

MORLEY RESEARCH CENTRE

Winter oilseed rape

Management of double-low varieties, 1994

G M Palmer and D B Stevens

Summary

In a season when disease levels were relatively low, both varieties showed some phoma leaf spot in the winter and spring. Light leaf spot was also present as stem lesions at and after flowering. Bristol was generally higher yielding than Capricorn and was less responsive to nitrogen fertilizer and fungicides. Bristol did not respond to fungicides but Capricorn gave a significant yield increase of 0.38 t/ha to both low input and intensive fungicide programmes. The optimum nitrogen level for Bristol was 140 kg/ha but for Capricorn there appeared to be a response up to 220 kg/ha in the presence of fungicides.

Object

To evaluate the effects of nitrogen level and fungicides on the performance of Bristol, a new high yielding double-low variety of winter oilseed rape.

Method

The comparison involved all combinations of two varieties grown at a range of nitrogen levels and with three levels of fungicide input as given in Tables 1 & 2.

*Not for publication without the Director's consent.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

Table 1. *Treatments*

Varieties	Spring nitrogen (kg/ha)	Fungicides
Capricorn	60	Nil
Bristol	100	Low input programme
	140	Intensive programme
	180	
	220	

Table 2. *Details of fungicide programmes (rates of product/ha)*

Fungicides(l/ha):	Low input	Intensive
Autumn (26 Nov)	-	Sportak Alpha at 1.1 l (carbendazim + prochloraz; 100 + 267 g ai/l)
E.Spring (29 March)	Sportak45 at 0.7 l (prochloraz; 450 g ai/l)	Sportak Alpha at 0.75 l
E.Flower (9 May)	Compass at 1.5 l (iprodione + thiophanate methyl; 167 + 167 g ai/l)	Ronilan at 1.0 l (vinclozolin; 500 g ai/l)
L.Flower (11 June)	-	Rovral at 2.0 l (iprodione; 255 g ai/l)

The trial was sown on 7 September 1993 with treatments arranged factorially in randomised blocks with 4 replicates. All plots received normal farm husbandry inputs of herbicides and insecticides applied overall by farm equipment operated from wheelings established between adjacent replicates.

Plant populations were assessed on 12 November. The trial was harvested by combining directly from the standing crop on 2 August following desiccation by Roundup (glyphosate, 360 g ai/l) applied at 3 l/ha on 14 July.

Results and discussion

Crop growth

Both varieties established well and overall plant populations were satisfactory with 62 and 66 plants/m² respectively for Bristol and Capricorn. There was a contrast between the varieties in general vigour and growth habit. Bristol grew more rapidly and taller than Capricorn, eventually resulting in some lodging at maturity. Capricorn did not lodge and was later in reaching maturity.

Disease

The trial was affected by a low level of phoma leaf spot in the winter which became widespread in the spring. There was also a low incidence of light leaf spot manifest mainly as stem lesions. *Sclerotinia* and *alternaria* were not significant diseases in this trial.

Yield

Overall Bristol gave the highest yields (Table 3). This result agrees with other comparative data from this site. The influence of desiccation on the performance of late maturing varieties like Capricorn cannot be excluded and the use of glyphosate at an appropriate stage of maturity in Capricorn was intended to minimise this effect.

Only Capricorn showed any response to the fungicide programmes, with a significant yield increase from the low input programme and no extra benefit from the intensive fungicide programme.

Both varieties gave a significant response to 140 kg/ha of nitrogen but Capricorn appeared to be more responsive, its yield increasing up to 220 kg/ha N. Soil analysis from sampling 0-90 cm depth in the trial area showed an estimated 72 kg/ha of available soil mineral nitrogen. Compared with previous experience at this site this is a relatively high figure which helps to explain the lack of response to added nitrogen above 140 kg/ha by Bristol.

Table 3. Yield (t/ha at 91% dm)

	Capricorn	Bristol	Means
<i>Total spring nitrogen (kg/ha)</i>			
60	3.35	3.86	3.60
100	3.94	4.21	4.08
140	4.31	4.71	4.51
180	4.50	4.84	4.67
220	4.69	4.52	4.60
LSD	0.322		0.228
<i>Fungicide programme (all nitrogen rates)</i>			
Nil	3.90	4.46	4.18
Low input	4.28	4.42	4.35
Intensive	4.29	4.40	4.35
LSD	0.249		0.176
Mean	4.16	4.43	
LSD	0.144		
SE per plot (df) = ± 0.341 ; CV(%) = 8.0			

Appendix

The following information is presented as an appendix which is available on request:

- Field details
- Method
- Experiment diary

Field details

Site: The Rosery Farm, Little Stonham, Suffolk
Field reference: TM121605

Crop: Winter oilseed rape

Previous crop: 1993 Fallow (Set Aside)
 1992 Wheat
 1991 Wheat

Soil type and series: Sandy clay loam (Beccles Series)

Soil analysis:

	pH	P	K	Mg
(11 Feb 1994)	8.0	23(2)	203(2)	46(1)

Seed: As supplied **Seedrate:** 115 seeds/m²

Date sown: 7 September 1993

Nutrients applied:

November 1993	80 kg/ha K20
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Cultivations:

August 1993	plough and press
3 September	harrow

Applications to crop:

Date	GS	Item (rate/ha)
11 September	-	Treflan (trifluralin, 480 g ai/l) at 1.9 l
5 November	1,4	Butisan S (metazachlor, 500) at 0.9 l +Cypermethrin (cypermethrin, 100) at 0.27 l
1 February	1,10	Cypermethrin at 0.25 l
19 April	3,5	Cypermethrin at 0.25 l
13 May	4,5	Fastac (alpha-cypermethrin, 100) at 0.15 l
14 July	6,5	Roundup (glyphosate, 360) at 3.0 l

Method

Plot layout

Plots were sown with oilseed rape at 115 seeds/m² using an Oyjord drill. The treated plot area comprised 3 drilled plots arranged side by side, each 12 m long and 1.68 m wide from outside row to outside row (14 rows at 12.8 cm spacing) separated by a gap of 57 cm.

Common treatments such as fertiliser, insecticides, and herbicides were applied across all plots with farm machinery using wheelings, 12 m apart. For harvest purposes, plot length was reduced to 9.5 m.

Harvest details

Plots were separated by hand prior to being desiccated by Roundup at the brown seed stage and were later harvested using a Sampo 2010 combine which was modified for plot work and used electronic weighing (Novatech M864 Loadmeter). Only the central drill width from each plot was used to provide harvest data. The trial was harvested by replicate.

Post harvest determinations

Moisture content was determined (at NIAB) by taking a 200 g subsample, oven drying for 40 hours at 100-102°C and weighing at an ambient temperature.

Experiment diary

Date	GS	Activity
7 September 1993	-	Oilseed rape drilled
12 November	1,4-1,6	Plant population counts
26 November	1,4-1,8	Applied fungicide to intensive fungicide treatments
10 February 1994	2,0	Soil N samples taken, 0 - 90 cm Farm applied 60 kg/ha nitrogen (as sulph./amm.) overall
29 March	2,3/3,3	Hand applied remainder of nitrogen treatments Applied "green bud" fungicide treatments as appropriate
9 May	4,1	Applied "early flower" fungicide treatments
11 June	5,5	Applied Rovral (iprodione, 255 g ai/ha) at 2 l/ha by farm sprayer to marked plots
14 July	6,5-6,7	Roundup (glyphosate, 360 g ai/l) at 3 l/ha
3 August	10	Trial harvested
5 August		Moisture determinations (NIAB Cambridge)