RAPESEED

Rape Diseases in Saskatchewan in 1957

T. C. Vanterpool

The rape acreage for 1957 reached an all-time high of 535,000 acres with an average yield of 675 lb. per acre, about 25 lb. less than the yearly average. Diseases were less prevalent than in 1956 and, except in rare instances, did not affect yield appreciably. This favorable disease situation is attributed to the arresting influence of the dry, hot weather of midsummer. A build-up in some of the diseases occurred late in the season after the above-normal August rains, but did not cause significant damage.

Downy Mildew (Peronospora parasitica) was not as prevalent as in 1956, though widely distributed. Of 38 fields surveyed during the third week of August, downy mildew was found in 11 at tr. to 3% and 1 at 30%. The affected fields were mainly in the Spalding, Shellbrook and Prince Albert areas where rape has been grown for a long time and where there are large acreage concentrations. No seedling infections developed on plants grown from naturally or artificially infested seed, nor was any mildew observed on the inflorescences. This suggests that under natural conditions infection arises mainly from oospores in refuse from a previous crop.

White Rust (Albugo candida) A trace was seen in plots. It was found in 1 field associated with downy mildew, but is rarely severe on cruciferous crops on the prairies.

Leaf, Stem and Pod Spot (Alternaria spp.). A few late fields showed slight infections which were mostly superficial. Isolations from 1956 seed of rape and Brassica kaber var. pinnatifida yielded Alternaria brassicae and other pathogenic species of Alternaria as well as non-pathogens of the A. tenuis type.

Seedling Blight (Rhizoctonia solani). Traces were found in 2/6 fields surveyed near Saskatoon. The few specimens were stunted and sickly and were affected with the "wire-stem" phase of the disease. R. solani was isolated. Since R. solani damage was negligible on rape in a season when it was unusually severe on flax and potatoes, it does not appear that the disease on rape is of any concern at present.

Aster Yellows (Callistephus virus 1). During the August survey 27/39 affected fields were found. The disease was conspicuous in only 5 fields with infections ranging from 2 to 10%. Late growth following the August rains showed a high percentage of infection, but this was too late to affect the yield. The higher percentage of yellows on flax than on rape can probably

be explained by the greater host-preference for flax by the leafhopper vectors and also by the earlier seeding and earlier maturity of the rape.

Stem Rot (Sclerotinia sclerotiorum) occurred as traces only in two northern fields. It was virtually absent in the August survey.

Phoma lingam. This fungus has been isolated from several seed samples. It proved highly pathogenic on rape seedlings. Plants affected with P. lingam have not been collected in the field, but a careful watch should be kept for the presence of this parasite.

Rhizopus Seed and Pre-emergence Rot. Strains of Rhizopus (?) stolonifer were isolated from two samples of rape seed and one of Brassica juncea. All strains proved to be highly pathogenic to germinating rape seed when compared with well-known pathogens such as Rhizoctonia solani, Pythium ultimum, and Phoma lingam. R. stolonifer is a potential cause of the reduction in germination of rape seed.

Olpidium brassicae (Woron.) Dang. sporangia and resting spores were found in the roots of young plants grown in Regina Clay soil in the greenhouse.

Frost. Several early-sown rape fields especially in central Sask. were reported damaged by frost on 22 May. In fields examined near Saskatoon no more than 1 or 2 % of the seedlings were killed outright; the cotyledons on another few % were badly damaged and most of the remainder showed slight damage. The recovery was unexpected. It appeared that once the foliage leaves had begun to show, growth would usually continue even though the cotyledons were completely killed by the frost. Several fields 50 miles southwest of Saskatoon where there was about 10 degrees of frost, had to be resown.

Phosphorus Deficiency. Young plants in large areas in a field near Saskatoon were stunted with the lower leaves showing yellowish red, the next a purplish red, and the upper leaves a purplish green discoloration. In affected areas the soil was light-coloured and shallow. These symptoms suggest phosphorus deficiency.

Other Observations

BLACK SPOT (Alternaria brassicae) occurred in plots at Winnipeg, Man. but only late in the growing season (W. C. McDonald).

ROOT ROT (Fusarium sp. and Rhizoctonia solani) was found affecting a few plants in a field at Turin, Alta. The two fungi were isolated from diseased specimens (F. R. Harper).

ASTER YELLOWS (Callistephus virus 1). A trace occurred at Morden, Man. at the end of July. Later the disease became severe there and elsewhere in Man. (W. E. Sackston).

BLACK ROT (Xanthomonas campestris) was found on winter rape in plots at Winnipeg, Man. (W. C. McD.).

SAFFLOWER

ROOT ROT. Fusarium sp. and Pythium sp. were isolated from lesions on seedlings grown in the field at Lethbridge, Alta. (F. R. Harper).

SOYBEAN

Diseases of Soybeans in Ontario in 1957

A. A. Hildebrand

Again in 1957, as in 1956, a discussion of the diseases occurring on soybeans in s.-w. Ont., necessitates a consideration of the weather that prevailed in the area especially during the first half of the growing season. In the accompanying table a comparison is made between the average precipitation for April, May, June, July, and Aug., 1956 and 1957, and that for the same months during the 38-year period, 1917-1955.

Table 7. Average Monthly Precipitation (in.)

Period	Apr.	May	June	3-month period	July	Aug.	5-month total
1957	6.09	2.24	3.76	12.09	7.74	3.25	23.08
1956	3.30	4.54	4.13	11.97	1.74	5.67	19.38
1917-1955	2.65	2.40	2.95	8.00	2.10	2.30	12.40

From Table 7 it may be noted that in April, May, and June, of both 1956 and 1957, about 12 inches of rain fell in the Harrow area. Precipitation was equally high in most parts of Essex County. As a result much of the soybean acreage was subjected to water-logging and flooding for varying periods of time during the earlier part of the growing season. In 1957, July was an extremely wet month. On the 7th and 8th, 4.18 in. of rain fell, and from the 7th until the 12th the precipitation totalled 6.35 in. This meant further flooding, with plants standing in water in many fields for as long as three or four days. The condition described prevailed also on Pelee Island and in parts of Kent, Huron, Middlesex and Elgin counties.

Phytophthora Root and Stalk Rot (Phytophthora sp.). This disease was more widely prevalent this year than in any since 1954 when it was first observed. Whereas in 1956 the disease had greatly subsided by Aug. 1st,