IV. DISEASES OF FRUIT CROPS

A. POME FRUITS

APPLE

FRUIT MOLD (Alternaria mali) was tr. on McIntosh fruit at Ange Gardien, Que. (D. Leblond).

FIRE BLIGHT (Erwinia amylovora) was prevalent on apples and crabapples in the Edmonton, Alta. district in the spring of 1960 (W.P. Campbell), and on crabapples at Lethbridge, Alta. (F.R, Harper). Specimens were seen from Waldheim, Sask. (T. C. Vanterpool). Scattered infections were noted in late June at the Exp. Farm, Morden, Man. near a previously known, and pruned out, center of infection. Thirty-one/103 trees examined in mid-July in the University orchard, Fort Garry, Man. were infected (W. A. F. Hagborg). It was mod. -sev. on Greening at Simcoe, Ont. (G. C. Chamberlain); slight damage occurred in a previously infected orchard nr. Lucknow, Ont. Two sprays of Agri-Strep during bloom appeared to give some control. Affected varieties, in apparent order of susceptibility, were: Alexander, King, Tolman Sweet, Northern Spy, Snow and McIntosh (J.R. Chard), Scattered infections were seen in 2 large orchards at Rougemont, Que. It appears to be on the increase in s.-w. Que. (D. W. Creelman, L. Cinq-Mars).

CANKER (Gloeosporium spp.) was sl. on nursery stock at Kelowna, B. C. The symptoms resemble those of perennial canker, but development is much more rapid (L. E. Lopatecki).

STORAGE ROT (Glomerella cingulata). Affected specimens were submitted to the Kentville, N. S. laboratory (C. L. Lockhart).

RUST (Gynosporangium globosum) was found on 200/250 trees examined in Prince Edward Co., Ont., infections ranging from sl.-10%. Ferbam sprays applied during the bloom period gave good control (B.E. Beeler). Specimens bearing heavy infections of pycnia on the upper surface of leaves were received from St. Jerome, Que, (D. L.).

CANKER (Wectria spp.). N. cinnabarina was identified on specimens of Spy and Wagener from Canard and? N. galligena was found on Cortland at Cambridge, N. S. (C. L. L.).

PERENNIAL CANKER (Neofabraea perennans) affected 2-3% of two-year old nursery stock at Kelowna, B.C. Perennial canker and bull' s-eye rot are on the increase in wetter areas of the Okanagan Valley (L.E.L.). Populations of the woolly aphis, associated with the disease, are increasing in the Okanagan Valley (W.R. Foster).

STORAGE ROT (Penicillium spp.). Loss of McIntosh and Cortland in cold storage at Fredericton was about 2% in February (S.R. Colpitts).

CANKER **AND STORAGE ROT** (Pezicula alba Guthric = Gloeosporium album Osterw.). The Gloeosporiurn stage was found in cankers on 100% of 20-year old McIntosh trees in an orchard at Rockland, N.S. This orchard **was** under high nitrogen fertilization with hen-house litter. Another 20-year old block was 20% infected. It was also found sporulating on mummified, overwintered fruits at Kentville, N. S. Lenticel infections, yielding G. album affected 97% of the fruit of **one** lot of Northern Spy in storage at Kentville (C.L.L.). E. J. Guthrie, Trans. Brit. Mycol. Soc. 42: 502-506, 1959 described Pezicula alba n. sp. as the perfect stage of Gloesporium album. The canker phase of this disease has not been previously reported to the Survey. See also **Ross** and Lockhart (Can. Plant Dis. Survey 40: 10-14. 1960) (D. W. **G.**).

COLLAR ROT (Phytophthora cactorum) girdled and killed isolated trees on E.M. VII and MM 106 rootstocks in several orchards at Summerland, B. C. (D.L. McIntosh). The dwarfing rootstocks, E. **M.** II and E. **M.** VII were frequently found affected (W. R. F.).

POWDERY MILDEW (Podosphaera leucotricha) was found, mainly **on** terminal growth, in most orchards in the B.C. Interior. Very little fruit infection was seen. Affected varieties were McIntosh, Delicious, Jonathan, Newtown and Winesap (D.L. McI.). Its incidence in the Okanagan Valley was the highest since 1955 (W.R.F.). Light infections were reported on McIntosh in Niagara Peninsula, Ont, orchards (G. C. C.). It was well controlled by sulfur sprays in Eastern Ont. (B. E. B.).

CALYX-END ROT (Sclerotinia sclerotiorum). Trace infections only were found on McIntosh, Red Rome Beauty and Gravenstein in N.S. orchards (J. F. Hockey).

CANKER (Valsa leucostoma). The Cytospora stage was found on mummified fruit of Cortland and on branches of other varieties in a frost-damaged orchard at Farnham, Que. (D.L.).

