III. DISEASES OF VEGETABLE AND FIELD CROPS

ASPARAGUS

RUST (Puccinia asparagi) occurred in some commercial plantings in the Armstrong district, B.C., but it was not as prevalent nor severe as in 1952 (G.E. Woolliams). Rust was heavy on plants at the Laboratory, Winnipeg, Man., causing premature death of branches; infection more than usual (W.L. Gordon). Infection mod. on plants in a small garden at St. Ambroise, Joliette Co., Que. (A. Payette).

BEAN

GREY MOULD (Botrytis cinerea). Both this disease and Stem Rot (Sclerotinia sclerotiorum) were found commonly on the stems of Blue Lake beans at ground line in the Fraser River valley, B.C.; they were quite widespread but caused little economic loss (I.C. MacSwan). A sl. infection developed at Canaan, N.S., following wind damage caused by the hurricane on 16 Aug. (K.A. Harrison). Grey mould was severe in a small garden at Charlottetown, P.E.I., in the late season following wet weather (R.R. Hurst).

ANTHRACNOSE (Colletotrichum lindemuthianum) was mod. in a garden in Edmonton, Alta. (L.E. Tyner). Specimens received from Foam Lake, Sask.; anthracnose is relatively uncommon in the province (T.C. Vanterpool). The disease sev. affected 25% of the plants in a Red Kidney planting in Lambton Co., Ont. (N.J. Whitney). A 25% infection was observed in a small garden planting at St. Jean, Que. (L. Cinq-Mars, R. Crete). Anthracnose was causing sev. damage to beans at Gagetown, N.B., on 30 July (S.R. Colpitts). It was sev. in a small garden plot of Black Seeded Pencil Pod in Kings Co., N.S., but no damage was seen in commercial fields (K.A. Harrison). Seed of Round Pod Kidney Wax and Pencil Pod Black Wax purchased from separate seed houses but of local origin produced a sev. infected crop at Charlottetown, P.E.I., but seed from an outside source showed no infection in August. Losses were also generally heavy in market gardens and canning crops (R.R. Hurst). Infection was sl. in 5 garden plots of Improved Golden Wax at St. John's, Holyrood and Harbour Grace, Nfld., and somewhat heavier in a garden at Topsail (G.C. Morgan).

ROOT-LESION NEMATODE (Cricanemoides curvatum Raski) was found in soil from a nursery at Victoria, B.C. The nematodes fed on young roots of beans var. Masterpiece, red clover, and sweet peas when these plants were grown in the soil in a greenhouse. Foliage of the bean plants turned a bright yellow as the affected ones matured 2 weeks before the checks (J.E. Bosher).

DRY ROOT ROT (Fusarium solani f. phaseoli) caused mod. damage in a field of registered Clipper white beans in Middlesex Co., Ont., and was sev. in one field in Kent Co. Elsewhere it caused sl. damage in scattered fields in all the bean-growing districts of s.w. Ont. (N.J. Whitney). Specimens affected by root rot and heat canker were received from Leoville, Sask.; F. spp. isolated (T.C. Vanterpool).

HALO BLIGHT (Pseudomonas phaseolicola) was found in numerous varieties of bush beans in the B.C. Interior; commonly affected were Round Pod Kidney Wax and Black Pencil Pod. According to the Plant Products inspectors the disease

was present, usually in sl. amounts, in many fields inspected under the Health Approval scheme (G.E. Woolliams). Infection was 2-tr. 3-sl. 1-sev./12 fields in Alta. Tr.-sl. infections were observed in several gardens in the Lethbridge-Taber area, but less damage than usual was reported in the canning crop. Sev. damaged patches occurred in one field at Medicine Hat and pods were infected on 60% of the plants in a field of Burbank at Cranford (M.W. Cormack, F.R. Harper). One sev. outbreak was observed at Edmonton (L.E. Tyner). Sev. infected specimens from several fields in the Winnipeg area, Man., were brought in by Canada Packers representatives. A sl. infection was observed on Tendergreen in a plot at the Farm, Brandon (W.A.F. Hagborg, J.E. Machacek). Halo blight caused sl. damage to the white bean crop in s.w. Ont. (N.J. Whitney). One grower at Canaan, N.S., produced an excellent crop of beans, showing only a tr. of halo blight; he had been able to secure good disease-free seed and little spread took place this year. The previous year's crop was a total loss (K.A. Harrison).

Both halo blight and common blight (q.v.) were noted in some 6 fields in York and Carleton counties, N.B., affecting a tr. to 65% of the plants. Common blight was also severe in several large plantings about Debec in Carleton Co. (P.N.Grainger).

BACTERIAL SPOT (Pseudomonas syringae) infected all lima bean plants in a field in Kent Co., Ont., but damage was sl. (N.J. Whitney).

STEM ROT (Rhizoctonia solani) caused sev. damage to a second planting of Bountiful in July at Charlottetown, P.E.I.; a first planting of beans was similarly killed off (R.R. Hurst).

SCLEROTINIA ROT (S. sclerotiorum) caused mod.-sev. infections in many gardens about Edmonton, Alta. (L.E. Tyner, G.B. Sanford). A 5-10% infection was found in a few fields in Kent Co., Ont. (N.J. Whitney). One hamper of bush beans out of 50 developed the rot in Kings Co., N.S. as a result of being held over the week-end after picking (K.A. Harrison).

RUST (Uromyces appendiculatus). Sl. infection observed at Summerside, P.E.I. (R.R. Hurst).

BACTERIAL BLIGHT (Xanthomonas phaseoli) caused sev. damage to a few fields of white beans in Dover Twp., Kent Co., Ont.; elsewhere the damage was sl. in s.w. Ont. The disease caused sev. damage to Red Kidney beans in a field in Lambton Co. (N.J. Whitney). Bacterial blight was heavy on beans at La Trappe, Que. (Fr. M. Claude). Damage was mod. in a planting at Gagetown, N.B. (S.R. Colpitts). Bacterial blight, chiefly due to X. phaseoli, caused sl. damage in Sask.; fewer specimens than usual of these diseases were received in 1953 (R.J. Ledingham).

BALD HEAD (seed injury and bacteria) sev. injured 15% of the plants in several white and lima bean fields in Middlesex and Huron counties, Ont. (N.J. Whitney).

MOSAIC (Phaseolus virus 2). Yellow mosaic was found in pole beans in 3 gardens in Fredericton,N.B. affecting 3-7% of the plants. In 2 gardens the beans were growing near gladioli showing a faint mottle (D.J. MacLeod). Mosaic affected about 15% of the plants in several plantings of yellow eye bush beans at Kentville, N.S.; vigour of the plants was reduced. Mosaic also killed 25% of the pole bean plants in a small garden at Kentville; gladioli showing mosaic symptoms were growing in the same garden (K.A. Harrison).

ROOT ROT (cause unknown). Cold weather during the spring resulted in a severe root rot of many fields of Blue Lake beans on Lulu Island and at Surrey and Burnaby, B.C.; several fields had to be replanted (I.C. MacSwan).

BEET

LEAF SPOT (Cercospora beticola). Trace infections were noted in one garden at Kentville, N.S. (D.W. Creelman), and in several gardens at Charlottetown, P.E.I. (R.R. Hurst).

DAMPING-OFF (Rhizoctonia solani) destroyed up to 60% of the plants at Harrow, Ont., in gardens where the seed was sown in early July (C.D. McKeen).

SCAB (Streptomyces scabies). A tr. infection was noted at Charlottetown, P.E.I. (R.R. Hurst). Scab was very heavy on 3 small plantings at Topsail, Nfld.; sl. infections were noted in many gardens at Conception Bay and Bonavista Bay (G.C. Morgan).

SEEDLING BLIGHT (various organisms) was noticeable in the University plots, Saskatoon, Sask.; Rhizoctonia solani, Pythium ultimum and Fusarium sp. were isolated from diseased plants. (T.C. Vanterpool).

BROAD BEAN

FUSARIUM WILT (F. oxysporum f. fabae) infected half the plants at Ste. Anne de la Pocatiere, Que., in plots where the soil was artificially inoculated with a liquid culture of the organism (L.J. Coulombe).

POD DISCOLORATION (cause unknown) mod. affected a planting at Winnipeg, Man. The blackening was first observed at the tips of the pods but later it extended to the peduncles (J.E. Machacek).

BROCCOLI

DOWNY MILDEW (Peronospora brassicae) was general in June on young plants in beds at the Station, Saanichton, B.C., and caused considerable damage. The fungus was sporulating freely on the foliage of plants in the field in early December. Broccoli appears to be more susceptible than cauliflower (W. Jones).

CLUB ROOT (Plasmodiophora brassicae). A trace was found in an acre patch at Matsqui, B.C.; the present report is the first for club root in a commercial planting in this district (I.C. MacSwan).

CABBAGE

GREY MOULD (Botrytis cinerea) caused sev. rot of 1% of the heads in a small field at Barton, N.S. (K.A. Harrison).

SOFT ROT (Erwinia carotovora) was destructive to cabbage in 2 common storage places at St. John's and a root cellar at Topsail, Nfld. (G.C. Morgan).

YELLOWS (Fusarium conglutinans) was sev. on 10% of Golden Acre and Wisconsin #8 in a planting at Aylmer, Que. (K.M. Graham).

BLACK LEG (Phoma lingam). What appeared to be black leg was found infecting 20-25% of the plants in 2 seed beds at Mount Pearl, Nfld. The symptoms were typical of black leg and minute fruiting bodies were visible on the stems, but the organism has not been examined microscopically. Some growers have kept this disease in check by mixing virgin soil from wooded lands with peat into their seed beds each year (G.C. Morgan).

CLUB ROOT (Plasmodiophora brassicae) infected 25% of the plants and caused 10% loss in a ¼ acre field of Danish Ballhead at Ladner, B.C. (I.C. MacSwan). The disease caused mod. damage in a market garden at Windsor, Ont., and was present in the seed bed as well as in the field. According to the grower, his crucifer crops have been affected several years (C.D. McKeen). Club root affected 25% of the plants, most of them quite severely at the Station, Ste. Clothilde, Chateauguay Co., Que.; it was also present to a lesser degree on cauliflower, brussels sprouts and broccoli. This is the first time the disease was observed at the Station (K.M. Graham).

A few light outbreaks were observed in Kings Co., N.S., usually because of too short a rotation or faulty sanitation (K.A. Harrison). An occasional plant was diseased in a planting of Copenhagen Market at Charlottetown, P.E.I. (R.R. Hurst). Infection was mod. at Trinity Bay and Bonavista Bay and sl. in a few fields seen at Conception Bay, Nfld. Many farmers in the St. John's and Conception Bay areas are clearing new land under the Nfld. Land Clearance Act for the production of cabbage and root crops. With sufficient land cleared it is hoped to establish a proper crop rotation and thus decrease club-root infection and spread (G.C. Morgan).

BACTERIAL LEAF SPOT (Pseudomonas maculicola) affected about 25% of the heads in a ton of cabbage in storage at Harbour Grace, Nfld.; the disease was identified at the Plant Pathology Laboratory, Ottawa (G.C. Morgan).

DAMPING-OFF (?Pythium sp.) affected about 10% of the seedlings in greenhouse seed beds at Fredericton, N.B.; loss was negligible (S.R. Colpitts).

WIRE STEM (Rhizoctonia solani) was less prevalent than usual on seedlings in greenhouses about Leamington, Ont. More growers each year practise soil sterilization in the early vegetable growing area in southern Essex Co. (C.D. McKeen). Wire stem was sev. on a few plants of several early varieties in the Horticulture plots, Ottawa, in June 1952 (K.M. Graham).

SCLEROTINIA ROT (S. sclerotiorum). A single head was found affected in a small field at Barton, N.S. (K.A. Harrison). This rot virtually wiped out a lot of Hollandia held under poor storage conditions at Charlottetown, P.E.I. (R.R. Hurst).

STERILITY (virus of yellows type). A single infected plant was seen in a garden in York Co., N.B. (D.J. MacLeod).

PHOSPHORUS DEFICIENCY affected 30% of the plants and caused 15% loss in a field at Waterville, N.S.; plants on one side of the field showed the typical symptoms of P deficiency and retarded growth (K.A. Harrison).

CARROT

DRY ROT (Chalaropsis thielavioides Peyr.) caused considerable loss in carrots imported from Texas for repackaging at Toronto; even small lesions were quite noticeable after washing (J.K. Richardson, R.G. Atkinson).

SOFT ROT (Erwinia carotovora) caused sev. damage on poorly drained areas of a commercial field at Medicine Hat, Alta. (M.W. Cormack). Severe rotting was observed in a low area in a 4-acre field in Lincoln Co., Ont. (J.K. Richardson). Soft rot caused complete breakdown of carrots in a root cellar at Topsail, Nfld., and some damage in 2 warehouses at St. John's (G.C. Morgan).

VIOLET ROOT ROT (Rhizoctonia crocorum) sev. affected 10% of the carrots grown in the Thedford Marsh area in Ont.; the disease was more severe than usual and most damage occurred on newly broken muck (N.J. Whitney).

RHIZOCTONIA (R. solani). Infection was sev. on some plants in plots at Edmonton, Alta. (W.P. Campbell).

SCLEROTINIA ROT (S. sclerotiorum) was found affecting roots received from Kamloops and from the sanatorium, Tranquille, B.C. (G.E. Woolliams). This rot caused mod.-sev. damage in plots and gardens and in storage about Edmonton, Alta. (W.P. Campbell). A farmer from Sangudo reported losses in field and storage for the last 4 years (A.W. Henry). Diseased specimens were received from Wynyard and Saskatoon, Sask. (T.C. Vanterpool). The disease affected $\frac{1}{4}$-acre field at Stanstead, Que.; few plants showed infection in the field, but every carrot became affected in storage (L. Cinq-Mars, R. Crete). This rot appeared in carrots lifted in wet weather and brought in for topping at Tupperville, N.S.; loss may be heavy (K.A. Harrison).

