IV DISEASES OF FRUIT CROPS

A, POME FRUITS

APPLE

FIRE BLIGHT (Erwinia amylovora) was widespread on apple and crab-apple in Edmonton, (W.P. Campbell), and caused sl. -mod. damage to crab-apple trees in Lethbridge, Alta. (J.B. Lebeau). Infections were slight at Saskatoon, Sask. (R, J. Ledingham), Six/112 home plantings inspected in Man, were infected and an additional nine samples, showing mod. -sev. infections were received at Winnipeg (W. A. F. Hagborg). A scattered infection at Stoney Creek, Wentworth Co., Ont. caused killing of spurs and occasional twigs, Some fruit infection was found as well (G, C. Chamberlain), A nursery near Montreal, Que. had a 2% infection (J, Ringuet) and specimens were received from Megantic and Charlevoix counties in Que. (D. Leblond). Fire blight is increasing in importance in most of the orchard districts of Que. Infections, ranging from a few trees to blocks of 25-100 trees in an orchard were observed at St. Hilaire, Rougemont, Abbotsford, Hemmingford, Franklin, Oka and Châteauguay. The varieties Yellow Transparent, Fameuse, Wealthy, Wolf River and McIntosh were the most seriously affected (L. Cinq Mars),

BULL' S-EYE ROT (Gloeosporium perennans), Heavy infections occurred in stored Newtown apples from the 1958 crop at Naramata and Summerland, B.C. Some lots when re-packed showed a 10-30% loss. Heavy rains during the harvest period favored fruit infection. McIntosh fruit from the 1959 crop, in controlled atmosphere storage at Vernon, B, C. had developed 20% rot by mid-January. (L, E. Lopatecki).

RUST (Gymnosporangium clavipes) was particularly severe in 1959 on the varieties Melba, Lobo and Fameuse at Ste. Anne de la Pocatiere, Que. Other varieties were less seriously affected. Many pycnia were observed but few aecia developed on the fruit (H. Genereux). Traces of rust were found in scattered orchards in Annapolis Co., N. S. (J,F. Hockey).

FLY SPECK (Leptothyrium pomi). Slight infections were seen on specimens submitted from Huntingdon and St. Anicet, Que. (R, Crête).

PERENNIAL CANKER (Neofabraea perennans). Infections developed in 10% of the trees in a 3-year old planting of McIntosh at Naramata, B. C. Wooly aphids and perennial canker were prevalent on nearby mature trees (L, E. L.).

STORAGE ROT (Penicillium sp.) caused 10-20% loss of fruit stored at Dunnville, Haldimand Co., Ont. Storage conditions were not ideal and the fruit showed considerable evidence of bruising (G. E. C.).

POWDERY MILDEW (Podosphaera leucotricha). The incidence of powdery mildew in the Okanagan Valley, B.C. was much higher in 1959 than for many years. Delicious, Jonathan, McIntosh and Winesap were affected. Foliage on new terminal growth was infected,. particularly on Jonathan, but very little fruit infection was seen (D. L. McIntosh). A single tree of Yellow Transparent at Vineland, Ont. showed sheath infections. on terminal growth (G. C. C.).

CROWN ROT (Phytophthora cactorum) killed a tree on Malling VII rootstock in a commercial, orchard at Okanagan Center, B. C. (D, L, McI.).

CALYX-END ROT (Sclerotinia sclerotiorum). Fruit infections by midsummer were generally less than 1% in Kings Co., N. S. (J. F. H.).

SCAB (Venturia inaequalis). Weather conditions late in the growing season favored scab infection in several districts in the Okanagan Valley, B.C. Pin-point scab developed in storage, particularly on Winesap, resulting in heavy losses in cullage (D, L, McI.). Pin-point scab developed on stored fruit from the 1958 crop at Simcoe, Ont, (G. C. C.). The disease was of minor importance in the Niagara Peninsula of Ont, in 1959. For the first time in 28 years, only traces of infection could be found on unepprayed trees at St. Catharines (G. C. C.). Infection was about 25% and damage was moderate on McIntosh at St. Roch, L'Islet Co., Que. (L, J. Coulombe). Primary scab infections were relatively easy to control in the Farnham, Que. district. Six infection periods occurred between May 21 and June 19. Late pin-point scab, on the other hand, affected many orchards in s.-w. Que. despite light primary infection on the foliage (R, Desmarteau, L. Cinq Mars). Scab was generally well controlled in N. B., though pin-point scab was more common than in previous years (S, R. Colpitts). A similiar condition prevailed in N. S. (R.G. Ross).