SCAB (Venturia inaequalis). Many enquiries and specimens were received at Vancouver, B.C. from home gardeners. **A** few cases of severe defoliation were reported (H. N. W. Toms). Pin-point or storage scab occurred at various localities in the Okanagan and Kootenay districts in B. G. Late-August rains favored infection (D.L. McI.). Several early-season infection periods occurred in Essex *Co.*, Ont. and unsprayed trees were heavily infected. However, most commercial orchards, which were properly sprayed, suffered negligible losses (J. Cutcliffe). Unsprayed McIntosh at St. Catharines, Ont. were 100% infected *(G.C.C.)*. Most orchards in s.-w. Que. were free of scab. One sev. infected orchard of large, closely planted trees was seen at Rougemont (D. W.C. , (L.C. -M.) Seven infection periods were recorded at Farnham, Que. between 8 May and 18 June. Only where fungicide applications were poorly timed did any appreciable infection occur. Some pin-point scab developed at the end of the season (R. Desmarteau). Properly sprayed orchards in Kamouraska Co., Que. had little scab, although sev. infections were seen at St. Pacôme,

St. Pascal, Riviere Ouelle and St. Denis (L. J. Coulombe). Scab was generally well controlled in the St. John River valley in N.B. despite several heavy infection periods in May. Weather conditions in July, Aug. and Sept. were unfavorable for secondary infections (S.R.C.). Apple scab was not a serious problem in N.S. in 1960 and most growers obtained excellent control. Infection periods at Kentville were fairly numerous during May (3-heavy) and June (6-mod. or heavy, 3-slight) but July and August were very dry and no late scab was found. The first infection period occurred May 9-10 and the first lesions were observed on 26 May (R.G. Ross). Light to moderate infections were seen, late in the season, in P. E.I. (J.E. Campbell). Sl. infections developed at St. John's West, Nfld. (O.A. Olsen).

FRUIT BLOTCH (? virus) was found in all Stayman orchards inspected in various parts of B. C., ranging from a few to 50% of the trees. The symptoms, fruit blotching, russetting and distortion which cause down-grading and culling of fruit were unusually sev. in 1960 and there was good correlation with leaf pucker occurrence. Considerable evidence of natural spread has been accumulated and there has been one probable experimental transmission (M. F. Welsh).

LEAF PUCKER (virus) with associated fruit symptoms, was found in 9 McIntosh trees in 4 orchards at Summerland, Rutland, Glenmore and Cawston in the Okanagan Valley, B.C. Symptoms on leaves and fruit were more severe than in any of the 6 seasons previously recorded. The characteristic shallow fruit pitting was often accompanied by ring russetting and fruit distortion, causing reduction in grade and culling. One tree was found with leaf symptoms but with normal fruits (M.F. W.).

RING RUSSETTXNC (? virus) was present in all Newtown orchards inspected in the south Okanagan Valley, B.C. Orchards had from a few to 50% infected trees at Oliver, Penticton, Kaleden, Naramata, Cawston, Summerland and Kelowna. It was also reported from the northern parts of the Valley. Symptom expression on leaves was complicated by the common occurrence of Mg deficiency on Newtown. Heavy russetting of the entire crop was common, A similiar condition, accompanied by leaf flecking, was seen on 2 trees of McIntosh at Summerland, and Psnticton (M. F. W.).

MOSAIC (virus) was seen on Tolman Sweet, McIntosh and Northern Spy in the Georgian Bay region of Ont. (R.S. Willison, W. Fox). It occurred on Wealthy at Rougemont, Que. in the same orchard from which it was first reported from the province in 1959 (D. W.C., L.C. -M.).

MINERAL DEFICIENCIES. Deficiencies of boron, magnesium, zinc and manganese were more prevalent in the Olcanagan Valley, B.C. than in recent seasons. Mg deficiency on Newtown was especially common. The hot, dry season may have intensified symptoms (M.F. W.). Mg deficiency was very prevalent in e. Ont. (B.E.B.), and in all districts of s. -w. Que. (R. Desmarteau). Boron deficiency was observed on Melba at Blomidon, N. S. (R. G. R.).

JONATHAN SFOT (non-parasitic) was sl. -mod. on Wealthy and Wolf River at Ste. Famille, Ile Orleans, Que. (D.L.).

SCALD (non-parasitic) was sl. -sev. on stored apples at Quebec City, St. Hilaire and Three Rivers, Que. between Feb. and April (D.L.). A 60% loss of Cortland apples stored in barrels was experienced at Fredericton, N. B. in Feb. Air circulation was poor (S.R.C.).

SILVER LEAF (cause undetermined) affected 3 trees in a large orchard at Abbotsford, Que. One tree was sev. affected with accompanying fruit symptoms consisting of a watersoaked appearance of the fruit surface. The owner stated that the tree bore a high percentage of watercore fruit in 1959 (D.W.C., L. C. -M.).

SOGGY BREAKDOWN (non-parasitic) was encountered in retail markets in Quebec City in Feb. and March (D.L.).

CHEMICAL INJURY. Tips of young shoots were affected in a home garden at Vancouver, B. C. after the lawn was treated with 2,4-D (H.N.W.T.). An improperly mixed application of mercury, glyodin and captan caused sev. foliage burn, fruit russetting and fruit drop at St. Stephen, N.B. (S.R.C.).

