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# Yields of the Field Experiments 1987

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ARC, Institute of Arable Crops Research  
Rothamsted Experimental Station  
Harpenden  
Herts  
SG8 5LR  
United Kingdom  
ARC 1988  
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## 87/R/WW/4 Factors Affecting Take-all - W. Wheat

### Rothamsted Research

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87/R/WW/4

WINTER WHEAT

FACTORS AFFECTING TAKE-ALL

Object: To study the effects of a range of factors on the incidence of take-all and on the yield of w. wheat - Summerdells I.

Sponsors: D. Hornby, G.L. Bateman, R.J. Gutteridge.

Design: A single replicate of 2 x 2 x 2 x 2 x 2.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. SOWDATE                      Dates of sowing:  
    25 SEPT                      25 September, 1986  
    31 OCT                        31 October
2. SOILFUNG                    Application of fungicide to the seedbed:  
    NONE                         None  
    NUARIMOL                    Nuarimol at 1.3 kg in 375 l
3. SEEDRESS                    Seed dressings:  
    ORGANO M                    Organo mercury  
    TRIADIME                    Triadimenol plus fuberidazole
4. AUTUMN N                    N application to the seedbed:  
    0                              None  
    60                             60 kg N as 'Nitro-Chalk' on 25 Sept, 1986 or 31 Oct  
                                      for successive SOWDATES
5. N TIME                      Spring application of 200 kg N:  
    SINGLE                        Single application on 16 Apr, 1987  
    DIVIDED                      40 kg early, on 13 Feb, 160 kg later, on 16 Apr
6. N FORM                      Forms of spring nitrogen:  
    SUL AMM                      Sulphate of ammonia  
    AMM NITR                     Ammonium nitrate as 'Nitro-Chalk'

NOTE: Nuarimol was applied at 1.3 kg in error for the intended rate of 1.0 kg.

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Paraquat at 0.60 kg ion in 200 l. Isoproturon at 2.5 kg with clopyralid at 0.07 kg, bromoxynil at 0.34 kg and mecoprop at 2.5 kg in 200 l. Fungicides: Carbendazim at 0.15 kg and prochloraz at 0.40 kg in 200 l. Propiconazole at 0.12 kg with carbendazim at 0.25 kg and maneb at 1.6 kg in 200 l.

Seed: Avalon, sown at 170 kg.

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Cultivations, etc.:- Heavy spring-tine cultivated, disced: 19 Aug, 1986. Chalk applied: 4 Sept. Paraquat applied: 11 Sept. Spring-tine cultivated: 24 Sept. SOWDATE 25 SEPT plots rotary harrowed, seed sown: 25 Sept. SOWDATE 31 OCT plots rotary harrowed, seed sown: 31 Oct. Remaining weedkillers applied: 16 Apr, 1987. Carbendazim and prochloraz applied: 7 May. Propiconazole, carbendazim and maneb applied: 1 July. Combine harvested: 4 Sept. Previous crops: W. wheat 1985, w. barley 1986.

NOTE: Plant samples were taken in mid-March, end of April and the beginning of July to assess take-all. Eyespot and sharp eyespot were assessed in July. Components of yield were measured and quality assessments were made on the grain.

GRAIN TONNES/HECTARE

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

SOILFUNG	NONE	NUARIMOL	Mean
SOWDATE			
25 SEPT	5.97	6.23	6.10
31 OCT	5.67	6.09	5.88
Mean	5.82	6.16	5.99
SEEDRESS	ORGANO M	TRIADIME	Mean
SOWDATE			
25 SEPT	6.13	6.06	6.10
31 OCT	5.88	5.88	5.88
Mean	6.01	5.97	5.99
SEEDRESS	ORGANO M	TRIADIME	Mean
SOILFUNG			
NONE	5.74	5.90	5.82
NUARIMOL	6.28	6.04	6.16
Mean	6.01	5.97	5.99
AUTUMN N	0	60	Mean
SOWDATE			
25 SEPT	5.85	6.34	6.10
31 OCT	5.71	6.05	5.88
Mean	5.78	6.20	5.99
AUTUMN N	0	60	Mean
SOILFUNG			
NONE	5.65	5.99	5.82
NUARIMOL	5.91	6.40	6.16
Mean	5.78	6.20	5.99

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GRAIN TONNES/HECTARE

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

AUTUMN N	0	60	Mean
SEEDRESS			
ORGANO M	5.79	6.23	6.01
TRIADIME	5.77	6.17	5.97
Mean	5.78	6.20	5.99
N TIME	SINGLE	DIVIDED	Mean
SOWDATE			
25 SEPT	6.03	6.16	6.10
31 OCT	5.87	5.88	5.88
Mean	5.95	6.02	5.99
N TIME	SINGLE	DIVIDED	Mean
SOILFUNG			
NONE	5.80	5.83	5.82
NUARIMOL	6.11	6.21	6.16
Mean	5.95	6.02	5.99
N TIME	SINGLE	DIVIDED	Mean
SEEDRESS			
ORGANO M	6.05	5.96	6.01
TRIADIME	5.85	6.08	5.97
Mean	5.95	6.02	5.99
N TIME	SINGLE	DIVIDED	Mean
AUTUMN N			
0	5.70	5.85	5.78
60	6.20	6.19	6.20
Mean	5.95	6.02	5.99
N FORM	SUL AMM	AMM NITR	Mean
SOWDATE			
25 SEPT	5.90	6.30	6.10
31 OCT	5.90	5.86	5.88
Mean	5.90	6.08	5.99
N FORM	SUL AMM	AMM NITR	Mean
SOILFUNG			
NONE	5.68	5.95	5.82
NUARIMOL	6.11	6.20	6.16
Mean	5.90	6.08	5.99

