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# Yields of the Field Experiments 1998

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## Spring Beans

### Rothamsted Research

Rothamsted Research (1999) *Spring Beans* ; Yields Of The Field Experiments 1998, pp 160 - 165 -  
DOI: <https://doi.org/10.23637/ERADOC-1-52>

98/R/BES/2

**SPRING BEANS**

**WEEDS AND WATER IN SPRING BEANS**

**Object:** To investigate the effects of soil moisture on the competitive effects of weeds in beans - Fosters.

**Sponsor:** P.J.W. Lutman.

**Design:** 3 replicates of 2 plots split into 5 sub-plots.

**Whole plot dimensions:** 3.0 x 10.0.

**Treatments:**

Whole plots

1. **IRRIGATN**           Irrigation:

|   |           |
|---|-----------|
| O | None      |
| I | Irrigated |

Sub-plots

2. **WEEDS**

|    |                       |
|----|-----------------------|
| -  | None                  |
| M1 | Mustard, low density  |
| M2 | Mustard, high density |
| O1 | Oats, low density     |
| O2 | Oats, high density    |

**Experimental diary:**

27-Aug-97 : B : Ploughed and furrow pressed.  
28-Jan-98 : B : Barclay Gallup at 1.5 l with Frigate at 0.5 l in 200 l.  
13-Feb-98 : B : Parable at 1.5 l with Scythe LC at 0.5 l and Luxon  
Non-Ionic Wetter at 0.1 l in 200 l.  
23-Mar-98 : B : Heavy spring-tine cultivated, rotary harrowed.  
24-Mar-98 : B : Rotary harrowed, Alfred, undressed, drilled at 40 seeds  
per m<sup>2</sup>.  
24-Mar-98 : T : **WEEDS** M2: Emergo broadcast at 160 seeds per m<sup>2</sup>.  
              : T : **WEEDS** M1: Emergo broadcast at 40 seeds per m<sup>2</sup>.  
              : T : **WEEDS** O2: Dula broadcast at 160 seeds per m<sup>2</sup>.  
              : T : **WEEDS** O1: Dula broadcast at 40 seeds per m<sup>2</sup>.  
08-Apr-98 : B : Draza at 5.5 kg.  
14-Apr-98 : B : Doff Metaldehyde Slug Killer Mini Pellets at 15.0 kg.  
22-Apr-98 : B : Cyperkill 10 at 250 ml in 200 l.  
08-May-98 : B : Folio 575 SC at 2.0 l in 200 l.  
              : B : Fastac at 200 ml in 260 l.  
14-May-98 : B : Cyperkill 10 at 250 ml in 200 l.  
28-May-98 : B : Fastac at 200 ml in 200 l.  
12-Jun-98 : B : Folio 575 SC at 2.0 l in 200 l.

98/R/BES/2

**Experimental diary:**

19-Jun-98 : B : Aphox at 280 g in 200 l.  
14-Sep-98 : B : Combine harvested.

Previous crops: W. rape 1996, w. wheat 1997

- NOTES:** (1) Plant populations were assessed in April. Plant samples of crop and weeds were taken in April to measure leaf area and dry weight. In June and July samples were taken to measure height and dry weight. At harvest weight of crop and weed seeds were recorded.
- (2) Only irrigated plots were harvested.

**GRAIN TONNES/HECTARE**

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

| <b>WEEDS</b> |      |
|--------------|------|
| -            | 6.76 |
| M1           | 5.26 |
| M2           | 5.07 |
| O1           | 5.21 |
| O2           | 4.50 |
| Mean         | 5.36 |

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

| <b>WEEDS</b> |       |
|--------------|-------|
|              | 0.587 |

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

| Stratum             | d.f.    | s.e.  | cv%  |
|---------------------|---------|-------|------|
| BLOCK.WP            | 8       | 0.719 | 13.4 |
| GRAIN MEAN DM% *    |         |       |      |
| PLOT AREA HARVESTED | 0.00020 |       |      |

98/R/BES/3

SPRING BEANS

MUSTARD COMPETITION IN BEANS

**Object:** To study the effects of time of weed (mustard) emergence on the growth and yield of spring beans - Long Hoos I/II.

**Sponsor:** P.J.W. Lutman.

**Design:** 3 randomised blocks of 4 x 2 + 2 plots.

**Whole plot dimensions:** 3.0 x 10.0.

**Treatments:**

1. **DENSITY** Target population density, plants per m<sup>2</sup>:

|    |     |
|----|-----|
| M1 | 40  |
| M2 | 80  |
| M3 | 160 |
| M4 | 320 |

2. **SOW TIME** Date of sowing mustard:

|    |                                       |
|----|---------------------------------------|
| S1 | 24-Mar-98 (with crop)                 |
| S2 | 07-Apr-98 (80 degree days after crop) |

Extra plot

|              |                   |
|--------------|-------------------|
| <b>EXTRA</b> | None (duplicated) |
|--------------|-------------------|