WINTER INJURY. Evidence of winter injury incurred in the 3 previous severewinters is widespread in s.-w. Que. Low-lying areas were the most affected, but damage was seen everywhere (D. W.C., L. C.-M.); extensive injury was also seen at Deschambault and on Ile Orleans, Que. Many trees were completely killed (D. W.C., D. L.). Trees in the Oromocto - Fredericton area of N.B. continue to die from the effects of the severe 1958-59 winter. The hot, dry summer of 1960 eliminated many trees which were in a weakened condition (S.R. C.).

PEAR

FIREBLIGHT (Erwinia amylovora) was at its lowest ebb in many years in the Okanagan Valley, B. C. Slight, late-season infections were seen on Bartlett at West Summerland and Naramata (L.E. Lopatecki). It was reported from Lake Lenore, Sask. (T. C. Vanterpool). Fireblight occurred, shortly after bloom, for the third consecutive year, in a 7-acre block of Bartlett and Gorham in Colchester South Twp. in Ont. Despite prompt pruning, the disease persisted throughout the summer, necessitating a heavy cutting back of many trees (J. Cutcliffe). In was sev. on 6/8 trees of Flemish Beauty in the laboratory orchard at St. Catharines (G.C. Chamberlain); it was 1-sl. 1-sev./3 orchards at Arkona and sev. in an orchard nr. Goderich, Ont. Barlett, Bosc, Anjou and Clapp's Favorite were affected. No infection was found on Kieffer (J.R. Chard).

CANKER (Myxosporium corticola) killed a large branch on a tree at Sannichton, B.C. (R.G. Atkinson, W.R. Orchard).

ROOTLET INFECTION (Phytophthora cactorum). Feeding rootlets collected from trees in good vigor at Summerland, B.C. from soil known to be infested with P. cactorum showed a high degree of infection with this organism (D. L. McIntosh).

POWDERY MILDEW (Podosphaera leucotricha) affected a small percentage of fruits in several orchards in various districts in the B.C. Interior (D.L. McI.).

BLAST (Pseudomonas syringae). A heavy infection occurred in a 10-acre block of Bartlett in Essex Co., Ont. Within 3 weeks most terminals were affected and a rigorous pruning program throughout the summer resulted in the removal of over 50% of the bearing wood. Infections of 60-70% were reported in widely separated orchards in the Harrow and Leamington areas. Mod.-sev. damage was also observed in the Collingwood, Ont. district where the disease seems well established and is of prime concern to the growers who are experiencing considerable difficulty with control (J, Cutcliffe, J.A. Carpenter). The only other report to the Survey, of this disease, is one by W. E. McKeen from the Saanich Peninsula, B.C. (C.P.D.S. 34: 109-110. 1955). (D. W. Creelman).

SCAB (Venturia pirina) was sev. on Bartlett at Nakusp in the Arrow Lakes district of B.C. (M. F. Welsh). It caused 100% loss of fruits in a 1-acre planting of Bartlett at Binbrook, Ont, In plots of Flemish Beauty at St. Catharines it was 85% on unsprayed trees, 33% on glyadin-sprayed and 20% on Niacide-M-sprayed trees (G. C. C.). Severe damage was recorded in an orchard at Granby, Que. (D. W. Creelman, L. Cinq-Mars). A few trees showed an average 3% infection at Burtts Corner, York Ca., N.B. (S.R. Colpitts). In 1959 and 1960 a pear grower at Bridgetown, N.S. had great difficulty in controlling scab. In 1960, an examination of the previous year's wood revealed many overwintering lesions which contained viable conidia of V, pirina. Similiar conditions were found in an orchard at Gaspereaux, N.S. This is the first report of pear scab overwintering on the wood in Nova Scotia (R.G. Ross),

FRECKLE PIT (? virus) was seen on 50 trees of d'Anjou in the Okanagan and Similkameen Valleys in B.C. This condition, not previously recognized, differs from virus pit and the two forms of cork spot reported on d'Anjou in 1959 (C.P.D.S. 39: 71-72. 1960). Orchard records show that it recurrs in the same trees in successive seasons and causes a reduction in fruit grade (M.F.W.).

SLOW DECLINE (cause unknown). Many pea$ trees in the Okanagan Valley, B.C. have declined in vigor and productivity progressively over a period of years (D.L. McI.).

SUDDEN DECLINE (cause unknown) of pear trees occurs frequently in B.C. orchards. Trees wilt and die suddenly just before harvest. Only a few trees in any orchard are affected in any one season. Symptoms usually

appear in August on trees that were apparently healthy until the onset of wilting (D.L. McI.).

B. STONE FRUITS

APRICOT

CORYNEUM BLIGHT (Stigmina carpophila Lev.) M.B. Ellis = Clasterosporium carpophilum) (Lev.) Aderh.) (see C.M.I. Mycological Paper 72: 56. 1959) affected a small percentage of fruits in several orchards in the B.C. Interior (D.L. McIntosh). It was sev. at Creston, B.C. (W.R. Foster). Infection was heavy on unsprayed trees of Reliable at Harrow, Ont. No infection was seen on Early Orange (C.D. McKeen).

WILT (Verticillium dahliae) occurred in several orchards in the vicinity of Summerland, B. C. (G. E. Wooliams).

