

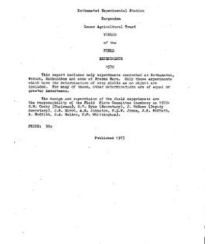
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# Yields of the Field Experiments 1972

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## 72/R/WS/3 Spring Wheat N Levels and Physiology

### Rothamsted Research

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72/R/WS/3

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 - Fosters Corner.

Sponsor: G.N. Thorne.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 2.41 x 13.7. Area harvested: 0.00094.

Treatments: All combinations of:-

1. Nitrogen: 0, 25, 50, 75, 100, 125, 150, 175, 200 kg N as 'Nitro-Chalk'.
2. Seed rates: 84, 179 kg.

Basal applications: 630 kg (0:14:28). Weedkiller: Bromoxynil, ioxynil, dichlorprop and MCPA ('Tetroxone' at 5.6 l in 340 l). Fungicides: Tridemorph at 0.53 kg in 340 l on 4 occasions and oxycarboxin ('Plantvax 75' at 2.0 kg in 340 l) on one occasion.

Seed: Kleiber.

Cultivations, etc.: Deep-tine cultivated twice: 12 Nov, 1971. Basal PK applied: 21 Mar, 1972. Seed drilled: 23 Mar. Test N applied: 1 May. Weedkiller applied: 17 May. Fungicides applied: tridemorph: 23 May, 2 June, 14 June, 26 June, oxycarboxin: 6 July. Combine harvested: 6 Sept. Previous crops: Fallow 1970, potatoes 1971.

NOTE: Plant counts were made after germination and shoot counts throughout the season. Plant samples were taken on 8 occasions for growth analysis. Soil moisture was measured on 4 occasions and light penetration on 3. Rates of photosynthesis of leaves were measured on 8 occasions and translocation on 3. Scores were made for mildew (*Erysiphe graminis*), % anthesis and yellowness at ripening.

Standard error per plot.

Grain, tonnes/hectare: 0.665 or 12.6% (17 d.f.)

72/R/WS/3

TABLE OF MEANS

GRAIN: TONNES/HECTARE

N: KG/HA

|                  | 0    | 25   | 50   | 75   | 100  | 125  | 150  | 175  | 200  | Mean |
|------------------|------|------|------|------|------|------|------|------|------|------|
| SEED RATE: KG/HA |      |      |      |      |      |      |      |      |      |      |
| 84               | 4.49 | 5.14 | 5.23 | 5.88 | 5.45 | 5.82 | 5.58 | 5.04 | 5.32 | 5.33 |
| 179              | 4.05 | 5.05 | 4.52 | 4.90 | 5.41 | 5.73 | 5.80 | 5.74 | 5.74 | 5.21 |
| Mean             | 4.27 | 5.10 | 4.88 | 5.39 | 5.43 | 5.77 | 5.69 | 5.39 | 5.53 | 5.27 |

STANDARD ERROR OF DIFFERENCES

| N     | SEED RATE | N | SEED RATE |
|-------|-----------|---|-----------|
| 0.471 | 0.222     |   | 0.665     |

Mean D.M. %: 78.4