

Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readable, or you suspect there are some problems, please let us know and we will correct that.



ROTHAMSTED
RESEARCH

Yields of the Field Experiments 1980

[Full Table of Content](#)



80/R/WW/2 and 80/W/WW/2 Winter Wheat Aqueous N and Nitrification Inhibitors

Rothamsted Research

Rothamsted Research (1981) *80/R/WW/2 and 80/W/WW/2 Winter Wheat Aqueous N and Nitrification Inhibitors* ; Yields Of The Field Experiments 1980, pp 207 - 209 - DOI:

<https://doi.org/10.23637/ERADOC-1-31>

80/R/WW/2 and 80/W/WW/2

WINTER WHEAT

AQUEOUS N AND NITRIFICATION INHIBITORS

Object: To study the effects of adding nitrification inhibitors to aqueous urea on the yield and nitrogen uptake of w. wheat - Rothamsted (R) Gt. Knott (III) and Woburn (W) Great Hill Bottom I.

Sponsors: F.V. Widdowson, A. Penny, G.A. Rodgers.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 4.27 x 12.2.

Treatments: All combinations of:-

1. A S N Nitrogen fertilisers (kg N) in autumn and spring:

100I + 100	100 in autumn, injected as aqueous urea, 100 in spring as 'Nitro-Chalk'
100I + 150	100 in autumn injected as aqueous urea, 150 in spring as 'Nitro-Chalk'

2. N INHIB Nitrification inhibitors added to aqueous urea:

NONE	None
DIMEXAN	Dimexan (dimethyl xanthate) at 3.8 kg
NITRAPYR	Nitrapyrin at 1.4 kg
QUINOL	Quinol (hydroquinone) at 3.8 kg
STC+PEX	Sodium trithiocarbonate (equivalent to 3.2 kg carbon disulphide) plus potassium ethyl xanthate at 3.8 kg
THIRAM	Thiram at 3.8 kg

plus six extra plots given 'Nitro-Chalk' only (kg N):

EXTRA

- 0
- NC 50
- NC 100
- NC 150
- NC 200
- NC 250

NOTE: 'Nitro-Chalk' dressings were divided, one-third in February, remainder in April.

Basal applications:

- Gt. Knott III (R): Manures: (0:20:20) at 310 kg, combine drilled.
Weedkillers: Paraquat at 0.56 kg ion in 220 l. Methabenzthiazuron at 1.6 kg in 220 l. Growth regulator: Chlormequat at 1.7 l in 250 l.
Insecticide: Demeton-s-methyl 0.24 l in 250 l.
- Gt. Hill Bottom I (W): Manures: (0:20:20) at 250 kg.
Weedkillers: Mecoprop, bromoxynil and ioxynil ('Brittox' at 3.5 l in 250 l). Growth regulator: Chlormequat at 1.4 l in 280 l.

Seed: Gt. Knott III (R): Flanders, sown at 200 kg.
Gt. Hill Bottom I (W): Flanders, sown at 190 kg.

80/R/WW/2 and 80/W/WW/2

Cultivations, etc.:-

Gt. Knott III (R): Aqueous N with inhibitors injected: 8 Oct, 1979.
 Paraquat applied: 15 Oct. Disc harrowed twice, seed sown: 18 Oct.
 Methabenzthiazuron applied: 20 Oct. First 'Nitro-Chalk' dressing
 applied: 19 Feb, 1980. Remaining 'Nitro-Chalk' applied: 8 Apr.
 Growth regulator applied: 7 May. Insecticide applied: 23 June.
 Combine harvested: 22 Aug. Previous crops: S. barley 1978, w. oats
 1979.

Gt. Hill Bottom I (W): Heavy spring-tine cultivated: 12 Sept, 1979.
 Rotary cultivated: 21 Sept. PK applied: 27 Sept. Aqueous N with
 inhibitor injected: 9 Oct. Seed sown: 18 Oct. First 'Nitro-Chalk'
 dressing applied: 18 Feb, 1980. Weedkillers applied: 3 Mar.
 Remaining 'Nitro-Chalk' applied: 2 Apr. Growth regulator applied: 24
 Apr. Combine harvested: 27 Aug. Previous crops: Potatoes and beans
 1978, oats 1979.

NOTE: Soil samples were taken at monthly intervals, November to July for
 measurements of nitrate and ammonia.

80/R/WW/2 GT. KNOTT III

GRAIN TONNES/HECTARE

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

N INHIB A S N	NONE	DIMEXAN	NITRAPYR	QUINOL	STC+PEX	THIRAM	MEAN
100I+100	7.94	7.37	7.51	7.32	7.45	7.41	7.50
100I+150	7.54	7.53	8.16	7.81	8.49	8.18	7.95
MEAN	7.74	7.45	7.83	7.57	7.97	7.79	7.72

EXTRA	0	NC 50	NC 100	NC 150	NC 200	NC 250	MEAN
	3.37	5.60	6.74	7.44	8.24	7.79	6.53

GRAND MEAN 7.33

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

TABLE	EXTRA	A S N	N INHIB	A S N N INHIB & EXTRA
SED	0.252	0.103	0.178	0.252

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

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.252	3.4

GRAIN MEAN DM% 84.7

PLOT AREA HARVESTED 0.00279

80/W/WW/2 GT. HILL BOTTOM I

GRAIN TONNES/HECTARE

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

N INHIB A S N	NONE	DIMEXAN	NITRAPYR	QUINOL	STC+PEX	THIRAM	MEAN
100I+100	6.45	6.32	5.84	6.09	5.70	6.14	6.09
100I+150	6.30	6.40	6.23	5.85	6.53	6.54	6.31
MEAN	6.37	6.36	6.03	5.97	6.11	6.34	6.20
EXTRA	0	NC 50	NC 100	NC 150	NC 200	NC 250	MEAN
	3.23	4.45	5.98	6.54	6.23	6.19	5.44

GRAND MEAN 5.95

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

TABLE	EXTRA	A S N	N INHIB	A S N N INHIB & EXTRA
SED	0.480	0.196	0.340	0.480

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

STRATUM	DF	SE	CV%
BLOCK.WP	17	0.480	8.1

GRAIN MEAN DM% 83.6

PLOT AREA HARVESTED 0.00279