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72/R/WW/2 Winter Wheat Weedkiller and Aqueous N

Rothamsted Research

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72/R/WW/2

WINTER WHEAT

WEEDKILLER AND AQUEOUS N

Object: To study the effects of a range of rates of solid or liquid nitrogen in combination with a range of rates of hormone weedkiller on foliar scorch and yield of winter wheat - Whittlocks.

Sponsors: S.C.R. Freeman, A. Perry.

Design: 3 randomised blocks of 28 plots.

Whole plot dimensions: 2.13 x 2.74. Area harvested: 0.00038.

Treatments: All combinations of:-

1. Weedkiller (dichlorprop/MCPA) (H): None (0), 1.4 (1), 2.8 (2), 4.2 (3) kg total a.e.
2. Forms of nitrogen: Solid, as 'Nitro-Chalk' (21% N) applied immediately after the weedkillers, liquid, as urea/ammonium nitrate (26% N) mixed with the weedkiller (L).
3. Nitrogen: 37.7, 75.3, 113.0 kg N, together with 4 extra treatments:
SN2 E H0, SN2 E H1, SN2 E H2, SN2 E H3 (N2 = 75.3 kg N) where 'Nitro-Chalk' was applied early (E) and the H0 plots were hand weeded.

Basal applications: 280 kg (0:20:20) combine drilled.

Seed: Joss Cambier dressed dieldrin, sown at 200 kg.

Cultivations, etc.: Deep-tine cultivated twice: 28 Oct, 1971. Seed combine drilled: 29 Oct. N applied to E plots: 17 Apr, 1972. Remaining N treatments and weedkiller applied: 2 May. HD plots hand weeded: 30 June. Cut by sickle: 29 Aug. Previous crops: Fallow 1970, potatoes 1971.

NOTE: Grain and straw samples were taken for determination of dry matter and samples retained for N analyses.

Standard error per plot.

Grain, tonnes/hectare: 0.403 or 7.3% (54 d.f.)

72/R/WW/2

TABLES OF MEANS

GRAIN: TONNES/HECTARE

	H: KG/HA				
	0	1.4	2.8	4.2	Mean
FORM					
S	5.45	5.70	5.44	5.54	5.53
L	5.32	5.70	5.54	5.26	5.46
N: KG/HA					
37.7	5.24	5.26	5.18	5.24	5.23
75.3	5.43	6.11	5.73	5.39	5.67
113.0	5.50	5.72	5.56	5.57	5.59
Mean	5.39	5.70	5.49	5.40	5.49

N: KG/HA

	37.7	75.3	113.0
FORM			
S	5.39	5.72	5.49
L	5.07	5.61	5.68

EXTRA (SN2 E)

H: KG/HA

0	5.28
1.4	5.47
2.8	6.20
4.2	5.84

STANDARD ERROR OF DIFFERENCES

H	FORM	N	H FORM	H N	EXTRA
0.134	0.095	0.116	0.227	0.264	0.329

Grand mean: 5.52

Mean D.M. %: 83.8

275

72/B/WW/2

STRAW: TONNES/HECTARE

	H: KG/HA				
	0	1.4	2.8	4.2	Mean
FORM					
S	8.32	8.19	8.16	8.06	8.18
L	7.89	7.93	7.80	7.34	7.74
N: KG/HA					
37.7	7.66	7.45	6.83	7.01	7.24
75.3	7.84	8.48	8.17	7.58	8.02
113.0	8.80	8.25	8.93	8.52	8.63
Mean	8.10	8.06	7.98	7.70	7.96

N: KG/HA

	37.7	75.3	113.0
FORM			
S	7.34	8.27	8.92
L	7.13	7.76	8.33

EXTRA (SN2 E)

H:KG/HA

0	8.68
1.4	8.58
2.8	8.63
4.2	8.60

Grand mean: 8.05

Mean D.M. %: 69.0