BLACK ROT (Stemphylium radicinum). Diseased specimens were received from La Rochelle, Man.; young plants had turned red and wilted; bases of leaves were black (J.E. Machacek).

YELLOWS (Callistephus virus 1) was found in all gardens and fields examined in the Lethbridge-Taber area, Alta.; infection was usually tr.-sl. but 20-25% of the plants were sev. infected in 2 fields at Taber (F.R. Harper). The disease was unusually prevalent about Edmonton, with 15-20% of the plants affected in most plots. Infection was 40% in a field at Oliver. Yellows was also seen on parsnip and spinach (T.R. Davidson). A sl. infection occurred in several city gardens at Saskatoon, Sask. (T.C. Vanterpool). Infection was 15-20% in Chantenay and Nantes in plantings in the Thedford Marsh, Ont.; and 2-10% on 9 carrot varieties in the Laboratory plots, Harrow (N.J. Whitney). Infection was a tr. at the Station, Ste. Clothilde (H.N. Racicot); 2% at Ste. Anne de la Pocatiere, Que. (R.O. Lachance); and 16%, causing severe damage, in a planting at Charlottetown, P.E.I. (R.R. Hurst). Infection ranged from a tr. to 17% in fields examined in Carleton, Sunbury and York counties, N.B. (D.J. MacLeod).

CAULIFLOWER

YELLOWS (Fusarium conglutinans) caused mod. damage to 5% of a late crop at Aylmer, Que. (K.M. Graham).

CLUB ROOT (Plasmodiophora brassicae) caused about 30% loss in $\frac{1}{4}$ acre of

cauliflowers at Burnaby, B.C.; this Chinese grower has a 9-acre market garden on muck soil thoroughly contaminated with the organism (I.C. MacSwan).

WIRE STEM (Rhizoctonia solani) caused about 25% loss at St. John's, Nfld., in a greenhouse, where it has been present for the last 3 years (G.C. Morgan).

BROWNING (boron deficiency) affected 2% of the plants in varying degrees in a planting near Charlottetown, P.E.I. (R.R. Hurst).

WHIPTAIL (molybdenum deficiency) caused sev. damage in 2 market garden plantings totalling $\frac{1}{4}$ acre in Queens Co., P.E.I.; the disorder has already been reported in a different area in the same district (D.B. Robinson).

CELERY

VIOLET ROOT ROT (Rhizoctonia crocorum) mod. infected 1-2% of the Epicure plants in the Thedford Marsh, Ont. (N.J. Whitney).

LATE BLIGHT (Septoria apii-graveolentis) became sev. in some plantings in the Cloverdale area, B. C., in October; one grower reported 9 acres unsaleable on account of the disease. Intermittent rains reduced the effectiveness of the fungicidal sprays and dusts that had been applied (I.C. MacSwan). Mod. infection in a garden at Lethbridge, Alta. (F.R. Harper), and in plots at La Trappe, Que. (Fr. M. Claude). Sl. affected specimens brought in from Queens Co., P.E.I. (R.R. Hurst).

YELLOWS (virus). Affected plants were received from the Thedford Marsh, Ont.; a small percentage of plants were reported to be infected in most fields (C.D. McKeen). Yellows affected 3% of the plants in the yellows garden at Ottawa, Ont. The plants were not sprayed and leaf hoppers were numerous. China aster and potato were also affected. (D.S. MacLachlan). Yellows affected 3 plants in a field in Sunbury Co., N.B. (D.J. MacLeod).

STEM CRACKING (boron deficiency). A few plants were affected in a lot of celery on the market at Charlottetown, P.E.I. (R.R. Hurst).

CHINESE CABBAGE

CLUB ROOT (Plasmodiophora brassicae) heavily infected this crop at the Station, Saanichton, B.C. (W. Jones).

CUCUMBER

LEAF SPOT (Alternaria ?tenuissima) was fairly heavy on Snow Pickling cucumbers in the University trial plots, Vancouver, B.C. (H.N.W. Toms, J.W. Groves).

GREY MOULD (Botrytis cinerea) caused losses of a few plants in some greenhouses at Leamington, Ont. In recent years, protecting the plants by spraying with ferbam has proved effective (C.D. McKeen).

SCAB (Cladosporium cucumerinum) was present in most greenhouse crops in Essex Co., Ont., but it caused little damage (C.D. McKeen). Scab completely destroyed 3 acres of pickling cucumbers at La Trappe, Que., in 1952 (Fr. M. Claude). The disease caused sev. damage in the late season in some areas in N.B. In one field, in plots sprayed with Orthocide and Dithane, 80% control was achieved whereas plots sprayed with Basicop or left unsprayed were severely affected (S.R. Colpitts). Garden patches in Annapolis and Kings counties, N.S., were severely infected by scab. In the fields planted for the pickling factory the resistant Maine #2 was used and no outbreaks were recorded (K.A. Harrison). Scab caused mod. damage in a garden planting at Freetown, P.E.I. (J.E. Campbell).

BACTERIAL WILT (Erwinia tracheiphila) destroyed up to 2% of the plants in many fields in Essex Co., Ont. (C.D. McKeen). Sl. infections were noted in several locations in Lincoln Co. (J.K. Richardson).

POWDERY MILDEW (Erysiphe cichoracearum) caused sl.-mod. losses in many greenhouses and field crops in Essex Co., Ont. The fungus survived the winter on a few greenhouse crops that suffered the most severe damage and then spread in the spring to crops in adjacent fields (C.D. McKeen). A mod. infection was observed at La Trappe, Que., in July 1952 (Fr. M. Claude).

ANGULAR LEAF SPOT (Pseudomonas lachrymans). Infection was tr.-mod. in 3 commercial plantings at Medicine Hat, Alta. (F.R. Harper). Infection was sl. on Early Fortune, New Prolific, Tokyo, Colorado, Ohio, and Minvine and tr. on Hybrid PH, Niagara, Early Mineu and Snow Pickling in the University plots, Winnipeg, Man. Tr.-mod. infections were seen at St. Eustache, Brandon, and West Kildonan (W.A.F. Hagborg). A 40% infection was observed on Straight 8 in Queens Co., N.B. (S.R. Colpitts).

DAMPING-OFF (Pythium ultimum) caused the death of a small percentage of seedlings and young plants in beds in several greenhouses in Essex Co., Ont. as a result of incomplete sterilization of the soil (C.D. McKeen). A tr. occurred in the Horticulture greenhouse, Ottawa, Ont., in 1952 (K.M. Graham).

MOSAIC (Cucumis virus 1). Two strains of the virus has been found in several greenhouses in s.w. Ont.; the mild strain causes little damage whereas the severe strain causes marked leaf distortion, necrotic spotting and pronounced stunting of growth (C.D. McKeen). Mosaic was severe on the fruits received from one garden near Quebec, P.Q. (D. Leblond). Infection was tr.-2% in 4 plantings in N.B. (D.J. MacLeod). Mosaic was reported to have sev. affected 20% of the plants in a small garden in Kings Co., N.S. (K.A. Harrison).

DDT INJURY. Two applications of DDT to control cucumber beetle caused sev. stunting and injury to $\frac{1}{4}$ acre of pickling cucumbers in Kings Co., N.S. (K.A. Harrison).

FOOT ROOT ROT (cause unknown). Several plants were killed in many greenhouses around Leamington, Ont.; several different organisms appear to be active (C.D. McKeen).

WILT (cause unknown). For several years the occasional greenhouse crop of Burpee hybrid around Leamington, Ont., has developed mod.-sev. wilting; symptoms have always appeared after harvesting has started. No vascular pathogen or root necrosis has been found. The condition has been attributed to an inadequate root system formed under winter conditions (C.D. McKeen).

EGGPLANT

EARLY BLIGHT (*Alternaria solani*). A 40% infection was observed on leaves and fruits in a small planting at Rougemont, Que. (L. Cinq-Mars, R. Crete).

GREY MOULD (*Botrytis cinerea*) killed most of the plants in the Horticulture greenhouses at the University, Edmonton, Alta. (G.B. Sanford, W.P. Campbell).

DAMPING-OFF (*Rhizoctonia solani*) caused only tr. damage in a few seed beds in s.w. Ont. Seed and soil treatment with Arasan as well as soil sterilization, practised by the growers, have greatly reduced losses in recent years (C.D. McKeen).

WILT (*Verticillium albo-atrum*) affected 30% of the plants in 4 irrigated fields near Harrow, Ont. (C.D. McKeen).

GARLIC

DRY ROT (*Penicillium* sp.). A small consignment of bulbs received at Kentville, N.S., from an Ont. seed house was infected; loss of "buds" was high (D.W. Creelman).

HOP

DOWNY MILDEW (*Pseudoperonospora humuli*) was prevalent on "escaped" plants in N. Saanich, B.C. (W. Jones).

WILT (*Verticillium dahliae*). Three or four years ago at Lillooet, B.C., Early Cluster hop plants were set out in a field cropped for several years previously to tomatoes. Growing of tomatoes was discontinued on account of poor yields due to lowered soil fertility and Verticillium wilt, which had become prevalent. According to Dr. W.G. Keyworth, who identified the pathogen, the organism is quite distinct from that causing the destructive wilt of hops in England. (G.E. Woolliams).

LETTUCE

GREY MOULD (*Botrytis cinerea*), as a bottom rot, was reported to have caused sev. damage in the Thedford Marsh, Ont.; 90% of the crop was destroyed in one field (C.D. McKeen). Grey mould, probably aggrevated by frost, caused up to 30% loss in some fields of head lettuce at Berwick, N.S. In one planting, the disease apparently began in the seed bed (K.A. Harrison).

DOWNY MILDEW (*Bremia lactucoe*)was general on leaves of seed plants in September at the Station, Saanichton, B.C.; on 4 Dec. the fungus was sporulating heavily on young plants, which after overwintering in the open will form the seed plants next year. Diseased plants usually fall prey to *Botrytis* in the spring (W.Jones). Plants showing infection on the lowest leaves were received from Thedford Marsh, Ont. (C.D. McKeen).

RUST (*Puccinia extensicola*)affected tr.-5% of the plants in 3 fields of head lettuce in Kings Co., N.S. (D.W. Creelman, K.A. Harrison).

BOTTOM ROT (*Rhizoctonia solani*). A trace was noted in 2 fields near

Leamington, Ont. (C.D. McKeen). This disease was destructive to about 10% of the plants at Ste. Therese, Que.; it is common on sandy muck soils north of Montreal and is responsible for most of the reduction in yield (K.M. Graham).

Specimens affected with soft rot in the lower part of head were brought in from St. Vital, Man.; R. solani and Pythium sp. were isolated (J.E. Machacek).

DROP (Sclerotinia sclerotiorum). A few affected plants were seen in the Berwick area, N.S. (K.A. Harrison). The disease caused mod. damage in 2 small garden plots at St. John's, Nfld.; soil was poorly drained (G.C. Morgan).

BIG VEIN (virus). Tr. infection seen on several varieties of head lettuce at Ste. Clothilde, Chateauguay Co., Que. (H.N. Racicot).

YELLOWS (Callistephus virus 1). Diseased specimens were received from Thedford Marsh, Ont. (C.D. McKeen). The disease affected 5-17% of the plants in 3 gardens at Fredericton, N.B. (D.J. MacLeod). Yellows affected 5% of the plants in a field of head lettuce in Kings Co., N.S. (K.A. Harrison).

MELON

LEAF SPOT (Alternaria cucumerina) was reported on melons in the University trial plots, Vancouver, B.C. (H.N. Toms). Infection was relatively sl. in the Laboratory plots, Harrow, Ont. (C.D. McKeen).

ANTHRACNOSE (Colletotrichum lagenarium) caused numerous lesions on vines and fruits in a 2-acre field at Harrow, Ont., destroying 20% of the crop (C.D. McKeen).

POWDERY MILDEW (Erysiphe cichoracearum) appeared in August in most fields about Harrow and Leamington, Ont. Spraying reduced losses below those of recent years. Fungicides used were copper sulphate, 12 oz. in 100 gallons of water and Iscothan, 8 oz./100 gal. applied at weekly intervals (C.D. McKeen). A sl. infection was noted at La Trappe, Que., in 1952 (Fr. M. Claude).

WILT (Fusarium bulbigenum var. niveum) developed wherever susceptible varieties were grown on infested soil in the Harrow-Leamington area, Ont. (C.D. McKeen).

WILT (Verticillium albo-atrum) affected 25% of the plants in a field at Osoyoos; in 1952 the disease affected all the plants of Earliana tomatoes in the same field (G.E. Woolliams).

MOSAIC (virus) was present in varying amounts in most plantings in s. Essex Co., Ont. (C.D. McKeen).

ONION

BLACK MOULD (Aspergillus niger) was found affecting all onions in a peck sample received from a carload of yellow onions from Leamington, Ont., inspected in Montreal, Que.; no estimate of damage was reported (H.N. Racicot, K.M. Graham).

