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89/R/WW/4 Factors Affecting Take-all - W. Wheat

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89/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 - White Horse II.

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

Design: A single replicate of 2 x 2 x 2 x 2 x 4.

Whole plot dimensions: 3.0 x 10.0.

Treatments: All combinations of:-

1. **SOWDATE** Dates of sowing:
 22 SEPT 22 September, 1988
 28 OCT 28 October
2. **SOILFUNG** Application of fungicide to the seedbed:
 NONE None
 NUARIMOL Nuarimol at 1.1 kg in 375 l
3. **SEEDRATE** Seed rates:
 100 KG
 200 KG
4. **AUTUMN N** N application to the seedbed:
 0 None
 60 60 kg N as 'Nitro-Chalk' on 21 Sept, 1988 or 27 Oct
 for successive SOWDATES
5. **SPRING N** Nitrogen fertilizer (kg N) in spring, as 'Nitro-Chalk', applied 20 Apr, 1989:
 100
 150
 200
 250

Basal applications: Manures: (0:18:36) at 920 kg. Weedkillers: Chlortoluron at 3.5 kg in 200 l. Fluroxypyr at 0.20 kg in 200 l. Fungicide: Fenpropimorph at 0.75 kg in 200 l.

Cultivations, etc.: Heavy spring-tine cultivated: 17 Sept, 1988. PK applied: 19 Sept. Rotary harrowed: 20 Sept. Chlortoluron applied: 16 Nov. Fluroxypyr applied: 8 May 1989. Fungicide applied: 23 May. Combine harvested: 8 Aug. Previous crops: W. wheat 1987 and 1988.

NOTE: Plant samples were taken in mid-April and June to assess take-all, eyespot, sharp eyespot, damage by stem-boring larvae (April only) and brown foot rot (June only). Grain quality was measured.

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GRAIN TONNES/HECTARE

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

SOILFUNG	NONE	NUARIMOL	Mean		
SOWDATE					
22 SEPT	6.58	6.81	6.69		
28 OCT	6.91	6.99	6.95		
Mean	6.74	6.90	6.82		
SEEDRATE	100 KG	200 KG	Mean		
SOWDATE					
22 SEPT	6.68	6.70	6.69		
28 OCT	6.86	7.03	6.95		
Mean	6.77	6.87	6.82		
SEEDRATE	100 KG	200 KG	Mean		
SOILFUNG					
NONE	6.68	6.81	6.74		
NUARIMOL	6.86	6.93	6.90		
Mean	6.77	6.87	6.82		
AUTUMN N	0	60	Mean		
SOWDATE					
22 SEPT	6.55	6.84	6.69		
28 OCT	6.86	7.04	6.95		
Mean	6.70	6.94	6.82		
AUTUMN N	0	60	Mean		
SOILFUNG					
NONE	6.58	6.91	6.74		
NUARIMOL	6.82	6.97	6.90		
Mean	6.70	6.94	6.82		
AUTUMN N	0	60	Mean		
SEEDRATE					
100 KG	6.68	6.86	6.77		
200 KG	6.72	7.01	6.87		
Mean	6.70	6.94	6.82		
SPRING N	100	150	200	250	Mean
SOWDATE					
22 SEPT	6.52	6.79	6.76	6.71	6.69
28 OCT	6.88	7.01	6.99	6.92	6.95
Mean	6.70	6.90	6.87	6.81	6.82

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GRAIN TONNES/HECTARE

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

SPRING N	100	150	200	250	Mean
SOILFUNG					
NONE	6.51	6.88	6.93	6.66	6.74
NUARIMOL	6.89	6.92	6.82	6.97	6.90
Mean	6.70	6.90	6.87	6.81	6.82
SPRING N	100	150	200	250	Mean
SEEDRATE					
100 KG	6.70	6.83	6.85	6.70	6.77
200 KG	6.70	6.96	6.90	6.93	6.87
Mean	6.70	6.90	6.87	6.81	6.82
SPRING N	100	150	200	250	Mean
AUTUMN N					
0	6.49	6.74	6.84	6.74	6.70
60	6.91	7.06	6.90	6.89	6.94
Mean	6.70	6.90	6.87	6.81	6.82
	SEEDRATE	100 KG	200 KG		
SOWDATE	SOILFUNG				
22 SEPT	NONE	6.53	6.63		
	NUARIMOL	6.83	6.78		
28 OCT	NONE	6.83	6.98		
	NUARIMOL	6.89	7.09		
	AUTUMN N	0	60		
SOWDATE	SOILFUNG				
22 SEPT	NONE	6.41	6.75		
	NUARIMOL	6.68	6.93		
28 OCT	NONE	6.76	7.06		
	NUARIMOL	6.96	7.02		
	AUTUMN N	0	60		
SOWDATE	SEEDRATE				
22 SEPT	100 KG	6.49	6.87		
	200 KG	6.60	6.81		
28 OCT	100 KG	6.87	6.85		
	200 KG	6.85	7.22		
	AUTUMN N	0	60		
SOILFUNG	SEEDRATE				
NONE	100 KG	6.50	6.87		
	200 KG	6.67	6.95		
NUARIMOL	100 KG	6.86	6.86		
	200 KG	6.78	7.08		

