New or Noteworthy Diseases

Wheat stem rust (Puccinia graminis) was not seen on any stem-rust resistant varieties in Man. Initial infection occurred late throughout the Prairie provinces and the disease was not serious even on susceptible varieties. Stem rust of oats substantially reduced the yields of late plantings of Vanguard, Exeter and Ajax in Man., owing to the predominance of races that attack these varieties. Races 8, 10 and 11 of P. graminis var. Avenae, capable of attacking these varieties, became increasingly prevalent in Man. and Ont. Further evidence was obtained of the importance of barberries both as foci of local epidemics and as the source of virulent races of P. graminis var. Tritici and P. graminis var. Avenae.

Leaf rust of wheat (P. triticina) became heavy in Man. just before harvest, too late to cause serious losses. A notable feature of the season was the widespread prevalence, in various races of this rust, of biotypes capable of attacking Renown, Regent, Redman and related wheats. These virulent biotypes are particularly abundant in Sask., Man. and northwestern Ont. where the stem-rust resistant wheats are widely grown. Elsewhere these varieties showed considerable resistance.

Crown rust of oats (P. coronata) developed too late to cause appreciable losses in the Prairie Provinces. In eastern Canada it was apparent that the presence of buckthorn aggravated the abundance of races 2 and 3 of this rust; these races form teliospores freely and are therefore favoured by the presence of the alternate host.

Ratings of common root rot (Helminthosporium sativum and Fusarium spp.) of wheat in Sask. were significantly higher than in 1945. The difference is largely due to heavy damage correlated with drought conditions in some areas.

Winter crown rot (low-temperature basidiomycete) of alfalfa was very destructive in west-central Alta. and has become plentiful in Sask. Bacterial wilt (Corynebacterium insidiosum) of alfalfa was heavy in the irrigated sections of southern Alta.; it was found for the first time in Sask. in the White Fox district and was later found to be abundant in the southwestern irrigated sections.

Foliage diseases of flax were light in Sask., but seedling blight (Rhizoctonia Solani etc.) was more prevalent than usual. Coniothyrium seedling blight (C. olivaceum Bonard.) and Selenophoma branch rot (S. linicola Vanterpool) have recently been described from Sask. Pasmo (Septoria linicola) was seen for the first time in Sask., and was abundant in Man.

Downy mildew (Peronospora manshurica) of soybean was prevalent in southwestern Ont. It has been shown that infected seed give rise to systemically infected plants.

Rathay's disease (Corynebacterium rathayi) of orchard grass was found in Quebec; this is the first record of this disease in Canada.

Bacterial ring rot (Corynebacterium sepedonicum) of potato was again second only to leaf roll as a cause of rejection for certification, and was the leading cause in Sask., Man., Ont., and Que. It is still not general in B.C., where nearly all outbreaks have been due to planting imported table stock, which is now being carefully inspected. Both acreage and intensity of infection were again reduced in Alta. as a result of continued campaigning among table-stock producers; but importation and planting of infected table-stock has caused some spread. Ring rot was increasingly serious in fields entered for certification, and probably in table-stock, in Sask., Man., Ont., Que. and N.B. A comprehensive survey in N.S. revealed the disease in a total of 24 plantings, mostly small fields or garden plots, but none was found in the main seed-producing areas. Most cases were traced to the planting of table-stock or of condemned potatoes consigned to a starch factory. In P.E.I. ring rot was found in a total of 27 fields in three areas.

Late blight (Phytophthora infestans) increased in B.C., but there was little rot in sprayed or dusted crops. It caused little damage elsewhere except in N.S. and P.E.I. where considerable loss occurred in imperfectly sprayed crops. It was reported in Sask. for the first time.

Stemphylium leaf spot (S. consortiale (Thüm.) Groves & Skolko) was reported from B.C. as general but usually light; this is the first record of this organism as a potato parasite.

Leaf roll (virus) infection in B.C. was half that of 1945, and intensity was low in Alta. although the disease was widespread. Little leaf roll occurred in Man. and northwestern Ont., but increases occurred in Sask., central Ont., Que., N.S. and P.E.I. The situation was unchanged in N.B. Leaf roll is still the leading cause of rejection for certification. Mosaic (virus) was widespread but of reduced intensity in B.C., and little occurred in the prairie provinces and Ont. Little change occurred in N.B., but it increased in Que., N.S. and P.E.I. Witches' Broom (virus) was the principal disease in seed crops of White Rose and Netted Gem in the Cariboo district, B.C. A few fields in Alta. showed a trace of this disease.

