III. DISEASES OF VEGETABLE AND FIELD CHOPS

ASPARAGUS

RUST (Puccinia asparagi) was occasionally found as sl. infections in different parts of the Okanagan Valley, B. C. (G. E. Woolliams).

ROOT ROT (Fusarium oxysporum f. asparagi) affected 25% of the plants in a 35-acre field at St. Blaise, Que. (R. Crête).

CHEMXCAL INJURY. The application of 2,4-D caused much twisting and yellowing of stalks in a 35-acre field nr. Napierville, Que. (R.C.).

BEAN

GRAY MOLD (Botrytis cinerea). Trace infections were found on the Soldier variety at Millville, N. B. (S. R. Cplpitts).

ANTHRACNOSE (Colletotrichum lindemuthianum) was sev. on Soldier beans in N.B. Clipper and Michelite showed resistance (R.V. Clark). Small centers of infection developed around infected seedlings in the Sydney, N. S. area. Infection was rated at about 2% (K. A. Harrison). Trace amounts were seen in a home garden in Queens Co., P. E.I. (J.E. Campbell),

ROOT ROT (Fusarium spp.). F. solani f. phaseoli caused mod. losses in a 200-acre field as St. Cesaire, Que. Infection in the field ranged from 5-50%. At. Ste. Pie, Que. a 10-acre field showed patches of infection ranging from tr. -50% (R.C.). F. oxysporum was found in tr. amounts in a field at Weston, N.S. and specimens with accompanying reports of tr. -20% loss were received from various points in Kings, Annapolis and Digby counties, Isolations yielded predominantly F. oxysporum and Rhizoctonia solani (K.A. H.).

HALO, BLIGHT (Pseudomonas phaseolicola) was rated at 2% in a 20-acre field at Millville, N.B. (S. R. C.).

WIRE STEM (Rhiaoctonia solani) was observed on kidney beans at Ste. Foy, Que. (D. Leblond).

WILT (Sclerotinia sclerotiorum). Trace amounts of wilt were observed in a market garden nr. Charlottetown, P. E.I. in a bean field adjacent to one showing sev. Sclerotinia rot in cabbage and lettuce (J.E. C., D. W. Creelman).

BACTERIAL BLIGHT (Xanthomonas phaseoli) was sev. on the Soldier variety in N, B. Clipper, Michelite and Lapin showed resistance (R. V. C.).

MOSAIC (virus). was observed at the Research Station, Summerland, B. C. (G. E. Woolliams). A late-seeded crop of Black Seeded Pencil Pod near a planting of gladiolus was 90% infected at Kentville, N.S., and in another planting of Kentucky Wonder 40% of the plants were so sev. affected that they died. Leaves and stalks were badly stunted and showed streak-like symtpoms (K.A.H.). Three-5% damage was noted in a planting at Truro, N.S. (D.W.C.).

BEET

LEAF SPOT (Cercospora beticola). A sev. infection was seen in a one-half acre field at Cyrville, Ont. (D. W. Creelman). At St. Michel, Que., 10% of the foliage in several fields, totalling 10 acres, was affected (R. Crete).

SCAB (Streptomyces scabies) was rated as about 60% infection in one-half-acre field in the Sydney, N.S. area. Fifteen % of the roots were rendered unsaleable (K.A. Harrison).

ROOT ROT (Verticillium albo-atrum). Eight /12 roots from an affected lot on the Quebec City market yielded V. albro-atrum on isolation. Both internal and external symptoms were observed (D. Leblond).

DAMPING - OFF (cause undetermined) was reported from Bangor, Sask. (T.C. Vanterpool).

BROCCOLI

BORON DEFICIENCY. A number of plants at Kentville, N. S. showed poor development of the buds. They were growing near cauliflower plants that showed definite boron deficiency symptoms (K. A, Harrison).

