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81/R/CS/202 Effects of Phialophora - W. Wheat

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81/R/CS/202

EFFECTS OF PHIALOPHORA

Object: To study the effects of ryegrass, oats and wheat, and of soil inoculation on populations of *Phialophora radiculicola* graminicola (Prg) and on take-all (*Gaeumannomyces graminis*) and yield of following w. wheat crops - Whittlocks.

Sponsors: E. Lester, D.B. Slope, R.J. Gutteridge.

The fifth year, w. wheat.

For previous years see 77-80/R/CS/202.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 2.67 x 6.10.

Treatments:

CRP INOC	Crops in 1977 (all w. wheat 1978 to 1981) and inoculation in 1977 and 1978:
GRASS	Ryegrass
GRASS(I)	Ryegrass + Prg inoculum 1977
OATS	S. oats
OATS(I)	S. oats + Prg inoculum 1977
OATS I	S. oats + Prg inoculum to 1978 w. wheat
OATS DI	S. oats + dummy inoculum (sand) to 1978 w. wheat
WHEAT	S. wheat
WHEAT(I)	S. wheat + Prg inoculum 1977

NOTE: *Phialophora* inoculum was a culture macerated in coarse sand. Coarse sand alone was applied as dummy inoculum.

Basal applications: Manures: (0:20:20) at 250 kg, combine drilled. 'Nitro-Chalk' at 480 kg. Weedkillers: Glyphosate at 1.5 l in 250 l. Chlortoluron at 5.6 l in 250 l. Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.7 l) in 250 l.

Seed: Flanders, sown at 200 kg.

Cultivations, etc.: - Glyphosate applied: 1 Sept, 1980. Ploughed: 30 Sept. Rotary harrowed, seed sown: 1 Oct. Chlortoluron applied: 3 Oct. N applied: 13 Apr, 1981. 'Brittox' applied: 23 Apr. Combine harvested: 24 Aug.

NOTE: Estimates of take-all were made in April and early July. Bio-assays of soils for take-all were made after harvest.

81/R/CS/202

GRAIN TONNES/HECTARE

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

CRP INOC	
GRASS	6.47
GRASS(I)	6.19
OATS	5.74
OATS(I)	5.74
OATS I	6.40
OATS DI	6.45
WHEAT	7.03
WHEAT(I)	6.95
MEAN	6.37

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

TABLE	CRP INOC
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SED	0.411

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

STRATUM	DF	SE	CV%
BLOCK.WP	14	0.503	7.9
GRAIN MEAN DM%	81.2		
PLOT AREA HARVESTED	0.00116		