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78/R/WW/1 Varieties and N - W. Wheat

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78/R/WW/1

WINTER WHEAT

VARIETIES AND N

Object: To study the yields and flour quality of a selection of the newer varieties of winter wheat and the effects of nitrogen on them on land in rotation (pathogen free) and after cereal (pathogen infected) - Great Harpenden I (pathogen free RH) and Little Hoos (pathogen infected RD).

Sponsors: R. Moffitt, R.J. Gutteridge.

Design: 4 randomised blocks of 9 plots split into 4 (RD) and 1 block of 9 plots split into 4 (RH).

Whole plot dimensions: 4.27 x 33.2 (RH)
4.27 x 27.1 (RD)

Treatments: All combinations of:-

Whole plots

1. VARIETY	Varieties:
ARMADA	Armada
ATOU	Atou
FLANDERS	Flanders
HOBBIT	Hobbit
KADOR	Kador
MARDLER	Mardler
HUNTSMAN	Maris Huntsman
KINSMAN	Maris Kinsman
SPORTSMN	Sportsman

Sub plots

2. N		Nitrogen fertiliser (kg N):	
(RH)	(RD)	Gt. Harpenden I (RH)	Little Hoos (RD)
0	63	0	63 in spring
63	126	63 in spring	126 in spring
126	189	126 in spring	189 in spring
63+63	126+63	63 in spring + 63 at flowering	126 in spring + 63 at flowering

- NOTES: (1) Three blocks were sown on Gt. Harpenden I (RH). Two were waterlogged during the winter and were abandoned.
- (2) An identical experiment was sown at Woburn but was abandoned after severe damage by birds during the winter.
- (3) Spring N was applied as 'Nitro-Chalk 25'. N at flowering was applied as a mixture of ammonium nitrate and urea applied in 530 l (the solution contained 6% N). The total dressing was divided equally between two occasions: 13 June and 5 July.

Basal applications: Manures: Gt. Harpenden I (RH) and Little Hoos (RD): (0:20:20) at 320 kg. Weedkillers: Gt. Harpenden I (RH): Mecoprop with bromoxynil and ioxynil ('Brittox' at 3.5 kg) in 220 l. Little Hoos (RD): Dicamba with mecoprop and MCPA ('Banlene Plus' at 4.9 kg) in 220 l.

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Seed: Both sites: Varieties sown at 200 kg except Sportsman which had a smaller germination percentage and was sown at 260 kg.

Cultivations, etc.:-

Gt. Harpenden I (RH): PK applied: 1 Nov, 1977. Heavy spring-tine cultivated: 5 Nov. Spring-tine cultivated twice: 8 Nov, 15 Nov. Seed sown, spring-tine cultivated: 16 Nov. Spring N applied: 25 Apr, 1978. Weedkillers applied: 11 May. Combine harvested: 13 Sept. Previous crops: Oats 1976, potatoes 1977.

Little Hoos (RD): Ploughed: 23 Sept, 1977. PK applied: 1 Nov. Heavy spring-tine cultivated: 5 Nov. Seed sown: 10 Nov. Spring N applied: 28 Apr, 1978. Weedkillers applied: 8 May. Combine harvested: 14 Sept. Previous crops: Beans 1976, wheat 1977.

NOTE: Samples were taken in July, on Little Hoos (RD) only, for estimates of eyespot (*Pseudocercospora herpotrichoides*) and 'take-all' (*Gaeumannomyces graminis*).

78/R/WW/1 GREAT HARPENDEN I (RH) PATHOGEN FREE

GRAIN TONNES/HECTARE

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

N	0	63	126	63+63	MEAN
VARIETY					
ARMADA	3.87	6.31	7.57	6.85	6.15
ATOU	4.58	5.56	6.38	5.93	5.61
FLANDERS	3.64	5.62	6.81	6.40	5.62
HOBBIT	3.82	5.94	7.91	6.81	6.12
KADOR	4.23	6.13	7.57	5.37	5.82
MARDLER	4.57	6.44	7.05	7.22	6.32
HUNTSMAN	3.88	5.58	6.73	6.32	5.63
KINSMAN	3.23	5.12	6.44	5.95	5.19
SPORTSMN	4.24	6.35	7.11	6.53	6.06
MEAN	4.01	5.89	7.06	6.38	5.84

GRAIN MEAN DM% 83.9

SUB PLOT AREA HARVESTED 0.00217

78/R/WW/1 LITTLE HOOS (RD) PATHOGEN INFECTED

GRAIN TONNES/HECTARE

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

N	63	126	189	126+63	MEAN
VARIETY					
ARMADA	5.28	6.96	7.19	7.05	6.62
ATOU	5.34	6.45	6.69	6.62	6.28
FLANDERS	5.03	6.33	7.06	6.83	6.32
HOBBIT	5.79	6.84	6.44	6.58	6.41
KADOR	5.23	6.32	7.15	6.89	6.40
MARDLER	5.77	6.69	6.73	7.18	6.59
HUNTSMAN	5.52	6.69	7.82	6.93	6.74
KINSMAN	5.28	6.73	6.87	6.89	6.44
SPORTSMN	5.80	6.76	6.50	6.81	6.47
MEAN	5.45	6.64	6.94	6.86	6.47

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

TABLE	VARIETY	N	VARIETY N
SED	0.162	0.081	0.265
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY			0.242

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

STRATUM	DF	SE	CV%
BLOCK.WP	24	0.229	3.5
BLOCK.WP.SP	81	0.342	5.3

GRAIN MEAN DM% 79.4

SUB PLOT AREA HARVESTED 0.00172