UNTHRIFTINESS (cause undetermined) caused 25-30% loss in 2 fields at Florenceville, N.B. The condition was characterized by lack of root development, stunting and general unthriftiness of the plants, chlorosis and slight wilting. Lesions, resembling those caused by Rhiaoctonia, were found on the stems and also, in a few cases, warty outgrowths from leaf scars. A species of Alternaria was isolated, but not consistently. There is a possibility that trace amounts of potato tap-killer may have caused the condition, The growers used potato sprayers in applying insecticides (K. M. Graham),

CABBAGE

DOWNY MILDEW (Peronospora parasitica) was sl. in a 1-acre experimental plot at Ste. Clothilde, Que. (R. Crete), Sev, damage was reported in a planting at Bridgewater, N. S. (K. A, Harrison).

CLUB ROOT (Plasmodiophora brassicae). Infected specimens were received from St. Edouard, Lotbiniere Co., Que. (D. Leblond). A small garden planting at Ste. Anne de la Pocatiere was completely destroyed (R.O. Lachance). Club root is prevalent in most areas of N.B. but is rarely serious where rotations are followed, A 15% infection was observed at Woodstock (S.R. Colpitts). It was less sev. than usual in P.E.I. in 1960 probably due to much drier weather conditions (J.E. Campbell).

SCLEROTINIA ROT (S. sclerotiorum) was sl. in 1 field in the Montreal, Que. district (J. Sirnard, R. Crête, T. Simsrd) (C.P.D.S. 40:2. 73. 1960). A sev. attack occurred in a localized area in a market garden nr. Charlottetown, P.E.I. Sclerotia were abundant on affected heads (J.E.C., D.W. Creelman).

BLACK ROT (Xanthomonas campestris) caused approx. 1% unmarketable heads in a field of early cabbage at Lethbridge, Alta. (F.R. Harper).

BACTERIAL LEAF SPOT (Xanthompnas vesicatoria var. raphani) was tr. in 1 field in the Montreal, Que. area (J.S., R.C., T.S.) (C.P.D.S. 40:2. 73. 1960).

MOLYBDENUM DEFICIENCY symptoms were sev. at Winterbrook and St. David's, Nfld. (O.A. Olsen).

CARROT

LEAF BLIGHT (Alternaria dauci). Infection was tr. -5% in about 100 acres of carrots at Sherrington, Que. early in July. Little increase was noted until late Aug. and by Sept. many mod.-sev. infections were recorded in the district (J. Sirnard., R. Crete, T. Sirnard.) (C.P.D.S. 40:2. 73. 1960). The disease remained at the tr. level in the Berwick, N.S. area, probably due to dry weather conditions (K.A. Harrison).

GRAY MOLD (Botrytis cinerea). One lot of mechanically-harvested carrots suffered up to 20% loss from various causes in storage at Grand Pre, N.S. Half of this loss was caused by Botrytis. Traces of gray mold infection were noted on the foliage in the field (K.A.H.).

LEAF SPOT (Cercospora carotae). Trace-5% infection was recorded in 100 acres of carrots at Sherrington early in July, Yellowing of foliage was just beginning at that time but potential damage was great (R, C., D. W. Creelman). Dry weather checked further spread through July and Aug. but it increased considerably in Sept, and some sev. infections developed (J.S., R.C., T.S.) (C.P.D.S. 40:2. 73. 1960). Trace infections were seen in the Sydney, N.S. area in Aug. and, though present in several fields in Kings Co,, it did not become serious in 1960 (K.A.H.).

ROOT-KNOT NEMATODE (Meloidogyne sp.). Slight-mod. infections were found in 3/5 fields examined in the south section of the Grand Bend Marsh, Ont. (J.R. Chard) (see also Sayre, R.M., C.P. D.S. 40:2. 75. 1960). It was also sl. -mod. in 5 fields in the Montreal area (J.S., R. C., T. S.) (C.P.D. S. 40:2. 73. 1960).

