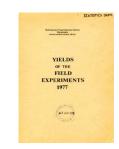
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# Yields of the Field Experiments 1977



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# 77/R/CS/206 Late N - Potatoes

### **Rothamsted Research**

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#### 77/R/CS/206

#### 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	N FORM 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) N FORM	200	300	MEAN
AA+NITRA	88.7	87.4	88.1
	87.4	87.0	87.2
AA+STC	87.0	87.2	87.1
IB SMALL IB LARGE	87.7	89.1	88.4
	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