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84/R/RA/2 Urea and Inhibitors - W. Oilseed Rape

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84/R/RA/2

WINTER OILSEED RAPE

UREA AND INHIBITORS

Object: To study the effects of adding nitrification inhibitors to prilled urea, applied to the seedbed and in spring on the yield and nitrogen uptake of w. oilseed rape - Whittlocks.

Sponsors: G.A. Rodgers, A. Penny, M.V. Hewitt.

Design: 2 randomised blocks of 17 plots.

Whole plot dimensions: 4.0 x 20.0.

Treatments: All combinations of:-

1. N INHIB Forms of nitrogen and nitrification inhibitor used for seedbed and spring nitrogen applications:

AN 0	Ammonium nitrate (as 'Nitro-Chalk'), no inhibitor
PU 0	Prilled urea, no inhibitor
PU DIC	Prilled urea and dicyandiamide
PU HYD	Prilled urea and hydroquinone

2. SEEDBD N Nitrogen rates (kg N) to seedbed (on 22 August, 1983):

0
50

3. SPRING N Nitrogen rates (kg N) and times in spring:

75E+75L	75 on 10 Feb and 75 on 21 Mar, 1984.
150M	150 on 5 Mar.

plus one extra treatment:

EXTRA

NONE No nitrogen fertilizer or inhibitor

NOTE: Dicyandiamide and hydroquinone were applied at 25 and 10 kg respectively in combination with SEEDBD N 0 and at 33 kg and 13 kg with SEEDBED N 50.

Basal applications: Weedkillers: TCA at 11 kg in 250 l. Propyzamide and 3, 6-dichloropicolinic acid (as 'Matrikerb' at 1.6 kg) in 500 l. Fungicide: Prochloraz at 0.50 kg in 250 l. Desiccant: Diquat at 0.6 kg ion with 'Agral', a wetting agent at 0.5 l, in 500 l.

Seed: Jet Neuf, dressed gamma HCH, thiram, fenpropimorph and iprodione, sown at 9.0 kg.

Cultivations, etc.: - Disced: 17 Aug, 1983. TCA applied: 23 Aug. Spring-tine cultivated: 24 Aug. Seed direct drilled: 25 Aug. 'Matrikerb' applied: 25 Oct. Fungicide applied: 18 Apr, 1984. Desiccant applied: 25 July. Combine harvested: 30 July. Previous crops: W. wheat 1982, w. barley 1983.

84/R/RA/2

- NOTES: (1) Dry matter and N contents of plants were measured in February, May and June
 (2) S contents of leaves were measured in May.
 (3) Oil and protein contents of grain were measured.

GRAIN (AT 90% DM) TONNES/HECTARE

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

SEEDBD N	0	50	MEAN	
N INHIB				
AN O	3.10	3.16	3.13	
PU O	2.87	2.83	2.85	
PU DIC	2.65	2.86	2.76	
PU HYD	3.09	3.04	3.07	
MEAN	2.93	2.97	2.95	
SPRING N	75E+75L	150M	MEAN	
N INHIB				
AN O	3.06	3.21	3.13	
PU O	2.92	2.78	2.85	
PU DIC	2.79	2.72	2.76	
PU HYD	3.06	3.08	3.07	
MEAN	2.96	2.95	2.95	
SPRING N	75E+75L	150M	MEAN	
SEEDBD N				
0	3.01	2.85	2.93	
50	2.90	3.04	2.97	
MEAN	2.96	2.95	2.95	
SEEDBD N	0	50		
SPRING N	75E+75L	150M	75E+75L	150M
N INHIB				
AN O	3.13	3.08	2.98	3.35
PU O	3.00	2.74	2.83	2.82
PU DIC	2.71	2.59	2.87	2.85
PU HYD	3.18	3.01	2.94	3.14
NONE	1.33			
GRAND MEAN	2.86			

84/R/RA/2

GRAIN (AT 90% DM) TONNES/HECTARE

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

TABLE	N INHIB	SEEDBD N	SPRING N	N INHIB SEEDBD N
SED	0.089	0.063	0.063	0.126
TABLE	N INHIB SPRING N	SEEDBD N SPRING N	N INHIB SEEDBD N SPRING N & NONE	
SED	0.126	0.089	0.179	

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

STRATUM	DF	SE	CV%
BLOCK.WP	16	0.179	6.3
GRAIN MEAN DM%	87.6		
PLOT AREA HARVESTED	0.00465		