FLAT LIMB (virus). Eight 34 year old trees of standard Gravenstein were affected at St. . Catharines, Ont, They exhibited a marked gnarling and malformation of main limbs and the trunks were severely affected. The vigor of the affected trees was fair, although the top growth in some of them was thin. (G.C.C.).

LEAF PUCKER (virus). This disease, with its associated fruit symptoms, was found in most of the Yellow Newtown plantings inspected at Penticton, Naramata, Summerland, Oliver and Kaleden, B. C. The number of infected trees varied from single trees to one-third of some plantings. In most cases, the accompanying fruit symptom was a striking ring-russeting pattern, but in one orchard the fruits were small, covered with purple blotches and exhibited skin cracking.

A fruit blotch symptom in Stayman Winesap has been under observation for 6 years in several orchards in Summerland and Westbank, B.C. where it affects more than 50% of the trees in some plantings. The disease is apparently spreading slowly, In 1959, most of the affected trees showed leaf pucker symptoms. Trees without fruit symptoms did not display foliage symptoms suggesting strongly that the fruit blotch under observation may be a fruit symptom of the leaf pucker disease (M. F. Welsh).

MOSAIC (virus) was found affecting about 20 trees of the varieties Wealthy, McIntosh, Wolf River and Fameuse in an orchard at Rougemont, Que. It apparently causes little damage (L.C.),

MOTTLE (?virus), A symptom, not previously seen, occurred on 5 Delicious trees at Kaleden in the Okanagan Valley, B.C. All fruits on the affected trees exhibited a yellow or light pink mottle covering most of the surface. These symptoms resemble those of "dapple-apple" as described by Smith et al. (P. D. R. 40:9, p. 765. 1956). Seriously affected fruits are also deformed (M. F. W.).

RUBBERY WOOD (virus), Scions of the varieties Delicious, Rome Beauty, Winesap, Spartan and Golden Delicious from various centers in the Okanagan Valley, B.C. have been indexed on the variety Lord Lambourne. The presence of the rubbery wood virus has been demonstrated in orchard trees of each of the varieties tested, The virus is latent in the source trees and no symptoms are evident (M, F. W.).

STEM PITTING (virus). Indexing on Virginia Crab has revealed the presence of the stem pitting virus in commercial orchard trees of the following varieties: McIntosh, Delicious, Spartan, Winesap, Golden Delicious and Rome Beauty. The test trees were from various centers in the Okanagan Valley, B.C. Except for mild pitting symptoms in Delicious and Golden Delicious the virus is latent (M. F. W.).

UNKNOWN VIRUS DISEASE. A clone of East Malling rootstock II, indexed as virus-free at the East Malling Research Station, was used as the rootstock in experiments with a Russian apple, R12740-7A, and Hopa and Bedford crabs, Few scions grew and those that did were stunted and displayed abnormal foliar symptoms. The symptoms in R 12740-7A resembled those described as "chlorotic leaf spot" by Mink and Shay (P. D. R. Suppl. 254. p. 14, 1959). Various types of foliar necrosis developed on the crabs (M, F. W.).

DROUGHT SPOT (boron deficiency) affected a number of orchards in s.-w. Que. Damage in individual orchards varied from slight to severe. In some severely affected orchards, spot picking was necessary (R. D.).

IRON DEFICIENCY affected 2 home plantings in Winnipeg, Man. Chelated iron applied to the soil effected rapid improvement (W.A. F.H.).

FROST INJURY caused moderate damage to the bloom in early June at Moncton, N.B. (S.R.C.).

WINTER INJURY was evident in orchards in York, Sunbury and Queens counties in N.B. (S.R.C.).

