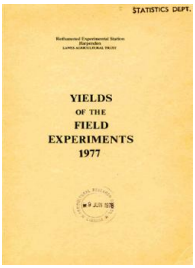
ROTHAMSTED RESEARCH

Yields of the Field Experiments 1977

Full Table of Content



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.

https://doi.org/10.23637/ERADOC-1-29

77/R/CS/205

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

https://doi.org/10.23637/ERADOC-1-29

77/R/CS/205

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

https://doi.org/10.23637/ERADOC-1-29