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00/R/WW/4 Fusarium Study - W. Wheat

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00/R/WW/4

WINTER WHEAT

FUSARIUM STUDY

Object: To assess effects of different inocula and inoculum sources on ear blight (*Fusarium culmorum*) development in mist-irrigated w. wheat - Little Knott I.

Sponsors: G.L. Bateman, J.F. Jenkyn, R.J. Gutteridge.

Design: 3 randomised blocks of 12 plots

Whole plot dimensions: 6.0 x 8.5.

Treatments: All combinations of:-

1. **T** Seed and *Fusarium* inocula:
 - D O Diseased seed, no inoculum
 - H O Healthy seed, no inoculum
 - H A Healthy seed, inoculated with *Fusarium culmorum* to soil in spring
 - H B Healthy seed, inoculated with *Fusarium culmorum* to ears at anthesis
 - H C Healthy seed, inoculated with *Microdochium nivale* to ears at anthesis
2. **IRRIGATN** Irrigation:
 - None
 - I Irrigated

Experimental diary:

11-Sep-99 : B : : Ploughed.
 12-Oct-99 : T : D O : Combination drilled, Charger, recleaned, at 380 seeds/m² with the Accord drill.
 : T : H O, H A, H B, H C : Combination drilled, Charger, tr. Sibutol, at 380 seeds/m² with the Accord drill.
 : B : : Rolled.
 29-Oct-99 : B : : Genesis at 5.0 kg.
 13-Dec-99 : B : : tm)Lexus 50 DF at 20 g in 200 l.
 : B : : tm)Stomp 400 SC at 2.5 l in 200 l.
 : B : : tm)Toppel 10 at 250 ml in 200 l.
 08-Mar-00 : B : : 34.5% N at 232 kg.
 21-Mar-00 : B : : Topik at 250 ml in 200 l.
 01-Apr-00 : B : : tm)BASF 3C Chlormequat 720 at 2.0 l in 200 l.
 : B : : tm)Moddus at 0.2 l in 200 l.
 07-Apr-00 : T : H A : Inoculated with colonised sterile oat grain, at 1.5 kg to the central 3 x 6 metre area of each plot.
 19-Apr-00 : B : : 34.5% N at 377 kg.
 12-May-00 : B : : tm)Ally at 30 g in 200 l.
 : B : : tm)Starane 2 at 0.5 l in 200 l.
 09-Jun-00 : T : I : Mist irrigated, completed 19-Jun-00.
 : T : H B : Inoculated ears.

00/R/WW/4

Experimental diary:

09-Jun-00 : T : H C : Inoculated ears.
17-Aug-00 : B : : Combine harvested.

Previous crops: W. wheat 1998, w. oats 1999.

NOTE: Ear samples were taken from selected plots during ripening to identify fungi on grains. Whole plant samples were taken in July to assess stem base fusarium. Fungal populations and mycotoxins were identified and quantified in fresh grain at harvest.

GRAIN TONNES/HECTARE

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

	T	D O	H O	H A	H B	H C	Mean
IRRIGATN							
-		7.00	7.01	7.07	6.52	7.29	6.98
I		6.83	7.07	6.85	5.79	6.91	6.71
Mean		6.92	7.04	6.96	6.15	7.10	6.85

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

IRRIGATN	T	IRRIGATN	T
	0.208	0.294	min.rep
0.120	0.180	0.255	max-min
		0.208	max.rep

IRRIGATN
min.rep Any of the remainder
max-min D O v any of the remainder
max.rep D O

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	24	0.360	5.3

GRAIN MEAN DM% 83.9

PLOT AREA HARVESTED 0.00144