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Yields of the Field Experiments 1977

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77/R/CS/202 Effects of Phialophora Inoculation - Ryegrass, S. Wheat, Oats

Rothamsted Research

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77/R/CS/202

EFFECTS OF PHIALOPHORA

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

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

The first year, ryegrass, oats, wheat.

Design: 3 randomised blocks of 8 plots.

Whole plot dimensions: 2.67 x 6.10.

Treatments:

CRP INOC	Crop and inoculation:
GRASS	Ryegrass
GRASS I	Ryegrass + Prg inoculum
OATS	Spring oats (triplicated)
OATS I	Spring oats + Prg inoculum
WHEAT	Spring wheat
WHEAT I	Spring wheat + Prg inoculum

- NOTES: (1) Yields were not taken from ryegrass.
(2) Agar cultures of *Phialophora radicumicola* graminicola macerated in sand were broadcast on I plots, before power harrowing, on 12 Apr, 1977.
(3) Persistent wet weather delayed the sowing of ryegrass.
(4) The site chosen had already been sown to winter oats in autumn 1976. This crop was destroyed in early spring 1977.

Basal applications: Manures: All crops: (10:24:24) at 250 kg, combine drilled with winter oats. 'Nitro-Chalk' at 300 kg, combine drilled with the spring oats and wheat.

Seed: Ryegrass: RVP, sown at 22 kg.
Oats: Manod, sown at 200 kg.
Wheat: Sappo, sown at 190 kg.

Cultivations, etc.: - Winter oats sown: 20 Nov, 1976. Ploughed: 3 Mar, 1977. rolled: 4 Apr. All plots power harrowed and spring-tine cultivated: 7 Apr. All plots power harrowed: 12 Apr. Spring oats and wheat sown: 13 Apr. N applied to ryegrass plots: 2 May. Ryegrass plots power harrowed and sown: 27 May. Oats combine harvested: 10 Sept. Wheat combine harvested: 16 Sept. Grass cut: 21 Sept. Previous crops: Wheat 1975, barley 1976, oats autumn 1976 - spring 1977.

NOTE: Soils were bio-assayed for *Phialophora* in March and August. Wheat and oats were sampled in July, ryegrass in August to assess take-all and *Phialophora*.

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GRAIN TONNES/HECTARE

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

CRP INOC	OATS	OATS I	WHEAT	WHEAT I	MEAN
	3.72	3.76	4.39	4.15	3.91

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

TABLE	CRP INOC
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SED	0.380 MIN REP
	0.310 MAX-MIN

	CRP INOC
MAX-MIN	OATS V ANY OF REMAINDER
MIN REP	ANY OF REMAINDER

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

STRATUM	DF	SE	CV%
BLOCK.WP	12	0.465	11.9
GRAIN MEAN DM%	82.6		
PLOT AREA HARVESTED	0.00119		