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86/R/WW/17 Foliar-applied Urea - W. Wheat

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86/R/WW/17

WINTER WHEAT

FOLIAR-APPLIED UREA

Object: To study the effects and recovery of foliar-applied urea given at different times on the yield and quality of grain - New Zealand.

Sponsors: D.S. Powlson, P.R. Poulton, D.S. Jenkinson, A. Penny, M.V. Hewitt.

Design: 3 randomised blocks of 12 plots.

Whole plot dimensions: 2.5 x 9.0.

Treatments:

N	Nitrogen rates, forms and times:
0+0	None
170+0	170 kg N as 'Nitro-Chalk' in spring
210+0	210 kg N as 'Nitro-Chalk' in spring
250+0	250 kg N as 'Nitro-Chalk' in spring
210+40/1	210 kg N as above + 40 kg N as urea, half on 4 June, 1986, half on 6 June
210+40/2	210 kg N as above + 40 kg N as urea, half on 11 June, half on 13 June
210+40/3	210 kg N as above + 40 kg N as urea, half on 16 June, half on 19 June
210+40/4	210 kg N as above + 40 kg N as urea, half on 24 June, half on 26 June
210+40/5	210 kg N as above + 40 kg N as urea, half on 1 July, half on 4 July
210+40/6	210 kg N as above + 40 kg N as urea, half on 7 July, half on 9 July
210+20/4	210 kg N as above + 20 kg N as urea, half on 24 June, half on 26 June
210+60/4	210 kg N as above + 60 kg N as urea, half on 24 June, half on 26 June

- NOTES: (1) The spring 'Nitro-Chalk' application was divided, 50 kg N on 18 Mar, 1986 the remainder on 29 Apr.
(2) All urea applications were labelled with 15N.

Basal applications: Weedkillers: Paraquat at 0.60 kg ion in 200 l. Clopyralid at 0.07 kg, bromoxynil octanoate at 0.34 kg, mecoprop at 2.5 kg and isoproturon at 2.1 kg in 200 l applied with the prochloraz and carbendazim. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg. Propiconazole at 0.12 kg in 200 l.

Seed: Avalon, sown at 190 kg.

Cultivations, etc.: Heavy spring-tine cultivated: 30 Aug, 1985. Paraquat applied: 24 Sept. Heavy spring-tine cultivated twice: 2 Oct. Rotary harrowed, seed sown: 4 Oct. Weedkillers with prochloraz and carbendazim applied: 30 Apr, 1986. Propiconazole applied: 26 June. Combine harvested: 22 Aug and 25 Aug. Previous crops: W. wheat 1984, w. oats 1985.

86/R/WW/17

NOTE: Crop samples were taken throughout the season for N analysis.

GRAIN TONNES/HECTARE

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

N	
0+0	5.63
170+0	9.64
210+0	9.60
250+0	9.45
210+40/1	9.26
210+40/2	9.45
210+40/3	9.43
210+40/4	9.74
210+40/5	9.37
210+40/6	9.76
210+20/4	9.51
210+60/4	9.14

MEAN 9.16

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

TABLE	N
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SED	0.248

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

STRATUM	DF	SE	CV%
BLOCK.WP	22	0.303	3.3

GRAIN MEAN DM% 78.4

STRAW TONNES/HECTARE

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

N	
0+0	3.82
170+0	6.09
210+0	6.07
250+0	6.32
210+40/1	5.89
210+40/2	5.83
210+40/3	5.75
210+40/4	6.36
210+40/5	6.07
210+40/6	6.32
210+20/4	5.94
210+60/4	5.89

MEAN 5.86

STRAW MEAN DM% 81.5

PLOT AREA HARVESTED 0.00074