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# Yields of the Field Experiments 1987

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## Field 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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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

87/R/BE/4

SPRING BEANS

VARIETIES, ROW SPACING AND PLANT HEALTH

Object: To compare four varieties of spring-sown field beans at two row spacings and two amounts of pest and disease control - Pastures.

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

Design: 3 randomised blocks of 16 plots.

Whole plot dimensions: 6.0 x 10.0.

Treatments: All combinations of:-

1. VARIETY                      Varieties sown at 60 seeds per square metre:  
    ALFRED  
    MINDEN  
    TICOL  
    TROY
2. ROW SPAC                    Spacing between rows (cm):  
    12  
    48
3. PATHCONT                    Pest and pathogen control:  
    STANDARD                    None  
    ENHANCED                    Deltamethrin at 0.0079 kg in 500 l on 22 Apr, 1987,  
  and in 200 l on 27 May  
  Chlorothalonil at 1.0 kg with benomy1 at 0.50 kg and  
  a wetting agent ('Agral' at 0.06 l) in 200 l on  
  18 June  
  Maneb at 0.80 kg and mancozeb at 0.80 kg in 200 l on  
  9 July

Basal applications: Weedkillers: Trietazine at 1.2 kg and simazine at 0.17 kg in 500 l.

Cultivations, etc.:- Ploughed: 27 Oct, 1986. Spring-tine cultivated, rotary harrowed, seed sown: 17 Mar, 1987. Weedkillers applied: 30 Mar. Combine harvested: 21 Sept. Previous crops: W. wheat 1985 and 1986.

NOTE: Establishment counts were made. Disease assessments were made in July and August. At maturity, plant heights, lodging and components of yield were assessed.

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GRAIN TONNES/HECTARE

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

ROWSPACE	12	48	Mean
VARIETY			
ALFRED	4.88	4.87	4.88
MINDEN	4.47	4.36	4.42
TICOL	3.79	3.68	3.73
TROY	3.95	3.71	3.83
Mean	4.28	4.16	4.22

PATHCONT	STANDARD	ENHANCED	Mean
VARIETY			
ALFRED	3.82	5.94	4.88
MINDEN	3.88	4.95	4.42
TICOL	2.90	4.57	3.73
TROY	3.47	4.20	3.83
Mean	3.52	4.91	4.22

PATHCONT	STANDARD	ENHANCED	Mean
ROWSPACE			
12	3.53	5.03	4.28
48	3.51	4.80	4.16
Mean	3.52	4.91	4.22

	ROWSPACE	12	ENHANCED	48	STANDARD	ENHANCED
VARIETY	PATHCONT	STANDARD	ENHANCED	STANDARD	ENHANCED	
ALFRED		3.86	5.91	3.78	5.96	
MINDEN		3.98	4.96	3.78	4.93	
TICOL		2.87	4.72	2.94	4.42	
TROY		3.39	4.51	3.54	3.88	

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

Table	VARIETY	ROWSPACE	PATHCONT	VARIETY ROWSPACE
s.e.d.	0.123	0.087	0.087	0.174

Table	VARIETY PATHCONT	ROWSPACE PATHCONT	VARIETY ROWSPACE PATHCONT
s.e.d.	0.174	0.123	0.246

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

Stratum	d.f.	s.e.	cv%
BLOCK.WP	30	0.302	7.2
GRAIN MEAN DM%	76.4		
PLOT AREA HARVESTED	0.00315		