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79/R/WW/1 and 79/W/WW/1 Varieties and N - W. Wheat

Rothamsted Research

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79/R/WW/1 and 79/W/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) - Rothamsted Fosters Corner (pathogen free RH) and Pastures (pathogen infected RD), Woburn Horsepool Lane Close East (pathogen free WH).

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

Design: 3 randomised blocks of 8 plots split into 4 (except Woburn 4 blocks).

Whole plot dimensions: 4.27 x 27.1.

Treatments: All combinations of:-

Whole plots

1. VARIETY	Varieties:
ARMADA	Armada
COPAIN	Copain
FLANDERS	Flanders
HUSTLER	Hustler
MARDLER	Mardler
HUNTSMAN	Maris Huntsman
SENTRY	Sentry
SPORTSMN	Sportsman

Sub plots

2. N	Nitrogen fertiliser (kg N):
(RH) (RD&WH)	Fosters Corner (RH) Pastures (RD) & Horsepool Lane Close East (WH)
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 + 126 in spring + 63 at flowering 63 at flowering

NOTE: Spring N was applied as 'Nitro-Chalk'. N at flowering was applied as aqueous urea (6% N) in two equal applications at 31.5 kg on 19 June, 12 July to Fosters Corner (RH) and Pastures (RD) and as 'Nitro-Chalk' in one application on 25 June, to Horsepool Lane Close East (WH).

Basal applications: Manures: Fosters Corner (RH), Pastures (RD) and Horsepool Lane Close East (WH): (0:20:20) at 310 kg (RH) and (RD) combine drilled, (WH) broadcast. Weedkillers: Fosters Corner (RH): Bromoxynil and ioxynil (as 'Oxytril CM' at 2.1 kg in 220 l). Pastures (RD): Mecoprop at 2.5 kg in 220 l. Horsepool Lane Close East (WH): Mecoprop, bromoxynil and ioxynil ('Brittox' at 2.5 kg in 250 l).

79/R/WW/1 and 79/W/WW/1

Seed: Fosters Corner (RH) and Pastures (RD): Varieties sown at 190 kg.
Horsepool Lane Close East (WH): Varieties sown at 180 kg.

Cultivations, etc.:-

Fosters Corner (RH): Heavy spring-tine cultivated twice, seed sown: 23 Oct, 1978. N applied: 3 May, 1979. Weedkillers applied: 14 May. Combine harvested: 31 Aug. Previous cropping: Beans 1977, potatoes 1978.

Pastures (RD): Ploughed: 17 Oct, 1978. Rotary harrowed, seed sown: 23 Oct. N and weedkiller applied: 8 May, 1979. Combine harvested: 31 Aug. Previous cropping: Beans 1977, wheat 1978.

Horsepool Lane Close East (WH): Heavy spring-tine cultivated twice: 11 Oct, 1978, 13 Oct. PK applied, spring-tine cultivated with crumbler attached: 17 Oct. Seed sown: 20 Oct. N applied: 26 Apr, 1979. Weedkillers applied: 15 May. Combine harvested: 31 Aug. Previous crops: Winter oats 1977, potatoes 1978.

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

79/R/WW/1 FOSTERS CORNER (RH) PATHOGEN FREE

GRAIN TONNES/HECTARE

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

N	0	63	126	63+63	MEAN
VARIETY					
ARMADA	4.14	6.49	6.82	6.65	6.03
COPAIN	3.32	6.12	7.08	6.35	5.72
FLANDERS	3.91	6.42	6.84	6.64	5.96
HUSTLER	3.68	6.48	6.39	6.68	5.81
MARDLER	4.04	6.27	6.05	6.30	5.67
HUNTSMAN	3.82	6.53	7.09	6.61	6.01
SENTRY	3.72	6.09	5.95	5.94	5.42
SPORTSMN	4.44	5.63	6.07	6.50	5.66
MEAN	3.88	6.25	6.54	6.46	5.78

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

TABLE	VARIETY	N	VARIETY
			N
SED	0.143	0.103	0.290
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY			0.292

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.175	3.0
BLOCK.WP.SP	48	0.358	6.2

GRAIN MEAN DM% 83.9

SUB PLOT AREA HARVESTED 0.00173

79/R/WW/1 PASTURES (RD) PATHOGEN INFECTED

GRAIN TONNES/HECTARE

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

N	63	126	189	126+63	MEAN
VARIETY					
ARMADA	5.13	6.03	5.06	5.31	5.38
COPAIN	4.95	6.30	6.63	6.26	6.03
FLANDERS	5.22	5.80	6.00	5.91	5.73
HUSTLER	5.34	6.22	5.49	5.87	5.73
MARDLER	5.32	5.87	5.37	5.34	5.48
HUNTSMAN	5.66	6.47	6.56	6.43	6.28
SENTRY	5.15	5.78	5.99	5.72	5.66
SPORTSMN	5.65	5.76	5.19	5.40	5.50
MEAN	5.30	6.03	5.79	5.78	5.72

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

TABLE	VARIETY	N	VARIETY N
SED	0.191	0.112	0.334
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF: VARIETY			0.316

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.234	4.1
BLOCK.WP.SP	48	0.387	6.8

GRAIN MEAN DM% 85.5

SUB PLOT AREA HARVESTED 0.00172

79/W/WW/1 HORSEPOOL LANE CLOSE EAST (WH) PATHOGEN FREE

GRAIN TONNES/HECTARE

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

N	63	126	189	126+63	MEAN
VARIETY					
ARMADA	4.93	4.78	4.45	4.82	4.75
COPAIN	4.17	4.56	4.21	4.13	4.27
FLANDERS	4.75	4.53	4.10	4.39	4.44
HUSTLER	4.57	4.25	3.76	4.02	4.15
MARDLER	4.36	4.27	3.36	3.37	3.84
HUNTSMAN	4.63	4.51	4.15	4.08	4.34
SENTRY	4.14	4.08	3.19	3.60	3.75
SPORTSMN	3.64	3.05	2.64	3.03	3.09
MEAN	4.40	4.25	3.73	3.93	4.08

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

TABLE	VARIETY	N	VARIETY
			N
SED	0.168	0.095	0.286
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
VARIETY			0.267

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.206	5.1
BLOCK.WP.SP	48	0.328	8.0

GRAIN MEAN DM% 82.8

SUB PLOT AREA HARVESTED 0.00173