NECK ROT (Botrytis allii). A tr. observed in a seed plot of White Portugal at Saanichton, B.C. (W.R. Orchard). Neck rot was much more prevalent than usual in the B.C. Interior on account of the cool rainy weather at harvest. It was most

prevalent in hybrid onions with Sweet Spanish as one parent but it also caused some damage to Yellow Globe Danvers (G.E. Woolliams). Infection was sl. in onions in storage at Altona, Man. (J.E. Machacek). Infection was sl. in a small lot of onions at Kentville, N.S. and was reported quite heavy on onions from Antigonish (K.A. Harrison, C.O. Gourley). Neck rot affected 1% of the onions from a garden at Charlottetown, P.E.I. (R.R. Hurst).

DOWNY MILDEW (Peronospora destructor) was general in many gardens in N. Saanich, B.C., causing considerable damage (W. Jones). Infection ranged from sl. in some localities to 100% in others in the B. C. Interior. Downy mildew occurred on Yellow Globe Danvers and other varieties in both the fall-/and the spring-planted crop. The disease first appeared on fall planted onions shortly before the bulbs matured and then later in the season on the spring crop as it also approached maturity. Thus yields were not seriously affected (G.E. Woolliams). Downy mildew caused sev. blighting of set onions in a garden at Harrow, Ont. (C.D. McKeen). A tr. was seen at Ste. Clothilde, Que. (H.N. Racicot).

ROOT ROT (Pythium irregulare) destroyed 25% of the bed area sown to Spanish onions in a greenhouse at Leamington, Ont.; the disease did not recur when the bed was reseeded after the soil was treated with Arasan (C.D. McKeen).

PINK ROT (Pythium, Fusarium and Pyrenocheata terrestris) severely affected one field in the Jeannette's Creek Marsh, near Tilbury, Ont. Addition of manganese salts to the fertilizer, that is applied at seeding time, has greatly reduced the amount of damage caused by this disease in the Leamington Marsh (C.D. McKeen).

SMUT (Urocystis cepulae) was found in spring-planted Yellow Globe Danvers at Kelowna, B.C., in the same field where the disease was first observed in 1951. (P.D.S. 31:53). Infection was also higher, being 25% of the plants; although onions were grown on the field in 1952 and no smut was then seen. Cool weather this spring may have favoured its reappearance (G.E. Woolliams). Smut affected up to 3% of the onion seedlings in the formaldehyde treated soils in the Leamington Marsh, Ont. (C.D. McKeen).

YELLOWS (Callistephus virus 1). Sl. infection seen in a planting at Altona, Man. (J.E. Machacek).

PARSNIP

SCAB (Streptomyces scabies). Sl. infection in 2 fields at Manuels, Nfld. (G.C. Morgan).

YELLOWS (Callistephus virus 1). Affected 2 plants in a garden in York Co., N.B. (D.J. MacLeod).

PEA

Mr. V.R. Wallen and Dr. A.J. Skolko submitted a special report on "Pea Diseases in Ontario in 1953".

Peas were seriously affected by LEAF and POD SPOT (Ascochyta pisi) in some areas in Ont. this year. Of 40 fields of canning peas examined, 17 were infected by A. pisi. Disease intensity ranged from trace infection to the extreme condition in one field of Pride peas in the Clinton area, where a disease-free pod could not be found in the field.

Fields of canning peas examined were located principally about Clinton, already mentioned, near Collingwood, near Lindsay and in Prince Edward Co. and field peas were seen about Renfrew and Ottawa. Leaf and Pod Spot was most severe in the Clinton area and near Lindsay; its high incidence in these areas is attributed to very high precipitation there during the early spring and summer months.

BACTERIAL BLIGHT (Pseudomonas pisi) affected 10% of the leaves in a field of Canner King near Collingwood and was present in trace amounts in 4 fields of field peas in the Ottawa area.

Trace infections of BLOTCH (Septoria pisi) were noted in 2 fields, one near Lindsay and the other near Goderich. A severe outbreak of FUSARIUM WILT (F. oxysporum f. pisi) was observed near Goderich.

Other Observations

ROOT ROT (?Aphanomyces euteiches) caused an estimated 80% reduction in crop on 3 fields of about 10 acres each at St. Edouard, Napierville, Co., Que. It appears that many fields in this county and in Laprairie are now so heavily infested that pea culture is no longer possible (L. Cinq-Mars, R. Crete).

LEAF and POD SPOT (Ascochyta pisi). Leaf infection was tr.-sl. in 2 fields examined in s. Alta. (F.R. Harper). Infection was mod. in the garden at the Station, Melfort, Sask., and sl. in a few gardens at Saskatoon. Few inquiries or samples were received (H.W. Mead). Infection was tr. on Stratagem, but it was sev. on American Wonder, destroying the crop, on the Upton farm, near Charlottetown, P.E.I. (R.R. Hurst).

POWDERY MILDEW (Erysiphe polygoni). Mod. infection was seen in some gardens in the Edmonton area, Alta. (T.R. Davidson). Many garden patches were affected about Fredericton and Woodstock, N.B., but commercial fields escaped damage (S.R. Colpitts). A mod. infection was seen on Waldo in the horticultural plots at the Station, Charlottetown, P.E.I. (J.E. Campbell).

ROOT ROT (Fusarium sp.) caused mod. damage to 10% of the plants in a garden at Kentville, N.S. The pathogen was identified as F. oxysporum by W.L. Gordon (D.W. Creelman). Root rot destroyed 50% of the plants in a planting of Little Marvel at the Upton farm, near Charlottetown, P.E.I. (R.R. Hurst).

MYCOSPHAERELLA BLIGHT (M. pinodes). A sl. infection was found by the Plant Products inspectors in peas at Creston, B.C. The pathogen was identified by J.W. Groves (G.E. Woolliams).

DOWNY MILDEW (Peronospora pisi) caused a 3% infection of Stratagem and Giant Stride at Saanichton, B.C. (W.R. Orchard).

BACTERIAL BLIGHT (Pseudomonas pisi). Infection was 3-tr. 2-sl./11 fields

examined in s. Alta. (F.R. Harper). Sl. infection was seen in a plot of Homsteader x Marvel at Fort Garry, Man. (W.A.F. Hagborg).

LEAF BLOTCH (Septoria pisi). Sl. infection seen in the garden at the Station, Melfort, Sask. (H.W. Mead).

RUST (Uromyces fabae) was noted in several garden patches at Woodstock and Fredericton, N.B. (S.R. Colpitts). Infection was a tr. in a small garden at Kentville, N.S. (K.A. Harrison) and sl. in the Station plots, Charlottetown, P.E.I. (J.E. Campbell).

ROOT ROT (several fungi) caused mod.-sev. damage in several fields of canning peas at Magrath and Taber, Alta. Fusarium spp. and Rhizoctonia solani were isolated (F.R. Harper).

BLIGHTING. Blighted plants in the field plots at the University, Saskatoon, Sask., showed symptoms resembling heat canker. Pythium ultimum was obtained from 2 plants, with no growth from 2 others (T.C. Vanterpool).

MOSAIC (Pisum virus 1). Infection was tr.-5% in 3 gardens in York Co., N.B. (D.J. MacLeod).

PEPPER

ANTHRACNOSE (Colletotrichum sp.). A tr. was found in a few fruits in a field at Harrow, Ont. (C.D. McKeen).

SOFT ROT (Erwinia carotovora) caused only sl. damage to pepper crops in Essex Co. in 1953. Corn-borer infestations were low and thus the bacteria were provided with few infection courts (C.D. McKeen).

DAMPING-OFF (Pythium sp. and Rhizoctonia solani). Losses under 2% were observed in a few beds of seedlings in the Harrow area, Ont. Soil treatment with Arasan or soil sterilization with steam, Dowfume or MC-2 has reduced the disease to a low level (C.D. McKeen).

BACTERIAL SPOT (Xanthomonas vesicatoria). Only a tr. was observed in Essex Co., Ont. (C.D. McKeen).

ETCH (tobacco etch virus). Only a few plants became affected in a few fields in Essex Co., Ont. The vector, Myzus persicae, was absent from many fields this year (C.D. McKeen).

MOSAIC (virus). Tobacco mosaic virus caused sev. losses in one field near Harrow, Ont. Cucumber mosaic virus affected 1-2% of the plants in several fields at Harrow (C.D. McKeen).

MILD MOSAIC (Solanum virus 2, medium strain) was found in 2 plants in an experimental plot at Fredericton, N.B. Nearby potato plants were also infected with Solanum virus 2 (D.J. MacLeod).

STREAK (Solanum virus 2, L strain). Two plants showing streak were found in a garden in Fredericton, N.B. (D.J. MacLeod).

BLOSSOM-END ROT (non-parasitic). As a result of the hot dry summer, the disorder was more prevalent and destructive than usual in Essex Co., Ont. (C.D.McKeen).

SUN-SCALD (non-parasitic). A high percentage of the green and ripe fruits were damaged in Essex Co., Ont., during a hot spell in late August and early September (C.D. McKeen).

POTATO

The Plant Protection Division, Science Service, has supplied the data contained in Tables 13-16 on Seed Potato Certification. All fields entered for certification were planted with Foundation or Foundation A seed.

The acreage entered for Seed Potato Certification increased considerably in 1953, but it was still well below the peak of 1950. The acreage that passed inspection rose less sharply as the percentage of crop meeting the certification standards was less than in 1952. The most notable increase in fields rejected for disease was on account of mosaic in P.E.I. and bacterial ring rot in N.B. The Sebago grown in P.E.I. and the Katahdin in N.B. accounted for over half the acreage of seed potatoes produced.

EARLY BLIGHT (Alternaria solani) was reported as follows: Infection 57-sl. 14-mod. 3-sev./844 fields in B.C., causing some premature death of plants in the Kootenay area (H.S. MacLeod); infection 1-sev./96 fields inspected in s. Alta. (R.P. Stogryn); present in 54 (51%) of the fields inspected in central and n. Alta, being most prevalent in the early varieties especially when planted early; tubers of Warba found affected by Alternaria rot (J.W. Marrit, D.S. MacLachlan); infection 2-tr. 8-sl. 2-mod. 1-sev./13 fields about Edmonton (W.P. Campbell); sev. about Prince Albert, with sl. infections elsewhere in Sask. (A. Charlebois); sl. in Man. (D.J. Petty), but mod. at Souris (J.E. Machacek); present in a few fields in the London district, Ont. (F.J. Hudson); sl. infections only in district 2 (W.L.S. Kemp); mostly from Orillia to Cochrane and about North Bay in district 3, particularly in the early varieties (H.W. Whiteside); infection 55-sl. 10-mod. 1-sev./82 fields in e. Ont., the latter in an early-planted field of Irish Cobbler (E.H. Peters); 218-sl. 137-mod. 4-sev./1341 fields in Que., mostly in the Lake St. John district, where it was first reported on 14 July (B.Baribeau); also sev. in 96 acres of Katahdin, etc., at Ste Brigitte, Nicolet Co. (H. Genereux); infection usually sl. in N.B. but sev. in a few fields of Keswick (C.H. Goodwin); first reported in N.S. on 24 July, infection usually mod. except for one field each of Irish Cobbler and Warba in Kings Co.; Alternaria rot affected 0.5% of the tubers of Early Rose grown at the Station, Kentville, (R.C. Leyton); again very light in P.E.I. (H.L. McLaren), but heavy in some fields of Irish Cobbler and Katahdin (R.R. Hurst); infection usual sl. in Nfld. (G.C. Morgan). In general early blight was less prevalent than usual.

LEAF SPOT (Ascochyta lycopersici Brun.) was found August 1949 at Saanichton on an unnamed seedling from Nebraska. The leaves showed more or less circular light brown spots with dark brown margins, 2-10 mm. in diam., often zonate like early blight but lighter coloured; necrotic area brittle, often dropping out to give a shot-hole appearance. The fungus was recently identified as A. lycopersici, which is reported by Weiss and O'Brien (Index Pl. Dis. in U.S., pt. 4, 1952) on S. tuberosum from Ore. and Alaska and on other species elsewhere (W. Jones, D.B.O. Savile).

GREY MOULD (Botrytis cinerea) caused a sl. infection in a field of Katahdin at Fredericton, N.B. (S.R. Colpitts).