RING POX (virus) continues to spread slowly in the Okanagan and Similkameen Valleys, B.C. New infections appear both adjacent to and far from existing infections. Two forms of spread and possibly two vectors are indicated (T.B. Lott, F.W.L. Keane).

CHERRY

CORYNEUM BLIGHT (Stigmina carpophila). Incidence was high in the Fraser Valley of B.C. (W.R. Foster).

BLACK KNOT (Dibotryon morbosum). Black knot was found on cherries on the U. of Man. campus, Winnipeg, Man. (B. Peturson). Specimens were received from Riviere du Loup, Charlesbourg and Quebec City, Que. (D. Leblond). It was sev. in untended orchards in Kamouraska Co. Que. (R.O. Lachance), and prevalent in most home gardens in N.B. (S.R, Colpitts).

LEAF SPOT (Higginsia hiemalis) was mod.-sev. on Bing, Lambert and Royal Anne at Nakusp and Burton in the Arrow Lakes, B.C. district. It caused some spotting of fruits and premature defoliation (M.F. Welsh). It was general and sev. on Montmorency in the Niagara Peninsula, Ont. (G.C. Chamberlain), and general in home gardens, causing defoliation, in N. B. (S.R.C.).

BROWN ROT AND BLOSSOM BLIGHT (Monilinia fructicola) Although blossom blight was as high as 50% on unsprayed trees at Renata in the Kootenays, B.C., infection did not spread to green fruit and brown rot was negligible at harvest. Set was reduced in some cases by 20-30%. Trees protected by Phygon sprays had about 6% blossom blight (L.E. Lopatecki). Brown rot caused sev. losses in some orchards in the western portion of the Niagara Peninsula, Ont. At St. Catharines, Yellow Spanish showed 22.7% fruit rot, Napoleon, 10.2, Bing, 8.5 and Schmidt, 3.6% (G.C.C.). A sev. infection was seen at St. Simon, Que. (D.L.).

BROWN ROT (Monilinia laxa) was sl. at Burton, Edgewood and Nakusp, B.C. It had not previously been found in the Arrow Lakes district (L.E.L.).

BLOSSOM AND TWIG BLIGHT (Monilinia padi) caused extensive dying-back and cankering of twigs and young branches on sour cherries near Charlottetown, P.E.I. (D.W. Creelman). It was less severe than in 1959 but was found to be general throughout the province (G. W. Ayers).

TRUNK ROT (? Phytophthora cactorum) girdled and killed 3 trees of the variety Van at Burton in the Arrow Lakes district of B.C. Two trees of the same variety were killed at Edgewood in the same area in 1959. P. cactorum is suspected to be the cause (M. F. W.).

POWDERY MILDEW (Podosphaera clandestina) (Wallr. ex Fries) Lev. = P. oxyacanthae (DC.) de Bary). A 100% infection, causing stunting of twig growth, was seen in a nursery plantation at Niagara, Ont. Powdery mildew was also present in many commercial orchards in the Niagara Peninsula (G.C.C.). It seemed well controlled in Prince Edward Co., Ont. by sulfur sprays (B.E. Beeler).

CQRYNEUM BLIGHT (Stigmina carpophila) (see under Apricot). Specimens were received from Agassiz, B.C. (H.N.W. Toms).

LEAF CURL (Taphrina cerasi) infected a single tree at Naramata, B.C. This is the first occurrence in many years in the Okanagan Valley (L.E.L.).

LITTLE CHERRY (virus). Symptoms were recognized in all varieties in plantings at Burton and MacKinnon Landing in the Arrow Lakes, B.C. district, but not at Edgewood, Needles and Nskusp. This distribution pattern is essentially the same as in 1949 when the last survey was made. There appears to have been little spread since 1949 (M.F.W.). The disease is still unreported in the Okanagan and Sirnilkameen Valleys, B.C. (T.B. Lott, F. W. L. Keane). All varieties of sweet cherries in the West Kootenays, B.C. were affected (W. R. F.).

MOTTLE LEAF (virus} severely affected 1 Bing tree in the Okanagan Valley (T. B. L., F. W. L. K.).

RASP LEAF (virus) affected cherry trees of various varieties in the Okanagan-Similkameen district, B.C. Inoculations from sweet cherry into apple resulted in enations on the apple leaves similar to those on cherry. Such enations have never been observed to occur naturally on apple (T. B.L., F.w.L.K.).

SMALL BITTER CHERRY (virus), A single Bing tree was reported infected at Oliver, B.C. (T.B.L., F.W.L.K.).

TATTER LEAF (virus) was seen on Bing and Schmidt in several orchards in the Grimsby, Ont. area (G.C.C.).

TWISTED LEAF (virus) occurred on a number of varieties of sweet cherry at various places in the Okanagan - Similkameen Valleys, B.C. (T.B. L., F. W.L.K.).

YELLOWS (virus) was prevalent on Montmorency in the Niagara Peninsula, Ont. Yellowing and leaf drop were sev. in 1960 (G.C.C.), Symptoms were observed on 1 tree at the Research Station, Kentville, N. S. (D. W. C.).

