New and Noteworthy Diseases

Despite the presence of ample wind-borne inoculum, cereal rusts did not become epidemic in western Canada in 1960. Stem rust was virtually absent and leaf rust infections developed too late in the season to be of any significance. Crown rust of oats also appeared late. Septoria diseases of wheat and barley were much less serious than usual. Common root rots (Bipolaris sorokiniana, Fusarium spp.) were more serious and widespread than in 1959. Smuts were less common than usual in western Canada.

Stripe (Cephalosporium gramineum) was found to be widely distributed on winter wheat in Ontario and soil-borne mosaic, a virus disease, was severe and widespread in western Ontario. Downy mildew (Sclerophthora macrospora) was found on wheat in New Brunswick. This disease has not been previously reported in Canada.

Leaf blotch of oats (Drechslera avenacea) was common in the Atlantic Provinces whereas the Septoria disease (*S.* avenae f. sp. avenae) was less prominent than usual. The "black stem" phase of the latter disease was observed for the first time in Manitoba. Nematodes (Pratylenchus penetrans, P. minyus, Tylenchorhynchus claytoni) caused stunting of oats in western Ontario. Red leaf, a virus disease was commonly found in Manitoba, Quebec and New Brunswick.

Net blotch (Drechslera teres) was the most important leaf disease of barley in western Canada and spot blotch (Bipolaris sorokiniana) was quite common in the Maritime Provinces. Loose smut (Ustilago nuda) was severe on York Barley in Western Ontario.

Decline and phyllody, a virus disease of clover, continues to be of great importance on red, alsike, and ladino clovers in Quebec. Up to fifty per cent of the plants were affected in some fields. Downy mildew (Peronospora aestivalis) of alfalfa was prevalent in the northern parts of Alberta and British Columbia.

Individual diseases on forage legumes and herbage grasses in New Brunswick were, in themselves, not of great significance but their combined effects lowered both yield and quality of pastures and forage crops. A number of records of grass diseases, new to the Survey were recorded in 1960, Some are given below:

Dilophospora alopecuri on Agrostis and Festuca; Mastigosporium rubricosum on Agrostis and Calamagrostis; Ramularia pusilla and Septogloeum oxysporum on Agrostis; Passalora graminis on Anthoxanthum and Glyceria; Stagonospora bromi and Ustilago bullata on Bromus; Rhynchosporium orthosporum and Phyltosticta owensii on Dactylis; Fusarium poae on Festuca and Poa; Spermospora subulata on Festuca; Septoria avenae on Glyceria.

An outbreak of seedling blight (Rhizoctonia praticola) on flax was the worst on record in Saskatchewan but other flax diseases were of minor consequence. White rust (Albugo cruciferarum) and ring spot (Mycosphaerella brassicicola) were conspicuous on rape in the parkbelt region of the same

province, Stem canker (Diaporthe phaseolorum) was severe on the susceptible soybean variety Lincoln, and root and stalk rot (Phytophthora megasperma var sojae) was severe and widespread on the variety Harosoy in south-west Ontario. Crown gall (Agrobacterium tumefaciens) caused more damage than usual to sugar beets in Quebec.

Club root (Plasmodiophora brassicae) was less serious than usual on cruciferous crops in eastern Canada, probably because of the dry summer. Aster yellows was extremely severe on carrots and lettuce in the Maritime Provinces, Sclerotina rot (Sclerotinia sclerotiorum) caused field losses to cabbage, cauliflower and lettuce in the eastern provinces and symptoms of molybdenum deficiency in cruciferous crops were most pronounced in Newfoundland. The pin nematode (Xiphinema sp.) caused stunting of celery on muck soils in western Ontario.

Scab (Cladosporium cucumerinum) caused heavy losses to cucumbers in western Ontario, Quebec and New Brunswick and powdery mildew (Erysiphe communis) was prevalent on the same crop in Ontario. Wilt (Verticillium albo-atrum) rendered some eggplant crops unproductive in western Ontario. There was an unusually high incidence of anthracnose (Colletotrichum lagenarium) on melons in the same area. 'Onion smut (Urocystis cepulae) was more serious in British Columbia and Manitoba than in recent years. Pea root rot, caused by various pathogens, is becoming more prevalent in canning crops in eastern Ontario. Pepper crops in western Ontario were heavily infested by the spiral nematode (Helicotylenchus erythrinae).