SCLEROTINIA ROT (S. sclerotiorum). Several small fields in the Sydney, N.S. area showed tr. infections on the crown in Aug. It was potentially dangerous to the crop (K. A. H.).

BLACK ROT (Stemphylium radicinum). Slight crown and root infections were found on a small percentage of Imperator carrots in a commercial field at Armstrong, B. C. in Oct. (G. E. Woolliams).

BACTERIAL BLIGHT (Xanthomonas carotae). Ten % infection was found in one field of carrots at Armstrong, B. C. Another field, of the same variety but from a different seed source, was not affected (G. E. W.).

ASTER YELLOWS (virus). Trace infectiohs were seen in a garden patch at Lethbridge and in a market garden at Medicine Hat, Alta. (J.S. Hurricks, F.R. Harper). Infection was light in most home gardens and small plantings at La Salle and Jeanette's Creek, Ont. The disease appeared late (C. D. McKeen). It was sl. -mod. in 2 fields in the Montreal, Que. district. Leaf hopper populations were low (J.S., R. C., T. S.) (C.P. D.S. 40:2. 73. 1960). Hairy root symptoms were as follows at certain Que. points: St. Joachin, Gaspe, -tr; Quebec City, 1.5%; Ste. Anne de la Pocatiere, 5.7%; Lac St. Jean, 15%. Foliage infection was 15% at Caplan (R.O. Lachance). Yellowing and hairy root were prominent in the Maugerville area and at the Research Station, Fredericton, N.B. One garden at Fredericton was 50% infected (K. M. Graham). Four/4 fields nr Fredericton showed sl. infection in mid-July (D. W. C.). Infection was prevalent in most parts of N. B. It was 20% at Norton (S. R. Colpitts). Tr infections were seen in Nantes in the Sydney area in Aug. It was extremely sev. in some early-planted fields in Kings Co., and infection was 30% at Cole Harbor, N.S. (K.A.H.) (C.P.D.S. 40:2. 99. 1960). The heaviest infections ever seen in P.E.I. occurred in 1960. Rates of infection were up to 95%. Some growers achieved a measure of control by spraying to control the vector (3. E. Campbell), It was tr. at St. John's West, Nfld. (O.A. Olsen).

CHEMICAL INJURY. Fertilizer burn caused excessively swollen lenticels, burning of root tip, and heavy growth of lateral feeder roots in a market garden in peat soil at South Burnaby, B, C. (H. N. W. Toms), Some injury was caused at Sherrington, Que. by drift of a herbicidal spray. Foliage was spotted and white (R.C.),

CAULIFLOWER

SOFT ROT (Erwinia carotovora). Approximately 10% of the crop in a 4-acre field at Leamington, Ont. was destroyed in the button stage by soft rot (C. D. McKeen).

CLUB ROOT (Plasmodiophora brassicae). **A** mod. infection developed in a low, moist area in a market garden nr. Charlottetown, P.E.I. Club root was less serious than usual in the province. Many growers are now having their soil assayed for the presence of P. brassicae before planting cruciferous crops (J.E. Campbell).

SCLEROTINIA ROT (S. sclerotiorum). Damage was assessed at 5% in a planting nr. Charlottetown, P. E.I. in July. Heads were rotted and sclerotia were abundant. Cabbage in the same field were also affected (D. W, Creelman).

BORON DEFICIENCY. Damage to an early crop at Norton, N. B. was rated at 5%. **A** later crop, treated with boron sprays, was unaffected **(S.R.** Colpitts). Symptoms were observed in a home garden at Kentville, N. S, (K.**A.** Harrison).

WHIPTAIL (Molybdenum deficiency). Only trace amounts were observed in P. E.I. in 1960. Growers are using molybdenum treatments in areas where deficiency is suspected (J.E. C.). Symptoms were most pronounced at St. John's West and Colinet, Nfld. This disorder is common on Nfld. soils (D. W. C.).

