

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 1989

[Full Table of Content](#)



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

Rothamsted Research

Rothamsted Research (1990) *89/R/WW/3 N and Crop Physiology - W. Wheat* ; Yields Of The Field Experiments 1989, pp 120 - 121 - DOI: <https://doi.org/10.23637/ERADOC-1-40>

89/R/WW/3

WINTER WHEAT

N AND CROP PHYSIOLOGY

Object: To study, in crops given optimal or less than optimal N, the dynamics of late N within the plant, the effects on flag leaf photosynthesis and protein retention and the N status of individual organs - Little Knott I.

Sponsors: G.F.J. Milford, D.W. Lawlor, P.B. Barraclough.

Associate sponsor: D.S. Powlson.

Design: 3 randomised blocks of 9 plots.

Whole plot dimensions: 3.0 x 9.0.

Treatments: All combinations of:-

1. **EARLY N** Nitrogen fertilizer (kg N) applied as 'Nitro-Chalk' divided in a 1:2:1 ratio between 30 Mar, 1989, 14 Apr and 5 May respectively:

0
80
200

2. **LATE N** Nitrogen fertilizer applied late:

0 None
NLEAF To foliage, 40 kg N as urea in 225 l in two equal applications on 25 May, 1989 and 26 May
NSOIL To soil, 40 kg N as prilled urea on 25 May

plus two extra treatments given EARLY N 200 and magnesium at 2.5 kg on 23 June and on 7 July:

EARLYNMG

NONE None
UREA 40 kg N as urea in 225 l in two equal applications on 23 June, 1989, and 24 June

Basal applications: Manures: (0:18:36) at 280 kg. Weedkillers: Glyphosate at 0.27 kg in 200 l. Paraquat at 0.60 kg ion in 200 l. Metsulfuron-methyl at 6.0 g with the prochloraz in 220 l. Fungicides: Prochloraz at 0.40 kg. Propiconazole at 0.12 kg with chlorothalonil at 1.0 kg in 220 l. Insecticide: Fonofos at 1.4 kg in 200 l.

Seed: Avalon, sown at 170 kg.

89/R/WW/3

Cultivations, etc.:- Rotary cultivated: 17 Sept, 1988. Glyphosate applied: 17 Oct. Paraquat applied: 24 Oct. Heavy spring-tine cultivated: 26 Oct. PK applied: 28 Oct. Ploughed: 29 Oct. Rotary harrowed: 1 Nov. Rotary harrowed, seed sown: 3 Nov. Fonofos applied: 26 Jan, 1989. Metsulfuron-methyl with prochloraz applied: 3 May. Propiconazole with chlorothalonil applied: 15 June. Combine harvested: 3 Aug. Previous crops: S. beans 1987, w. oats 1988.

NOTE: Samples were taken for measurements of crop and grain growth and N content, weekly from April until maturity.

GRAIN TONNES/HECTARE

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

LATE N	0	NLEAF	NSOIL	Mean
EARLY N				
0	3.19	3.55	3.95	3.56
80	5.95	5.69	5.61	5.75
200	6.94	6.73	6.49	6.72
Mean	5.36	5.32	5.35	5.34
EARLYNMG	NONE	UREA	Mean	
	6.68	6.63	6.66	
GRAND MEAN	5.58			

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

EARLY N	LATE N	EARLY N LATE N & EARLYNMG
0.287	0.287	0.497

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	20	0.608	10.9
GRAIN MEAN DM%	85.0		
PLOT AREA HARVESTED	0.00207		