PEAR

FIRE BLIGHT (Erwinia amylovora). A sev. outbreak occurred in 1 orchard of Bartlett and Anjou, late in the season, at Summerland, B.C. Hot, dry weather checked the development of the disease before harvest (L.E. Lopatecki). High humidities and high temperatures favored the development of fire blight in many orchards in the Niagara Peninsula in Ont. Late blossom infection was quite common. Fire blight was active throughout the growing season and in a few cases green fruit infection was also noted (R. Wilcox, W.S. Carpenter). Fire blight was generally more common than in 1958 in the Niagara Peninsula. In five orchards at Vineland there was considerable direct fruit infection but little leaf, twig or branch blight (G.C.C.).

SOOTY BLOTCH (Gloeodes pomigena) was quite prevalent on Kieffer pears held for processing in the Niagara Peninsula, Ont, Frequent rains during the harvest period were likely a contributing factor (G.C.C., R.W., W.S.C.).

RUST (Gymnosporangium clavariaeforme) affected leaves and twigs at Victoria, B.C. Twig infection was characterized by a marked hypertrophy of affected parts and the presence of closely aggregated aecia. The organism was determined by W.G. Ziller (W.R. Orchard),

LEAF SPOT (Mycosphaerella sentina). Severe foliage spotting occurred on unsprayed trees at Kingston, N.S. (J.F. Hockey).

SCAB (Venturia pirina) was not as common on Bartlett as in 1958 in the Niagara Peninsula, Ont. One orchard of Flemish Beauty was severely infected in the Elfrida area (R.W., W.S.C.). Twenty-four % of the harvested fruit from an unsprayed tree of Flemish Beauty at St. Catharines was infected with late-season scab (G,C.C.). It was sl. on fruit at St. Aubert, L'Islet Co., Que. (D, Leblond).

ANJOU PIT. Observations made in 1958 and 1959 suggest that there are at least three types of "Anjou pit". One form, which recurs every season has been recognized in relatively few trees in scattered orchards, It is characterized by the presence of deep pits with stony tissue beneath and

deformities in the fruit. This form has now been demonstrated to be a virus disease. A second form occurred in a slightly greater number of trees in 1959 than did the virus-induced form. This form is always associated with black-end of pear. The third form, which was widespread in 1958 and is not necessarily associated with black-end, did not occur in 1959. The two latter forms have shallow pits on the fruit surface, underlain with a brown corky tissue (M. F. Welsh).

HEAT SCORCH was general in the Niagara Peninsula, Ont. and severe in many orchards. It is thought to be related to seasonal conditions of high temperatures and a deficiency of soil moisture. Red mite infestations are also considered a contributing factor (G.C.C., R. W., W.S.C.).

PSEUDO BLIGHT (cause unknown), This injury resembles fire blight in appearance. The variety Kieffer appears to be the most susceptible and the condition usually occurrs in orchards on shallow, heavy, poorly-drained soils. It is most conspicuous when subsoil moisture levels are critical. It was seen in several areas in the Niagara Peninsula, Ont. in 1959 (R. W., W. S.C.).

CHEMICAL INJURY, Herbicide drift caused a twisting of foliage on 2 trees in a home garden at White Rock, B.C. (H.N. W. Toms).

PLANTING FAILURE, In various districts in the Okanagan Valley, B. C., newly-planted pear and cherry trees frequently fail to grow satisfactorily. Loss of feeder roots is characteristic of the disorder. The cause of such failure being sought (D. L. McIntosh).

B. STONE FRUITS

APRICOT

GRAY MOLD (Botrytis cinerea) caused the loss of apricot seedlings in flats in a greenhouse at Summerland, B. C. (D. L. McIntosh).

BLOSSOM BLIGHT (Monilinia fructicola). A single tree with heavy bloom showed a 30% infection of blossoms at St. Catharines, Ont. (G.C. Chamberlain).

BROWN ROT (Monilinia laxa). Approximately 20 young trees at the Research Station, Summerland, B. C. were slightly affected. Blossom and twig blight were not seen and fruit infection took place only through wounds. This was the only recorded outbreak of M. laxa in the Okanagan Valley in 1959 (L. E. Lopatecki).

