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MORLEY RESEARCH CENTRE

Winter oilseed rape

Supplementary variety comparison, 1994

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Summary

Twenty five varieties of oilseeed rape were compared under a regime of intensive fungicide use. At crop maturity there was some lodging in several varieties including Bristol, Falcon and Gazelle which gave the highest yields. The stiffest varieties included Capricorn, Express, Rocket and Apex which gave only intermediate yields. Gaspard, a high erucic acid variety, was also stiff and produced a yield similar to Rocket.

Object

To evaluate the relative performance of a range of winter oilseed rape varieties grown under "best local practice" on a heavy soil.

Method

The comparison comprised a total of 25 varieties including 5 standards (=control varieties) and one high erucic acid variety as listed in Table 1.

Table 1. *Varieties*

(C)Apex	Alaska	CDH8/91	Eurol	Lineker
(C)Envol	Apache	Chieftain	Express	Mandarin
(C)Falcon	Ark	Cobol	Gazelle	Rocket
(C)Libravo	Bristol	Cobra	Idol	Symbol
(C)Samourai	Capricorn	Comanche	Inca	Gaspard*

(C=control)
*High erucic acid variety

*Not for publication without the Director's consent.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

The varieties were sown on 7 September 1993 in plots arranged in randomised incomplete blocks with 4 replicates. All plots received normal crop husbandry inputs applied overall by farm equipment operated from wheelings established between adjacent replicates. The inputs included fertilizers, herbicide, insecticides and a full fungicide programme (Table 2).

Table 2. *Fungicide programme*

Date	GS	Fungicide (rate/ha)
11 February	1,10	Sportak Alpha at 1.1 l (carbendazim+prochloraz, 100+267 g,ai/l)
12 April	3,5	Sportak Alpha at 1.1 l
11 May	4,5	Compass at 3.0 l (iprodione + thiophanate methyl, 167+167 g,ai/l)
11 June	5,9	Rovral at 2.0 l (iprodione, 255 g,ai/l)

Plant populations were assessed on 12 November. Crop lodging was scored on 23 June and the trial was harvested by combining directly from the standing crop on 3 August following desiccation by Roundup (glyphosate,360 g ai/l) applied at 3 l/ha on 14 July.

Results and discussion

In general plant establishment and early growth were satisfactory. Samourai showed a noticeable lack of general vigour which was in contrast to its behaviour in previous years. Overall the trial appeared to be fairly uniform.

As a result of the intensive fungicide programme used disease levels were low. Elsewhere at this site there was considerable phoma leaf spot (*Phoma lingam)* which appeared to develop rapidly as temperatures rose in the spring.

There was considerable lodging in some varieties, notably Idol, Gazelle, Eurol and Bristol. In contrast Capricorn, Express, Rocket, Apex and the high erucic acid variety Gaspard showed little lodging.

Bristol, Ark, Falcon and Gazelle produced the highest yields, Inca and Samourai the lowest.

These results confirm the ability of Bristol to produce consistently high yields over a range of seasons, despite its stem weakness which tends to produce some lodging on fertile sites. The performance of Apex, which had previously been on a par with Bristol, appears to have been reduced by a below average establishment. The results also demonstrated that Gaspard does appear to have adequate agronomic features for it to be a suitable variety to grow for high erucic acid oil on a fertile site.

Table 3. *Establishment, lodging and yield (t/ha at 91% dm)*

Variety	Plant /m²	Lodging score 23 June	Seed yield	Relative yield (% controls)
(C)Apex	50	7.0	4.96	100
(C)Envol	72	4.5	4.98	100
(C)Falcon	73	4.8	5.17	104
(C)Libravo	74	4.8	4.80	96
(C)Samourai	63	6.5	4.46	89
Alaska	65	4.5	5.15	103
Apache	65	6.3	4.53	91
Ark	70	5.3	5.15	104
Bristol	61	4.3	5.24	105
Capricorn	65	7.8	4.64	93
CDH8/91	74	5.0	4.68	94
Chieftain	68	5.5	4.95	99
Cobol	76	5.8	5.02	101
Cobra	66	4.5	4.87	98
Comanche	70	6.0	4.66	94
Eurol	81	4.3	4.54	91
Express	74	7.5	4.49	90
Gazelle	80	4.0	5.16	104
Idol	86	3.8	4.86	98
Inca	75	6.5	4.36	88
Lineker	55	6.8	5.09	102
Mandarin	71	5.5	4.86	98
Rocket	58	7.3	4.91	99
Symbol	68	6.5	5.00	100
Gaspard	57	7.0	4.88	98
LSD(P=0.05)	17.6	1.49	0.338	6.8
SE per plot	±12.4(72 df)	±1.05(72 df)	±0.119(60 df)	2.4
CV(%)	18.1	18.7	4.7	

Lodging score scale 0-9, where 9 = no lodging, 0 = fully lodged

Acknowledgements

The help provided by the host farmer, W. Hamilton, and by colleagues at Morley for assistance in carrying out the experiment, especially at harvest, is gratefully acknowledged.

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
10 February 1994	58 kg/ha N(Sulph of amm)
18 March	73 kg/ha N(amm nit+urea)
31 March	70 kg/ha N(" " ")
Total N	**201 kg/ha**

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
11 february	1,10	Sportak Alpha (carbendazim+prochloraz, 100+267) at 1.1 l
12 April	3,5	Sportak Alpha at 1.1 l
19 April	3,5	Cypermethrin at 0.25 l
11 May	4,5	Compass (iprodione + thiophanate methyl, 167 + 167) at 3.0 l
13 May	4,5	Fastac (alpha cypermethrin, 100) at 0.15 l
11 June	5,9	Rovral (iprodione, 255) at 2.0 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 drilled plots were 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. Plots were in pairs with adjacent halves sown to the same variety.

Common treatments such as fertiliser, insecticides, herbicides, fungicides or growth regulators 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). Trials were 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

7 September 1993	Oilseed rape drilled
12 November	Plant population counts
21 March 1994	B.Soc.of Plant Breeders site inspection
13 May	B.Soc.of Plant Breeder second site visit
23 June	*Lodging score*
14 July	Roundup (glyphosate,360 g ai/l) at 3 l/ha
3 August	Trial harvested
5 August	Moisture determinations (NIAB Cambridge)