BLINDNESS (cause undetermined) affected two plantinge in the Berwick, N. S. area. The curd failed to develop in about 10% of the plants and leaves were coarse and rank. There was no evidence of a central bud. The condition appeared to be associated with seed source (K.A.H.).

CELERY

EARLY BLIGHT (Cercospora apii) was sl. in one field in the Montreal, Que. area (J. Simard, R. Crête, T. Simard.) (C.P.D.S. 40:2. **73. 1960).**

ROOT-KNOT NEMATODE (Meloidogyne sp.) affected celery in the south portion of the Grand Bend Marsh, Ont. (J.R. Chard).

LEAF SPOT (Phyllosticta ? apii) was mod. in plots at Ste. Foy, Que. Numerous pycnidia developed in large spots on the lower leaves (D. Leblond).

DAMPING-OFF (Rhizoctonia solani, Pythium sp.). Moderate - sev. losses occurred in 3 seed beds in the Montreal, Que. area. Loss was 40-50% in one bed (J.S., R.C., T. S.) (C.P.D.S. 40:2. 73. 1960).

LATE BLIGHT (Septoria apii) was sl. in one field in the Montreal area (J.S., R.C., T.S.) (C.P.D.S. 40:2. 73. 1960).

PINK ROT (Sclerotinia sclerotiorum) was tr. in one field in the Montreal area (J.S., R. C,) (C.P.D.S. 40:2. 73. 1960).

PIN NEMATODE (Xiphinema sp.) caused some stunting of celery in the Thedford and Grand Bend Marshes, Ont. All varieties of celery seemed to be susceptible. It was most prevalent in fields where celery has been grown for several years. Other crops did not appear affected (J.R. C.).

ASTER YELLOWS (virus). The incidence of aster yellows was reported to be the lowest in years in the Burlington, Ont. district, Trace infections only were found (D. W. Creelman). It was tr. in one field in the Montreal, Que. area (J.S., R. C., T.S.) (C.P.D.S. 40:2. 73. 1960).

MAGNESIUM DEFICIENCY occurred as trace amounts in three fields in the Montreal, Que. area (J.S., R.C., T.S.) (C.P.D.S. 40:2. 73. 1960).

CUCUMBER

LEAF BLIGHT (Alternaria cucumerina) was extremely sev. in the Maugerville district of N.B. Several plantings were plowed under in mid-season (K. M, Graham),

GRAY MOLD (Botrytis cinerea) destroyed a few plants in each of several greenhouses at Leamington, Ont. in April and May (C.D. McKeen).

SCAB (Cladosporium cucumerinum). During the second week in July many crops of the Burpee Hybrid variety grown nr. Marrow, Ont. developed infections on from 1-20% of the fruits harvested. Bacterial infections developed in scab lesions and several shipments of fruits broke down in transit to market, It is thought that unseasonably cool nights in late June and early July predisposed fruits to infection (C.D. McK.). Infection averaged 2-5% in a 3-acre field at Sherrington, Que. (R, Crête). Specimens were received from Princeville, Thetford Mines, La Tuque and Ste. Foy, Que. (D. Leblond), Severe infections were recorded at Portneuf and Ste.

Anne tie la Pocatiere, Que. (L.J. Coulombe). The early crop in Queens and Sunbury counties, N.B. was 10-75% infected but the late crop was reasonably clean (S.R. Colpitts). Three/4 fields observed in the Maugerville and Grand Lakes, N.B. areas had sev. infections. This disease has been the cause of major losses for several years. Only the variety Highmoor showed some resistance (K.M.G.). It was sl. in a home garden nr. Souris, P.E.I. (J.E. Campbell).

ANTHRACNOSE (Colletotrichum lagenarium) was tr. in one field in the Montreal area (J. Simard, R. Crête, T. Simard) (C.P.D.S. 40:2. 73. 1960).

