New or Noteworthy Diseases

Stem rust of wheat did little damage in Western Canada owing to the use of resistant varieties in those areas where stem rust has been a serious factor. Farmers' fields of susceptible wheat are rarely found in southern Manitoba and are uncommon in eastern Saskatchewan. However, in a few areas further west, especially in south-central Saskatchewan, rust damage was severe on late crops of susceptible varieties. In eastern Canada, stem rust was unusually light. Evidence was obtained that the rust-resistant varieties yielded about as well as the older varieties under these rust-free conditions.

Both stem rust and crown rust of oats were usually present only in small amounts from Manitoba eastward. Nevertheless, in New Brunswick, where field observations were extensive, outbreaks of crown rust were traced directly to buckthorn plantings and further evidence was obtained on the importance of barberries in perpetuating stem rust on oats.

The effect of common root rot (Helminthosporium sativum and Fusarium spp.) on the yield of wheat was studied again in Manitoba. The average loss was estimated to be 16.6% compared to 7.4% in 1939. The number of tillers per plant and the yield of grain were both reduced in proportion to the injury. Due to better growing conditions in 1940, however, more plants per row reached maturity and the yield per unit area was greater. In Alberta and Saskatchewan, the disease appeared to be about as prevalent as usual, but the infection was less severe.

Kernel smudge was more prevalent than usual in the Prairie Provinces, particularly in common wheat. A survey revealed 7.6% of the cars degraded in Manitoba, 2.4% in Saskatchewan and 2 cars in 5,000 in Alberta. Alternaria spp. predominated. Varietal differences were also noted.

Speckled leaf blotch was unusually prevalent on wheat in Alberta. Septoria Tritici was present almost to the exclusion of S. nodorum.

Among the diseases of forage crops, bacterial wilt (Phytomonas insidiosa) of alfalfa is increasing in importance. It was widespread in the irrigated districts in southern Alberta. The disease was particularly heavy in the Brooks area, where stands under 3 years of age were affected. It was also severe in all fields of Grimm at the Experimental Station, Summerland, B.C. Phytophthora root rot (P. Cactorum) was generally distributed on sweet clover in southern Alberta. New extensions or records of forage crop diseases were: balck stem (Ascochyta imperfecta) of alfalfa in Quebec; Stagonospora leaf spot (Leptosphaeria pratensis) on alfalfa in Alberta; the perfect stage of the same pathogen on sweet clover in Alberta; leaf spot (Stemphylium botryosum) on alfalfa at Agassiz, B.C.

Stalk and ear rots were very destructive in the seed corn belt of southwestern Ontario; the rots were due to Nigrospora sphaerica, Fusarium moniliforme, F. graminearum and Diplodia Zeae.

Leaf spots of sugar beet new to Canada were found at Sidney, B.C.; one was caused by Ramularia beticola, the other by Septoria Betae. Buckwheat was contaminated by Ustilago utriculosa from affected smartweed growing in the crop. The presence of this smut on wheat and oats has already been noted (P.D.S. 12: 4-5, and 17: 9). Smut (Ustilago Crameri) a rare smut in Canada, was recorded on seed of foxtail millet from Carnduff, Sask. The first authentic case of halo blight (Phytomonas corona-faciens var. purpurea) on brome grass and timothy was found at Morris, Man.

Bacterial ring rot (Phytomonas sepedonica) was found on 89 farms in the important potato growing district of southern Alberta, compared with 40 farms in 1939, but conditions were favourable for its detection. The use of diseased seed was considered to be an important factor in its further spread. There was an increase of bacterial ring rot in Manitoba, Ontario and Prince Edward Island, while a decrease occurred in Quebec and New Brunswick. Since most of these cases were on farms where bacterial ring rot was not found before, it is believed that a greater part of the disease is being eliminated as it is detected.

Late blight (Phytophthora infestans) was epidemic in Ontario in 1940, destroying at least 20% of the late potato crop. Losses were comparable to those suffered in 1928 and 1934. Late blight caused some loss elsewhere in Eastern Canada, but only in New Brunswick was damage considerable.

Wilt, particularly Verticillium wilt, has attracted attention in several provinces. Its importance has been further emphasized since in its milder forms a vascular necrosis occurs in the tubers, which has not been recognized as associated with the presence of these pathogens. On the other hand, much of the phloem necrosis is due to infection with leaf roll.

Additional information on the virus diseases present in potatoes is contained in a separate section contributed by Mr. D. J. MacLeod.

Tomato diseases of interest were: Ring spot, a sub-infection by Botrytis cinerea, was present on tomato fruits in Ontario. A new strain of Cladosporium fulvum appeared to which Vetomold, a new variety immune to strains 1-4, was susceptible. However, Red Currant, a variety of L. pimpinellifolium is resistant to the new strain and varieties of tomatoes possessing this resistance are about ready for introduction into commercial production. Serious losses were sustained from decay of tomato fruits by species of Phytophthora in Ontario.

Other vegetable diseases which might be mentioned are: Violet root rot (Rhizoctonia Crocorum) on carrots at Comox, B.C.; late blight (Septoria Apii-graveolentis) on celery in the Okanagan Valley, B.C.; purple blotch (Macrosporium Porri) on onion in Nova Scotia; Mycosphaerella allicina, as a cause of leaf blight in onion in Ontario; Septoria flagellifera as a leaf spot of peas at Douglas, Ont.; and big vein (virus) of lettuce at Burlington, Ont.

Crown rot has long been a serious disease of apples in the Okanagan Valley, B.C. Recent work indicates that much of it is due to Phytophthora cactorum. While powdery mildew (Podosphaera leucotricha) has been found on apple across Canada, it is particularly severe in the Okanagan Valley, and spraying must be resorted to to prevent russetting of the fruit. On the other hand, spraying for apple scab (Venturia inaequalis) must be practised almost everywhere in Canada. In 1940, scab was fairly heavy on unsprayed trees, but where the trees are well sprayed the disease was effectively controlled. Brown rot (Sclerotinia americana) was unusually destructive in cherries, peaches and plums in the Niagara Peninsula on account of the wet weather in the early season.

Virus diseases continue to attract attention in tree fruits. Mosaic of apple appears to be definitely spreading in Nova Scotia and New Brunswick. False sting, a disease observed first in Nova Scotia in 1934, has recently been shown to be due to a virus. Several new diseases of cherry and plum have been described in the past two years in the Okanagan Valley; some of these have been proved to be virus in character.

Rhizosphaera Kalkhoffii was abundant on the needles of blue spruce sent from Knowlton, Que.; it may be destructive. Willow blight was found in a few trees at Abbotsford, B.C. Physalospora Miyabeana, particularly the Gloeosporium stage was fruiting freely on the twig cankers. Fusicladium saliciperdum was also present on a leaf petiole in the spring collection, but later it was entirely absent. The diseased trees are being removed. Search elsewhere failed to disclose other centres.

New records of diseases of ornamentals were grey bulb rot (Sclerotium Tuliparum) on bulbous iris in B.C. and bacterial leaf spot (Phytomonas Primulae) on Primula polyantha also in B.C.