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76/R/WW/6 Varieties and Rates of N - W. Wheat

Rothamsted Research

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76/R/WW/6

WINTER WHEAT

VARIETIES AND RATES OF N

Object: To study the physiological basis of the response of three varieties of winter wheat to a wide range of nitrogen rates - Long Hoos VI/VII 5.

Sponsor: G.N. Thorne.

Design: 2 randomised blocks of 24 plots.

Whole plot dimensions: 1.65 x 9.14.

Treatments: All combinations of:-

1. VARIETY Varieties:

CAPPELLE	Cappelle
HOBBIT	Hobbit
HUNTSMAN	Maris Huntsman

2. N Nitrogen fertiliser (kg N):

0	None
30	30
60	60
90	90
120	120
150	150
180	180
210	210

Basal applications: Manures: (0:14:28) at 880 kg. Weedkiller: Terbutryne at 2.2 kg in 340 l. Fungicide: Tridemorph at 0.53 kg in 340 l. Insecticide: Pirimicarb at 0.14 kg in 340 l.

Seed: Varieties sown at 200 kg.

Cultivations, etc.: Spring-time cultivated: 15 Sept, 1975. PK applied: 24 Sept. Ploughed: 29 Sept. Power harrowed and seed sown: 20 Oct. Weedkiller applied: 24 Oct. Test N applied: 6 May, 1976. Fungicide applied: 10 June. Insecticide applied: 22 June. Harvested by hand: 21 July. Previous crops: Maize 1974, oats 1975.

NOTE: Plant counts were made after germination and shoot counts throughout the season. Dry weights and leaf areas were determined on five occasions in June and July. Soil moisture was measured from February to July. Light penetration of the canopy was measured in June and July. Rates of photosynthesis and translocation were measured once in May, June and July. Photorespiration was measured ten times from May to July and dark-respiration of shoots and ears in June and July. The N contents of the green crop at flowering and of the grain and straw at maturity were measured.

76/R/WW/6

GRAIN TONNES/HECTARE

***** TABLES OF MEANS *****

	N	0	30	60	90	120	150	180	210	MEAN
VARIETY										
CAPPELLE		2.85	3.55	3.96	3.89	4.03	4.28	4.39	4.51	3.93
HOBBIT		3.54	3.99	4.66	4.75	4.94	5.07	5.81	4.95	4.71
HUNTSMAN		3.85	3.60	3.83	4.67	4.53	4.50	4.83	4.57	4.30
MEAN		3.41	3.71	4.15	4.44	4.50	4.62	5.01	4.68	4.32

***** STANDARD ERRORS OF DIFFERENCES OF MEANS *****

TABLE	VARIETY	N	VARIETY N
SED	0.104	0.170	0.295

***** STRATUM STANDARD ERRORS AND COEFFICIENTS OF VARIATION *****

STRATUM	DF	SE	CV%
BLOCK.WP	23	0.295	6.8

GRAIN MEAN DM% 90.4

PLOT AREA HARVESTED 0.00023