DODDER (Cuscuta sp.) was reported parasitizing plants in a field at Maugerville, N.B. (D.W. Creelman).

POWDERY MILDEW (Erysiphe communis Wallr. ex Fries = E. cichoracearum DC.) was prevalent in several greenhouse crops and most field crops in s.-w. Ont. Damage was variable (C.D. McK.) It was more prevalent than usual in the Niagara Peninsula, Ont. One small planting was 100% infected (J. Bradbury).

ANGULAR LEAF SPOT (Pseudomonas lachrymans) was observed on all plants in 2 market gardens at Medicine Hat, Alta. Trace damage was recorded (F.R. Harper). Only 2 occurrences were reported in s.-w. Ont. The seed-borne source of the 2 outbreaks was apparent (C.D. McK.). Infection was 15% in a 3-acre planting at Sherrington, Que. (R.C.). A very sev. infection developed in a one-half-acre planting grown in heated ground beds in Colchester Co., N.S. (K.A. Harrison).

DAMPING-OFF AND ROOT ROT (Pythium sp.). Heavy losses were incurred by growers in s.-w. Ont. who set out the early crop under paper caps. The cold, cloudy weather in early May favored the disease (C.D. McK.).

FOLIAGE BLIGHT (Trichothecium roseum) caused a heavy destruction of foliage in 3 greenhouses at Leamington, Ont. (C.D. McK.).

MOSAIC (virus) was reported to be trace in commercial plantings in the Maugerville, N.B. district (D.W.C.). A sev. outbreak was seen in a small garden plot at Kentville, N.S. (K.A.H.).

NECROSIS VIRUS. The soil-borne nature of this virus was demonstrated in the greenhouse at Harrow and Leamington, Ont. The first infected plants show symptoms about 17 days after planting (C.D. McK.).

CHEMICAL INJURY. Salt water seepage through a dike on a tidal river at Ladner, B.C. is thought responsible for injury to cucumber foliage (H.N.W. Toms).

DROUGHT AND HEAT INJURY is thought responsible for failure of cucumbers to set at Estevan, Sask. (T.C. Vanterpool).

DILL

ASTER YELLOWS (virus). Trace infections were seen at Cole Harbor, Halifax Co., N. S. (K.A. Harrison).

EGGPLANT

NEMATODES (Pratylenchus penetrans). Seven fields in the Harrow, Ont. district were sampled, All were heavily infected with the meadow nematode with populations up to 6500/lb. of soil (W.B. Mountain, R.M. Sayre).

WILT (Yerticillium spp.). V, dahliae affected plants in a home garden at Westbank, B. C. (G. E. Woolliams.) V. albo-atrum rendered some crops very unproductive nr. Harrow, Ont. because of the early onset of wilt. It varied from a trace to 95% in 7 fields surveyed (C, D. McKeen).

GARLIC

SMUDGE (Colletotrichum circinans) was seen on garlic received from Thetford Mines, Que. (D. Lebland),

WHITE ROT (Sclerotium cepivorum) affected garlic bulbs at Thetford Mines, Que. Crowded, pin-head, black sclerotia were formed (D. L.).

HORSERADISH

FERN LEAF (? virus). Symptoms were observed on horseradish grown at Quebec City, Que. (D. Leblond).

LETTUCE

GRAY MOLD ROT (Botrytis cinerea), A lose of about 1% occurred in a large planting at Grand Pre, and losses ranging from tr, -1% were noted in several fields in the Sydney, N. S, district (K.A. Harrison). Slight damage was seen in 2 fields at St, John's West, Nfld. (D, W. Creelman).

DOWNY MILDEW (Bremia lactucae) was found in mast fields examined in the St, Remi- Ste. Clothilde area, Que. Incidence range from tr. -50% (R. Crete).

