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Yields of the Field Experiments 1992

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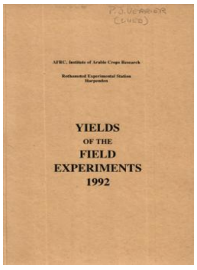

92/R/WW/3 N and Crop Physiology - W. Wheat

Rothamsted Research

Rothamsted Research (1993) *92/R/WW/3 N and Crop Physiology - W. Wheat ;* Yields Of The Field Experiments 1992, pp 107 - 109 **- DOI: https://doi.org/10.23637/ERADOC-1-47**

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92/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 - Fosters West.

Sponsor: R.J. Darby.

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 3.0 x 17.0.

Treatments: All combinations of:-

1. **SOW DATE**	Dates of sowing:
EARLY	Second week in September
LATE	Third week in October
2. **AUT N**	Autumn nitrogen:
NONE	None
50	50 kg N
3. **SPRING N**	Spring nitrogen:
NONE	None
N1	Half optimum N
N2	Optimum N
N2L	Optimum N three weeks later

Experimental diary:

06-Sep-91 : B : Ploughed and furrow pressed.
12-Sep-91 : B : Rotary harrowed.
12-Sep-91 : **T** : **SOW DATE** EARLY: Rotary harrowed, Mercia, drilled at 160 kg. Rolled.
14-Oct-91 : **T** : **SOW DATE** LATE: Rotary harrowed, Mercia, drilled at 160 kg.
15-Oct-91 : B : Rolled.
29-Oct-91 : **T** : **AUT N** 50: 46% N (as urea) at 109 kg.
27-Nov-91 : B : Stefes IPU at 2.5 l and Stomp 400 at 3.3 l in 300 l.
16-Mar-92 : **T** : **SPRING N** N1: 27% N at 111 kg.
N2: 27% N at 222 kg.
09-Apr-92 : **T** : **SPRING N** N1: 27% N at 304 kg.
N2: 27% N at 607 kg.
N2L: 27% N at 222 kg.
29-Apr-92 : **T** : **SPRING N** N2L: 27% N at 607 kg.
19-May-92 : B : Dorin at 1.0 l and Chiltern Olé at 1.5 l in 300 l.
22-Jun-92 : B : Mistral at 0.50 l and Radar at 0.50 l in 300 l.
04-Aug-92 : B : Combine harvested.

Previous crops: Potatoes 1990, s. wheat 1991.

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92/R/WW/3

NOTE: Soils were sampled to 90 cm depth for ammonium and nitrate contents on three occasions between mid-October and late February. Stem nitrate concentrations were measured at fortnightly intervals from November to April. Lodging was assessed in June and July. Components of yield were measured after hand harvesting in late July.

GRAIN TONNES/HECTARE

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

AUT N	NONE	50	Mean
SOW DATE			
EARLY	7.24	7.35	7.29
LATE	6.96	6.47	6.72
Mean	7.10	6.91	7.01

SPRING N	NONE	N1	N2	N2L	Mean
SOW DATE					
EARLY	6.07	7.79	6.99	8.31	7.29
LATE	5.54	7.44	6.40	7.51	6.72
Mean	5.80	7.62	6.69	7.91	7.01

SPRING N	NONE	N1	N2	N2L	Mean
AUT N					
NONE	5.10	7.76	7.22	8.32	7.10
50	6.51	7.47	6.17	7.49	6.91
Mean	5.80	7.62	6.69	7.91	7.01

SOW DATE	**AUT N**	**SPRING N**	NONE	N1	N2	N2L
EARLY	NONE		5.12	7.77	7.56	8.50
	50		7.03	7.82	6.42	8.12
LATE	NONE		5.08	7.76	6.88	8.14
	50		6.00	7.11	5.92	6.87

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

SOW DATE	**AUT N**	**SPRING N**	**SOW DATE AUT N**
0.095	0.095	0.134	0.134

SOW DATE SPRING N	**AUT N SPRING N**	**SOW DATE AUT N SPRING N**
0.189	0.189	0.268

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.328	4.7

GRAIN MEAN DM% 86.1

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92/R/WW/3

STRAW TONNES/HECTARE

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

AUT N	NONE	50	Mean
SOW DATE			
EARLY	6.91	8.40	7.66
LATE	6.66	7.46	7.06
Mean	6.78	7.93	7.36

SPRING N	NONE	N1	N2	N2L	Mean
SOW DATE					
EARLY	5.70	8.28	8.78	7.87	7.66
LATE	4.70	7.64	7.97	7.93	7.06
Mean	5.20	7.96	8.37	7.90	7.36

SPRING N	NONE	N1	N2	N2L	Mean
AUT N					
NONE	3.88	7.58	8.39	7.28	6.78
50	6.51	8.35	8.35	8.52	7.93
Mean	5.20	7.96	8.37	7.90	7.36

SOW DATE	**AUT N**	**SPRING N**	NONE	N1	N2	N2L
EARLY	NONE		3.95	7.66	8.69	7.34
	50		7.44	8.91	8.87	8.40
LATE	NONE		3.81	7.50	8.10	7.23
	50		5.58	7.78	7.84	8.64

STRAW MEAN DM% 81.9

PLOT AREA HARVESTED 0.00322

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