VERTICILLIUM WILT (V. dahliae) was found in apricots in the Summerland area and elsewhere in the Okanagan Valley, B. C. (G, E. Woolliams).

RING POX (see Twisted Leaf of Cherry).

CHERRY

BLACK KNOT (Dibotryon morbosum). Specimens of black knot on sour cherry were received from Lauzon, Levis Co. and Victoriaville, Arthabaska Co., Que. (D. Leblond). It was prevalent on plums and cherries in N. B. (S. R. Colpitts).

LEAF SPOT (Higginsia hiemalis). Scattered infections were recorded in an orchard at St. Catharines, Ont. early in Aug. Yellowing and leaf drop were confined to the lower part of the trees. The orchard was practically defoliated early in Oct. (G. C. Chamberlain). A 15% infection caused sl. damage at Riviere du Loup, Que. (L. J. Coulombe). Twenty trees at Moncton, N. B. were severely infected (S. R, C.), and tr. infections only wexe seen at the Research Station, Kentville, N. S. (C. O. Gourley).

BLOSSOM BLIGHT (Monilinia fructicola) was sev. on Bing, Lambert and other varieties in the Arrow Lake district of B. C. Bloom was exceedingly heavy and the disease therefore did not affect fruit set seriously. The infection did not spread to green fruit and the dry weather during the harvest period prevented any appreciable development of brown rot in the ripe fruit (L, E. Lopatecki). Infections were mostly scattered and light in the Niagara Peninsula, Ont. In the laboratory orchard at St. Catherines, infections on unsprayed trees were rated as follows: Yellow Spanish 13.2%, Schmidt's 8.5%, Victor 4.2% and Windsor 2.2% (G. C. C.).

BROWN ROT AND BLOSSOM BLIGHT (Monilinia laxa). In contrast with the behavior of M. fructicola (see above), infections by M. laxa did spread to green fruit and a moderate amount of fruit dot developed. This occurred only in the Upper Arrow Lake area. To date, M. laxa has not been found in the Lower Arrow Lake district (L, E. Lopatecki).

BLOSSOM AND TWIG BLIGHT (Monilinia padi). Sour cherry trees in the vicinity of Charlottetown, P. E.I. were affected by a blight that destroyed blossom clusters and invaded the twigs to a considerable distance. The causal organism was identified by Dr. J. W. Groves as Monilinia padi (Wor.) Honey (J. E. Campbell). M. padi possesses much larger conidia than those of the more ubiquitous A& fructicola, This species goes not cause a brown rot of fruit and the conidia are normally borne on twigs and petioles, According to Seaver, (The North American Cup Fungi (Inoperculates) 428 pp., 1951), it has been known only from the type locality, Ithaca, N. Y. This is certainly the first report of M. padi occurring in Canada (D. W. Creelman).

BARK ROT (Phytophthora cactorum). Limb infections, initiated in 1958, were observed killing large limbs at Summerland, B.C. There were many reports of limb infections from various parts of the Okanagan Valley (D. L. McIntosh).

POWDERY MILDEW (Podosphaera oxyacanthae). Sev. infections were seen on leaves of new terminal growth on sour cherry trees at Summerland and Westbank, B.C. Tree vigor and crop size were not obviously affected (D. L. McI.). Ten-year old cherry trees, closely planted, in the Vineland, Ont. district were heavily infected (R. Wilcox, W. S. Carpenter), Mildew was common in many Niagara Peninsula orchards, affecting many terminals and causing a curling of terminal leaves (G,C. C.).

LITTLE CHERRY (virus) affected all varieties of sweet cherries in the West Kootenay district of B. C. A high percentage of the fruit produced was unsuitable for the fresh fruit trade, The fruit from Lambert trees was more severely affected than that from Bing (J. M. Wilks). Little cherry has, as yet, been unreported from the Okanagan and Similkameen Valleys of B. C. (T.B. Lott, F. W.L. Keane).