ROOT-KNOT NEMATODE (Metoidogyne sp.) was found on lettuce in the south section of the Grand Bend Marsh, Ont, (J.R. Chard),

BIG VEIN (Olpidium sp, associated) Several crops of spring-grown lettuce in the Harrow, Ont, area had incidences of big vein varying from tr. -

40%. Tobacco necrosis virus was isolated from the roots of 3 of 6 affected plants (C.D. McKeen).

BOTTOM ROT (Hhizoctonia solani) was tr. in 4 fields in the Montreal, Que. area (J. Simard, R. Crête, T. Simard) (C.P.D.S. 40:2. 73. 1960).

DROP (Sclerotinia sclerotiorum) caused an estimated 10% loss in 100 acres of lettuce in the Ste. Clothilde - Sherrington district, Que. It appears regularly in this area and losses in some years are as high as 30% (R.C.). It was tr. at St. Charles de Caplan and sev., causing the complete loss of the crop at Ste. Foy, Que. (D. Leblond). Incidence was high in 2 fields at Maugerville, N.B. in July. Ten-2070of the plants were affected (D. W. C.). Trace amounts were found at Grand Pre and at Sydney, N. S. Dry weather had apparently checked disease development (K.A.H.). Several hundred lettuce transplants died soon after being set in the field nr. Charlottetown, P.E.I. It is thought that the compost soil used in the flats was contaminated with S. sclerotiorum (J. E. Campbell). Twenty - 25% of the plants were affected in a market garden nr. Charlottetown in July (D. W.C.).

ASTER YELLOWS (virus) was tr. -sl. in 4 fields in the Montreal area (J.S., R. C., T.S.) (C.P.D.S. 40:2. 73. 1960) Infection in the field in e. Que. did not exceed 5% (R.O. Lachance), and tr. -sl. infections only were recorded in fields nr. Fredericton, N. B. (D. W, C.) . The disease ranged as high as 35% in the Annapolis Valley; 5-40% in the Sydney area; and up to 100% at Cole Harbor, N. S. (K.A.H.) (C.P.D. S. 40:2. 99. 1960). It built up to about a 90% infection in mid-season in the vicinity of Charlottetown, P. E.I. Some reduction was effected where spraying for vector control was practiced (J.E. C.).

MOSAIC (virus) was sl. in 6 fields in the Montreal, Que. area (J.S., R.C., T.S.) (C.P. D.S. 40:2. 73. 1960). Trace amounts were seen in a field at Maugerville, N.B. and in 1/2 fields examined nr. Charlottetown, P. E.I. (D. W. C.). It was tr. in the Sydney, N. S. area and mosaic-like symptoms were observed in 3 fields at Grand Pre, N.S. (K.A.H.).

CALCIUM DEFICIENCY was observed, especially along drainage ditches, in one field in the Montreal area (J.S., R. C., T. S.) (C.P.D. S. 40:2. 73. 1960).

MELON

LEAF SPOT (Alternaria cucumerina) appeared earlier at the Research Station, Harrow, Ont. than previously recorded. Zineb and maneb fungicides, where properly applied, were effective in controlling the disease (C.D. McKeen).

ANTHRACNOSE (Colletotrichum lagenarium). An unusually high incidence of this disease was observed in several fields in the Harrow, Ont. area. It occurred even in some crops where a fungicidal program was being followed (C.D. McK.).

WILT (Fusarium oxysporum f. melonis) occurred in a few fields in s.-w. Ont. where wilt-resistant varieties are not being grown. The resistant varieties and hybrids that have been grown for several years still show the same degree of resistance they possessed when first introduced (C.D. McK.).

DAMPING-OFF AND ROOT ROT (Pythium sp,) Heavy losses were experienced by growers who set out the early crop under paper covers. Cold and cloudy weather favored disease development (C, D. McK.).

ONION

PURPLE BLOTCH (Alternaria porri) was tr, -sl. in 4 fields in the Montreal, Que. area (J. Simard, R. Crête, T. Simard) (C.P.D.S. 40:2. 74. 1960).

