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# Yields of the Field Experiments 1974

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## 74/R/WS/1 N Levels and Physiology - S. Wheat

74/R/WS/1 N Levels and Physiology - S. Wheat, Rothamsted Research (1975) Yields Of The Field Experiments 1974, pp 296 - 297 - DOI: <https://doi.org/10.23637/ERADOC-1-119>

74/R/WS/1

SPRING WHEAT

N LEVELS AND PHYSIOLOGY

Object: To study the physiological basis of the response of spring wheat to a wide range of nitrogen levels - Long Hoos IV.

Sponsor: G.N. Thorne.

Design: 2 blocks of 18 plots.

Whole plot dimensions: 2.41 x 12.2. Area harvested: 0.00075.

Treatments: All combinations of:-

1. Nitrogen fertiliser (kg N):	N RATE
None	0
25	25
50	50
75	75
100	100
125	125
150	150
175	175
200	200

2. Time and form of nitrogen fertiliser:	N TIME
All in 'seedbed' as 'Nitro-Chalk'	Single
Half in 'seedbed' as 'Nitro-Chalk', half after anthesis as foliar spray of urea in 340 l	Divided

NOTE: 'Seedbed' N was applied on 25 Apr, 1974, 4 weeks after seed sown and foliar spray on 5 July.

Basal applications: Manures: (0:14:28) at 1260 kg. Weedkillers: Dicamba with mecoprop and MCPA ('Banlene Plus' at 5.6 l in 340 l). Fungicides: Ethirimol ('Milgo' at 1.4 l in 340 l) on 2 occasions, benomyl ('Benlate' at 2.2 kg in 340 l) and benodanil (BASF 3170F at 2.2 kg in 340 l).

Seed: Kleiber, dressed with benomyl, sown at 190 kg.

Cultivations, etc.: PK applied: 19 Nov, 1973. Ploughed: 26 Nov. Power harrowed, seed sown: 27 Mar, 1974. Weedkiller applied: 20 May. Ethirimol applied on: 25 May and 8 July, benomyl on: 21 June and benodanil on: 17 July. Combine harvested: 10 Sept. Previous crops: Wheat 1972, fallow 1973.

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NOTE: Plant counts were made after germination and shoot counts throughout the season. Plant samples were taken on six occasions for growth analysis. Rates of photosynthesis and respiration were measured after anthesis. Soil moisture was measured on four occasions. Light penetration into the leaf canopy was measured twice. Dates of anthesis and of yellowness at ripening were also determined.

Standard error per plot.

Grain, tonnes/hectare: 0.286 or 5.4% (18 d.f.)

# TABLES OF MEANS

GRAIN: TONNES/HECTARE

N RATE

	0	25	50	75	100	125	150	175	200	Mean
N TIME										
Single		5.23	5.19	5.13	5.67	5.39	5.46	5.51	5.69	5.41
Divided		5.30	5.62	5.28	5.28	5.12	5.06	4.92	5.34	5.24
Mean	5.16	5.26	5.41	5.21	5.47	5.25	5.26	5.21	5.51	5.31

# STANDARD ERRORS OF DIFFERENCES

N TIME	N RATE	N TIME N RATE
0.101	0.202	0.286

Mean D.M. % 78.6