3 NECROTIC RUSTY MOTTLE (virus). In 2 orchards in the Okanagan Valley, B. C. a disease has been found in Bing cherry with leaf symptoms similiar to Lambert mottle, However, Bing cherry has been shown to be a symptomless host of Lambert mottle. The disease in question, which may be necrotic rusty mottle, has been transmitted experimentally to both the varieties Bing and Lambert. In Bing, symptoms first appeared five years after inoculation, Unlike Lambert mottle, this virus can be transmitted through apricot though the apricot remains symptomless (T. B. L,, F. W. L. K.).

RASP LEAF (virus) affected a number of trees of the variety Victor in the Niagara Peninsula, Ont. These trees, planted as pollinators, have shown symptoms every year since planting but there has been no apparent spread (T,R. Davidson, J.A. George), It was also found affecting a few trees of the variety Van on the Peninsula (R. W., W. S. C.).

TATTER LEAF (virus) was diagnosed in a few Niagara Peninsula, Ont orchards (R. W., W. S. C.).

TWISTED LEAF (virus). Experimental work has strengthened the theory that twisted leaf of cherry and ring pox of apricot are caused by a single virus. Chokecherry has been shown to be a symptomless host of the virus causing both diseases. Both diseases have been produced experimentally by a virus obtained from chokecherries growing close to diseased orchard trees in the Okanagan and Similkameen Valleys in B. C.

In 1959 the virus causing twisted leaf was demonstrated to be indigenous and widespread in wild chokecherries in both Valleys and in the surrounding hills. It was recovered in locations as much as 19 miles from the nearest orchard area and at elevations as high as 1, 900 feet above the nearest orchard (T. B. L. , F. W, L. K.).

YELLOWS (virus) in sour cherries was found in one-half to two-thirds of the trees in orchards surveyed in the Okanagan Valley, B. C. in 1959. Heavy leaf fall was observed. The 1959 season was favorable for a strong display of symptoms, following a period of cool night temperatures in May and June (M, F. Welsh). The yellow leaf drop symptom was virtually absent in Niagara Peninsula, Ont. orchards in 1959 (T. R. D, , J. A. G.). Symptoms were seen in one English Morello tree at the Research Station, Kentville, N. S. (C.O.G.).

X-DISEASE (virus) was found in the Niagara Peninsula, Ont. affecting some Bing trees in an orchard adjacent to chokecherries (R. W., W. S. C.). Three trees of Bing at Stoney Greek, Ont, and 1 tree of an unnamed variety at Vineland were found affected. Parts of each tree bore characteristic small, red, immature fruits while fruit on the remainder of the tree was normal. A number of choke-cherry bushes at Stoney Creek exhibited typical foliage symptoms (T. R. D., J. A. G.).

REPLANT PROBLEM (? nematodes). In the Niagara Peninsula, Ont., there are, under observation, 7 cases of a replant problem where sour cherries fail to respond to normal cultural treatments. Meadow nematode (Pratylenchus penetrans) counts in the orchard soil are high and soil fumigation tests have been set up to determine responses (R. W., W. S. C.).

PLANTING FAILURE, Newly set-out cherry trees frequently fail to grow satisfactorily in various areas in the Okanagan Valley, B. C. Loss of feeder roots is characteristic of the disorder and investigati'ons are underway to determine the cause (D. L. McI.).

PEACH

GRAY MOLD (Botrytis cinerea) killed peach seedlings in flats in a greenhouse at the Research Station, Summerland, B. C, (D. L. McIntosh).

BLACK KNOT (Dibotryon morbosum). Trace infections were seen on peach seedlings at the Research Station, Kentville, N. S. (C.O. Gourley).

BROWN ROT (Monilinia fructicola). Twig infections caused a slight die-back on Red Haven at Saanichton, B. C. (W. R. Orchard), One tree bore a sl, infection at Trout Creek Point in the Summerland, B. C. district (L. E. Lopatecki), Blossom blight and brown rot were not a problem in orchards in the Niagara Peninsula, Ont. in 1959, but brown rot took its usual toll in shipping (R. W., W. S. C.).

Blossom blight infection was meagre, even on unsprayed trees in the Laboratory orchard, St. Catharines, Ont. (G.C. Chamberlain), Trace infections only were seen in Kings Co., N.S. (C.O.G.).

