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Yields of the Field Experiments 1980

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80/R/CS/202 Effects of Phialophora

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80/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* (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 fourth year, w. wheat.

For previous years see 77-79/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 1980) 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 wheat |
| OATS DI | S. oats + dummy inoculum (sand) to 1978 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 260 kg, combine drilled. 'Nitro-chalk' at 480 kg. Weedkillers: Methabenzthiazuron at 3.1 kg in 220 l. Mecoprop with bromoxynil and ioxynil (as 'Brittox' at 3.5 l) in 250 l. Insecticide: Demeton-s-methyl at 0.24 kg in 250 l.

Seed: Flanders, sown at 200 kg.

Cultivations, etc.: - Ploughed: 19 Sept, 1979. Rotary harrowed: 6 Oct. Seed sown, methabenzthiazuron applied: 8 Oct. N applied: 11 Apr, 1980. 'Brittox' applied: 24 Apr. Insecticide applied: 24 June. Combine harvested: 21 Aug.

NOTE: Estimates of take-all and *Phialophora* were made on the crop in April and early July. Bio-assays of soils for take-all and *Phialophora* were made after harvest, before ploughing.

80/R/CS/202

GRAIN TONNES/HECTARE

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

| | |
|----------|------|
| CRP INOC | |
| GRASS | 6.77 |
| GRASS(I) | 6.71 |
| OATS | 5.83 |
| OATS(I) | 6.36 |
| OATS I | 6.60 |
| OATS DI | 5.92 |
| WHEAT | 6.54 |
| WHEAT(I) | 6.26 |
| MEAN | 6.37 |

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

| TABLE | CRP INOC |
|-------|----------|
| SED | 0.544 |

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

| STRATUM | DF | SE | CV% |
|---------------------|---------|-------|------|
| BLOCK.WP | 14 | 0.666 | 10.4 |
| GRAIN MEAN DM% | 82.6 | | |
| PLOT AREA HARVESTED | 0.00116 | | |