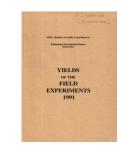
Thank you for using eradoc, a platform to publish electronic copies of the Rothamsted Documents. Your requested document has been scanned from original documents. If you find this document is not readible, or you suspect there are some problems, please let us know and we will correct that.



Yields of the Field Experiments 1991



Full Table of Content

91/R/WW/3 N and Crop Physiology - W. Wheat

Rothamsted Research

Rothamsted Research (1992) 91/R/WW/3 N and Crop Physiology - W. Wheat; Yields Of The Field Experiments 1991, pp 118 - 120 - DOI: https://doi.org/10.23637/ERADOC-1-46

91/R/WW/3

WINTER WHEAT

N AND CROP PHYSIOLOGY

Object: To study the relationship between N supply to crops of different size and their nitrate contents, N uptakes, growth rates and yield -Stackyard.

Sponsors: R.J. Darby, G.F.J. Milford.

Design: 3 randomised blocks of 15 plots.

Whole plot dimensions: 3.0 x 20.0.

Treatments: All combinations of:-

1. SOW DATE	Dates of sowing:
12 SEP 11 OCT	12 September, 1990 11 October
2. N R T S	Nitrogen fertilizer (kg N) as 'Nitro-Chalk', rates, times and plot shading:
-	None
N1	30 kg N on 21 Mar, 1991 + 92 kg N on 11 Apr
N2	60 " " " " " + 184 " " " " "
	(duplicated)
N2T	" " " " 11 Apr " " " " " 29 Apr

plus 5 extra treaments all sown on 31 Oct

N R T SL	Nitrogen	fertilizer	(kg N)	as	'Nitro-Chalk'	,	rates	and
	times:							

```
- None
N1 30 kg N on 21 Mar, 1991 + 92 kg N on 11 Apr
N2 60 " " " " " + 184 " " " " " " "
N3 " " " " " " " " " " " " " " " " " " 56 kg N on 23 May
N2T " " " " 11 Apr " " " " " 29 Apr
```

NOTES: (1) Shading, to reduce light to 44% of normal, was erected on 9 Apr, 1991 on SOW DATE 12 SEP and 11 OCT only, on one of the duplicates of N R T S N2. On N R T SL shading was not erected, because of loss of plants due to bird damage.

- (2) N R T S N2T treatment was applied three weeks after a threshhold stem nitrate value of 200 ppm.
- (3) Each sowing date was rotary harrowed before drilling.

Basal applications: Manure: Magnesian limestone at 5.0 t. Weedkillers: Isoproturon at 1.3 kg and pendimethalin at 1.3 kg in 300 l. Fungicides: Fenpropimorph at 0.75 kg in 250 l and on a second occasion at 0.75 kg with chlorothalonil at 0.50 kg in 300 l. Insecticides: Deltamethrin at 6.2 g in 300 l. Pirimicarb at 0.14 kg in 300 l.

91/R/WW/3

Seed: Mercia, sown at 170 kg.

Cultivations, etc.:- Magnesian limestone applied: 31 July, 1990.

Ploughed: 3 Sept. Rolled: 4 Sept. Rotary harrowed: 12 Sept.

Deltamethrin applied: 7 Nov. Weedkillers applied: 21 Nov.

Fenpropimorph alone applied: 10 May, 1991. Fenpropimorph with chlorothalonil applied: 2 July. Pirimicarb applied: 17 July.

Combine harvested: 27 Aug. Previous crops: Fallow 1989, w. oats 1990.

NOTE: Soils were sampled, to 90 cm depth, for ammonium and nitrate contents on four occasions from mid-October to the end of February and then at fortnightly intervals corresponding with crop sampling. Crop samples were taken from November to June at fortnightly intervals to measure stem nitrate concentrations and at similar intervals from April to the end of June to measure crop growth and total N content.

GRAIN TONNES/HECTARE

**** Tables of means ****

NRTS SOW DATE	1 S=2	N1	N2	N2T	Mean	
12 SEPT	2.00	6.31	8.75	8.25	6.81	
11 OCT	1.98	6.81	8.91	8.21	6.96	
Mean	1.99	6.56	8.83	8.23	6.89	
NRTSL	-	N1	N2	N3	N2T	Mean
	2.07	6.47	8.52	9.04	8.08	6.84

GRAND MEAN 6.87

*** Standard errors of differences of means ***

SOW DATE	NRTS	NRTSL	NRTS SOW DATE
	0.121		0.170 min.rep
0.076	0.101	0.170	0.148 max-min
			0.121 max.rep

NRTS

max.rep N2 only

min.rep any of the remainder

max-min N2 v any of the remainder

**** Stratum standard errors and coefficients of variation ****

Stratum d.f. s.e. cv%
BLOCK.WP 30 0.209 3.0

GRAIN MEAN DM% 84.8

91/R/WW/3

STRAW TONNES/HECTARE

***** Tables of means *****

NRTS	_	N1	N2	N2T	Mean	
SOW DATE						
12 SEPT	1.73	5.05	7.51	5.78	5.52	
11 OCT	1.48	5.87	7.29	5.99	5.58	
Mean	1.60	5.46	7.40	5.88	5.55	
N R T SL		N1	N2	N3	N2T	Mean
	1.18	5.11	6.13	6.31	5.38	4.82

GRAND MEAN 5.31

STRAW MEAN DM% 77.6

PLOT AREA HARVESTED 0.00276