RAPE DISEASES IN SASKATCHEWAN IN 1961

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The occurrence of rape diseases in 1961 reflected the extremely dry weather conditions: fungus diseases were of negligible importance in the brown and dark-brown soil zones on the prairie and only slight, or occasionally moderate, infections occurred in the black soils of the parkbelt in northern Saskatchewan. The estimated rape acreage in the province in 1961 was 448,000 with an average yield of 550 pounds per acre. This compares with 727 pounds in 1960 and 848 pounds in 1959. The reduced yield is attributed to above-normal temperatures and well below-average rainfall.

White rust (Albugo cruciferarum) was conspicuous only in the Meadow Lake region on the northern fringe of the rape-growing area. Both the conidial and the oospore (hypertrophied) stages were less severe than in 1960 although distribution was general. The general occurrence suggests that the disease is well established in that area and that there was a good carry-over of inoculum. Experimental plots at Saskatoon were inoculated, when seedlings were emerging, with broken pieces of material bearing oospores. Those plots which were watered intermittently by overhead sprinkling during the summer developed slight infections bearing both stages of white rust. None were observed in inoculated, but unwatered plots nor in farmers' fields in the vicinity of Saskatoon. No downy mildew (Peronospora parasitica), either alone or in combination with white rust, was observed in 1961.

During late August surveys, black blight or ring spot (Mycosphaerella brassicicola) was found to be developing well on rape stems in the Meadow Lake area and, to a lesser extent, in the northeast portion of the province. There was copious oozing of spermatia but no perithecia were found. The disease was absent in the dry prairie. Affected stubble from two northern areas was collected in May. No oozing of spermatia from the spermagonia was observed, suggesting that the spermatia are virtually all discharged in the fall or very early spring.

Only one trace infection of stem blight (Sclerotinia sclerotiorum) was seen. Low soil moisture was probably the factor that controlled this disease. Leaf blight, caused by species of Alternaria was present in trace amounts in the northern areas of the province. In experimental plots at Melfort, rape was more affected by Alternaria spotting than was commercial mustard.

Trace to slight infections of aster yellows were found in many northern fields. Traces were also found further south where fields matured earlier. The disease incidence showed a slight increase over that of the last four years. Powdery mildew (Erysiphe polygoni) was severe in two experimental greenhouses at Saskatoon. A heavy infection also developed late in the season in overhead-irrigated plots. This disease could be damaging to crops in seasons favorable to its development,

Black leg (Phoma lingam) was difficult to detect in field collections although occasional pure cultures of the organism could be obtained from suspected material. Discolored rape stubble from the northern areas of the

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province were scattered over experimental plots at seeding time and supplementary overhead watering was applied to the plots in the absence of rain. There was a copius development of pycnidia on the basal stem portions of the rape plants by the end of the season and pure cultures of P. lingam were readily obtained. This confirms our earlier contention that black leg is present on rape in the northern areas and may become serious in wet seasons.

One rape field at Brancepeth developed pitted, spongy, subspherical swellings up to three-quarters of an inch in diameter at the bases of the stems, The field was adjacent to a wheat field which had been sprayed with 2,4-D earlier in the season. Damage was moderate near the sprayed wheat field but became progressively less as the distance from the field increased. The galls were examined for the presence of Plasmodiophora brassicae and nematodes, but neither were found,

Rape seed from the 1961 crop in Saskatchewan should be virtually free of seed-borne diseases if grown on the prairie, and that from the parkbelt shoula be carrying less disease than ever before.

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