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## Yields of the Field Experiments 1977

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### 77/R/CS/205 Nitrification Inhibitors - Kale

#### Rothamsted Research

Rothamsted Research (1978) *77/R/CS/205 Nitrification Inhibitors - Kale* ; Yields Of The Field Experiments 1977, pp 296 - 298 - DOI: <https://doi.org/10.23637/ERADOC-1-29>

77/R/CS/205

NITRIFICATION INHIBITORS

Object: To study the effects of adding nitrification inhibitors to forms of liquid nitrogen fertilisers on nitrogen uptake and yield - West Barnfield II.

Sponsors: F.V. Widdowson, A. Penny, J. Ashworth.

The first year, kale.

Design: 3 randomised blocks of 24 plots.

Whole plot dimensions: 4.27 x 8.53.

Treatments: All combinations of:-

1. L N FORM                      Forms of liquid nitrogen fertiliser:  
    AN+UR                      Ammonium nitrate + urea (26% N)  
    UR                              Urea (19% N)
2. L N RATE                      Rates of nitrogen fertiliser (kg N):  
    100  
    200
3. NI INHIB                      Nitrification inhibitors added to liquid nitrogen fertiliser:  
    NONE                          None  
    NITRAPYR                      Nitrapyrin ('N-Serve') at 1 kg  
    SOD TRI                        Sodium trithiocarbonate at 22 kg

plus twelve extra treatments given solid nitrogen fertiliser (kg N):

SOLID N

- |          |  |
|----------|--|
| BSL 100S | BSL (a urea condensation product) at 100 to seedbed  |
| BSL 200S | BSL at 200 to seedbed  |
| NC 50S   | 'Nitro-Chalk' at 50 to seedbed   |
| NC 100S  | 'Nitro-Chalk' at 100 to seedbed  |
| NC 100DE | 'Nitro-Chalk' at 100 divided equally between seedbed and top dressing                      |
| NC 100DU | 'Nitro-Chalk' at 100 divided unequally, one-quarter to seedbed, three-quarters top dressed |
| NC 150S  | 'Nitro-Chalk' at 150 to seedbed  |
| NC 200S  | 'Nitro-Chalk' at 200 to seedbed  |
| NC 200DE | 'Nitro-Chalk' at 200 divided equally between seedbed and top dressing                      |
| NC 200DU | 'Nitro-Chalk' at 200 divided unequally, one-quarter to seedbed, three-quarters top dressed |
| NC 250S  | 'Nitro-Chalk' at 250 to seedbed  |
| NC 300S  | 'Nitro-Chalk' at 300 to seedbed  |

- NOTES: (1) 'Nitro-Chalk' and BSL applied to seedbed: 19 Apr, 1977.  
(2) 'Nitro-Chalk' top dressed: 8 July.  
(3) Liquid nitrogen fertiliser injected, 10 cm deep with tines 30 cm apart, on 19 Apr.

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Basal applications: Manures: (0:20:20) at 1260 kg. Chalk at 7.5 t. Weedkiller: Desmetryne at 0.42 kg in 220 l.

Seed: Maris Kestrel, sown at 1.7 kg.

Cultivations, etc.:— Chalk applied: 1 Sept, 1976. Ploughed: 13 Sept. PK applied: 8 Apr, 1977. Spring-tine cultivated: 2 May. Power harrowed: 17 May. Sown: 18 May. Weedkiller applied: 8 July. Harvested by hand: 21 Nov. Previous crops: Barley 1975, wheat 1976.

NOTE: Crop samples were taken for N determinations.

FRESH WEIGHT TONNES/HECTARE

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

L N RATE	100	200	MEAN	
L N FORM				
AN+UR	70.4	77.6	74.0	
UR	66.1	75.2	70.6	
MEAN	68.2	76.4	72.3	
NI INHIB	NONE	NITRAPYR	SOD TRI	MEAN
L N FORM				
AN+UR	74.4	73.7	73.9	74.0
UR	71.7	70.0	70.1	70.6
MEAN	73.0	71.8	72.0	72.3
NI INHIB	NONE	NITRAPYR	SOD TRI	MEAN
L N RATE				
100	68.3	68.4	68.0	68.2
200	77.8	75.3	76.1	76.4
MEAN	73.0	71.8	72.0	72.3
L N RATE	100	200		
NI INHIB	NONE	NITRAPYR	SOD TRI	NONE NITRAPYR SOD TRI
L N FORM				
AN+UR	71.2	70.4	69.5	77.6 76.9 78.3
UR	65.4	66.4	66.4	78.0 73.6 73.9
SOLID N				
BSL 100S	69.2			
BSL 200S	71.2			
NC 50S	64.2			
NC 100S	77.2			
NC 100DE	66.2			
NC 100DU	69.6			
NC 150S	73.5			
NC 200S	72.9			
NC 200DE	77.7			
NC 200DU	74.9			
NC 250S	80.6			
NC 300S	80.1			
MEAN	73.1			

GRAND MEAN 72.7

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FRESH WEIGHT TONNES/HECTARE

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

TABLE	SOLID N	L N FORM	L N RATE	NI INHIB
SED	3.03	1.24	1.24	1.52
TABLE	L N FORM L N RATE	L N FORM NI INHIB	L N RATE NI INHIB	L N FORM L N RATE NI INHIB
SED	1.75	2.14	2.14	3.03

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

STRATUM	DF	SE	CV%
BLOCK.WP	46	3.71	5.1
PLOT AREA HARVESTED	0.00114		