CHEMICAL 'INJURY. Burning of foliage and partial defoliation occurred in 2 Vancouver home gardens after the application of malathion by a custom sprayer (H. N. W. T.).

PEACH

BROWN ROT (Monilina fructicola) was not a factor in orchards in the Niagara Peninsula, Ont, in 1960 but some rot developed in storage (G. C. Chamberlain). Trace infections developed in orchards in Kings and Annapolis counties, N.S. (C. O. Gourley).

POWDERY MILDEW (Podosphaera clandestina (Wallr. ex Fr.) Lev. = P. oxyacanthae (DC.) de Bary) infected terminal growth and caused disfigurement of fruit in the lower Fraser Valley, B. C. (H. N. W. Toms).

RHIZOPUS ROT (R. nigricans). Rain and cold weather during the harvest season and a consequent high proportion of split peaches contributed to a high incidence of Rhizopus rot at canneries at Penticton and' Summerland, B.C. Losses were estimated at about $40,000 (L.E. Lopatecki).

CORYNEUM BLIGHT (Stigmina carpophila) (see under Apricot) was reported from home gardens in the Vancouver, B. C. area (H.N. W.T.) A small percentage of fruits in several orchards in the B.C. Interior were affected (D.L. McIntosh). Incidence was high in the Fraser Valley and sev. damage was encountered at Creston, B.C. (W.R. Foster).

LEAF CURL (Taphrina deformans) affected home garden trees in Vancouver, B. C. (H.N. W, T.). It was mod. on unsprayed trees at St. Catharines and Vineland (G.C.C.), and was 2-sev. 1-mod. in 12 orchards examined in Lambton Co., Ont. (J.R. Chard). Trace infections occurred at Kentville, N. S. (C. O. G.).

WILT (Verticillium dahliae) was found in several orchards in the Summerland, B. C. district (G. E. Woolliams). A number of orchards in

Essex Co., Ont. showed wilt in 2-5 year-old trees in early July. Two orchards at Leamington had 8 and 12% infection respectively. Few trees were killed but most lost one or more branches. In all cases, the infection could be traced to previous crops of susceptible hosts such as tomatoes or potatoes (C. D. McKeen, J. Cutcliffe).

BACTERIAL SPOT (Xanthomonas pruni) was observed in most peach orchards in Essex Co., Ont. Susceptible varieties, such as July Elberta and Veteran were severely defoliated by mid-summer and other varieties dropped leaves to a lesser extent. Spots appeared on fruits of susceptible varieties and, where cracking or pitting occurred, the fruits were unmarketable (J.C.).

WESTERN X-DISEASE (virus), although still present in the Okanagan Valley, B. C. , is less important economically than formerly. The low rate of spread may be related to the control of the vector through the widespread use of DDT (T.B. Lott, F. W. L. Keane).

CHEMICAL INJURY. One tree in a Vancouver, B.C. garden was severely defoliated after spraying with malathion (H. N. W.T.). 2,4-D, used at high concentrations near an orchard at Oliver, B.C. caused injury resulting in the culling of about 8 tons of fruit. Affected fruits developed a red, swollen lip on the suture near the stem end. **This** swelling softened prematurely (M. F. Welsh).

PLUM

BLACK KNOT (Dibotryon morbosum) was sev. in untended orchards in Kamouraska Co. , Que., killing a number of trees (R.O. Lachance). It was prevalent in home plantings in N. B. (S.R. Colpitts), and tr. infections were seen at Upper Dyke and Kentville, N.S. (C.O. Gourley). It was extremely sev. in a small plum orchard at Charlottetown, P. E.I. (J,E. Campbell), Black knot was prevalent on plum trees at various points in the Avalon Peninsula, Nfld. (D. W. Creelman).

LEAF SPOT (Phyllosticta circumcissa) was sev. on a white plum variety at Rimouski, Que. (D. Leblond).

CORYNEUM BLIGHT (Stigmina carpophila) (see under Apricot) was sev. on plum trees at Piopolis, Frontenac Co., Que. (b.L.).

PLUM POCKETS (Taphrina communis). Slight infections were reported from 3 locations in Sask. (R.J. Ledingham). Native plums were affected at Winnipeg Beach and Grand Marias, Man. (B. Peturson). Specimens were received from Notre Dame du Lac and Sillery, Que. (D.L.), and tr. infections were seen on Burbank at Upper Dyke, N.S. (C.O.G.).

CHEMICAL INJURY. Burning of foliage and partial defoliation followed application of malathion in a home garden at Vancouver, B.C. (H.N. W. Toms).

GUMMOSIS, apparently following winter injury was seen on 5/24 trees at Granby, Que. (D.W. Creelman, L. Cinq-Mars).

IRON INCLUDED CHLOROSIS was common in many gardens in the Winnipeg, Man. district (B.P.).

PRUNE

BROWN ROT (Monilinia fructicola) affected 18% of the fruit of Stanley prune in common storage for 7 days at St. Catharines, Ont., although no infection was seen on the tree (G.C. Chamberlain).

