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# Yields of the Field Experiments 1987

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87/R/WW/6 N and Dcd - W. Wheat  
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## 87/R/WW/6 N and Dcd - W. Wheat

### Rothamsted Research

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87/R/WW/6

WINTER WHEAT

N AND DCD

Object: To study the effects of a nitrification inhibitor in combination with different rates and timings of N on yield - Claycroft.

Sponsors: A. Penny, R.J. Darby, M.V. Hewitt.

Design: 2 randomised blocks of 30 plots.

Whole plot dimensions: 3.0 x 11.0.

Treatments: All combinations of:-

1. N INHIB                      Nitrification inhibitor added to nitrogen fertilizer:

NONE	None
DICYANDI	Dicyandiamide at 16 kg, divided equally between applications

2. N TIME                      Time and division of aqueous nitrogen fertilizer:

1 1 1 1	Quarter of N on each of 25 Feb, 1987, 30 Mar, 21 Apr, 19 May
2 2 - -	Half of N on each of 25 Feb, 30 Mar
2 - 2 -	Half of N on each of 25 Feb, 21 Apr
- 2 2 -	Half of N on each of 30 Mar, 21 Apr
4 - - -	All of N on 25 Feb
- - 4 -	All of N on 21 Apr

3. N RATE                      Amount of nitrogen fertilizer applied (kg N):

160	160
240	240

plus extra treatments given no nitrification inhibitor all combinations of:-

1. N TIMENC                      Time and division of nitrogen fertilizer as 'Nitro-Chalk':

- 2 2 -	Half of N on each of 30 Mar, 1987, 21 Apr
- - 4 -	All of N on 21 Apr

2. N RATENC                      Amount of nitrogen fertilizer applied (kg N):

160	160
240	240

plus one extra treatment

EXTRA

NONE                      No nitrogen fertilizer or inhibitor (duplicated)

NOTE: Nitrogen was applied as a mixture of urea and ammonium nitrate (28% N).

87/R/WW/6

Basal applications: Weedkillers: Paraquat at 0.60 kg ion in 200 l. Isoproturon at 2.5 kg in 200 l. Clopyralid at 0.05 kg and bromoxynil at 0.24 kg with mecoprop at 1.8 kg applied with the prochloraz and carbendazim in 200 l. Fungicides: Prochloraz at 0.40 kg and carbendazim at 0.15 kg. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.5 kg in 200 l.

Seed: Avalon, sown at 180 kg.

Cultivations, etc.: Heavy spring-tine cultivated: 5 Sept, 1986. Paraquat applied: 30 Sept. Disced: 2 Oct. Disced, rotary harrowed: 3 Oct. Seed sown: 4 Oct. Isoproturon applied: 31 Mar, 1987. Clopyralid, bromoxynil, mecoprop, prochloraz and carbendazim applied: 18 Apr. Propiconazole with carbendazim and maneb applied: 23 June. Combine harvested: 31 Aug. Previous crops: S. barley 1985, w. wheat 1986.

NOTE: The crop was sampled in mid-June to measure dry matter, ear numbers and N content. The N content of the grain was determined.

#### GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

N INHIB N TIME	NONE	DICYANDI	Mean
1 1 1 1	5.94	6.27	6.10
2 2 - -	5.96	6.03	6.00
2 - 2 -	5.88	5.96	5.92
- 2 2 -	5.91	5.94	5.92
4 - - -	5.75	6.11	5.93
- - 4 -	6.12	5.92	6.02
Mean	5.93	6.04	5.98
N RATE N TIME	160	240	Mean
1 1 1 1	5.84	6.37	6.10
2 2 - -	5.72	6.27	6.00
2 - 2 -	5.70	6.14	5.92
- 2 2 -	5.80	6.04	5.92
4 - - -	5.75	6.11	5.93
- - 4 -	5.93	6.11	6.02
Mean	5.79	6.17	5.98
N RATE N INHIB NONE DICYANDI	160	240	Mean
NONE	5.86	5.99	5.93
DICYANDI	5.72	6.35	6.04
Mean	5.79	6.17	5.98

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GRAIN TONNES/HECTARE

\*\*\*\*\* Tables of means \*\*\*\*\*

N INHIB	NONE		DICYANDI	
N RATE	160	240	160	240
N TIME				
1 1 1 1	5.93	5.95	5.76	6.78
2 2 - -	6.02	5.90	5.42	6.63
2 - 2 -	5.80	5.97	5.60	6.32
- 2 2 -	5.67	6.15	5.94	5.94
4 - - -	5.58	5.92	5.92	6.30
- - 4 -	6.17	6.08	5.69	6.15
N RATENC	160	240	Mean	
N TIMEC				
- 2 2 -	6.17	6.02	6.09	
- - 4 -	5.72	5.62	5.67	
Mean	5.95	5.82	5.88	
NONE	2.96			
Grand mean	5.77			

\*\*\* Standard errors of differences of means \*\*\*

Table	N INHIB	N TIME	N RATE	N TIMEC
s.e.d.	0.136	0.236	0.136	0.334
Table	N RATENC	N INHIB	N INHIB	N TIME
s.e.d.	0.334	N TIME	N RATE	N RATE
		0.334	0.193	0.334
Table	N TIMEC	N INHIB		
s.e.d.	N RATENC	N TIME		
		N RATE		
	0.472	0.472		

SED of NONE v any item in N TIMEC.N RATENC  
table or N INHIB.N TIME.N RATE table is 0.409

\*\*\*\*\* Stratum standard errors and coefficients of variation \*\*\*\*\*

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.472	8.2
GRAIN MEAN DM%	81.5		
PLOT AREA HARVESTED	0.00253		