

CONFIDENTIAL\*

**MORLEY RESEARCH CENTRE****Spring field beans****Seedrates for cv Caspar***G M Palmer and D B Stevens***Summary**

A range of plant populations averaging from 5 to 34 plants/m<sup>2</sup> was established at a heavy land site in Suffolk. Volunteer rape appeared to affect the results from the lowest crop densities and response to increasing seedrate is likely to be greater than would have been observed in the absence of weeds. The optimum plant density was 33.6/m<sup>2</sup>, the highest population tested. There was no significant difference between 11.8 and 23.6 cm row spacings.

**Object**

To determine the optimum plant density and row width for the white flowered, low-tannin variety Caspar.

**Method****Treatments**

All combinations of:

| <b>Nominal Seedrate</b> |                      |         |       |          | <b>Row width</b>    |         |
|-------------------------|----------------------|---------|-------|----------|---------------------|---------|
| 12.5                    | seeds/m <sup>2</sup> | (target | plant | density= | 10/m <sup>2</sup> ) | 11.8 cm |
| 18.8                    | "                    | "       | "     | "        | 15                  | 23.6 cm |
| 25.0                    | "                    | "       | "     | "        | 20                  |         |
| 37.5                    | "                    | "       | "     | "        | 30                  |         |
| 50.0                    | "                    | "       | "     | "        | 40                  |         |
| 62.5                    | "                    | "       | "     | "        | 50                  |         |

Additional plots of Victor and Vasco were included (11.8 cm row width) at seedrates of 18.8, 37.5 and 62.5 seeds/m<sup>2</sup>.

The treatments were arranged in randomised blocks with 4 replicates.

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\*Not for publication without the Director's consent. This report deals primarily with only one year's work, so any conclusions given are provisional.

Plots were sown on 9 March using a standard Nordsten drill into a good seedbed prepared by conventional farm power-harrow on ploughed land at a heavy soil site in Suffolk. The plots received normal farm inputs of fertiliser, herbicides and pesticides applied overall. The trial was harvested by combine on 9 September.

### Results and discussion

Crop establishment was low, averaging 37% of seed sown. The trial area was also affected by the growth of volunteer oilseed rape, especially in low population plots, this appeared to be competitive with the beans and also deleterious as a contaminant at harvest.

#### Yields

Meaned over both row widths, increasing plant density gave yield increases up to 33.6 plants/m<sup>2</sup>, the highest population tested, however the yields at lower densities may have been reduced by the rape competition. Row width had no significant effect on yield.

In comparison with Caspar, Victor and Vasco gave similar yields at equivalent populations.

Table 1. *Grain yield and economics*

| Seedrate<br>(seeds/m <sup>2</sup> )              | Seedrate<br>(kg/ha) | Plant popn.<br>(plants/m <sup>2</sup> ) | Yield<br>(t/ha at 85% dm) | Margin over<br>seed cost (£/ha)         |
|--|---------------------|---|---------------------------|---|
| <b>Plant density</b>                             |                     |   |                           |   |
| 15.5   | 72                  | 4.8                                     | 1.22                      | 104                                     |
| 23.5   | 109                 | 7.6                                     | 2.28                      | 201                                     |
| 31.2   | 145                 | 11.9                                    | 2.66                      | 230                                     |
| 46.7   | 217                 | 15.0                                    | 3.60                      | 306                                     |
| 62.5   | 290                 | 22.7                                    | 4.23                      | 351                                     |
| 78.0   | 362                 | 33.6                                    | 5.19                      | 429                                     |
| LSD  |                     |   | 0.967                     |   |
| <b>Row width</b>                                 |                     |   |                           |   |
| 11.8 cm  | 199                 | 18.4                                    | 3.31                      | 281                                     |
| 23.6 cm  | 199                 | 13.5                                    | 3.09                      | 259                                     |
| LSD  |                     |   | NS                        |   |
| <b>Additional treatments</b>                     |                     |   |                           |   |
| Victor   |                     | 6.4                                     | 2.83                      |   |
|  |                     | 12.3                                    | 4.10                      |   |
|  |                     | 19.3                                    | 3.95                      |   |
| Vasco  |                     | 9.1                                     | 2.46                      |   |
|  |                     | 15.5                                    | 4.09                      |   |
|  |                     | 22.9                                    | 4.99                      | LSD (for comparisons with Caspar) 1.255 |
| SE per plot(22 df) for comparisons within Caspar |                     |   | ±0.807                    |   |
| SE as %GM  |                     |   | 25.2                      |   |

(Grain valued at £100/t and seed costed at £250/t)