C. RIBES FRUITS

CURRANT

WHITE PINE BLISTER RUST (Cronartium ribicola). A *60%* infection was seen on red currant at Westfield, Kings Co., N.B. (S.R. Colpitts). It caused sev. defoliation of susceptible varieties of black currant in Kings Co. ,N. S. (J.F. Hockey).,

ANTHRACNOSE (Drepanopeziza ribis). A sev. infection developed on white currants at Rimouski, Que. (D. Leblond). It was sev. on black currants at St. John's West, Nfld. (O.A. Olsen).

CLUSTER CUP RUST (Puccinia caracina) affected 80% of the currants in a planting at St. Pascal, Que. (L.J. Coulombe). Infection was mod. on red and black currants at the Research Station, Fredericton, N.B. and sl. infections were noted at the Exp. Farm, St. John's West, Nfld., (D.W. Creelman).

POWDERY MILDE'W (Sphaerotheca mors-uvae). Affected specimens from Yorkton and Saskatoon, Sask. were seen (T.C. Vanterpool, R.J. Ledingham).

GOOSEBERRY

LEAF SPOT (Mycophaerella ribis). Ten percent of the foliage of the variety Poorman showed yellowing early in Aug. at Kentville, N.S. and extensive defoliation was anticipated (K.A. Harrison).

DOWNY MILDEW (Plasmopara ribicola) was 1-sev. 1-mod. 2-sl./5 bushes in an Ottawa, Ont. garden. The only other Canadian report of P. ribicola on gooseberry in Canada is also from Ontario. (C.P.D.S. 25:-96. 1946) (I.L. Conners).

CLUSTER-CUP RUST (Puccinia caricina) was tr. on gooseberries at Kentville, N. S. (K. A. H.).

D. RUBUS FRUITS

RASPBERRY

CROWN GALL (Agrobacterium tumefaciens). Every fruiting cane in one seedling line at the Research Station, Kentville, N.S. showed infection at the point where buds grew to form laterals (K.A. Harrison).

GRAY MOLD (Botrytis cinerea). Canes of 2 seedling lines at the Kentville, N,S. Research Station bore numerous fruiting sclerotia in mid-May. Application of the organic. mercurial, Erad, prevented germination of approximately 90% of the sclerotia on standing stems. A few new canes showed sl. infection at the end of the season (K.A.H.).

SPUR BLIGHT (Didymella applanata). Infected specimens were received from Turtleford, Sask. (T.C. Vanterpool). The variety Latham was mod. infected at Binbrook, Ont. (G.C. Chamberlain). A seedling line at Kentville, N.S. had 25% of the new canes infected. Commercial plantings were slightly affected (K.A. H.).

ANTHRACNOSE (Elsinoe veneta) occurred in patches in a 6-acre field of Willamette at Greendale, nr. Chilliwack, B.C. (R. Stace-Smith). Mod. infections were reported on Taylor and Madawaska in the Niagara Peninsula, Ont. (G.C.C.) Viking was mod. attacked in Kings and Sunbury counties, N. B. (S.R. Colpitts). A light, general infection developed on unsprayed seedling lines at the Research Station, Kentville, N.S. The more susceptible lines were heavily infected at the end of the season although standard varieties in the Kentville area were generally clean. Infection was sev. on Cuthbert in the Sydney area (K.A.H.).

CANE BLIGHT (Leptosphaeria coniothyrium) was sev. on fruiting canes of Willamette at Melvern Square, N.S. (J.F. Hockey).

YELLOW RUST (Phragmidium rubi-idaei). The variety Washington was infected in B.C. This variety, replaced largely by Newburgh in the 1950's, is now seldom grown commercially in B.C. (R.S.-S.). Mod. -sev. infections were reported from St. Romuald, Levis Co., Que. (D. Leblond).

DIE-BACK (Phytophthora sp.) occurred in wet, low-lying areas of Lulu Island, B. C. (H.N.W. Toms).

LATE YELLOW RUST (Pucciniastrum americanurn) was tr. on druplets of Viking at Kentville, N.S. This rust is usually quite destructive on Viking (K.A.H.).

POWDERY MILDEW (Sphaerotheca macularis (Wallr. ex Fries) W.B. Cke, = Sphaerotheca humuli (DC.) Burr. affected a few shoots on Creston 151 at Summerland, B.C. (D.L. McIntosh).

WILT (Verticillium albo-atrum) was severe in a planting at Ste. Anne de Beaupre, Que. (D.L.). A 20% infection was seen in a patch of Viking planted on soil previously cropped to potatoes nr. Kentville, N. S. (K. A.H.).

LEAF CURL (virus) has occurred in Lloyd George and Viking for some years in home gardens in the Okanagan Valley, B.C. Greenhouse experiments in 1960 showed the causal virus to be the same as the one causing leaf curl in Ontario (R.S. -S.). A few stools were infected at Beamsville, Ont. (G.C.C.).

MOSAIC (virus) was very common and caused a marked reduction in vigor and growth in a planting at Beamsville, Ont. (G.C.C.). It was tr. in a planting at Granby, Que. (D. W. Creelman, L. Cinq-Mars). Mosaic caused yield reduction in a planting at Sussex, N. B. (S. R. C.), and several introduced breeding lines had to be discarded at Kentville, N.S. because of mosaic (K.A.H.).