Table 13. Seed Potato Certification Fields and Acres Inspected and Passed in 1953

Province	Number of Fields Entered	Number of Fields Passed	Fields Passed %	Number of Acres Entered	Number of Acres Passed	Acres Passed %
P.E.I.	7,085	5,734	80.9	28,803	23,293	80.9
N.S.	391	333	85.2	696	535	76.9
N.B.	3,572	3,018	84.5	20,837	15,766	75.7
Que.	1,341	1,021	76.1	3,624	2,710	74.8
Ont.	770	663	86.1	2,137	1,785	83.5
Man.	153	138	90.2	585	509	87.0
Sask.	55	45	81.8	114	80	70.2
Alta.	200	168	84.0	944	850	90.0
B.C.	844	755	89.5	2,433	2,178	89.5
Total	14,411	11,875	82.4	60,173	47,706	79.3
Previous Yearly Totals						
1952	12,169	10,985	90.3	45,988	41,315	89.8
1951	12,093	10,580	87.5	46,176	40,402	87.5
1950	16,203	13,292	82.0	75,352	61,933	82.2
1949	15,476	13,739	88.8	72,706	65,051	89.5

Acres Entered		Acres Passed	
1953	60,171	1953	47,706
1952	45,988	1952	41,315
Increase of 14,183 or 30.8%		Increase of 6,391 or 15.5%	

Table 14. Seed Potato Certification Acreage Passed by Varieties

Variety	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.-Alta.	B.C.	Total
Sebago	13,524	51	433	23	44	1	5	14,085
Katahdin	1,814	132	10,024	166	924	8	25	13,093
Irish Cobbler	4,910	59	733	149	161	119	2	6,133
Green Mountain	1,165	40	672	1,920	50	19	131	3,997
Canso	1,111	26	1,302	70	218	20	5	2,752
Netted Gem	20	35	57		4	742	1,523	2,381
Pontiac	318	8	634			135	20	1,115
Keswick	191	14	471	126	85	6	11	904
Bliss Triumph	13	49	687			20		769
Kennebec	44	48	327	178	3	47	16	663
Warba	143	22	8		10	114	131	428
White Rose			143			3	234	380
Chippewa	19	30	11		212		2	274
Russet Rural			196		20			216
Ontario		1	46		39			86
Others	17	20	22	78	15	205	73	430
Total	23,293	535	15,766	2,710	1,785	1,439	2,178	47,706

Table 15. Seed Potato Certification: Fields Rejected on Field Inspection, 1953

Province	Leaf Roll	Mosaic	Ring Rot in field	Ring Rot on farm	Black Leg	Wilts	Adjacent Diseased Fields	Foreign var.	Misc.	Total
P.E.I.	78	303			249	55	84	269	313	1,351
N.S.	5	15			3	11	9	11	4	58
N.B.	6	83	203	126	30		8	45	53	554
Que.	5	70	87	25	45		42	18	28	320
Ont.	14	18	21	12	11	5		8	18	107
Man.	1	3	4	2	3			1	1	15
Sask.	1	1		7					1	10
Alta.					22				10	32
B.C.	6	6			13	1		3	60	89
Total	116	499	315	172	376	72	143	355	488	2,536
Rejection as a percentage of fields:										
Entered	0.8	3.4	2.2	1.2	2.6	0.5	1.0	2.5	3.4	17.6%
Rejected	4.6	19.7	12.4	6.8	14.8	2.8	5.6	14.0	19.3	100%

Table 16. Seed Potato Certification: Average Percentages of Diseases found in fields, 1953

Average percentage of disease found in	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.
Fields entered (first inspection)									
Black Leg	.35	.07	.14	.18	.10	.03	-	.25	.08
Leaf Roll	.09	.12	.04	.02	.06	.02	.31	.03	.04
Mosaic	.21	.21	.13	.20	.09	.03	.16	.02	.05
Fields passed (final inspection)									
Black Leg	.19	.04	.10	.07	.04	.02	-	.17	.04
Leaf Roll	.04	.04	.03	.01	.04	.01	.07	.03	.02
Mosaic	.04	.09	.06	.06	.01	.01	.02	.01	.01

BLACK DOT (Colletotrichum atramentarium) was found affecting a few plants of Warba at Calgary, Alta. (A.W. Henry). Traces were seen on Irish Cobbler and Sebago in the plots at Charlottetown, P.E.I. (R.R. Hurst).

BACTERIAL RING ROT (Corynebacterium sepedonicum) was not observed on any crop grown for certification in B.C. (H.S. MacLeod), but it was found on 10 farms in White Rose table stock. Two separate lots of affected seed accounted for its occurrence on 5 farms in one district and on 2 farms in another. In neither case was it possible to determine the original source of the infection.

No recurrence of the disease was found on the one farm where it was detected last year. Only one shipment of potatoes arriving at Vancouver was found affected by ring rot. It was from Washington State (I.C. MacSwan).

Bacterial ring rot was found in one field entered for certification in Alta.; the farm had a previous record of ring rot (J.W. Marritt). The 1953 ring rot survey covered 603 farms (7,530 acres) in Alta.; the disease was found on 75 farms (12.4%) comprising 1,379 acres (18.3%). The increased acreage affected this year resulted from a number of new growers appearing in the Lethbridge area. The growers planted large acreages and apparently in ignorance of the regulations governing commercial production of potatoes in the area used seed from unsatisfactory sources. It should be pointed out that, despite the incidence of ring rot at the present time, in over 90% of the affected fields only a few plants were affected in each field. Some 10-12 years ago it was not uncommon to find 10% of the plants affected. Potatoes imported into Alta. during the year were checked for ring rot in many instances. No infested stocks were found. Present regulations respecting the inspection of potatoes entering the province appear to have made the shippers more careful about the stock that they buy (W. Lobay). Seven fields all on the same farm were rejected for ring rot in Sask. (A. Charlebois). Although the percentage of affected tubers was low, several cases of ring rot were brought to the attention of the laboratory (R.J. Ledingham). Four fields from 2 seed stocks were rejected in Man. (D.J. Petty).

In Ont., ring rot caused the rejection of: 2 fields of Katahdin and 6 other fields on the same farm in the London district (F.J. Hudson); crops of 2 growers comprising 30 acres in district 2 (W.L.S. Kemp); 18 fields of Netted Gem and Katahdin and a bin of Irish Cobbler in district 3 (H.W. Whiteside); and one field of Canso and 6 other fields on the same farm in e. Ont. (E.H. Peters). As a result of the 1953 survey in Ont., ring rot was found in 700 acres of potatoes on 186 farms. The results of these surveys were recently summarized in a paper "Eleven years of bacterial ring rot in Ontario" by D.S. MacLachlan and R.E.Goodin and read before the Ont. Soil and Crop Improvement Association. In the eleven years, 1943-1953, 3,643 positive identifications of the ring rot organism has been made from tubers taken from some 16,000 acres of potatoes grown on 2,631 farms. The records show that ring rot was found but once on 1,873 farms (71.2%), for 2 years on 570 (21.7%), for 3 years on 144 (5.5%), for 4 years on 28 (1.1%), for 5 years on 10 (0.4%) and for 6 years on 6 (0.2%). Thus nearly 93% of the growers got rid of the disease at least the second year after they were shown the disease on their farm. Some 7%, however, through carelessness or non-compliance with the regulations continued to grow diseased potatoes. When one considers how quickly ring rot may spread through the crop, it is quite probable that serious reductions in marketable yields have compelled these growers to clean up their premises or cease growing potatoes commercially. There has been considerable fluctuation in the number of new cases found each year. Study of the weather records has indicated that years of high incidence were years of open falls with no killing frost to interfere with the full development of disease symptoms. The value of the survey to the individual grower has been amply demonstrated by the marked reduction of ring rot incidence that has been brought about in many counties and districts. Because traces of ring rot are virtually impossible to detect, a program of complete elimination is hardly feasible. The present annual survey insures that growers are protected against serious losses from the disease (D.S. MacLachlan).

Ring rot, still the main cause of rejection in Que., was found in 87 or 6.4% of the fields inspected, a sl. increase over last year. Nearly half the affected fields were in the Lake St. John district. The disease was not detected in any fields of Teton entered for certification. (B. Baribeau). Ring rot was found in N.B. in 203 fields and caused the rejection of 126 other fields because it was present in table stock on the same farm. The figures represent a considerable increase over previous years. Absence of early killing frosts permitted the detection of the disease in some fields which ordinarily might have been missed (C.H. Godwin). No organized survey for ring rot was made in N.S., but no case of the disease was found in certified potatoes or in the few fields of table stock examined (R.C. Leyton). Ring rot was found in P.E.I. in 5 fields during field inspection and in 7 others at harvest. A further 20 fields were rejected because the crop had been exposed to contamination.

These figures are not included in Table 15. In a survey conducted 26 April to 16 June 1954, when 6,380 or 90% of the farms in P.E.I. were visited, 126 tuber samples suspected of carrying ring rot were collected; 24 samples proved positive upon laboratory examination (H.L. McLaren).

Ring rot infection was mod. in 2 fields in w. Nfld. and sl. in one at Torbay. The diagnosis was confirmed by D.S. MacLachlan from smears sent to Ottawa. Steps are being taken to prevent its further spread. This report is the first for Nfld. (G.C. Morgan).

SOFT ROT (?Erwinia carotovora) caused sev. losses around Edmonton, Alta., where the fields were flooded by a 5-inch rain on 31 July-1 Aug. Tubers formed at that time were destroyed by a soft rot (W.P.C.). Soft rot was more prevalent than usual in district 3, Ont., probably because the crop was frequently immature when dug. The disease was present in bins of Chippewa, Sebago, and Canso (H.W.Whiteside). Soft rot had affected about 60% of the tubers in a crop of Warba at Gagetown, N.B., on 12 Aug. (S.R. Colpitts). A black rot was found in a few lots of Green Mountain and Keswick in Que.; the tubers showed slight bruises on the surface with extensive rot within (B. Baribeau).

BLACK LEG (Erwinia phytophthora), less prevalent than in 1952, was found in 114 (17%) of the fields inspected in B.C. and caused the rejection of 13 (H.S. MacLeod). Black leg was found in 71 (75%) of the fields in s. Alta. and caused 5 to be rejected. As noted last year, it is very prevalent on irrigated land and at least 6 growers suffered sev. losses (G. Stogryn). The disease was prevalent about Edmonton and in one field 75% of the plants were affected (W.P.C.). In central and n. Alta., black leg was seen in 69 (65%) of the fields inspected and caused 17 to be rejected. It was found in trace amounts in the Peace River District for the first time in recent years(J.W. Marritt). A sl. infection was noted in only one field in Sask. (A. Charlebois). Black leg was present in 41 (25%) of the fields inspected in Man. and caused 3 fields, in the Winnipeg area, to be rejected (D.J. Petty). A sl. infection was also noted at Souris (J.E. Machacek).

In Ont., black leg was found in small amounts in several fields in the London district (F.J. Hudson). It affected 21 fields and caused the rejection of 3 in district 2. Growers who avoided planting their seed potatoes beside stands of corn experienced little or no trouble from black leg in their crops (W.L.S. Kemp). Black leg was found in several parts of district 3 and caused 4 fields to be rejected (H.W. Whiteside). It was observed in 19 of the 82 fields inspected in e. Ont. (E.H. Peters). Black leg was present in 533 (59.7%)

of the fields inspected in Que. and caused the rejection of 45 fields, 25 of which were in the Lake St. John district (B.Baribeau). The disease was more prevalent than in 1952 in all varieties in N.B. and caused 30 fields to be rejected. The weather was rather cold and unseasonable after the crop was planted (C.H. Godwin). Black leg was reported in 60 out of 391 inspected in N.S. and caused 3 to be rejected. The highest infection reported was 4.6% (R.C. Leyton). Black leg was unusually prevalent in P.E.I.; 249 fields were rejected on account of the disease in 1953 compared to 27 in 1952 (H.L. McLaren). A survey of table stock revealed an average infection of 1% in 7 fields of Irish Cobbler, 0.5% in 10 of Sebago and tr. in 15 of Green Mountain. A few fields showed 3% of the plants affected (R.R. Hurst). Weather conditions were ideal for the development of black leg in Nfld.; the tubers were not treated before planting. The disease was noted in Conception Bay and in Trinity Bay, infections being 15-sl. 5-mod. 20-sev. Mod. infections were also reported from the Cormack land settlement, w. Nlfd. (G.C. Morgan).

WILT (Fusarium oxysporum, Verticillium albo-atrum) was found in 23 (2.9%) of the fields inspected in B.C. (H.S. MacLeod); in 22 (23%) of the fields usually in trace amounts in s. Alta. (R.P. Stogryn); and in 6 (5%) of the fields in central and n. Alta. (J.W. Marritt). Wilt was less prevalent than usual in Sask., being seen in only 5 (11%) of the fields inspected (A. Charlebois). The disease was present in few fields in Man. (D.J. Petty).

In Ont., wilt was found in practically all fields examined during the second inspection in the London district; it was most prevalent in Canso (F.J. Hudson). Wilt was present in several fields in district 2. Some growers reported misses or weak plants which became wilted and often died prematurely, as a result of the set being attacked by a jelly rot (W.L.S. Kemp). Wilt was present in small amounts in many fields in district 3. A 11.5% infection developed in one field of Katahdin, causing its rejection. Some stem-end browning was observed in Canso at bin inspection and in one lot of Irish Cobbler; 8% of the tubers showed internal discoloration (H.W. Whiteside). Wilt was found in most varieties grown in e. Ont. and caused 4 fields to be rejected. A rejected field of Kennebec was probably affected by V. albo-atrum (E.H. Peters). Wilt was found in 52 (38%) of the fields inspected in Que. and caused 8 to be rejected. It was most prevalent in Teton. One field of table-stock Kennebec was observed where Verticillium wilt was severe; by 3 Sept., over 20% of the plants were wilted, yellowed, or dead. Symptoms on the tubers were slight, but the yield was estimated to have been reduced 20-25% (B. Baribeau). Wilt was recorded in a few fields throughout N.B., but it appeared to be less prevalent than in 1952. Three fields were rejected on account of the disease (C.H. Godwin).

DRY ROT (Fusarium spp.) was evident at harvest in a 30-acre field of Katahdin in Wentworth Co., Ont., affecting up to 10% of the tubers. Infection appeared confined to the lenticels on the tubers and to the stolons. Lesions were dark, about 3-10 mm. across and 5-10 mm. deep, sometimes coalescing. The more severely affected areas were scattered throughout the field, apparently unrelated to soil type or contour. Isolations consistently yielded a Fusarium (J.K. Richardson). Dry rot was observed in a few bins of the 1952 crop; it caused some loss in shipments (B. Baribeau). The disease was reported in a few bins in N.B., but losses were negligible (C.H. Godwin).