NECK ROT (Botrytis allii). Traces of damage occurred in plots at the Univ. of Man., Winnipeg (W. C. McDonald).

SMUDGE (Colletotrichum circinans). Onions purchased in Ottawa but grown in the Bradford Marsh, Ont. were heavily infected (D.W. Creelman).

BULB ROT (Fusarium oxysporum f. cepae) was sl. in most onion fields in the Kelowna, B.C. district (G, E. Woolliams). Specimens were received from Berthier, Que. (D. Leblond). One % infection was seen in onions from Kentville and Kingsport, N. S. (K.A. Harrison),

ROOT-KNOT NEMATODE (Meloidogyne sp.) was very light on onions in the south section of the Grand Bend Marsh, Ont. (J.R. Chard).

DOWNY MILDEW (Peronospora destructor) caused some damage to onion seed crops in the Grand Forks district and to fall-planted onions at Kelowna, B.C. (G.E. W.). It was tr. in a small planting of Red Wethersfield onions at Ottawa, Ont. (V.R. Wallen), and sev. at St. Ephrem, Beauce Co., Que. (D. Lebland),

SMUT (Uroeystis cepulae) was more serious in the Okanagan Valley, B.C. than in any previous year (M.F. Welsh), and was more serious than in recent years in the Winnipeg, Man, area (W.C. McD.). It was sl. in one field in the Montreal, Que. area (J.S., R.C., T.S.) (C.P.D.S. 40:2. 74. 1960).

YELLOW DWARF (virus) affected 15% of the young plants in 2 one-acre fields at La Salle, Ont. preventing their sale as green bunching onions, The setts used in planting both fields came from the same source at Leamington, Ont. (C.D. McK.).

NITROGEN AND CALCIUM DEFICIENCIES were sl. in two fields in the Montreal, Que. area (J.S., R.C., T.S.) (C.P.D.S. 40:2. 74. 1960).

PARSLEY

ASTER YELLOWS (virus) was tr. in parsley at Cole Harbor, Halifax Co., N.S. (K.A. Harrison) (C.P.D.S. 40:2. 99. 1960).

PARSNIP

LEAF SPOT (Cercospora pastinacae). Trace infections were seen in 2 fields at Maugerville, N.B. Abundant lesions found on wild parsnip in the vicinity are believed to be the source of inoculum for the disease on the cultivated crop (K. M. Graham).

LEAF SPOT (Ramularia pastinacea) was mod. in a large planting at Cyrville, Ont. (D. W. Creelman).

ASTER YELLOWS (virus). Infection was 10% in Kings Co. and 1% at Cole Harbor, N.S. (K.A. Harrison) (C.P.D.S. 40:2. 99. 1960).

PEA.

ROOT ROT (Ascochyta pinodella) was mad.-sev. in 1 field at Douglas, Ont. and in 1 at Shawville, Que. (V.R. Wallen) (G.P.D.S. 40:2. 98. 1960).

LEAF AND POD SPOT (Ascochyta pisi). Trace infections occurred on the varieties Arthur and Delwiche at Fortier, Man. (W.A.F. Hagborg). A heavy infection of canning peas was observed early in the season at Bedeque, P. E.I. The onset of dry weather checked the spread of infection (J.E. Campbell).

GRAY MOLD (Botrytis cinerea) A 30% infection caused 5% damage to Tall Telephone peas at Springhill, N. B. (S.R. Colpitts). Trace infections were seen on the lower leaves of canning peas in several fields at Berwick, N. S. (K. A. Harrison).

POWDERY MILDEW (Erysiphe polygoni). Infected specimens, with numerous cleistothecia, were received from Bonkur, B. C. (G. E. Wooliams). Slight damage was incurred in Sask. in the latter part of the season (R. J. Ledingham). Late-season infection caused some damage in market gardens in P.E.I. The early crop was harvested before any damage' occured (J.E.C.).

