ROTHAMSTED RESEARCH

# Yields of the Field Experiments 1987

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## 87/R/BE/1 Control of Chocolate Spot and Rust - W. Beans

### Rothamsted Research

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87/R/BE/1

WINTER BEANS

CONTROL OF CHOCOLATE SPOT AND RUST

Object: To compare maneb plus mancozeb with benomyl plus chlorothalonil for the control of chocolate spot (Botrytis spp.) and rust (Uromyces viciae-fabae) on w. beans sown at two densities - Great Harpenden I.

Sponsors: J. McEwen, D.P. Yeoman.

Design: 2 randomised blocks of 18 plots.

Whole plot dimensions: 6.0 x 10.0.

Treatments: All combinations of:-

1. SEEDRATE — Seeds sown per square metre:

   12
   36

2. CS FUNG — Fungicides applied to control chocolate spot until first rust pustules seen:

   NONE — None
   BEN+CHL — Benomyl at 0.50 kg plus chlorothalonil at 1.0 kg on 18 June, 1987
   MAN+MANC — Maneb plus mancozeb each at 0.80 kg on 18 June

3. RUSTFUNG — Fungicides applied to control rust first applied as soon as rust pustules seen:

   NONE — None
   BEN+CHL — Benomyl at 0.50 kg plus chlorothalonil at 1.0 kg on 9 July, 5 Aug
   MAN+MANC — Maneb plus mancozeb each at 0.80 kg on 9 July, 5 Aug

NOTES: (1) All spray treatments were applied in 200 l.
(2) All benomyl plus chlorothalonil treatments had a wetting agent ('Agral' at 0.06 l) added.

Basal applications: Manures: Chalk at 5.0 t. Weedkillers: Paraquat at 0.80 kg ion in 500 l. Simazine at 1.2 kg with propyzamide at 0.85 kg in 500 l. Insecticide: Deltamethrin at 0.0079 kg in 200 l on two occasions. Desiccant: Diquat at 0.60 kg ion and a wetting agent ('Agral' at 0.3 l) in 300 l.

Seed: Bourdon, dressed with thiram and thiabendazole.

Cultivations, etc.:- Heavy spring-tine cultivated: 10 Sept, 1986. Chalk applied: 24 Sept. Paraquat applied: 6 Nov. Seed broadcast and ploughed in: 12 Nov. Simazine and propyzamide applied: 5 Jan, 1987. Insecticide applied: 22 Apr, 27 May. Desiccant with wetting agent applied: 21 Sept. Combine harvested: 25 Sept. Previous crops: W. wheat 1985 and 1986.

NOTE: Establishment counts were made in autumn, disease assessments were made in July and August and components of yield were measured at maturity.



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87/R/BE/1

GRAIN TONNES/HECTARE

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

| CS FUNG SEEDRATE | NONE | BEN+CHL | MAN+MANC | Mean |
|---|---|---|---|---|
| 12 | 3.12 | 2.78 | 3.40 | 3.10 |
| 36 | 5.19 | 5.27 | 5.11 | 5.19 |
| Mean | 4.15 | 4.02 | 4.25 | 4.14 |

| RUSTFUNG SEEDRATE | NONE | BEN+CHL | MAN+MANC | Mean |
|---|---|---|---|---|
| 12 | 2.88 | 3.21 | 3.20 | 3.10 |
| 36 | 4.63 | 5.25 | 5.68 | 5.19 |
| Mean | 3.76 | 4.23 | 4.44 | 4.14 |

| RUSTFUNG CS FUNG | NONE | BEN+CHL | MAN+MANC | Mean |
|---|---|---|---|---|
| NONE | 3.76 | 4.25 | 4.45 | 4.15 |
| BEN+CHL | 3.68 | 3.90 | 4.48 | 4.02 |
| MAN+MANC | 3.83 | 4.54 | 4.39 | 4.25 |
| Mean | 3.76 | 4.23 | 4.44 | 4.14 |

| SEEDRATE | CS FUNG | RUSTFUNG | NONE | BEN+CHL | MAN+MANC |
|---|---|---|---|---|---|
| 12 | NONE | | 2.89 | 3.17 | 3.29 |
| | BEN+CHL | | 2.78 | 2.76 | 2.80 |
| | MAN+MANC | | 2.96 | 3.72 | 3.51 |
| 36 | NONE | | 4.62 | 5.33 | 5.61 |
| | BEN+CHL | | 4.59 | 5.05 | 6.17 |
| | MAN+MANC | | 4.69 | 5.37 | 5.26 |

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

| Table | SEEDRATE | CS FUNG | RUSTFUNG | SEEDRATE CS FUNG |
|---|---|---|---|---|
| s.e.d. | 0.156 | 0.191 | 0.191 | 0.269 |

| Table | SEEDRATE RUSTFUNG | CS FUNG RUSTFUNG | SEEDRATE CS FUNG RUSTFUNG |
|---|---|---|---|
| s.e.d. | 0.269 | 0.330 | 0.467 |

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

| Stratum | d.f. | s.e. | cv% |
|---|---|---|---|
| BLOCK.WP | 17 | 0.467 | 11.3 |

GRAIN MEAN DM% 78.0

PLOT AREA HARVESTED 0.00310



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