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86/R/CS/299 Crops and Rhizoctonia - W. Barley

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86/R/CS/299

CROPS AND RHIZOCTONIA

Object: To study the effects of cropping and inoculation with Rhizoctonia isolates on subsequent infection and on yield of a sequence of crops - Meadow.

Sponsors: G.A. Hide, P.J. Read.

The fourth year, w. barley.

For previous years see 84-85/R/CS/299.

Design: 2 randomised blocks of 2 whole plots split into 4 sub plots split into 4 sub sub plots.

Whole plot dimensions: 3.0 x 43.0.

Treatments: All combinations of:-

Whole plots

1. PREVCROP(84) Crops in 1984 (all potatoes in 1985):

W WHEAT
W BARLEY

Sub plots

2. PREVCROP(83) Crops in 1983:

FALLOW B	Fallow, cultivations as for s. barley
FALLOW P	Fallow, cultivations as for potatoes
POTATOES	Potatoes
S BARLEY	S. barley

Sub sub plots

3. INOC(83) Inoculum in 1983, applied during seedbed cultivations:

NONE	None
RHIZ C W	Rhizoctonia cerealis from wheat
RHIZ S B	Rhizoctonia solani from barley
RHIZ S P	Rhizoctonia solani from potatoes

Basal applications: Manures: 'Nitram' at 290 kg. Weedkillers: Clopyralid at 0.07 kg, bromoxynil octanoate at 0.34 kg, mecoprop at 2.5 kg and isoproturon at 2.1 kg in 200 l applied with the prochloraz and carbendazim. Fungicides: Prochloraz at 0.4 kg and carbendazim at 0.15 kg. Triadimenol at 0.062 kg in 500 l.

Seed: Igri, dressed flutriafol, ethirimol and thiabendazole, sown at 150 kg.

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Cultivations, etc.:- Heavy spring-tine cultivated: 21 Oct, 1985 and 22 Oct. Rotary harrowed, seed sown: 23 Oct. N applied: 25 Apr, 1986. Weedkillers with prochloraz and carbendazim applied: 30 Apr. Triadimenol applied: 17 June. Combine harvested: 8 Aug.

NOTE: Plants were sampled at the end of May to assess Rhizoctonia and other root diseases. Plant heights were measured.

GRAIN TONNES/HECTARE

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

PREVCROP (83)	FALLOW B	FALLOW P	POTATOES	S BARLEY	MEAN
PREVCROP (84)					
W WHEAT	6.89	6.83	7.29	6.94	6.99
W BARLEY	6.75	6.57	7.01	6.92	6.81
MEAN	6.82	6.70	7.15	6.93	6.90
INOC(83)	NONE	RHIZ C W	RHIZ S B	RHIZ S P	MEAN
PREVCROP (84)					
W WHEAT	7.16	6.95	6.80	7.04	6.99
W BARLEY	6.88	6.93	6.65	6.80	6.81
MEAN	7.02	6.94	6.72	6.92	6.90
INOC(83)	NONE	RHIZ C W	RHIZ S B	RHIZ S P	MEAN
PREVCROP (83)					
FALLOW B	7.03	6.77	6.72	6.75	6.82
FALLOW P	6.75	6.63	6.54	6.88	6.70
POTATOES	7.14	7.34	6.95	7.18	7.15
S BARLEY	7.15	7.01	6.69	6.88	6.93
MEAN	7.02	6.94	6.72	6.92	6.90
PREVCROP (84)	INOC(83)	NONE	RHIZ C W	RHIZ S B	RHIZ S P
W WHEAT	PREVCROP (83)				
	FALLOW B	7.21	6.73	6.82	6.79
	FALLOW P	6.90	6.74	6.51	7.16
	POTATOES	7.25	7.40	7.21	7.30
	S BARLEY	7.28	6.92	6.65	6.92
W BARLEY	FALLOW B	6.86	6.81	6.62	6.70
	FALLOW P	6.61	6.51	6.56	6.61
	POTATOES	7.02	7.29	6.69	7.06
	S BARLEY	7.02	7.11	6.74	6.83

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GRAIN TONNES/HECTARE

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

TABLE	PREVCROP(83)	INOC(83)	PREVCROP(84)* PREVCROP(83)
SED	0.113	0.100	0.160

TABLE	PREVCROP(84)* INOC(83)	PREVCROP(83) INOC(83)	PREVCROP(84)* PREVCROP(83) INOC(83)
SED	0.141	0.207	0.292

EXCEPT WHEN COMPARING MEANS WITH SAME LEVEL(S) OF:
 PREVCROP(83) 0.200
 PREVCROP(84).PREVCROP(83) 0.283

* WITHIN THE SAME LEVEL OF PREVCROP(84) ONLY

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

STRATUM	DF	SE	CV%
BLOCK.WP.SP	6	0.160	2.3
BLOCK.WP.SP.SSP	24	0.283	4.1

GRAIN MEAN DM% 85.8

SUB PLOT AREA HARVESTED 0.00231