**Experimental diary:**

28-Aug-97 : B : Ploughed and furrow pressed.  
28-Jan-98 : B : Barclay Gallup at 1.5 l with Frigate at 0.5 l in 200 l.  
13-Feb-98 : B : Parable at 1.5 l with Scythe LC at 0.5 l and Luxon Non-Ionic Wetter at 0.1 l in 200 l.  
23-Mar-98 : B : Heavy spring-tine cultivated. Rotary harrowed.  
24-Mar-98 : T : **DENSITY** M1, M2, M3, M4 **SOW TIME** S1: Mustard seed broadcast.  
                  : B : Rotary harrowed, Alfred, undressed, drilled at 40 seeds per m<sup>2</sup>.  
07-Apr-98 : T : **DENSITY** M1, M2, M3, M4 **SOW TIME** S2: Mustard seed broadcast.  
08-Apr-98 : B : Draza at 5.5 kg.  
14-Apr-98 : B : Doff Metaldehyde Slug Killer Mini Pellets at 15.0 kg.  
22-Apr-98 : B : Cyperkill 10 at 250 ml in 200 l.  
08-May-98 : B : Folio 575 SC at 2.0 l in 200 l. Fastac at 200 ml in 260 l.  
14-May-98 : B : Cyperkill 10 at 250 ml in 200 l.  
28-May-98 : B : Fastac at 200 ml in 200 l.  
12-Jun-98 : B : Folio 575 SC at 2.0 l in 200 l.  
19-Jun-98 : B : Aphox at 280 g in 200 l.

98/R/BES/3

**Experimental diary:**

24-Jul-98 : B : Alto 240 EC at 330 ml with Bravo 500 at 1.5 l in 200 l.  
 14-Sep-98 : B : Combine harvested.

Previous crops: W. rape 1996, w. wheat 1997

**NOTE:** Emergence counts and cover assessments were made in April and May.  
 Plants were sampled monthly May to September for dry weight and leaf area.

**GRAIN TONNES/HECTARE**

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

| SOW TIME       | S1   | S2   | Mean |
|----------------|------|------|------|
| <b>DENSITY</b> |      |      |      |
| M1             | 5.70 | 6.13 | 5.92 |
| M2             | 5.55 | 5.64 | 5.59 |
| M3             | 4.88 | 5.74 | 5.31 |
| M4             | 4.34 | 5.47 | 4.91 |
| Mean           | 5.12 | 5.75 | 5.43 |
| <b>EXTRA</b>   | 6.71 |      |      |

Grand mean 5.69

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

| DENSITY | SOW TIME | DENSITY<br>SOW TIME |
|---------|----------|---------------------|
| 0.327   | 0.231    | 0.463               |

SED for comparing **EXTRA** with any item in **DENSITY.SOW TIME** table is 0.401

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

| Stratum  | d.f. | s.e.  | cv%  |
|----------|------|-------|------|
| BLOCK.WP | 19   | 0.567 | 10.0 |

GRAIN MEAN DM% \*

PLOT AREA HARVESTED 0.00020

98/R/BES/5

SPRING BEANS

INDUCTION AGENT AND SPRING BEANS

**Object:** To test in the field an 'induction agent' on the control of aphids in spring beans - Highfield VI.

**Sponsor:** B.J. Pye, J. Martin, L.E. Smart.

**Design:** 6 x 6 quasi-complete Latin square.

**Whole plot dimensions:** 6.0 x 6.0.

**Treatments:**

|                 |                                      |
|-----------------|--------------------------------------|
| <b>TREATMNT</b> | Induction agent                      |
| C               | None (triplicated)                   |
| R1              | AJH/8/158 on 22-May-98               |
| R2              | AJH/8/158 on 22-May-98 and 01-Jun-98 |
| R3              | AJH/8/158 on 22-May-98 and 19-Jun-98 |

**NOTE:** Agent AJH/8/158 is under commercial development, composition undisclosed.

**Experimental diary:**

05-Nov-97 : B : Farmyard manure at 25 t.  
07-Nov-97 : B : Ploughed.  
06-Feb-98 : B : Rotary harrowed, Alfred, undressed, drilled at 40 seeds per m<sup>2</sup>.  
13-Feb-98 : B : Opogard 500 SC at 3.4 l in 200 l.  
08-May-98 : B : Standon Bentazone at 1.5 l in 200 l. Folio 575 SC at 2.0 l in 200 l.  
22-May-98 : **T** : **TREATMNT** R1, R2, R3: AJH/8/158 at 50 g in 200 l.  
01-Jun-98 : **T** : **TREATMNT** R2: AJH/8/158 at 50 g in 200 l.  
08-Jun-98 : B : Folio 575 SC at 2.0 l in 200 l.  
19-Jun-98 : **T** : **TREATMNT** R3: AJH/8/158 at 50 g in 200 l.  
16-Jul-98 : B : Bavistin DF at 0.5 l with Bravo 500 at 2.0 l in 200 l.  
28-Aug-98 : B : Combine harvested.

Previous crops: W. barley 1996 and 1997.

**NOTE:** Aphid infestation was assessed weekly mid-May to end of June.

98/R/BES/5

GRAIN TONNES/HECTARE

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

TREATMNT

|    |      |
|----|------|
| C  | 2.04 |
| R1 | 2.10 |
| R2 | 2.05 |
| R3 | 1.99 |

|      |      |
|------|------|
| Mean | 2.04 |
|------|------|

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

TREATMNT

|       |         |
|-------|---------|
| 0.358 | min.rep |
| 0.292 | max-min |

TREATMNT

|         |                          |
|---------|--------------------------|
| min.rep | Any of the remainder     |
| max-min | C v any of the remainder |

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

| Stratum | d.f. | s.e.  | cv%  |
|---------|------|-------|------|
| ROW.COL | 22   | 0.620 | 30.4 |

GRAIN MEAN DM% 80.2

PLOT AREA HARVESTED 0.00138