STORAGE ROTS (Monilinia fructicola, Rhieopus nigricans). After 10 days in storage at St. Catharines, Ont., Vedette peaches showed 41% brown rot (M. fructicola) and 24.6% Rhizopus rot (G.C.C.).

BARK ROT (Phytophthora cactorum) killed some large limbs of Veteran peach at Summerland, B.C. Reports of limb infections were received from several Okanagan Valley districts (D, L. McI.).

LEAF CURL (Taphrina deformans). Scattered trace infections were observed on unsprayed trees at St. Catharines, Ont. (G.C.C.), and trace infections only occurred in Kings Co., N.S. (C.O. G.).

CANKER (Valsa cincta). Very few orchards in the Niagara Peninsula, Ont. are free from this disease. It is probably one of the most important factors in reducing peach production (R.W., W. S.C.).

WILT (Verticillium dahliae) was observed in several orchards in the Summerland area and elsewhere in the Okanagan Valley, B.C. (G. E, Woolliams).

BACTERIAL SPOT (Xanthomonas pruni). Leaf and fruit infection occurred in I orchard of June Elberta in the Vineland, Ont. district. Fruit loss was heavy. This orchard has been infected for a number of years. Bacterial spot appears on the variety Victory in most years in the Niagara Peninsula (R.W., W.S.C.).

YELLOWS (virus) was seen in 4 trees in a 5-acre block of Jubilee peaches at Niagara Falls, Ont. It caused premature ripening and decreased vigor in affected trees (G. C. C.).

CHEMICAL INJURY. Peaches growing in the vicinity of a manufacturing plant at Grimsby, Ont. were damaged slightly. Affected leaves develop water-soaked areas and then drop. The fruit ripens prematurely with a raised area on the suture. This damage has been occurring for a number of years (R.W., W.S.C.).

WINTER INJURY, There was more than the usual amount of dead wood in old peach trees in the Niagara Peninsula, Ont. in the spring of 1959. Some older trees died after blossoming (R. W., W.S.C.).

PLUM

BLACK KNOT (Dibgtryon morbosum). Light infections were seen in a home garden at North Vancouver, B.C. (H.N.W. Toms), Black knot was prevalent in N.B. (S.R. Colpitts). Infections ranged from trace on the variety Yellow Egg to sev. on an unnamed variety at Kentville, N.S. The ornamental species Prunus tomentosa was also affected at Canard, N. S, (C. O, Gourley).

PLUM POCKETS (Taphrina communis) was trace on Burbank plums at Upper Dyke, Kings Co., N.S. (C.O.G.).

PRUNE

BLACK KNOT (Dibotryon morbpspm). A large knot caused killing of branches in 1 tree at St. Catharines, Ont. (G.C.C.).

C. RJBES FRUITS

CURRANT

WHITE PINE BLISTER RUST (Cronartium ribicola). Very heavy infections occurred on the leaves of black currants at Hamiota and Fort Garry, Man, Infection was mod. on red currants at Clearwater Bpy, Ont. (B. Peturson, W.L. Gordon).

ANTHRACNOSE (Drepanopeziza ribis) was tr. on currants at the Research Station, Kentville, N. S. (C.O. Gourley).

CLUSTER CUP RUST (Puccinia cpricina). Trace infections were recorded at Kentville, N, S. (C.O.G.).

GOOSEBERRY

LEAF SPOT (Mycosphaerella ribis). A 2% infection occurred on gooseberries at the Research Station, Kentville, N, S. (C. O, Gourley).

LEAF SPOT (Phyllosticta grossulariae) was moderate at Trois Pistoles, Rimouski Co., Que, (D. Leblond),

POWDERY MILDEW (Sphaerotheca mors-uvae), Infection was severe on foliage and fruit at Royal Oak, Vancouver Island, B.C. Cleistothecia were present and asci well developed by 23 June (W, R. Orchard). The fruit in one garden at Fort Garry, Man. was destroyed by powdery mildew (B. Peturson). Infection was 5% on fruit of the variety White Smith at the Research Station, Kentville, N. S. (C.O.G.).