WINTER KILLING caused the loss of 20% of a planting of Viking at Bell's Corners, Ont. There was no evidence of anthracnose or other cane diseases (D.W.C.).

LIME INDUCED CHLOROSIS was quite prevalent in plantings in the Winnipeg, Man. area (B. Peturson).

BLUEBERRY

TWIG AND BLOSSOM BLIGHT (Botrytis cinerea). Infection was 2% on highbush blueberries early in the season at Kentville, N. S, (C. L. Lockhart).

RED LEAF (Exobasidium vaccinii) was sl. in a large barren at Avondale, Nfld. (D. W. Creelman, O.A. Olsen).

CANKER (Fusicoccum putrefaciens). All plants of all varieties of highbush blueberries at the Farm School, La Gorgendiere, Que. were diseased, each having several dead stems. Both conidial and apothecial stages of the organism were present (D.W.C., D. Leblond). Canker was tr. in a 5-acre field at Morristown, N.S. This planting had been free of canker for about 10 years, All plants in a small planting on the Exp. Farm St. John's West, Nfld. were infected. Many had been completely killed (D. W. C.).

POWDERY MILDEW (Microsphaera penicillata (Wallr. ex Fries) Lev. var vaccinii (Fr.) W.B. Cke. = Microsphaera alni (Wallr.) Salmon var vaccinii (Schw.) Salmon) occurred as trace infections at the Blueberry Sub-station, Avondale, Nfld. (D.W. C.).

TWIG AND BLOSSOM BLIGHT (Monilinia vaccinii-corymbosi) was tr. -2% at St. Stephen, N.B. Dry weather apparently kept it in check (S.R. Colpitts). It averaged tr. at Steam Mill, N.S. in a 6-acre field although in isolated patches 60% of the spurs were blighted and bore conidia (J.F.H.).

WITCHES' BROOM (Pucciniastrum goeppertianum) was present in all N.B. fields visited but was severe in none (S.R.C.). Trace infections were found in a 5-acre field of highbush blueberries in a corner near coniferous woods at Morristown, N. S. (D. W. C., R. G. Ross). Infection was tr. -2% in a large barren at Avondale, Nfld. (D.W.C., O.A.O.).

STUNT (virus) affected 2 plants of the variety Jersey in a 5-acre field of highbush blueberries at Morristown, N. S. (D. W. C.).

CRANBERRY

POWDERY MILDEW (Microsphaera penicillata) (Wallr. ex Fries) Lev. var vaccinii (Fr.) W.B. Cke. = Microsphaera alni (Wallr.) Salmon var vaccinii (Schw.) Salmnn). Cleistothecia were found on leaves of young plants in a recent planting on Lulu Island, B.C. (H.N.W. Toms, D.B.O. Savile). This constitutes the first report to the Survey of this organism on cranberry in Canada. It may also be a new record for the Pacific Northwest (D.W. Creelman).

ROSE BLOOM AND RED LEAF (Exobasidium vaccinii) was observed in a bog on Lulu Island, B.C. (H.N.W.T., D.B.O.S.).

HARD ROT (Monilinia oxycocci) affected about 1%of the fruits from a bog at Lulu Island, B. C. Although the owner had observed the condition since 1948 it had not been reported from this area (H.N. W. T,}.

E. OTHER FRUITS

GRAPE

CROWN GALL (Agrobacterium tumefaciens) was present on a French hybrid at Stamford, Ont. This particular variety appears very susceptible and suffers die-back of cane growth and loss of vines (G.C. Chamberlain).

DEAD ARM (Fusicoccum viticola). At St. Catharines, Ont., 30-45% of the shoots of Seibel 10878 showed lesions on the shoots (G.C.C.),

DOWNY MILDEW (Plaamopara viticola) was general on foliage of Delaware and Agawam at St. Catharines, Ont. in June. The first variety was more seriously affected. In August, 3-7.5% of the fruit clusters of unsprayed Fredonia were destroyed at Niagara-on-the-Lake, Ont. Traces only were seen on sprayed vines (G.C.C.). Infection was mod. -sev. in an unsprayed planting at Granby, Que. in July. Many fruit clusters were affected (D. W. Creelman, L. Cinq-Mars.)

POWDERY MILDEW (Uncinula necator) was very general and widespread on most varieties in the Niagara Peninsula, Ont. Infection of fruit stems was common and the disease caused a delay in ripening and poor fruit quality. The variety Concord, usually not seriously affected, showed

heavy infections. In some districts the disease was in epidemic proportions; Agawan was completely infected at Beamsville (G. C. C.).

STRAWBERRY

GRAY **MOLD** (Botrytis cinerea) caused slight damage in a garden patch at Lethbridge, Alta. (P. E. Blakeley). Trace amounts were observed during harvest in the St. Catharines, Ont. district. There were reports of serious losses in some commercial plantings (G.C. Chamberlain). Gray mold, in tr. -sl. amounts was found in many N.B. plantings but the onset of dry weather prevented serious losses (S.R. Colpitts). Infection was heavy in a field in third-crop year nr. Mt. Stewart, P.E.I. (D. W. Creelman).