RHIZOCTONIA (Pellicularia filamentosa). Infection was 373-sl. 194-mod. 42-sev./844 fields in B.C. Some crops, especially those of Warba, were quite sev.

infected. It is apparent the disease is generally more sev. in fields where the crop rotation is short (H.S. MacLeod). The disease was present in most fields inspected in s. Alta., but the infection was sl. (R.P. Stogryn). Besides the infection being sl. in s. Alta., the tubers were particularly free of scurf (J.W. Marritt). Although Rhizoctonia was present in most fields it caused little damage (A. Charlebois). However, specimens received from 3 gardens indicated that sev. damage occurred occasionally (R.J. Ledingham). Two potato plantings w. of Wynyard were found on 13 Aug. where the white fruiting mats of the fungus were growing luxuriantly up the stem for about 1½ inches on a 'trace +' of the plants; moisture conditions were favourable. Repeated search in the drier area about Saskatoon yielded one plant in a city garden with meagre development of basidia (T.C. Vanterpool). Infection was sl. in most areas of Man., but was mod. about Winnipeg (D.J. Petty).

Little rhizoctonia was observed in the London district, Ont. (F.J. Hudson). If the soil is light and the crop is left in the ground after it matures, the tubers may become badly scurfed. These conditions occur quite commonly in district 2, in Durham and Ontario counties (W.L.S. Kemp). Rhizoctonia is commonly encountered in the northern part of district 3, but it was less prevalent than last year (H.W. Whiteside). Several fields about Englehart were rather sev. infected. Its prevalence seemed to be influenced by the acidity of the soils. The disease was materially reduced in one field where ground limestone was applied (J.K. Richardson). Tuber infection was sev. in one lot of Keswick, mod. in 2 of Keswick and sl. in 17 other lots grown in e. Ont. (E.H. Peters). Rhizoctonia was 112-sl. 6-mod/1341 fields in Que. Scurf was heavy on tubers from 6 fields (B. Baribeau). Field infection was sl. in nearly all fields in N.B.; scurf was sl. on the tubers (C.H. Godwin). A crop of Katahdin grown at Scotts Bay, Kings Co., was the only one with sev. scurfed tubers in N.S. (R.C. Leyton). Rhizoctonia caused negligible injury in P.E.I. (H.L. McLaren). A sl. infection was observed in 4 fields about Clarke's Beach, Nfld. (G.C. Morgan).

PINK ROT (Phytophthora erythroseptica) affected about 30% of the tubers of Warba in a home garden on Vancouver Island, B.C.; found previously at Summerland (W. Jones).

LATE BLIGHT (Phytophthora infestans) was first reported in B.C. on 27 June, although temperature and moisture conditions believed critical for its development were reached several times before this date. Its first occurrence was on plants growing on a cull pile on Lulu Island. Growers were advised at once through a press release of the appearance of late blight and cautioned to watch for the disease and begin spraying. The disease was reported on Lulu Island and about Ladner and Cloverdale in July but it did not become general until October, when it was quite widespread in the Fraser Valley on the mainland and in the Comox Valley on Vancouver Island. In the certified seed crops, most of which were sprayed or dusted several times, weather permitting, late blight is estimated to have caused loss of 2% of the crop through tuber rot. In the crops grown as table stock the loss in Fraser Valley was estimated to reach 20% in many of the early varieties and 10% in Netted Gem. Yields were probably cut also by the early death of the vines from late blight or top-killers used to prevent further tuber decay. This year's epidemic was the worst since 1948 (I.C. MacSwan, H.S. MacLeod).

Late blight was first seen in Alta. on 28 Aug. as sl. general infection in 2 fields s.e. of Edmonton. By 9 Sept. tr.-sl. infection was present in

all fields about Edmonton. Cool weather checked the further advance of the disease, but some tuber rot developed (T.R. Davidson). A sl. infection was seen in 8 (7%) of the fields inspected in n. Alta., but they were all in the Edmonton area (J.W. Marritt). Sl. infections were seen in several fields inspected at Norquay and Verigin, Sask., in late August (A. Charlebois). From the number of specimens received, it is evident that late blight tuber rot caused sl.-mod. damage in n.e. and e. central Sask. in 1953. Absence of killing frosts until after the normal harvest date probably increased the damage from tuber rot, which was found for the first time at Saskatoon (R.J. Ledingham, T.C. Vanterpool). Late blight was first reported in Man. on 3 Aug. from Dauphin and was seen in several fields about Winnipeg on 14 Aug. Tr.-mod. infections developed at Portage la Prairie, Carman, and Winnipeg, but the weather became unfavourable for blight and tuber rot was negligible (J.E. Machacek, D.J. Petty).

Late blight was first reported in Ont. on 14 July when a sl. infection was found near Renfrew in e. Ont. By the end of July it had been observed in 2 areas in Simcoe Co. Later it was reported from other counties on Georgian Bay, then in more southerly counties, and by 21 Aug. it had appeared in n. Ont. On account of hot dry weather in late Aug. and early September foliage infection was sl.-mod. and reported losses from tuber rot were tr.-sl. Growers were urged early in the season to keep the foliage covered with a suitable fungicide as long as the tops were green (C.B. Kelly et al.). No late blight was found on Canso, Keswick or Kennebec in e. Ont. in 1953, although it was observed on Canso in 1952 (E.H. Peters).

Late blight was first observed in Que. in 1953 n. of Montreal at Mont Laurier and L'Annonciation, on 12 July. By 31 July sl. infections were reported in counties s. and e. of Montreal and by mid-August scattered cases occurred throughout the province. Spread was very slow on account of hot dry weather throughout the summer. However, conditions became more favourable for late blight in September. Potatoes grown in n.e. Que. and along the lower St. Lawrence and dug in early October when the tops were still green developed 5-20% tuber rot in storage. Some sev. cases of tuber rot were found in Kennebec although late blight was not detected on the foliage (B. Baribeau, H. Genereux). Late blight was general and sometimes heavy in small unsprayed plantings in St. Hyacinthe and Rouville counties (L. Cinq-Mars, R. Crete).

Late blight was first reported in N.B. on 17 July in Carleton Co. Although the disease was reported from other sections of the province, infection generally occurred late and it rarely reached epidemic proportions. However late blight was mod.-sev. in several fields in York Co., where the rainfall was somewhat heavier than elsewhere. In consequence a few bins in this county developed a sl. amount of tuber rot (C.H. Godwin, P.N. Grainger).

Late blight appeared in a commercial crop on 29 July at Scotts Bay, Kings Co., N.S. By 12 Aug. scattered infections were present in most districts. A tropical hurricane with 3 inches of rain on 15 Aug. initiated a period of damp weather which lasted into the first week of September. The rest of September was fine. Sprayed fields were little affected and top-killing was required to destroy the vines and permit harvesting. Blight was common in unsprayed fields and losses were sev. in some of these fields. The average loss from late blight was estimated to be 10%, and in a few lots 50-60% of the tubers were destroyed by rot. Although few fields of the blight resistant varieties were sprayed only a trace of tuber rot was reported in these varieties (K.A. Harrison, R.C. Leyton).

Although the late blight epidemic was as severe in P.E.I. this year as in 1951, losses from tuber rot were not high. The crop escaped injury apparently because in fields that were not sprayed the death of the vines was so rapid that the tubers were exposed to infection for only 5 days. In addition growers increased the number of spray applications and used vine killers more extensively. Harvesting was accomplished during a 10-day interval of sunny weather after the tops were already dead from maturity, disease, frost or the use of a vine killer. Almost all losses from tuber rot occurred during the growing period. Late blight was first noticed on 10 July. The average loss in the seed potato crop was placed at 10 bu. per acre (L.C. Callbeck, H.L. McLaren). Late blight infection was heavy on the foliage in Trinity Bay, Conception Bay, and the St. John's areas, but light on the Bonavista peninsula, Nfld. Losses at harvest time were light in late varieties as an early frost in September killed the foliage. Losses were noticeably heavier in the early potato crop (G.C. Morgan).

LEAK or PYTHIUM ROT (P. ultimum) caused misses in a few fields on Vancouver Island, B.C., on account of rotting of the cut sets. Leak was common in early harvested White Rose, Katahdin, and Warba where the skin of the immature tubers was rubbed (W. Jones). Leak was found in tr. amounts in 1953 crop about Grand Forks and Pemberton when inspected in November, but later reports indicate some bins suffered more heavily. Seed piece decay, attributed to Pythium spp., caused losses ranging up to 10% of the crop in some sections of the B.C. Interior and about 12% of the crop in the Grand Forks area had to be replanted. On account of the dry winter and early spring the soil was hot and dry at planting time. On the other hand, in the Fraser River valley, up to 25% misses occurred in fields because the soil was wet and cold. In this region it was noted that in both stand and vigour of growth those crops that were planted with whole seed were in general superior to those planted with cut seed. However, cut seed was just as good as whole seed when the cut seed was calloused properly before planting and when the seed was taken out of cold storage and held a few days at warmer temperatures and then cut and planted immediately (H.S. MacLeod). Two samples of tuber rot were brought to the laboratory, Edmonton; the Alta. Dept. of Agriculture report many cases of this rot (G.B. Sanford). About 1% of the tubers were found affected in 2 lots of Kennebec and one of Green Mountain in Que. (B. Baribeau, H. Genereux).

VIOLET ROOT ROT (Rhizoctonia crocorum) caused sl. damage to a planting of Sebago in the Thedford Marsh, Ont. (N.J. Whitney).

SCLEROTINIA ROT (S. sclerotiorum) caused decay of the stem of the odd plant in a field that had been heavily manured at Courtenay, B.C. (W. Jones). A tr. of rot developed in material being indexed at Charlottetown, P.E.I. The organism entered the tuber at the stem end and caused a slowly advancing dry rot with sclerotia imbedded in the rotted tissue (D.B. Robinson).

SILVER SCURF (Spondylocladium atrovirens) was heavy in a lot of Irish Cobbler grown in the Cochrane area, Ont.; the tubers were treated with Semesan Bel before planting in 1953 and no recurrence was noted on the tubers at bin inspection (H.W. Whiteside). A very slight infection was noted in 10 lots of Green Mountain this fall (B. Baribeau). Light infections were noted in 2 lots of Kennebec at Centreville, N.S. (D.W. Creelman, G.E.O. Fuller). About 20% of the tubers in a lot of Irish Cobbler were affected, some severely, in the Charlottetown area, P.E.I. in April (R.R. Hurst).

POWDERY SCAB (Spongospora subterranea). A sl. infection was reported in a tuber lot in Temiscouata Co., Que. (B. Baribeau). Powdery scab was found in 4

lots of tubers in Kings Co., N.S., infection being tr.-2% (R.C. Leyton).

COMMON SCAB (Streptomyces scabies) was prevalent in the Grand Forks and Kootenay areas, B.C. Some crops were also affected in the Okanagan Valley, around Soda Creek and in the Pemberton district. One crop of Irish Cobbler was ungradable and several lots of Warba were unfit for the ordinary seed grade (H.S. MacLeod). Warba and Carter's Early Favorite were sl. to mod. infected in most parts of n. Alta., whereas Netted Gem was free of scab (J.W. Marritt). Scab, more prevalent than in 1952, sev. affected the crop of several large fields in the London district, Ont. (F.J. Hudson). Scab was quite sev. in some parts of district 2, 25-50% of the tubers having to be graded out in lots of Irish Cobbler and Chippewa. A clean crop of Ontario was produced by one grower in Ontario Co., where 75% of the tubers in his Katahdin crop developed mod. to sev. scab (W.L.S. Kemp). Despite the hot dry season scab was less prevalent in district 3 than in 1952. Ontario again showed high resistance, but when scab occurred it was of the deep type (H.W. Whiteside). A few sl. infections were noted in e. Ont. (E.H. Peters). Scab was more prevalent than usual in Que.; infection was generally sl., except for a few sev. cases (B.Baribeau). Common scab was again somewhat more prevalent than formerly in N.B., although losses are still comparatively small. The loss was quite heavy in a few bins in the Florenceville area. A small lot of Cherokee, a variety reputed to be scab resistant, is being tested next year on a farm in the Woodstock district, where scab has always been a problem (C.H. Godwin). Scab infection was sl. in N.S. this year (R.C. Leyton) and mod. in P.E.I. (H.L.McLaren). Common scab was less sev. and widespread in Nfld. than in the previous 3 years. Infection was sev. in one field at Topsail and in another of Canso at St. John's; elsewhere the infection was sl.-mod. (G.C. Morgan).

WART (Synchytrium endobioticum). Losses from wart were heavy in Nfld. particularly in the Trinity Bay and Bonavista Bay areas. Weather conditions were ideal for the spread and increase of the disease. All 40 fields visited in Trinity Bay were infected, infection ranging from 20% to 80%, average 50%. Most fields visited in Bonavista Bay were diseased, but infection was less than last year. Few of the growers in these areas appear aware of the seriousness of the disease; they are being urged to plant certified Sebago. Infection was also heavy in Conception Bay in fields where Arran Victory, Arran Comrade, Kerr's Pink, Irish Cobbler, Warba, President and Green Mountain were planted. Sebago continues to show high resistance to wart and is increasing in popularity among potato growers in Conception Bay (G.C. Morgan).

WILT (Verticillium albo-atrum) was found affecting 25% of the plants in a field of Warba at Osoyoos, B.C.; Earliana tomatoes on the same field in 1952 were all affected with the diseases (G.E. Woolliams). In 1952, Verticillium wilt affected 5% of the Kennebec plants in a plot following tomatoes at the Horticulture Sub-Station, Smithfield, Ont. (K.M. Graham); it was also found affecting specimens from Picton (C.B. Kelly). Wilt was reported in 65 (19%) of the fields inspected in N.S. It caused the rejection of 12 fields; 9 of Kennebec, 2 of Irish Cobbler, and one of Canso; infection in the rejected fields averaged 13.9%, highest being 36%. Several growers treated the seed for the control of the wilt as recommended by G.W. Ayers in a paper read locally. None of the treated crops were rejected for wilt and highest infection in these crops was 2%. If the growing of Kennebec is to be continued, it will be essential to treat the seed before planting (R.C. Leyton). A small garden planting of Kennebec at Kentville was almost a complete loss from wilt (D.W. Creelman). Wilt appeared to be more prevalent in P.E.I. than in 1952;

55 fields were rejected this year against 32 in 1932. Seed treatment is little practised in P.E.I. (H.L. McLaren). Kennebec has proved definitely more susceptible to this disease than Irish Cobbler or Sebago (G.W. Ayers).