D. RUBUS FRUITS

RASPBERRY

CROWN GALL (Agrobacterium tumefaciens) affected 5% of the canes in a planting at Sussex, N.B. (S.R. Colpitts).

GRAY-MOLD WILT (Botrytis cinerea) destroyed 50% of the canes of raspberry seedlings at the Research Station, Kentville, N.S, (C.O. Gourley).

SPUR BLIGHT (Didymella applanata) affected 15% of the canes in a half-acre planting of Viking at Gagetown, N.B. No control measures had been carried out (S.R.C.). It was tr. in raspberries on the Research Station, Kentville, N.S. (C.O.G.).

ANTHRACNOSE (Elsinoe veneta). A mod. infection occurred at Picton, Ont. (G.C. Chamberlain), It was observed in a nursery at St. Cksaire, Rouville Co., Que. Twenty-six other nurseries inspected in Que. were free of anthracnose (J. Ringuet). A 10% infection was seen at Norton, Kings Co., N.B. (S.R.C.), and trace infections only were recorded in Kings and Annapolis counties, N.S. (C.O.G.).

CANE BLIGHT (Leptosphaeria coniothyrium), Infection was 5% at the Research Station, Kentville, N.S. (K.A. Harrison). A 2% infection was seen at Timberlea, Halifax Co., N.S. on black raspberry (C.O.G.).

LEAF SPOT (Mycosphaerella rubi) was tr, on the variety Trent at Melvern Square, Annapolis Co., N.S. (C.O.G.).

LATE LEAF RUST (Pucciniastrum americanum) was heavy in a few plantations near Gagetown, N.B. with some infections as high as 75% (S.R.C.). At Berwick, N.S., a 5% infection caused some defoliation (C.O.G.).

WILT (Verticillium albo-atrum) caused slight damage in a garden planting at Medicine Hat, Alta, (E.J. Hawn).

MOSAIC (virus) was found in 17/27 nurseries inspected in Que, Infections ranged from 0.1% to 8%(J.R.),

E. OTHER FRUITS

BLUEBERRY

TWIG BLIGHT AND FRUIT ROT (Gloeosporium sp,). Specimens of affected lowbush blueberries were received from Dolbeau in the Lake St. John district of Que, (D, Leblond),

POWDERY MILDEW (Microsphaera alni var. vaccinii). Affected lowbush specimens were submitted from Glenmore, Halifax Co., N. S. (C. L. Lockhart).

TWIG AND BLOSSOM BLIGHT (Monilinia vaccinii - corymbosi). Trace infections occurred in most lowbush fields in Charlotte Co., N.B. but damage was negligible (S.R. Colpitts). The first affected plants were found near Kentville, N. S. on May 25. Reports from extension workers indicate that the average infection in Nova Scotia fields was about 3% (C. L. L.).

DIEBACK (Phomopsis vaccinii). Infection was 1% on highbush blueberries, variety Rancocas, at Centerville, Kings Co., N. S. (C. L. L.).

WITCHES' -BROOM (Pucciniastrum goeppertianum) was present in trace amounts in all fields observed in Charlotte Co., N.B. (S. R. C.). Nine areas in Antigonish, Guysborough and Inverness counties, N. S., comprising 1500-2000 acres, were surveyed for the presence of witches' -broom. Two areas had infections of 5 and 10% respectively and 7 others had less than 2%. The areas surveyed had all been recently cleared from wooded sites with scattered fir trees. The presence of the alternate host accounts for the higher incidence of witches' -broom than the trace normally found in well-established fields (C. L. L.).

LEAF RUST (Pucciniastrum vaccinii). Sprout and first-crop fields at Collingwood, Cumberland Co., N. S. were heavily infected with leaf rust and premature defoliation resulted. The shoots, however, appeared healthy and showed excellent flower bud development. It appeared unlikely that the leaf rust would adversely affect next year's crop (C. L. L.).

