AN E 150
AN E 250
AN E 350
AN E 400

- NOTES: (1) The intended rate of sodium trithiocarbonate was 24 kg. Only one plot, treatment N RATE(1)200, received this rate, all other plots received 42 kg.
(2) Aqueous ammonia and inhibitors were injected, 10 cm deep with tines 30 cm apart, on 21 Apr, 1977.
(3) Seedbed ammonium nitrate and IBDU were applied on 22 Apr.
(4) Top dressed ammonium nitrate was applied on 1 July.

Basal applications: Manures: (0:14:28) at 1880 kg. Weedkiller: Linuron at 1.4 kg in 340 l. Fungicide: Mancozeb at 1.3 kg in 340 l on three occasions. Insecticide: Pirimicarb at 0.14 kg applied with the last two fungicide sprays.

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Seed: Pentland Crown.

Cultivations, etc.:— Ploughed: 15-28 Sept, 1976. Spring-tine cultivated: 31 Mar, 1977. PK applied, spring-tine cultivated: 20 Apr. Spike rotary cultivated and potatoes planted: 25 Apr. Grubbed twice: 18 May, 23 June. Rotary ridged twice: 24 May, 27 June. Ridges rolled: 26 May. Weedkiller applied: 31 May. Fungicide applied: 5 July. Fungicide with insecticide applied: 26 July, 11 Aug. Haulm mechanically destroyed: 19 Oct. Lifted: 1 Nov. Previous crops: Barley 1975, winter oats 1976.

NOTE: Crop samples were taken for N determinations.

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TOTAL TUBERS TONNES/HECTARE

***** TABLES OF MEANS *****

N RATE(1)	200	300	MEAN
N FORM			
AA	43.9	44.9	44.4
AA+NITRA	46.9	48.7	47.8
AA+STC	46.6	47.1	46.9
IB SMALL	44.9	44.8	44.8
IB LARGE	42.1	45.3	43.7
AN E+L	43.2	45.4	44.3
AN E	44.3	45.3	44.8
MEAN	44.6	45.9	45.2

N RATE(2)	AN E 150	AN E 250	AN E 350	AN E 400	MEAN
	41.9	44.5	43.8	44.8	43.7

GRAND MEAN 44.9

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	N RATE(2)	N FORM	N RATE(1)	N FORM N RATE(1)
SED	2.26	1.60	0.85	2.26

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	34	2.77	6.2

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PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

***** TABLES OF MEANS *****

N RATE(1)	200	300	MEAN
N FORM			
AA	88.7	87.4	88.1
AA+NITRA	87.4	87.0	87.2
AA+STC	87.0	87.2	87.1
IB SMALL	87.7	89.1	88.4
IB LARGE	87.1	88.5	87.8
AN E+L	89.6	86.8	88.2
AN E	88.0	88.0	88.0
MEAN	87.9	87.7	87.8

N RATE(2)	AN E 150	AN E 250	AN E 350	AN E 400	MEAN
	88.7	89.5	91.0	89.7	89.7

GRAND MEAN 88.2

PLOT AREA HARVESTED 0.00260