CALICO (virus) was reported in tr. amounts in several fields about Grand Forks and in some parts of the Kootenays, B.C. (H.S. MacLeod). Several affected plants were seen in a field of Canso in the Walford area, Ont. (H.W. Whiteside).

LEAF ROLL (virus) was found in 157 (18.6%) of the fields inspected in B.C. and caused 6 to be rejected. The disease is most prevalent about Grand Forks, but its severity was less than in 1952 when a program of more rigorous seed selction was begun. Aphids were found in the Fraser Valley in late June, about a month earlier than usual; current season infection of leaf roll was also observed much earlier than usual. Lesser amounts were found in other districts and again none was reported about Pemberton (H.S. MacLeod). Leaf roll was found in 36(38%) of the fields in s. Alta. (R. P. Strogyn) and in 30 (26%) in central and n. Alta. One or two fields rejected for black leg contained more leaf roll than the standards permit. Leaf roll continues to abound in garden plots at Edmonton and a demonstration plot was planted this year to convince allotment holders of the value of planting certified seed (J.W. Marritt). Leaf roll was seen in 32 (58%) of the fields inspected in Sask., and in 26 (16%) in Man; it caused one rejection in each province (A. Charlebois, D.J. Petty).

In Ont., leaf roll was found in several potato fields in the London district (F.J.Hudson). It was present in 13 fields inspected in district 2 and caused one rejection (W.L.S. Kemp). Leaf roll was recorded in 12 fields in district 3. The program of bringing seed of the commonly grown varieties from the Cochrane district to central Ont. each year has reduced its incidence (H.W. Whiteside). The disease was present in 3 fields in e. Ont. (E.H. Peters). Leaf roll was found in 260 (19.3%) of the fields inspected in Que. and caused 5 rejections (B. Baribeau). A 20-acre field of Cherokee, one year from certification, contained about 1% of leaf-roll plants at Ste. Clothilde, Chateauguay Co., Que. (H.N.Racicot). Leaf roll is no longer the problem in N.B. that it was a few years ago. Only 6 fields were rejected in 1953 (C.H. Godwin). Leaf roll was reported in 80 (20%) of the fields inspected in N.S. and 5 fields were rejected (R.C. Leyton). Leaf roll was somewhat less prevalent in P.E.I. than in 1952, causing 78 fields to be rejected (H.L. McLaren). Average infection in table stock fields examined were Irish Cobbler 2%, Sebago 1%, and Green Mountain tr. (R.R. Hurst). Sl. infections were seen in several fields in Bonavista, Trinity, and Conception Bays, Nfld. The disease was less prevalent than in 1952 (G.C.Morgan),

MOSAIC (virus) was found in 95 (11%) of the fields inspected in B.C. and caused 6 to be rejected. It was not recorded in the Cariboo and in only one field in the Kootenays (H.S. MacLeod). Mosaic was observed in 9 (4.5%) of the fields inspected in Alta. (R.P. Stogryn, H.W. Marritt). Mosaic was present in 18 (32%) of the fields inspected in Sask., and caused one to be rejected (A. Charlebois) while in Man. it occurred in 7 (4.5%) of the fields and 3 were rejected (D.J.Petty).

In Ont., traces of mosaic were seen in several fields in the London district (F.J. Hudson) and district 2 (W.L.S. Kemp). Mild mosaic caused 14 fields, mostly Katahdin, to be rejected in district 3 (H.W. Whiteside). Three fields were rejected in e. Ont. (E.H. Peters). Mosaic was found in 453 (33.7%) of the fields inspected in Que. and caused 70 to be rejected. It is thought that the increase of mosaic resulted from the absence of frost in September 1952

permitting aphids to feed longer than usual (B. Baribeau). Mosaic was more prevalent than last year in N.B. causing 83 fields to be rejected. Most of the fields were of the Green Mountain variety which is grown extensively in Victoria and Madawaska counties in n. N.B. Elsewhere the disease was of minor importance (C.H. Godwin). Mosaic was more prevalent than last year in N.S.; it was present in 119 (30%) of the fields inspected and 15, mostly Green Mountain, were rejected, apparently as a result of late infection in 1952 (R.C. Leyton). Mosaic was unusually prevalent in P.E.I.; 303 fields were rejected for mosaic compared to 108 fields in 1952 (H.L. McLaren). The average infection during a survey of table stock was 4% in Irish Cobbler, 1% in Sebago, and 3% in Green Mountain (R.R. Hurst). Infection was high in many fields in Trinity Bay and Bonavista Bay, Nfld., although mild mosaic was less widespread than in 1952. Mod. infections of rugose mosaic were seen in Arran Victory and President and traces in Green Mountain, Arran Pilot and Kerr's Pink (G.C. Morgan).

FOLIAR NECROSIS (Solanum virus 1, D strain). Two plants were found in a variety test plot in N.B. The same virus was found in an unnamed seedling that showed interveinal mottling (D.J. MacLeod).

SIMPLE MOSAIC (Solanum virus 1, S strain) was evident in fields of Canso, Keswick, Katahdin, Pontiac and Sebago in York and Sunbury counties, N.B.; infection was tr.-2% (D.J. MacLeod).

RUGOSE MOSAIC (Solanum viruses 1 and 2) affected 2% of the plants in a table stock field of Green Mountain in York Co., N.B. (D.J. MacLeod).

MILD MOSAIC (Solanum viruses 1 and 3) in commercial fields of Bliss Triumph, Green Mountain, Kennebec, White Rose and Netted Gem in York and Carleton counties, N.B.; infection was tr.-3% (D.J.MacLeod).

CRINKLE MOSAIC (Solanum viruses 1, 2 and 3). Two Green Mountain plants showing sev. crinkle were seen in a variety test plot at the Station, Fredericton, N.B. (D.J. MacLeod).

FAINT MOSAIC (Solanum virus 3). A fleeting type of mottling was observed in Arran Victory, Kennebec, Pontiac and Keswick in a test plot at Fredericton, N.B. This virus produces only a faint mottle in some varieties when they are free of Solanum viruses 1 and 2 (D.J. MacLeod).

MOSAIC (Solanum virus 11) of an interveinal type was found affecting 4% of the tubers of a lot of Irish Cobbler sent in for tuber indexing. The virus was also found producing a leaf-rolling mosaic in Green Mountain. It is transmissible by sap inoculation to Datura tatula, in which it produces circular local necrotic lesions on the leaves (D.J. MacLeod).

PURPLE or BUNCH TOP (virus). A tr. of haywire was found in 3 fields in s. Alta. (R.P. Stogryn). Haywire was observed in 14 fields and purple top in 90 in central and n. Alta. Purple top was more prevalent and widespread than in 1952, plants continuing to develop symptoms until freeze-up (J.W. Marritt). Tr. infections were seen in gardens in Edmonton (T.R. Davidson). Tr.-sl. infections were present in most plantings about Saskatoon, Sask. (R.J. Ledingham). Purple top was found in nearly all fields inspected in Sask., and was definitely more prevalent than usual (A. Charlebois). Purple top was also more prevalent in Man.; most fields showed 1-3% affected plants (D.J. Petty).

In Ont. a single affected plant was seen in a field at Strathroy (F.J.Hudson) and in each of 4 fields in district 2 (W.L.S. Kemp). Incidence of purple top was low in district 3, but it was more prevalent n. and w. of North Bay (H.W. Whiteside). The disease was seen in 5 fields in e. Ont. (E.H. Peters). Purple top occurred to a sl. extent in all varieties in Que., particularly in President, Canso, Sebago and Irish Cobbler (B. Baribeau). Bunch top appeared to be less prevalent than last year in N.B. although small percentages were observed in a few fields in all the potato growing areas (C.H. Godwin). Purple top was observed in potato fields in several counties in N.B. It was observed on Green Mountain, Canso, Chippewa, Bliss Triumph, Irish Cobbler, Houma, Keswick, Kennebec, Katahdin, Netted Gem, Pontiac, Sebago, Teton, and Warba. The late leaf-roll stage was common in Katahdin, Kennebec, and Irish Cobbler in some of the fields examined (D.J.MacLeod). Purple top was reported in a few fields of Sebago in N.S. (R.C. Leyton). Traces were observed in table stock fields of Irish Cobbler, Sebago, and Green Mountain examined in August in P.E.I. (R.R. Hurst). Tr. infection was present in a few fields of Arran Victory in Nfld. (G.C. Morgan). Reiner Bonde and E.S.Schultz (Me. Agr. Exp. Sta. Bull. 511. 1953) present evidence to show that purple top differs from haywire and an apical leaf-roll, which is easily confused with purple top. They were only able to transmit purple top by inarch grafting of affected plants on to young plants (I.L.C.).

SPINDLE TUBER (virus) was found in a field at the Provincial Horticultural Station, Brooks, Alta., where the disease was noted last year (R.P. Stogryn). The disease was present in several fields mostly in northern part of district 3, Ont. (H.W. Whiteside). Spindle tuber was observed in Sebago and possibly in Kennebec in Que. (B. Baribeau). Spindle tuber was common in commercial fields in York, Sunbury and Carleton counties, N.B. It was observed in Canso, Bliss Triumph, Katahdin, Irish Cobbler, Keswick, Kennebec, and Netted Gem. More notice should be taken of this important disease (D.J. MacLeod). Traces or small percentages were observed in a few fields entered for certification, but disease incidence was low (C.H. Godwin). A few suspected cases were observed in Kennebec and Sebago in N.S. (R.C. Leyton). Spindle tuber was unusually prevalent in Irish Cobbler in P.E.I.; in all 83 fields were rejected on account of the disease (H.L. McLaren). Infection was mod. in 15 fields in Bonavista Bay and in one at Cormack (west coast), all of Arran Victory; and sl. in 5 (variety unstated) in Trinity Bay, Nfld. (G.C. Morgan).

WITCHES' BROOM (virus) was found in 81 (9.7%) of the fields inspected in B.C. and caused 8 to be rejected. It appeared to be more prevalent in the Pemberton area than last year whereas its occurrence in the Cariboo and central B.C. was about the same as in 1952 (H.S. MacLeod). Tr. infections were present in scattered gardens about Edmonton, Alta. (T.R. Davidson). Witches' broom was found in 26 (24%) of the fields inspected in n. Alta.; it was again most prevalent in the Peers district (J.W. Marritt). The disease was again observed in the North Bay and Cochrane districts, Ont. (H.W. Whiteside). Witches' broom was observed in 2 plants of Irish Cobbler, and one plant each in Irish Cobbler and White Rose in York Co., N.B. (D.J. MacLeod).

YELLOW DWARF (virus). A few affected plants were observed in Keswick about Cochrane and in n. Simcoe, Ont. (H.W. Whiteside) and in Green Mountain in 2 fields in w. Que. (B. Baribeau).

BLACK HEART (non-parasitic) affected about 1% of the tubers in a lot of Green Mountain grown in Que. and sent in for examination (B. Baribeau).

FROST INJURY was practically absent in potato crops in n. Alta. in 1953, growing conditions being good except for too much rain in some sections (J.W. Marritt). About 0.5% of the tubers were affected in some bins in counties n. of Montreal and in the Lake St. John district, Que. (B. Baribeau). Field frost sev. affected 15% of the tubers of Green Mountain and 25% of Sebago in 2 late-harvested crops in Queens Co., P.E.I. (R.R. Hurst). Several fields of Arran Victory showed typical frost injury at harvest time in Bonavista Bay, Nfld. Injury was also observed in other varieties there and in Trinity Bay and Conception Bay (G.C. Morgan).

GIANT HILL. A trace was recorded in 9 fields inspected in s. Alta. (R.P. Stogryn). A few affected plants were observed in fields at North Bay and northward in Ont. (H.W. Whiteside) and in fields of Green Mountain in Que. (B. Baribeau).

HOLLOW HEART was particularly prevalent about Grand Forks and in some parts of the Kootenays, B.C., following unfavourable weather and misjudging of irrigation requirements (H.S. MacLeod). The trouble was observed in Que., chiefly in Canso and Kennebec varieties (B.Baribeau).

INTERNAL BROWN SPOT. A high percentage of the tubers were affected in several bins of Katahdin and Ontario. The crops had been grown on very light land under hot and dry conditions in district 3, Ont. (H.W. Whiteside). Affected tubers were received from Penetang and Scotland, Ont. See U.S.D.A. Misc. Publ. 98, 1936, plate 6 (H.N. Racicot).

LIGHTENING INJURY. A typical case was reported in Queens Co., P.E.I. (R.R. Hurst).

LOW TEMPERATURE BREAKDOWN. Two cases came to the attention of the Ottawa laboratory. The tubers had been stored below 32°F. and at 35°F. respectively. The latter lot was also immature and suffered bruising at harvest (H.N. Racicot).

MAGNESIUM DEFICIENCY severely affected about 20% of the plants in a field of Irish Cobbler at Covehead, P.E.I. (R.R. Hurst).

