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79/R/CS/211 Factors Affecting Eyespot - Wheat

Rothamsted Research

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79/R/CS/211

FACTORS AFFECTING EYESPOT

Object: To study the effects of a range of treatments on the incidence of eyespot (*Pseudocercospora herpotrichoides*) and on the yield of wheat - Meadow.

Sponsors: R.D. Prew, A. Bainbridge.

The second year, wheat.

For previous year see 78/R/CS/211.

Design: 2 randomised blocks of 2 whole plots split into 6 sub plots split into 3 sub sub plots.

Whole plot dimensions: 94.0 x 9.14.

Treatments: All combinations of:-

Whole plots

- | | |
|----------|---|
| 1. STRAW | Treatment of straw in autumn 1977 & 1978: |
| BURNT | Burnt on site after spreading |
| CARTED | Baled and carted off |

Sub plots

- | | |
|-------------|--|
| 2. DRILLING | Cultivations and drilling in autumn 1977 & 1978: |
| CNVNTIAL | Cultivated and conventionally drilled |
| DIRECT | Uncultivated, direct drilled |
-
- | | |
|-------------|-------------------------------|
| 3. SOW DATE | Dates of sowing, autumn 1978: |
| 26 SEPT | 26 September |
| 12 OCT | 12 October |
| 10 NOV | 10 November |

Sub sub plots

- | | |
|-------------|-------------------------------|
| 4. SEEDRATE | Seed rates, autumn 1978 (kg): |
| 100 | |
| 150 | |
| 200 | |

NOTE: All treatments involving the combinations of STRAW CARTED & DRILLING DIRECT were severely infested with sterile brome grass and were cut green, no yields, on 18 June. Regrowth was cut again on 23 July.

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Basal applications: Manures: (10:23:23) at 250 kg, combine drilled. 'Nitro-Chalk' at 500 kg. Weedkillers: Paraquat at 0.56 kg ion in 220 l. Methabenzthiazuron at 1.6 kg in 220 l. Mecoprop at 2.5 kg in 220 l.

Seed: Kador.

Cultivations, etc.:— Straw treatments applied: 9–12 Sept, 1978. Unburnt stubble cut and removed: 20 Sept. Paraquat applied: 22 Sept. CNVNTIAL treatments ploughed, and CNVNTIAL 26 SEPT treatments rotary harrowed, seed sown for all 26 SEPT treatments, CNVNTIAL treatments tine harrowed in, DIRECT treatments disc harrowed in and rolled: 26 Sept. CNVNTIAL 12 OCT treatments rotary harrowed, all 12 OCT treatments sown, CNVNTIAL treatments tine harrowed in, DIRECT treatments disc harrowed in and both treatments rolled: 12 Oct. CNVNTIAL 10 NOV treatments rotary harrowed, all 10 NOV treatments sown, CNVNTIAL treatments tine harrowed in, DIRECT treatments disc harrowed in and both treatments rolled: 10 Nov. Methabenzthiazuron applied: 11 Nov. N applied: 18 Apr, 1979. Mecoprop applied: 9 May. Combine harvested: 30 Aug. Previous crops: Wheat 1977 and 1978.

NOTE: Plants were assessed for infection with eyespot and the incidence of eyespot spores was measured throughout the year. Take-all was assessed at harvest.

GRAIN TONNES/HECTARE

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

	SOW DATE	26 SEPT	12 OCT	10 NOV	MEAN
STRAW DRILLING					
BURNT CNVNTIAL		5.14	5.29	4.53	4.98
BURNT DIRECT		5.96	5.75	5.58	5.76
CARTED CNVNTIAL		5.94	5.44	4.90	5.43
MEAN		5.68	5.49	5.00	5.39
SEEDRATE	100	150	200	MEAN	
STRAW DRILLING					
BURNT CNVNTIAL		4.90	4.99	5.07	4.98
BURNT DIRECT		5.59	5.68	6.01	5.76
CARTED CNVNTIAL		5.36	5.48	5.44	5.43
MEAN		5.28	5.38	5.51	5.39
SEEDRATE	100	150	200	MEAN	
SOW DATE					
26 SEPT	5.73	5.52	5.78	5.68	
12 OCT	5.30	5.57	5.60	5.49	
10 NOV	4.81	5.05	5.14	5.00	
MEAN	5.28	5.38	5.51	5.39	

79/R/CS/211

GRAIN TONNES/HECTARE

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

	SEEDRATE	100	150	200
STRAW DRILLING	SOW DATE			
BURNT CNVTIAL	26 SEPT	5.29	4.99	5.14
	12 OCT	5.18	5.44	5.24
	10 NOV	4.23	4.55	4.82
BURNT DIRECT	26 SEPT	5.72	5.59	6.55
	12 OCT	5.61	5.79	5.85
	10 NOV	5.45	5.65	5.63
CARTED CNVTIAL	26 SEPT	6.18	5.99	5.65
	12 OCT	5.13	5.47	5.72
	10 NOV	4.77	4.97	4.96

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

TABLE	SOW DATE	SEEDRATE	STRAW* DRILLING	SOW DATE SEEDRATE
SED	0.255	0.127	0.255	0.312
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:				
SOW DATE				0.221

TABLE	STRAW* DRILLING SOW DATE	STRAW* DRILLING SEEDRATE	STRAW* DRILLING SEEDRATE SOW DATE
SED	0.442	0.312	0.541
EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:			
STRAW.DRILLING			0.221
STRAW.DRILLING.SOW DATE			0.382

* WITHIN THE SAME LEVEL OF STRAW ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	7	0.442	8.2
BLOCK.WP.SP.SSP	18	0.382	7.1

GRAIN MEAN DM% 87.7

SUB PLOT AREA HARVESTED

DRILLING CNVTIAL 0.00253
DRILLING DIRECT 0.00248