Late blight (Phytophthora infestans) was virtually absent in both the commercial potato and tomato crops in 1960. Botrytis cinerea was found causing a storage rot of potatoes in New Brunswick. The incidence of bacterial ring rot (Corynebacterium sepedonicum was considerably lower than in 1959 but it is still an important disease in Quebec and New Brunswick, Black leg (Erwinia atroseptica) continues to present a problem to potato growers in Alberta and Prince Edward Island. Dry rot (Fusarium spp.) caused heavy losses in seed and table stock potatoes in Prince Edward Island. Rhizoctonia (Pellicularia filamentosa) caused losses in British Columbia and Qaebec, Leaf roll and mosaic, both virus diseases, were more serious in eastern Canada than in recent years and leaf roll continued to be serious on Netted Gem in British Columbia. Spindle tuber, another virus disease, increased in prevalence in Saskatchewan and in the Maritime Provinces,

Early blight (Alternaria solani) was severe on tomatoes in most parts of Canada, particularly in eastern Ontario and Nova Scotia. Leaf mold (Cladosporium fulvum) also caused losses in both greenhouse and field crops. Infections of anthracnose (Colletotrichum coccodes) were very light in canning tomato crops in western Ontario. Wilts (Verticillium dahliae, V. albo-atrum) caused losses in British Columbia, western Ontario and Nova Scotia. Bacterial spot (Xanthomonas vesicatoria) was serious in canning crops in Ontario. Mosaic reduced yields in Ontario and Nova Scotia. Blossom-end rot was unusually prevalent in all parts of the country.

Verticillium wilt (V. albo-atrum) was quite prevalent on both woody and herbaceous ornamentals in south-west Ontario. Rust (Melampsoridium betularum) caused extensive damage to Betula alba var. pendula in a British Columbia nursery. Phytophthora lateralis continued to be destructive on Lawson's cypress on the west coast and anthracnose (Marssonina daphnes) caused almost complete defoliation of Daphne on Vancouver Island. A leaf and twig blight caused by an undetermined species of Ascochyta was severe on Lonicera at Fredericton, N. B. Some Malling and Malling Merton rootstocks, used for propagating ornamental Malus spp. in a nursery in British Columbia, were shown to be virus-infected. Anthracnose (Gnomonia veneta was severe and widespread on Platanus in the coastal areas of British Columbia and occurred locally in Ontario. Rust (Phragmidium spp.) was prevalent on roses in localized areas in Manitoba, Ontario, Nova Scotia and Prince Edward Island. Willow blight (Fusicladium saliciperdum) was very heavy in Quebec and the Maritime Provinces. Bacterial blight of lilacs (Pseudomonas syringae) was destructive at Fredericton, New Brunswick.

Aster yellows (Callistephus virus 1) was widespread in Nova Scotia on Calendula, Callistephus, Celosia, Linaria, Matricaria, Matthiola, Nigella, Paeonia, Phlox, Tagetes, Tropaeolum and Zinnia. Powdery mildew (Erysiphe communis) was exceptionally severe on Aster in eastern Quebec. Foliar nematode (Aphelenchoides olesistus) caused damage to Begonia in Ontario, The nematodes Paratylenchus projectus and Pratylenchus penetrans caused stunting of Chrysanthemum, both in the greenhouse and in the field in western Ontario. Virus stunt was very prevalent in several chrysanthemum varieties in Ontario. Alternaria blight was severe on Dianthus spp. in Alberta, Ontario, Quebec and New Brunswick. Dry rot (Stromatinia gladioli) was prevalent in commercial Gladiolus plantings in western Ontario and in Nova Scotia. Bacterial leaf spot (Bacterium tardicrescens) was reported on Iris from New Brunswick. Root-knot nematodes (Meloidogyne spp.) caused damage to Impatiens, Saintpaulia, Salvia and Zinnia at various centers. Phytophthora cryptogea caused a wilt and stem rot of Tagetes and Zinnia in western Ontario and Sclerotium tuliparum was severe in an Ontario garden. Crown rot of Viola (Centrospora acerina) was again extremely severe in commercial pansy plantings in Nova Scotia. Downy mildew (Peronospora grisea) was reported in Veronica in New Brunswick. This is the first report to the Survey.