NET NECROSIS. Phloem necrosis (virus) was found in only a few crops in B.C. and caused one to be rejected. Net necrosis as a result of frost was present in some crops in the Grand Forks area (H.S. MacLeod). Net necrosis was observed in a few bins of Green Mountain about Grand Falls, N.B.; the trouble is less prevalent than formerly (C.H. Godwin). Net necrosis has been particularly prevalent this year in N.S. in Netted Gem. One car shipped to N.B. was reported showing 40% of severe necrosis on arrival. About 100 tubers of this lot were planted in the greenhouse and none of the plants developed leaf roll. In one lot of table stock 20% of the tubers were affected and lesser amounts were reported in other crops (R.C. Leyton). New necrosis was observed in a few tubers from Netted Gen crops the vines of which were killed with herbicides at Sidney and Courtenay, B.C. (W. Jones).

NO-SPROUT TUBERS. There were considerably more misses in all fields and all varieties than usual in district 3, Ont.; investigation revealed that sets failed to germinate (H.W. Whiteside). Misses from this cause were so high in a field of Canso planted with Foundation A seed at Field that the grower will suffer a heavy financial loss (C.B. Kelly). About 85% of the

sets in a 1½-acre field of Canso near Bainsville failed to germinate, but remained hard; the soil was saturated with moisture after the crop was planted (E.H. Peters). This trouble was again noticed in Canso in Que. Tubers produced by a crop grown on sandy soil in 1952 and planted on heavier soil produced 25% misses in 1953. Tubers produced on heavy soil in 1952 and again planted on a heavy soil produced a crop free of misses. Storage conditions appear to be only one factor in this disorder (B. Baribeau).

STEM-END BROWNING was again observed in Keswick and Canso, mostly in the larger tubers, in district 3, Ont. (H.W. Whiteside). This disorder was observed in Que. to some extent in Green Mountain and Kennebec, but it was present mostly in Canso in large tubers comprising 8% of the crop in some fields (B. Baribeau). Most of the tubers from a 7-acre field of Canso at Rustico, P.E.I., showed stem-end browning. Plating the discoloured tissue revealed that Verticillium was present but for the most part no parasitic organism was found (J.E. Campbell).

2,4-D INJURY. Severe distortion of stems and foliage was noted in some varieties at Brandon, Man. (J.E. Machacek).

PUMPKIN

POWDERY MILDEW (Erisyphe cichoracearum) was quite general late in the season in the Okanagan Valley, B.C. (G.E. Woolliams). The disease was quite severe on crops in s.w.Ont. (C.D. McKeen).

RHUBARD

CROWN GALL (Agrobacterium tumefaciens). A typical specimen was observed in a garden in Saskatoon, Sask. This is the first time that I have seen rhubarb affected (T.C. Vanterpool).

GREY MOULD (Botrytis cinerea). A severe case was found in January in Surrey, B.C., on forced rhubarb. The moisture-laden air was condensing in large globules on the backs of the leaves at the points the large veins joined. Infection was taking place at these points. The primary cause of the trouble appeared to be lack of ventilation in the forcing house. Fans were installed and severe infection of the leaves was eliminated (I.C. MacSwan).

RED LEAF (cause unknown) was present in nearly all plantings observed in the Lethbridge area, Alta. In one farmer's garden all 8 plants began to show striking symptoms in early July; one month later all plants were dead (J.T. Slykhuis). This disease was recorded in the plots at Edmonton and Lacombe and in a field at Oliver (W.P. Campbell). Red leaf was present in most of the older plantings in the Saskatoon area, Sask. (R.J. Ledingham). Diseased specimens were received from Cedoux, Spalding and Wolsley (T.C. Vanterpool). Red leaf has caused substantial losses in recent years in Man., particularly in plantings of Valentine (W.A.F. Hagborg). Two plants showing typical red leaf symptoms were found in a private garden in Fredericton, N.B. (D.J. MacLeod). A quick survey of growers' fields in the Lower Fraser Valley, B.C., failed to reveal the disease (H.N.W. Toms).

SQUASH

ALTERNARIA SPOT (A. cucumerina) was found affecting about 10% of the Sweet Keeper squash in storage at Cambridge, N.S., on 12 Feb. 1952. The identification of the organism was confirmed by J.W. Groves (K.A. Harrison, D.B.O. Savile).

POWDERY MILDEW (Erysiphe cichoracearum). Most squash crops were affected more heavily than usual in Essex Co., Ont. (C.D. McKeen).

SOFT ROT (Rhizopus sp.) was sev. on 6% of the Acorn squash grown on Upton farm, near Charlottetown, P.E.I. (R.R. Hurst).

STEM ROT (Sclerotinia sclerotiorum) caused sev. damage to some plants in a garden in Edmonton, Alta. (L.E. Tyner).

LEAF SPOT (Septoria cucurbitacearum Sacc.) sev. damaged the leaves in a large planting at the Station, Kentville, N.S. Trace infections were also found on citron and pumpkin. This disease has not been previously reported from N.S. (D.W. Creelman). This disease has been previously reported on melon (P.D.S. 20:37)in Ontario and specimens on the same host were collected at Ste Anne de la Pocatiere, Que., in 1935 (I.L. Conners).

MOSAIC (virus). Although affected plants were found in most fields in Essex Co., Ont. the incidence of mosaic was less than usual. Aphid infestations were much lower than in recent years (C.D. McKeen).

YELLOWS (Callistephus virus 1). Eight plants showing severe yellows were observed in a test plot at the Station, Fredericton, N.B. (D.J. MacLeod).

SWEET CORN

BACTERIAL BLIGHT (Bacterium stewartii). Early sweet corn hybrids were severely affected everywhere in Essex Co., and in some parts of Kent Co., Ont. The disease was not seen in Norfolk Co. Late varieties were but sl. affected. Flee beetles were numerous this year. The early or seedling stage of the wilt was not encountered (N.J. Whitney).

RUST (Puccinia sorghi) infection was heavy in Sept. on the younger leaves in 2 garden plots at Kentville, N.S. (K.A. Harrison). Rust was found on a few plants in a field at Ste. Clothilde, Que. (L. Cinq-Mars, R. Crete).

SMUT (Ustilago maydis) formed large boils on 10% of the stalks and ears in a planting in Lincoln Co., Ont. (G.C. Chamberlain). Specimens were received from Hillston; rarely observed in N.S. (K.A. Harrison). A light infection was seen in a field at Rougemont, Que. (L. Cinq-Mars, R. Crete).

MAGNESIUM DEFICIENCY was found affecting about 10% of the plants of several varieties at the Sub-station, Ste. Clothilde, Que. (H.N. Racicot). Symptoms were seen in several fields visited in Kings Co. in July. Prompt treatment with magnesium sulphate was effective in correcting the trouble. However a 2-acre field showing symptoms failed to respond to treatment. When tissue tests were made by the Station staff, very high tests for nutrients were obtained. The field had been in constant cultivation for

several years; a succession of potato crops had been grown and commercial fertilizer had been applied at high rates (K.A. Harrison).

PHOSPHORUS DEFICIENCY. Several gardens were visited in Kings Co., N.S., that showed typical phosphorus deficiency symptoms (K.A. Harrison).

TOBACCO

A special report on tobacco diseases in Ontario was prepared by Dr. Z. Patrick and Dr. L.W. Koch.

Seedbed Diseases

BLUE MOULD (Peronospora tabacina). Late season outbreaks of blue mould occurred in a number of greenhouses and seedbeds in the Old and New Tobacco Belts of Ont. The disease did not cause much damage because by that date transplanting was completed in most areas. Blue mould has not yet been noted in Que.

YELLOW PATCH (excessive nutrients) caused some damage throughout the Old and New Tobacco Belts. Some growers still tend to overfertilize their tobacco seedbeds which results in areas of the seedbed remaining stunted and patchy through lack of proper nutrient balance in the soil. In some seedbeds where there was excess of fertilizers the seedlings appeared healthy but their root systems were very stunted resulting in almost complete loss when transplanted to the field.

DAMPING-OFF (Pythium spp. and Rhizoctonia solani) was widespread and caused mod.-sev. damage during the early part of the season when the weather was cloudy and cool. Most sev. damage was caused where plants in the seedbed were too crowded and where water was applied in excess or in a faulty manner. It was noted that in beds where damage was heavy the growers had not followed the recommended program for control of blue mould (See P.D.S. 32:73).

MUSHROOMS caused mild damage throughout the burley and dark areas of Kent Co. where outside seedbeds are the practice.

2,4-D INJURY. A number of cases of 2,4-D injury were noted. This type of injury is becoming less common because the growers realize the danger of using improperly cleaned sprayers or of drift from adjacent weed-spraying operations.

Field Diseases

BLUE MOULD (Peronospora tabacina). No cases of blue mould in the field were observed in the tobacco growing areas of Ont. and Que.

BROWN ROOT ROT (nematodes) is still one of the most serious diseases of burley and flue varieties throughout Ont. The disease was widespread causing sl.-mod. damage and in most of the fields visited, some brown root rot damage was noted.

BLACK ROOT ROT (Thielaviopsis basicola) caused very little damage throughout the flue-cured areas of Ont. Its inactivity may be attributed in part to the widespread use of the resistant variety Delcrest. (Some black root rot damage was reported in the Peterborough area).

FRENCHING (?soil toxins). A few fields of flue tobacco in Kent, Norfolk and Simcoe counties were sl.-mod. damaged by frenching. This disorder was limited to fields where the soil type is marginal or unfavourable for growing tobacco.

LEAF SCALD (cause undetermined) is characterized by the tip ends of the leaves becoming wilted and failing to recover. The wilting occurs in hot weather following periods of rapid growth. This disorder is often attributed to the sting of one of the stinkbugs. The damaged leaves turn brown and die. Only sl. damage was caused.

NON-PARASITIC LEAFSPOT (cause undetermined) is characterized by small brown spots on the leaves which later become dead and often turn greyish-white. It was more prevalent this season than for some years. The degree of spotting varied from a few widely-separated spots on the leaf to a condition in which the leaf is entirely covered with spots. Severely affected leaves on burley varieties turn yellow prematurely and later may die. The spotting, although less intense on flue varieties, may often cover all the leaves on a plant resulting in a lowered grade.

MOSAIC (virus) was widespread throughout the burley, dark and flue cured tobacco growing areas of Ont. A few plants affected by mosaic were present in most fields but damage was heavy only in those fields where the growers failed to take proper sanitary precautions in their transplanting operations.

ETCH (virus) caused some damage to burley and black tobaccos in the Old Tobacco Belt. The disease was much less prevalent than in the previous two seasons.

RINGSPOT (virus) was more common on burley, black and flue varieties than in the previous season. It was found on a few plants in nearly every field visited both in the Old and New Tobacco Belts of Ont. The damage to the leaves, however, was not severe.

HOLLOW STALK (Erwinia carotovora and E. atroseptica). A few cases of stalk soft rot were observed as a result of topping damage and the use of suckering oils; the trouble was not serious.

SORE-SHIN (Rhizoctonia solani and Pythium spp.) A few plants affected with sore shin were observed in the early part of the season in corners of the fields where drainage was poor.

OTHER DISTURBANCES:

Lightning Injury. Damage due to lightning was observed in a number of tobacco fields. Up to 20 plants in the circular area affected were dead while the plants toward the margins showed various degrees of damage.

Hail Damage. Hail storms towards the end of the growing season caused considerable damage to flue tobacco in the New Tobacco Belt.

Uneven Ripening was encountered in most of the tobacco growing areas of Ontario. This condition was caused by dry weather throughout most of the growing season followed by rain just prior to and during harvest, resulting in the plants commencing to grow again. Total damage due to uneven ripening is difficult to estimate; it delays and prolongs harvesting so that all the crop is not harvested before frost. Also, it is difficult to cure the leaves properly and hence the grade is lowered.

TOMATO

EARLY BLIGHT (Alternaria solani) was present in most canning crops in Essex Co., Ont., but it caused negligible damage. It was also found in most fall greenhouse crops and caused for some unknown reason more leaf necrosis than usual (C.D. McKeen). A survey of canning crops fields in Northumberland, Durham and Prince Edward counties in mid-July revealed a trace to very light infection in most fields examined (C.B. Kelly). Early blight caused a 10% infection in a field of Bonny Best at Fredericton, N.B. (S.R. Colpitts). Early blight was less sev. than usual in N.S., infection being 10% by mid-September. About 15% of the fruit in one lot developed rot during ripening in storage (K.A. Harrison). A tr. infection was noted at the Upton farm, Queens Co., P.E.I. (R.R. Hurst). Sl. infections were seen in 2 plantings in St. John's, Nfld. (G.C. Morgan).

GREY MOULD (Botrytis cinerea) caused mod. damage to the fall crop in several greenhouses on Vancouver Island, B.C. (W.R. Foster). About 50% of the plants were affected in the Univ. greenhouse, Edmonton, Alta. (G.B. Sanford). Grey mould destroyed much of the foliage and caused stem cankers on a large greenhouse crop at West Lorne, Ont. When a fall greenhouse crop was examined late in the season at Ridgetown, 15% of the plants were found killed by a fungus that had entered through pruning wounds and formed sclerotia embedded in the stems. Although the conidia were not seen, the causal organism was probably B. cinerea (C.D. McKeen). A shipment of 10,000 plants was held under moist conditions in storage over a week-end before planting in the field in Kings Co., N.S.; some 35% of the plants were subsequently lost from grey mould in the field. A tr. of fruit rot developed in early October in the plots at Kentville (K.A. Harrison).

