DISEASES OF RAPE AND OTHER CRUCIFERS IN SASKATCHEWAN IN 1969[1]

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Staghead or white rust caused by Albugo cruciferarum S.F. Gray was the most damaging disease of turnip rape (Brassica campestris L.) encountered in 1969 in Saskatchewan, particularly in the northwestern part of the province. During the August-September survey, the proportion of plants in each field having terminal stagheads (systemic infections) was recorded. Approximately 40 uniformly-distributed fields were examined. On an area basis, the results were as follows:

Area	% of plants per field having terminal stagheads
Central Saskatchewan (Zealandia, Delisle)	1 to 5
Rosthern	5 to 10
Meota–Turtleford	10 to 20
Meadow Lake	up to 50

In rape plots of the Biology Department, University of Saskatchewan, the seed yield of individual plants with systemic Albugo infections was reduced on an average by 60%. Using this figure as a basis, yield reductions in 1969 due to this disease would have ranged from less than 1% to approximately 30% (in one field), with the average for western Saskatchewan as a whole being less than 10%.

Albugo cruciferarum was collected at Saskatoon on Capsella bursa-pastoris (L.) Medic, on May 16. Heavy infections had developed on this host in the field by June 10. Only the conidial state was found, no stagheads being observed. In early June, traces of white rust occurred on Descurainia sophia (L.) Webb, but at no time during the spring or summer were Albugo infections observed on Sisymbrium loeselii L., numerous specimens of which were examined. On June 21, the first observations of white rust on rape were made in the plots of the Biology Department. At about this time, abundant leaf infections were found on specimens of Lepidium sp. at Saskatoon.

As in the case of staghead, a south-to-north gradation in severity of ringspot (Mycosphaerella brassicicola (Duby) Lind.) was noted. The disease started to become prevalent north of Meota and was most widespread in the Meadow Lake area. It severely damaged individual plants in a few fields near Turtleford. Once again it was found on Capsella bursa-pastoris, collections being made near St. Walburg, Goodsoil, and Dorintosh.

Observations indicated that alternaria black spot caused by Alternaria brassicae (Berk.) Sacc. and A. raphani Groves & Skolko is definitely increasing in severity. For example, 100% of the plants in a rape field near Delisle were infected, and 80% infection was recorded in a field near Duck Lake. Severe blighting of individual plants occurred in many instances. Several weed hosts of A. brassicae were identified. Plants of Descurainia sophia adjacent to the heavily infected Delisle field were severely spotted. The fungus was also isolated from extensive black stem lesions on Sisymbrium altissimum L. and S. loeselii collected at Saskatoon, and from Thlaspi arvense L. obtained from northwestern Saskatchewan. In addition, A. brassicae was isolated from numerous 1968 rapeseed samples from the three prairie provinces, with Alternaria raphani also being obtained from many of these. Several instances of the occurrence of the latter on Thlaspi were recorded.

The brassica strain of Leptosphaeria maculans (Desm.) Ces. & de Not. (Petrie and Vanterpool 1965) was encountered in several areas where it has not hitherto been found. These included the Aylsham and Meadow Lake regions. It was isolated from stem material from five of six rape fields located in an area immediately west of Meadow Lake. In these fields from 10 to 20% of the plants were lesioned. The pathogen was also isolated from 1968 rapeseed samples from the Viking and Penhold regions of Alberta, from the Darlingford and Homewood areas of Manitoba, and from the Melfort area in Saskatchewan. One factor which perhaps contributed to the prevalence of L. maculans and other rape diseases near Meadow Lake is the rape-barley-rape rotation practised by many farmers in the area.

Fusarium foot rot of rape caused by a complex of Fusarium species was worthy of note in several parts of Saskatchewan. It was judged to be a potentially troublesome disease. Near Vonda a field having 10% severely infected plants was examined. Due to the earliness of infection, the reduction

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in yield of the field was approximately 10%. Herbicide damage may have been a contributing factor. In CDA rape plots at Saskatoon, foot rot was prevalent, and near Donavon infection in the order of 1%was recorded in several fields. Fusarium was also collected on specimens of Thlaspi arvense near St. Walburg.

Sclerotinia stem rot declined in severity in 1969 compared to previous years. Sclerotinia sclerotiorum (Lib.) de Bary was isolated from two 1968 rapeseed samples obtained from Manitoba. The fungus was carried in or on the seed itself.

During the summer months, a species of Selenophoma was isolated from the aerial parts of the following plants: Arabis sp., Brassica campestris L. (var. 'Echo'), Descurainia sophia, Linum (?) lewisii Pursh, Melilotus officinalis (L.) Lam., Sisymbrium altissimum, Sisymbrium loeselii, Sonchus arvensis L., (Fckl.) Petr. It is distinct from S. linicola Vanterpool, which was isolated from the same collection of wild flax.

Colletotrichum dematium (Pers. ex Fr.) Grove was found on Capsella bursa-pastoris and Thlaspi arvense near St. Walburg. We have reported the occurrence of this fungus on Lepidium sp. and Descurainia sp. (Petrie and Vanterpool, 1965).

Re-examination of a collection made in the Biology plots at Saskatoon in September, 1968, revealed the occurrence of fasciation on a few rape plants, the short fasciated branches being completely covered with Erysiphe polygoni DC.

Literature cited

1. Petrie, G.A., and T.C. Vanterpool. 1965. Diseases of rape and cruciferous weeds in Saskatchewan in 1965. Can. Plant Dis. Surv. 45:111-112.