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GRAIN TONNES/HECTARE

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

	SPRING N	100	150	200	250
SOWDATE	SOILFUNG				
22 SEPT	NONE	6.18	6.76	6.94	6.44
	NUARIMOL	6.87	6.81	6.57	6.98
28 OCT	NONE	6.85	6.99	6.91	6.88
	NUARIMOL	6.90	7.03	7.06	6.96
	SPRING N	100	150	200	250
SOWDATE	SEEDRATE				
22 SEPT	100 KG	6.56	6.71	6.87	6.58
	200 KG	6.48	6.86	6.64	6.83
28 OCT	100 KG	6.84	6.95	6.83	6.81
	200 KG	6.91	7.06	7.15	7.02
	SPRING N	100	150	200	250
SOILFUNG	SEEDRATE				
NONE	100 KG	6.48	6.92	6.81	6.52
	200 KG	6.55	6.83	7.05	6.79
NUARIMOL	100 KG	6.93	6.74	6.89	6.88
	200 KG	6.84	7.09	6.74	7.06
	SPRING N	100	150	200	250
SOWDATE	AUTUMN N				
22 SEPT	0	6.39	6.66	6.60	6.54
	60	6.66	6.91	6.91	6.88
28 OCT	0	6.58	6.82	7.08	6.94
	60	7.17	7.20	6.89	6.89
	SPRING N	100	150	200	250
SOILFUNG	AUTUMN N				
NONE	0	6.36	6.66	6.86	6.44
	60	6.67	7.09	6.99	6.88
NUARIMOL	0	6.61	6.81	6.82	7.04
	60	7.16	7.02	6.81	6.90
	SPRING N	100	150	200	250
SEEDRATE	AUTUMN N				
100 KG	0	6.44	6.72	6.88	6.67
	60	6.97	6.95	6.81	6.72
200 KG	0	6.53	6.76	6.80	6.81
	60	6.86	7.17	6.99	7.05

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GRAIN TONNES/HECTARE

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

SOWDATE	SOILFUNG	SEEDRATE	AUTUMN N
0.064	0.064	0.064	0.064
SPRING N	SOWDATE	SOWDATE	SOILFUNG
	SOILFUNG	SEEDRATE	SEEDRATE
0.090	0.090	0.090	0.090
SOWDATE	SOILFUNG	SEEDRATE	SOWDATE
AUTUMN N	AUTUMN N	AUTUMN N	SPRING N
0.090	0.090	0.090	0.128
SOILFUNG	SEEDRATE	AUTUMN N	SOWDATE
SPRING N	SPRING N	SPRING N	SOILFUNG
			SEEDRATE
0.128	0.128	0.128	0.128
SOWDATE	SOWDATE	SOILFUNG	SOWDATE*
SOILFUNG	SEEDRATE	SEEDRATE	SOILFUNG
AUTUMN N	AUTUMN N	AUTUMN N	SPRING N
0.128	0.128	0.128	0.180
SOWDATE	SOILFUNG	SOWDATE	SOILFUNG
SEEDRATE	SEEDRATE	AUTUMN N	AUTUMN N
SPRING N	SPRING N	SPRING N	SPRING N
0.180	0.180	0.180	0.180
SEEDRATE			
AUTUMN N			
SPRING N			
0.180			

* Only when comparing means with the same level of SOWDATE.SOILFUNG.NIT, where NIT has 2 levels. The first corresponding to levels 100, 250 of SPRING N and the second to the other 2 levels.

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	14	0.255	3.7
GRAIN MEAN DM%	89.1		
PLOT AREA HARVESTED	0.00226		