GHOST SPOT (Botrytis cinerea). Diseased fruits showing mod. infection were received from Cornerbrook, Nfld. It occurred on fruits on the 3rd and 4th truss in plants pruned to 3 stalks. Upon ripening the fruits become unsightly and where the disease is severe, they are unmarketable. Ghost spot occurs sporadically in field tomatoes in Ont., but it has never been investigated because of its apparent unimportance. However the lesions were so numerous in this sample that it could be easily identified with the Botrytis disease of greenhouse tomatoes reported in England (K.M. Graham).

LEAF MOULD (Cladosporium fulvum) was already sev. in all plantings of one greenhouse grower at Albion, B.C., before he reported the disease; he estimated a loss of one-third of his crop. Leaf mould was also common in many other houses in the district, but it was kept under control by proper regulation of the temperature and humidity (I.C. MacSwan). Infection was

heavy in a greenhouse crop of Vetomold in full bearing on 13 May at Surrey; ventilation was probably not well controlled (H.N.W. Toms). The disease was prevalent in 3 greenhouses at Edmonton, Alta. (A.W. Henry). Leaf mould fruited profusely on fall crops of V121, Vulcan and Michigan Forcing in greenhouses around Leamington, Ont. Improved Bay State and Vineland 508 proved to be resistant. The fungus was also found fruiting on early varieties grown in the field and it persisted through the hot weather in July. The disease also caused sev. defoliation of several varieties of canning tomatoes being grown under irrigation at Ridgetown. These observations indicate that the fungus is probably more widespread in the field than hitherto realized. It is suggested that its presence in the field would afford greater opportunity for the fungus to evolve with its host than if it were restricted to greenhouse crops (C.D. McKeen). Infection was general on 27 May in a 100 ft. greenhouse of Vetomold 121 in Lincoln Co. (G.C. Chamberlain). Leaf mould caused sl. damage in one greenhouse and extensive defoliation and damage in another at St. John's, Nfld. (G.C. Morgan).

ANTHRACNOSE (Colletotrichum phomoides) was sev. in a few canning crops in Essex Co., Ont. Differences in disease reaction were apparent between varieties. As observed in previous years, the disease was most sev. on sandy soils (C.D. McKeen). Anthracnose was observed on a few fruits in a field at Rougemont, Que. (L. Cinq-Mars, R. Crete). The disease caused the loss of several fruits from a home garden at Ottawa as they were being ripened indoors (D.B.O. Savile). Fruits from the unsprayed test plots at Kentville, N.S., were sev. infected and broke down during ripening. Commercial fields in the area were almost free of disease (K.A. Harrison).

BACTERIAL CANKER (Corynebacterium michiganense). Diseased plants were brought to the laboratory from a field of Gem, also in tomatoes in 1952, at Cawston, B.C., where 20-30% of the plants were reported infected; the seed was untreated. Later the disease was found in a field of Earliana at Ashcroft, causing stunting and death of 50% of the plants; a small block of Loran Blood in the centre of the field were little affected (G.E. Woolliams).

WILT (Fusarium lycopersici) caused the death of scattered plants throughout a planting at Lethbridge, Alta. (F.R. Harper). The disease caused losses in both early and canning crops in Essex Co., Ont. A few areas were found on farms previously unknown to be infected. The last 2 hot dry summers have been favourable for manifestation of symptoms (C.D. McKeen).

PHOMA ROT (Phoma destructiva). Diseased specimens brought to the laboratory for diagnosis were from several cartons of fruit from a greenhouse near Leamington, Ont. (C.D. McKeen). Late in the season Phoma rot occurred in the field in Kings Co., N.S., and caused losses from 2-3% to 100%, average 15% as the tomatoes were ripening in storage. It first appeared in N.S. in 1952 in tr. amounts. (K.A. Harrison).

LATE BLIGHT (Phytophthora infestans) became noticeable on on unsprayed plants in the Univ. trial plots at Vancouver, B.C., in early September (H.N.W. Toms). Affected specimens were brought in from a home garden at Cranberry Lake (I.C. MacSwan). The disease was apparently fairly general in n.e.Sask. as judged from specimens received (R.J. Ledingham). An outbreak of late blight occurred in a single field at Comber, Essex Co., Ont. A nearby potato refuse pile served as a source of inoculum. Preventive sprays were applied. Further spread was halted by a long hot spell. Adjacent fields remained free of blight (C.D. McKeen). Late blight was rare in Que.

In one field at Ste. Sophie, Terrebonne Co., 50% of the fruit were badly affected and a sl. infection was noted in a small field at Ste. Anne de la Pocatiere in late September (H. Genereux). Late blight was sev., killing the tops and rotting the fruits in a field at Fredericton, N.B.; the sprayed portion of the field showed less fruit rot (S.R. Colpitts). Late blight was first reported in a field at Somerset, N.S., on Sept. 1. Spraying was very effective in checking blight and losses were sl. in commercial plantings. The disease was present by late Sept. in all gardens where spraying had been neglected (K.A. Harrison). Sl.-mod. infections were seen at St. John's and Topsail, Nfld. (G.C. Morgan).

BUCKEYE ROT (Phytophthora parasitica) affected a few fruits in several early and canning tomato crops in Essex Co., Ont. Its incidence was as usual (C.D. McKeen).

DAMPING-OFF (Pythium sp.) caused a loss of 15% of the seedlings in a greenhouse in Lincoln Co., Ont. (G.C. Chamberlain).

STEM ROT (Sclerotinia sclerotiorum). A single infected plant was found in the plots at Kentville, N.S. (K.A. Harrison).

LEAF SPOT (Septoria lycopersici). A mod. infection was found on 10% of the plants in a planting at St. Vital, Man. (J.E. Machacek). Leaf spot was about as prevalent in Essex Co. as in 1952. On account of the drought, defoliation was light even where plants bearing foliage infections were set in the field. Only crops grown under irrigation suffered much defoliation (C.D. McKeen). Leaf spot is not usually troublesome in N.S., but it caused some defoliation in a 5-acre field in Kings Co. Infection apparently started in the seed bed and the spray program did not hold it in check in some parts of the field (K.A. Harrison).

WILT (Verticillium spp.) caused sev. damage in one garden at Keating, B.C. V. dahliae was isolated (W. Orchard). Wilt occurred on all commercial varieties being grown but was most prevalent on Earliana, Chatham, Clark's Early and Gem. It was observed in the Okanagan, Thompson, and Upper Fraser valleys. Infection varied from a tr. in a few fields to 100% in most. The disease is the most serious and widespread disease in the B.C. Interior. It has also been observed in greenhouse crops (G.E. Woolliams). Verticillium wilt appeared to be more widespread than usual in Essex Co., Ont. Infected plants outgrew much of the early injury. Damage is still regarded as slight (C.D. McKeen).

ETCH (virus). Affected plants were found in a few canning tomato crops in the Harrow area, Ont. (C.D. McKeen).

MOSAIC (virus) affected 10% of the plants in a field of Loran Blood at Osoyoos, B.C. (G.E. Woolliams). Infection from tobacco mosaic virus varied from a tr. to 75% in many early and canning tomato crops in s. Essex Co., Ont. As usual, infection was high in greenhouse crops. Many fruits were observed showing "internal browning" and "gray wall" in one greenhouse crop at Leamington (C.D. McKeen). Mosaic was reported to have affected most plants in a 2-acre field in the Montreal district, Que. Plants submitted were affected by tobacco mosaic (H.N. Racicot). Mosaic was less prevalent than usual in Kings and Hants counties, N.S.; greenhouse crops were infected 100% by the time the first fruit were ripe (K.A. Harrison). Sl.-mod. infections were noted in 2 greenhouses in e. Nfld. (G.C. Morgan).

PURPLE TOP (virus). A tr. was observed in one field of early tomatoes near Harrow, Ont. (C.D. McKeen), and in 2 plantings in York Co., N.B. (D.J. MacLeod).

STREAK (virus) caused sev. damage to 2 tomato crops near Harrow, Ont. These fields adjoined early potato fields. Three weeks after the potatoes were dug, virus symptoms appeared in the tomatoes. Damage to the crop was most sev. in the rows nearest the potato fields (C.D. McKeen). About 25% of the plants were stunted and necrotic with malformed fruit in a greenhouse in Welland Co. (G.C. Chamberlain).

BLOSSOM-END ROT (non-parasitic) caused some damage to the fruit of the first truss in fields in the B.C. Interior. Little rot was observed later in the season (G.E. Woolliams). The disorder affected numerous fruits in a greenhouse at Medicine Hat, Alta. (M.W. Cormack). Blossom-end rot injured some fruit in most tomato crops in Essex Co., Ont. The severe drought in s.w. Ont. was the cause of its increased prevalence in 1953 (C.D. McKeen). The disorder was seen in most fields of tomatoes in s.w. Que.; the summer was hot and dry (L. Cinq-Mars, R. Crete). About 25% of fruits were affected in plots on a dry location at Ste. Anne de la Pocatiere, Que. Elsewhere the disorder was much less destructive (H. Genereux). This disorder was little in evidence in N.S. this year (K.A. Harrison). Blossom-end rot affected only Stokesdale at the Upton Farm, Queens Co., N.S. (R.R. Hurst). The disorder was observed both in the greenhouse and the field in e. Nfld. (G.C. Morgan).

BLOTCHY RIPENING (non-parasitic) was present in tr. amounts in N.S. but it caused little loss (K.A. Harrison). Blotchy ripening caused mod. damage in one greenhouse at Sooke, B.C. (W.R. Foster).

2,4-D INJURY was sev. in the greater Winnipeg area, Man. Apparently injurious concentrations of 2,4-D fumes may occur at considerable distance from where the material is being applied (J.E. Machacek). About the usual amount of 2,4-D injury was reported in Essex Co., Ont., but the damage was generally sl. Spraying near greenhouses to kill weeds has been observed on occasion to be quite disastrous (C.D. McKeen). Cases of injury were submitted from Woodstock and near Carrying Place (C.B. Kelly).

BORON TOXICITY. A case of boron toxicity was observed at Trepanier, B.C. Boric acid had been applied at the recommended rate of 30 lb. per acre, but instead of using a cyclone seeder, the chemical was broadcast by hand. The injured plants occurred in groups evenly spaced through the field (G.E. Woolliams).

PHOSPHORUS DEFICIENCY according to Dr. C.G. Woodbridge, occurs in tomatoes grown at Trout Creek Point, Summerland, B.C. (G.E. Woolliams).

PLANT INCOMPATIBILITY. Sev. damage was found in 1952 in a garden at Guelph, Ont., and at La Trappe, Que. Tomatoes planted under black walnuts were wilted, stunted, and failed to bloom (C.B. Kelly, Fr. M. Claude).

SUN SCALD (non-parasitic). Many crops of canning tomatoes suffered heavily during the extreme hot spell in late August and early September in Essex Co., Ont. (C.D. McKeen).

TURNIP

SOFT ROT (Erwinia carotovora) caused tr. infection in a lot of Laurentian swedes in Queens Co., P.E.I. (R.R. Hurst).

POWDERY MILDEW (Erysiphe polygoni) became fairly heavy on Ditmars swedes at Barton, N.S. (K.A. Harrison).

DOWNY MILDEW (Peronospora brassicae) was general on the leaves of overwintered plants on 3 March at North Saanich, B.C. (W. Jones).

BLACK LEG (Phoma lingam) caused a loss of 20% of the crop in a small field in Bonaventure Co., Que. (D. Leblond). Infection was reported to be 50% in an acre field of swedes in Halifax Co., N.S., and 10% in one in Lunenberg Co. (K.A. Harrison, D.W. Creelman). Traces were found in 15 fields of Laurentian examined in P.E.I. (R.R. Hurst).

CLUB ROOT (Plasmodiophora brassicae). A half-acre plot of swedes was a total loss in Bonaventure Co. (D. Leblond). Club root caused a crop failure in a field at Salisbury, N.B. (S.R. Colpitts). Natural drainage from an infested field at Barton, N.S., crossed some small plots; where the wash occurred the swedes were a complete loss (K.A. Harrison). High soil moisture conditions prevailing in 1953 in P.E.I. favoured infection of swedes by club root. A sl. infection was present in many fields and two growers were known to have suffered complete loss of crop. Shepherd's purse (Capsella bursa-postoris) in one of these fields was almost free from infection (G.W. Ayers). Infection was mod. in 10 fields in the Bay Roberts area and sev. in several gardens in Bonavista Bay and Trinity Bay, Nfld. Where sufficient land had been cleared in the last 2 years to permit crop rotation the disease was less prevalent than formerly (G.C. Morgan).

SOFT ROT (Rhizopus sp.) destroyed large quantities of swedes in Dec. 1952 in a wholesale storage cellar at Lethbridge, Alta. Spread was very rapid while the humidity and temperature were high (M.W. Cormack).

BLACK ROT (Xanthomonas campestris) caused tr. infection in Laurentian in a field in Queens Co., P.E.I. (R.R. Hurst).

MOSAIC (virus). An isolated steckling plot showed 30% infection at harvest time at Burton, N.S. This field had previously raised a crop much more heavily infected (K.A. Harrison).

STERILITY (virus) affected 9 plants and WITCHES' BROOM (virus) 2 plants in a seed plot in York Co., N.B. (D.J. MacLeod).

BROWN HEART (boron deficiency). A severe case of boron deficiency was found at North Hatley, Compton Co., Que. (L. Cinq-Mars, R.O. Lachance). Specimens received from 2 counties in e. Que. (D. Leblond). Sl. damage was seen in several gardens at St. John's and elsewhere in Nfld. (G.C. Morgan).

WATERMELON

WILT (Fusarium bulbigenum var. niveum) destroyed 50% of the plants in one garden at Harrow, Ont. (C.D. McKeen).