A few observations on diseases of other vegetable crops are worthy of inclusion. Anthracnose (Colletotrichum Lindemuthianum) of bean was very severe in southwestern Ont. Powdery mildew (Erysiphe Polygoni) of bean, previously reported from Quebec only, caused appreciable damage in southwestern Ont. Halo blight (Pseudomonas medicaginis var. phaseolicola) and bacterial blight (Xanthomonas Phaseoli) were severe in B.C., Sask., southwestern Ont. and parts of Que., and the former was also important in central Alta. Yellows (Callistephus virus 1) was widespread on carrots in most provinces and was severe in many fields in P.E.I. Wilt (Mycosphaerella citrullina), previously known from Alta., occurred on cucumber in Ont. Yellow Dwarf (Allium virus 1) occurred on onion near Grand Forks, B.C., and on shallot in N.S. Mycosphaerella blight (M. pinodes) has become heavily

established in the principal pea-growing areas of Sask. Blue mould (Peronospora tabacina) was again epidemic on tobacco in Ont. Leaf Mould (Cladosporium fulvum) was heavy on V121 in greenhouses in Ont.; traces of infection were seen on V473. Late blight (Phytophthora infestans) was very heavy on tomato in parts of southern Ont., especially in fields planted with southern-grown stock. Black leg (Phoma lingam) heavily damaged stored turnips in several regions; but black rot (Xanthomonas campestris) caused little damage in Ont., apparently because of the adoption of seed treatment.

Among the diseases of fruits the following may be mentioned. Apple scab (Venturia inaequalis) was heavy on poorly sprayed trees but of slight importance in well-managed orchards in eastern Canada. Coryneum blight (Clasterosporium carpophilum) was severe in south-eastern B.C. on apricot and peach. Black knot (Dibotryon morbosum) was seen on apricot in B.C. Grey mould (Botrytis cinerea) and brown rot (Sclerotinia fructicola) were severe on sweet cherries in south-eastern B.C., owing to wet weather when the fruit was ripening. What seems to be a virulent strain of Lambert mottle (virus) was seen on Lambert cherries in B.C. Little cherry (virus) has spread into all important parts of the Kootenay district, B.C. Spur blight (Didymella applanata) was destructive in many raspberry plantations in Ont. Strawberry red stele (Phytophthora Fragariae) caused extensive losses in coastal B.C.

Interesting records for trees and shrubs include the following: Canker (Nectria galligena) was severe on a few trees of Betula papyrifera in Que. Crown rot (Fusarium Solani) caused heavy losses of Caragana in Sask. Anthracnose (Gloeosporium aridum) on ash in Ont., needle cast (Lophodermium juniperinum) and twig blight (Phomopsis juniperovora) on junipers in Ont., canker (Pseudomonas mori) on mulberry in Ont., leaf spot (Cylindrosporium Dearnessii) on Ostrya in Ont. and Que., canker (Dothichiza populea) on poplar in Ont., canker (Phomopsis lokoyae) on Douglas fir in B.C., anthracnose (Gnomonia veneta) on oak in Ont. and Que., and leaf spot (Mycosphaerella (Phleospora) Ulmi) in Que. all deserve mention. Many additional trees affected by Dutch elm disease (Ceratostomella Ulmi) have been found in Que., and eradication is being confined to the periphery of the area in the hope of limiting the outbreak.

Among the more serious diseases of ornamental plants scab (Pseudomonas marginata), core rot (Sclerotinia Draytoni), dry rot (Solerotinia Gladioli), hard rot (Septoria Gladioli) and bacterial blight (Xanthomonas gummisudans) were destructive to gladioli in various areas, and fire (Botrytis Tulipae) of tulip was unusually heavy in B.C. and Que. Interesting records include: Puccinia Ptarmicae on Achillea Ptarmica in Que., Xanthomonas begoniae on Begonia in Ont., Coleosporium Campanulae and Puccinia Campanulae on Campanula rotundifolia in Que., Alternaria dianthicola on Dianthus in Ont. and Que., Phyllosticta Digitalis on Digitalis in P.E.I., and Peronospora Trifoliorum on Lupinus in B.C.