GRAPE

DEAD ARM (Fusicoccum viticola). There were fewer reports of dead arm in the Niagara Peninsula, Ont. than in most years. Very little evidence of infection of current season's growth was observed. A 3% infection was seen on Seibel 10878 at Stamford, Ont. (G. C. Chamberlain).

DOWNY MILDEW (Plasmopara viticola). One minor outbreak was seen at Niagara-on-the-Lake, Ont. (G. C. C.).

POWDERY MILDEW (Uncinula necator) was prevalent as moderate infections in the Stamford, Ont. district (G. C. C.).

STRAWBERRY

GRAY-MOLD ROT (Botrytis cinerea). A cool, wet June favored the development of this disease in Queens and Sunbury counties, N. B. Infection rates ranged from tr, -50% (S. R. Colpitts). Infection was 50% on fruit, stalks and leaves in a heavily matted patch at Kentville, N. S. (K. A. Harrison).

LEAF BLIGHT (Dendrophoma obscurans), Trace amounts of leaf 'blight were recorded on the Research Station, Kentville, N. S. (C. O. Gourley).

LEAF SCORCH (Diplocarpon earliana), Trace infections only occurred at Kentville, N, S. (C, O. G.).

LEAF BLOTCH (Gnomonia fructicola). The varieties Sparkle, Catskill and Premier showed, on the average, a 1%infection at Kentville, N, S. (C. O, G.).

LEAF **SPOT** (Mycosphaerella fragariae). A planting of vigorously growing Sparkle plants in the Grimsby, Ont. area was heavily infected in Sept. (R. Wilcox, W, S. Carpenter), Most strawberry plantings in Queens and Sunbury counties, N. B. were infected (S. R. C.). Leaf spot was reported from all the commercial strawberry-growing areas of N. S. The weather conditions prevailing in the summer of 1959 were ideal for the spread of this disease (C.O.G.).

RED STELE (Phytophthora fragariae) caused moderate losses in 2 gardens at Lethbridge, Alta. (E. J. Hawn).

LEAF **SPOT** (Septoria acieulosa) was more prevalent in 1959 than in any previous season. It was found in Kings, Annapolis and Lunenburg counties and average infection was 10%(C. O. G.).

POWDERY MILDEW (Sphaerotheca humuli). Infections of 50% of the plants were seen at Melvern Square, Annapolis Co. and at Kentville, Kings Co., N. S. (C. O. G.). Strawberry plantings in Queens Co., P. E. I. were heavily infected in 1959. In a replicated planting of 22 varieties at Charlottetown, observations were made on the relative susceptibility to powdery mildew under conditions of natural infection. Red Glow, Armore, Stelemaster and Pocahontas were severely diseased whereas Blakemore and Catskill were unaffected (J.E, Campbell, D. B. Robinson),

WILT (Verticillium albo-atrum) was quite common in the Niagara Peninsula, Ont. and is becoming a serious factor in strawberry production in that area. The varieties Earlidawn, Pocahontas and Sparkle seemed particularly susceptible (R, W., W. S. C.). Twenty-five % of the plants were affected in a planting at Sheffield Mills, Kings Co., N. S. (C, O. G.).

ROOT ROT (various organisms) was reported from Melville, Sask, (T.C. Vanterpool). This trouble is quite general in plantings in N. B. (S.R.C.).

GREEN PETAL (virus) was found in the variety Churchill at Milton, Ont. (R. W., W. S. C.). This is the first report, to the Survey, of the occurrence of green petal in Ont. (D. W. Creelman). Infection was mod, on Senator Dunlop at Ste. Foy, Que. (D. Leblond), Green petal was found in all localities visited

in Que. but was severe only in fields in their third bearing year (R.O. Lachance). Its incidence was tr.-20% in fields in Queens Co., N. B. (S.R.C.). Infection was about 1% at the, Research Station, Kentville, N.S. (C.O.G.).

WITCHES'-BROOM (virus). Ten % of the plants were severely affected in a nursery planting of Senator Dunlop at Trois Rivières, Que. (J. Ringuet).

LEAF PUCKERING [cause unknown) was general in plantings in the Niagara Peninsula, Ont. A necrosis at the tip$ of young leaves causes the distortion (R.W., W, S. C.).