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GRAIN TONNES/HECTARE

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

N FORM	SUL	AMM	AMM	NITR	Mean
SEEDRESS					
ORGANO M	5.90		6.11		6.01
TRIADIME	5.89		6.05		5.97
Mean	5.90		6.08		5.99

  

N FORM	SUL	AMM	AMM	NITR	Mean
AUTUMN N					
0	5.63		5.93		5.78
60	6.16		6.23		6.20
Mean	5.90		6.08		5.99

  

N FORM	SUL	AMM	AMM	NITR	Mean
N TIME					
SINGLE	5.83		6.07		5.95
DIVIDED	5.96		6.08		6.02
Mean	5.90		6.08		5.99

  

SOWDATE	SOILFUNG	NONE	NUARIMOL
25 SEPT	SEEDRESS	ORGANO M	ORGANO M TRIADIME
31 OCT			
		5.95	5.99 6.32 6.13
		5.53	5.80 6.23 5.95

  

SOWDATE	SOILFUNG	NONE	NUARIMOL
25 SEPT	AUTUMN N	0	60 0 60
31 OCT			
		5.70	6.23 6.00 6.45
		5.59	5.74 5.82 6.36

  

SOWDATE	SEEDRESS	ORGANO M	TRIADIME
25 SEPT	AUTUMN N	0	60 0 60
31 OCT			
		5.86	6.40 5.84 6.28
		5.71	6.05 5.70 6.05

  

SOILFUNG	SEEDRESS	ORGANO M	TRIADIME
NONE	AUTUMN N	0	60 0 60
NUARIMOL			
		5.58	5.90 5.71 6.08
		6.00	6.56 5.83 6.25

  

SOWDATE	SOILFUNG	NONE	NUARIMOL
25 SEPT	N TIME	SINGLE	DIVIDED SINGLE DIVIDED
31 OCT			
		5.92	6.01 6.15 6.31
		5.68	5.65 6.07 6.11

  

SOWDATE	SEEDRESS	ORGANO M	TRIADIME
25 SEPT	N TIME	SINGLE	DIVIDED SINGLE DIVIDED
31 OCT			
		6.20	6.07 5.87 6.26
		5.90	5.86 5.84 5.91

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GRAIN TONNES/HECTARE

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

SOILFUNG	SEEDRESS	ORGANO M		TRIADIME	
	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
NONE		5.75	5.73	5.85	5.94
NUARIMOL		6.35	6.20	5.86	6.22

SOWDATE	AUTUMN N	0		60	
	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
25 SEPT		5.69	6.02	6.38	6.31
31 OCT		5.72	5.69	6.02	6.07

SOILFUNG	AUTUMN N	0		60	
	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
NONE		5.52	5.78	6.08	5.89
NUARIMOL		5.89	5.93	6.32	6.49

SEEDRESS	AUTUMN N	0		60	
	N TIME	SINGLE	DIVIDED	SINGLE	DIVIDED
ORGANO M		5.68	5.90	6.42	6.03
TRIADIME		5.73	5.81	5.98	6.35

SOWDATE	SOILFUNG	NONE			NUARIMOL				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
25 SEPT		5.70	6.23	6.09	6.36				
31 OCT		5.66	5.67	6.13	6.05				

SOWDATE	SEEDRESS	ORGANO M			TRIADIME				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
25 SEPT		5.84	6.43	5.96	6.16				
31 OCT		5.97	5.79	5.82	5.93				

SOILFUNG	SEEDRESS	ORGANO M			TRIADIME				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
NONE		5.56	5.92	5.80	5.99				
NUARIMOL		6.25	6.30	5.97	6.11				

SOWDATE	AUTUMN N	0			60				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
25 SEPT		5.49	6.21	6.30	6.39				
31 OCT		5.77	5.64	6.02	6.08				

SOILFUNG	AUTUMN N	0			60				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
NONE		5.40	5.90	5.96	6.01				
NUARIMOL		5.87	5.96	6.36	6.45				

SEEDRESS	AUTUMN N	0			60				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
ORGANO M		5.56	6.02	6.25	6.20				
TRIADIME		5.71	5.83	6.07	6.26				

SOWDATE	N TIME	SINGLE			DIVIDED				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
25 SEPT		5.75	6.31	6.04	6.28				
31 OCT		5.91	5.83	5.88	5.89				

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GRAIN TONNES/HECTARE

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

SOILFUNG	N TIME	SINGLE			DIVIDED				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
NONE			5.53		6.07		5.83		5.84
NUARIMOL			6.13		6.08		6.09		6.33

SEEDRESS	N TIME	SINGLE			DIVIDED				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
ORGANO M			5.95		6.15		5.86		6.07
TRIADIME			5.71		6.00		6.06		6.10

AUTUMN N	N TIME	SINGLE			DIVIDED				
	N FORM	SUL	AMM	AMM	NITR	SUL	AMM	AMM	NITR
0			5.44		5.97		5.82		5.89
60			6.22		6.18		6.10		6.28

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

Margins of two factor tables	0.173
Two factor tables	0.245
Three factor tables	0.347

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	19	0.693	11.6

GRAIN MEAN DM% 72.5

PLOT AREA HARVESTED 0.00272