GANGRENE (Botrytis cinerea, Rhizoctonia solani, Rhizopus spp.). Specimens were received from St. Etienne des Gres, St. Maurice Co. and from St. Jean, Ile Orleans, Que. It usually occurs after frost injury (D. Leblond).

SLIME MOLD (Diachea leucopodia (Bull.) Rostr.) affected leaf blades and pedicels of British Sovereign at Yarrow, B.C. The damage, if any, could not be assessed (H.N. W. Toms, D. B.O. Savile).

LEAF BLIGHT (Dendrophoma obscurans) was commonly found on the varieties Cavalier and Redcoat at the Horticultural Station, Vineland, Ont. Infection was found on blossoms and leaf petioles. These varieties appear quite susceptible (G.C.C.). Leaf and calyx infection was about 2% on Sparkle at the Research Station, Kentville, N.S. (C.O. Gourley),

LEAF BLOTCH (Gnomonia fructicola). Sparkle showed 2% leaf and calyx infections at the Research Station, Kentville, N.S. (C.O.G.).

LEAF SPOT (Mycosphaerella fragariae) was mod. on Cavalier at Vineland, Ont. (G. C. C.). Early infections were noted in Prince Edward Co., Ont. but spread was checked by fungicidal sprays (B.E. Beeler). Infected specimens were received from Three Rivers and Boucherville, Que. (D.L.). Leaf spot was present in all areas of N.B. Some plantations were heavily infected, but generally it was light (S.R. C.). The varieties Sparkle and **Louise** averaged 50% infection at Berwick, Blomidon, Kentville and Chester Basin, N.S. (C.O.G.). It was reported, chiefly on Senator Dunlop, from all commercial strawberry plantations in P. E.I. Spring burning appears to give good control of leaf spot. (J.E. Campbell). Several varieties in a variety test at St. John's West, Nfld. were affected. Mont **Rosa,** a runnerless variety seems highly susceptible (D. W. C., O.A. Olsen).

RED STELE (Phytophthora fragariae) was observed on a number of farms in the southern part of Vancouver Island and in the Fraser Valley, B.C. (W.R. Foster). Mod. damage was observed in a small commercial planting nr. Lethbridge, Alta. (P.E. Blakeley). It caused a 50% loss of Cavalier plants in a field planted in a low, moist area at Centerville, N.S. (C. O. G.).

DECLINE (Pratylenchus penetrans). A field at Cottam, Ont. was infected. Affected plants were stunted with necrotic roots (W. B. Mountain, R. M. Sayre).

LEAF SPOT (Septoria aciculosa) was tr. at the Research Station, Kentville, N.S. (C.O.G.).

POWDERY MILDEW (Sphaerotheca macularis Wallr. ex Fries) W. B. Cke. = Sphaerotheca humuli (DC.). Burr.). Incidence was high on Vancouver Island and low in the Fraser Valley, B.C. (W.R.F.). Specimens were received from St. Dominique, Bagot Co. and St. Ephrem, Beauce Co., Que. (D. L.). Tr. infections were seen on Sparkle at Melvern Square, N.S. (C.O.G.), and most commercial plantings in Queens Co., P.E.I. had sl. -mod. infections (J. E. C.).

WILT (Verticillium spp.). V. ? dahliae caused wilt in some plantings in the Summerland, B. C. district (G. E. Woolliams). V. albo-atrum caused the loss of 20% of the plants in a garden at New Minas, (C. L. Lockhart), and 50% of the plants in a planting at Sheffield Mills, N.S. (C.O.G.). It also affected 25% of a 1-acre field at Blomidon, N.S. (C.O.G.).

ROOT ROT (various organisms) was general in older plantings in s. Alta. (F.R. Harper). A planting of Cavalier at Ste. Anne de la Pocatiere suffered mod. damage (L. J. Coulombe). Root rot in N.B. was general and aggravated by a hot, dry August (S.R. C.). A similiar condition prevailed in P.E.I. (J.E.C.).

GREEN PETAL (virus) was recorded from La Sarre, Abitibi Co., and was observed in slight amounts at the Plant Protection Station, Ste. Foy, Que. (D.L.). It was present in most plantings in the lower St. Lawrence area of Que. in tr. -sl. amounts. One sev. case was found at St. Pascal where a 20% infection was seen in a first-crop year planting of Senator Dunlop (R.O. Lachance). The majority of second-crop plantings in N.B. were infected (S.R. C.). The incidence of green petal increased alarmingly in Nova Scotia's Annapolis Valley in 1960. New plantings in some districts were 50% infected. No variety appears immune (C. O. G.).

HOLLOW HEART (physiologic). This condition, apparently caused by extremely dry weather following a period of abundant rainfall, affected 20% of the fruit of Redcoat at Ste. Anne de la Pocatiere, Que, (L. J.C.).

LIME INDUCED CHLOROSIS was encountered in many plantings in the Winnipeg, Man. area (B. Peturson).