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# Yields of the Field Experiments 1979

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## 79/W/CS/239 Late N - Potatoes

### Rothamsted Research

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79/W/CS/239

LATE N

Object: To study the effects of a range of fertilisers that release nitrogen later in the growing season than traditional forms on the growth and yield of potatoes - Horsepool.

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

The first year, potatoes.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 4.27 x 13.1.

Treatments: All combinations of:-

- |           |   |
|-----------|---|
| 1. N FORM | Forms of nitrogen fertiliser:   |
| AQ U      | Aqueous urea, injected before planting                                |
| AQ U+CS2  | Aqueous urea + carbon disulphide at 10.0 kg, injected before planting |
| AQ U+NIT  | Aqueous urea + nitrapyrin at 1.0 kg, injected before planting         |
| NC E      | 'Nitro-Chalk', all to the seedbed                                     |
| NC E+L    | 'Nitro-Chalk', half to the seedbed, half in June                      |
| IBDU      | Isobutylidene diurea, all to the seedbed                              |

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

200  
300

plus four extra treatments all given 'Nitro-Chalk':

EXTRA

- |          |  |
|----------|--|
| NC E100  | At 100 kg N, all to the seedbed                |
| NC E400  | At 400 kg N, all to the seedbed                |
| NC EL100 | At 100 kg N, half to the seedbed, half in June |
| NC EL400 | At 400 kg N, half to the seedbed, half in June |

NOTE: Aqueous fertilisers were injected on 3 May, 1979, IBDU and 'Nitro-Chalk' were applied on 4 May. Late 'Nitro-Chalk' was applied on 18 June.

Basal applications: Manures: (0:14:28) at 1880 kg. Weedkillers: Linuron at 1.0 kg plus paraquat at 0.28 kg ion in 250 l. Fungicide: Mancozeb at 1.3 kg in 250 l on six occasions with insecticide on the first two. Insecticide: Pirimicarb at 0.14 kg on two occasions with fungicide. Haulm desiccant: Undiluted BOV at 170 l.

Seed: Pentland Crown.

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Cultivations, etc.:— Heavy spring-tine cultivated: 6 Sept, 1978. Subsoiled with tines 140 cm apart and 70 cm deep: 12 Nov. Rotary cultivated: 19 Nov. Ploughed: 24 Nov. PK applied: 7 May, 1979. Heavy spring-tine cultivated: 8 May. Rotary cultivated, potatoes planted: 10 May. Weedkillers applied: 25 May. Rotary ridged: 19 June. Fungicide applied: 27 June, 10 July, 23 July, 10 Aug, 25 Aug, 6 Sept. Insecticide applied: 27 June, 10 July. Haulm desiccant applied: 25 Sept. Lifted: 11 Oct. Previous crops: Winter wheat 1977, winter oats 1978.

NOTE: Plots were assessed for dry matter of tubers and haulm and for numbers of tubers on several occasions during the season. Samples of tubers were analysed for nitrogen percentages.

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TOTAL TUBERS TONNES/HECTARE

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

N RATE(1) N FORM	200	300	MEAN
AQ U	51.9	40.9	46.4
AQ U+CS2	45.3	39.8	42.6
AQ U+NIT	43.4	43.4	43.4
NC E	43.1	43.0	43.0
NC E+L	42.9	44.0	43.5
IBDU	34.2	40.6	37.4
MEAN	43.5	41.9	42.7

EXTRA	NC E100	NC E400	NC EL100	NC EL400	MEAN
	33.5	38.0	36.6	48.9	39.2

GRAND MEAN 41.8

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

TABLE	N FORM	N RATE(1)	EXTRA	N FORM N RATE(1) & EXTRA
SED	3.77	2.17	5.32	5.32

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

STRATUM	DF	SE	CV%
BLOCK.WP	30	6.52	15.6

PERCENTAGE WARE 3.81CM (1.5 INCH) RIDDLE

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

N RATE(1) N FORM	200	300	MEAN
AQ U	91.2	85.8	88.5
AQ U+CS2	89.8	89.0	89.4
AQ U+NIT	87.6	89.6	88.6
NC E	89.2	89.9	89.5
NC E+L	90.9	87.5	89.2
IBDU	81.9	86.8	84.3
MEAN	88.4	88.1	88.3

EXTRA	NC E100	NC E400	NC EL100	NC EL400	MEAN
	79.1	85.5	83.5	89.8	84.5

GRAND MEAN 87.3

PLOT AREA HARVESTED 0.00260