

BLACKLEG DISEASE ON CANOLA IN SOUTH AFRICA

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INTRODUCTION

Canola (*Brassica napus* and *Brassica campestris*) also known as rapeseed belongs to the botanical family *Brassicaceae*. Canola was first introduced in the Western Cape in South Africa in the early 1990's.

Canola is a promising alternative crop and 21 000ha of canola is cultivated at this stage in the Western Cape. The seed of canola is rich in oil and protein which is becoming important in human and animal diets.

Blackleg, caused by *Leptosphaeria maculans* (anamorph *Phoma lingam*), is a serious disease of canola worldwide. The fungus produces a collar necrosis or crown canker on canola that causes serious losses in yield.

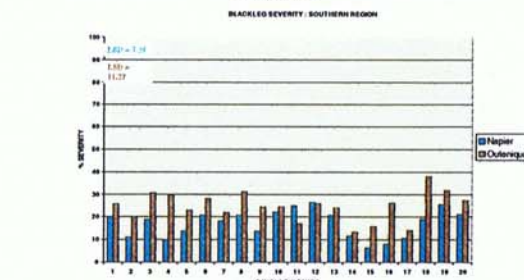
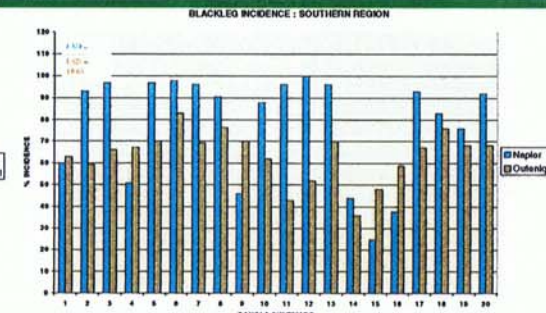
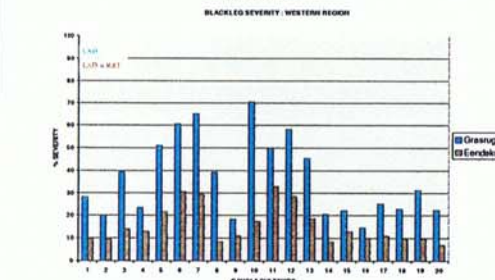
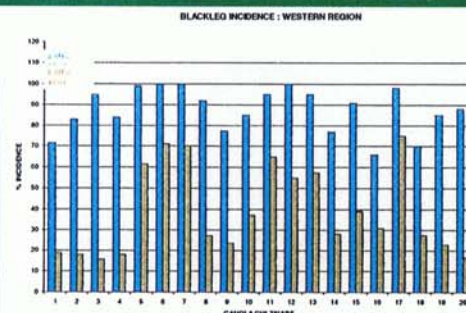
Present canola cultivars range from highly susceptible to moderately resistant to blackleg. The extent to which the fungus infects these cultivars in the different climate regions of the Western Cape is unknown. This information is important for the effective management of blackleg.

A limited survey was conducted to determine the occurrence of blackleg (*Leptosphaeria maculans*) in the Western Cape of South Africa.

RESULTS

TABLE 1
Canola cultivars tested in the western and southern regions of the Western Cape at five different locations in each region in 1998.

CULTIVAR NO	CULTIVAR
1	Rainbow
2	Karoo
3	Monty
4	Oscar
5	Hyola 42
6	Hyola 420
7	Hyola 401
8	Narendra
9	Dunkeld
10	Darcky
11	SR 96279
12	BNS 96426
13	54801
14	54509
15	54504
16	54502
17	54813
18	Scoop
19	Charleton
20	Grouse



MATERIALS AND METHODS

Twenty cultivars (Table 1) of canola were tested in the western and southern regions of the Western Cape at five different locations in each region (Chart 1) in 1998.

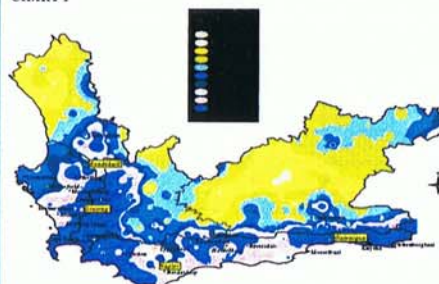
A randomized complete block design with four replicates was used at each location. Plots measured 1,05 x 5 m and contained six rows. Plots were separated from each other by an alley in each block.

Incidence and severity of basal lesions caused by *L. maculans* were assessed from 25 plants per plot at harvest. Plants at random were severed at the stem base with secateurs.

Disease incidence per plot was determined as the percentage of plants with blackleg symptoms at the stem base. Blackleg severity was rated on a 0-4 scale, where 0, 1, 2, 3 and 4 indicated that 0%, 1-25%, 26-50%, 51-75% and 76-100% of the area of the cross section of the stem base was discoloured by the disease. Disease severity per plot was calculated as described by Rempel et al. (1996).

Statistical analysis was performed using the Genstat Statistical Analysis software package (Lawes Agricultural Trust, Rothamsted Experimental Station 1990).

CHART 1



REFERENCES

Rempel, C.B. and Hall, R. 1996. Comparison of disease measures for assessing resistance in canola (*Brassica napus*) to blackleg (*Leptosphaeria maculans*). Can. J. Bot. 74: 1930-1936.

ACKNOWLEDGEMENTS

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CONCLUSION

The purpose of this survey was to assess the occurrence and severity of blackleg on canola genotypes with resistance to blackleg.

The incidence and severity of blackleg were determined at a single-time on stems cut at the base.

All measures of disease showed a satisfactory range of values.

Blackleg incidence sometimes reached its maximum value (100%) in more than one canola genotype, whereas severity did not. In these cases, severity was more useful than incidence in distinguishing genotypes.

All measures revealed differences in resistance of the canola genotypes to blackleg in the different climate regions.

Measures of severity separated genotypes more than measures of incidence. The results of this survey indicates that blackleg is a major disease of canola in the Western Cape.

Further studies will be done to determine the virulence, pathogenic groups, distribution and control of blackleg in the Western Cape.