WILT AND ROOT ROT (Fusarium sp.) was sev. on 20% of the plants in one field of Chancellor peas in the Ottawa Valley, Ont. (V.R.W.) (C.P.D.S. 40:2. 98. 1960). Appreciable losses occurred in canning peas at Berwick, N.S. (K.A.H.).

DOWNY MILDEW (Peronospora pisi). affected 120 acres of canning peas at Westham Island, nr. Ladner, B.C. (H.N. W. Toms). It was general, though of little importance, throughout the Creston, B. C. area (G. E. W.). Heavy development of downy mildew on the lower leaves of canning peas at Berwick, N.S. did not prevent vigorous growth of the plants (K.A.H.). It is stated in Index of Plant Diseases in the United States, U. S. D.A. Agr. Handbook 165, 1960, that Peronospora pisi Sydow is probably only a physiological form of Peronospora viciae (Berk.) Casp. (D. W. Creelman).

BACTERIAL BLIGHT (Pseudomonas pisi). Infection was observed in the varieties Sterling and Chancellor in Man., though no appreciable loss was incurred (W.A.F.H.).

LEAF SPOT (Septoria pisi). was tr. on Chancellor at Antrim and mod, on Delwiche at Douglas, Ont. and tr. on Delwiche at Shawville, Que. (V.R. W.) (C.P.D.S. 40:2. 98. 1960).

RUST (Uromyces fabae). Infection was noted with 3-5 pustules per leaf in several gardens in Kings Co., N.S. in June. Secondary spread was evident in July (K.A.H.). It was sev. in a garden planting at Greenwich, N.S. early in Aug. (D. W.C.).

ROOT ROT (various pathogens). All nine fields examined in s. Alta. were infected. Damage was 3-sev. 2-mod./5 fields nr. Taber and was tr.-sl. in 4 fields nr. Lethbridge. Infections in the Lethbridge area ranged from 10-100%. Isolations yielded Fusarium spp. from all fields, Pythium spp. from 2 severely damaged fields and Rhizoctonia solani from 1 severely damaged field (F.R. Harper). Root rot is becoming more prevalent in canning peas in e. Ont., probably due to the short rotations used with this crop. Yield was reduced 25% in one of the fields inspected (B. E. Beeler).

ENATION MOSAIC (virus) was sl, on 5% of Chancellor peas in 1 field at the Cent. Exp. Farm, Ottawa, Ont. (V.R.W.) (C.P.D.S. 40:2. 98. 1960).

MOSAIC (virus) was mod. on 50% of Chancellor peas in a field on the Cent, Exp. Farm, Ottawa, Ont. (V.R.W.) (C.P.D.S. 40:2. 98. 1960). Late-planted gardens in Kings Co., N.S. were badly infected. Control of aphids was excellent in commercial fields and little mosaic was found (K.A.H.).

STREAK (virus) was sev. on 50% of Chancellor peas in a field at the Cent. Exp. Farm, Ottawa, Ont. It was also present in one field each of Chancellor, Arthur and Director (V.R. W.) (C.P.D.S. 40:2. 98. 1960).

PEPPER

SPIRAL NEMATODE (Helicotylenchus erythrinae). Two fields at Harrow, Ont. were heavily infested. The actual amount of damage to the crop could not be assessed (W.B. Mountain, R. M. Sayre).

WILT (Verticillium albo-atrum) was sev. in 2 crops nr. Harrow, Ont. Both crops were in fields that have been planted to pepper every second or third year (C.D. McKeen).

BACTERIAL SPOT (Xanthomonas vesicatoria). The seed-borne nature of this disease was evident in a few fields of sweet pepper nr. Harrow, Ont. Seed from some sources produced infected seedlings whereas seed from other sources did not (C.D. McK.).

BLOSSOM-END ROT (physiological) incidence seemed about normal for s.w. Ont. in August (C.D. McK.). Two % loss was recorded in Sept. at Kentville, N. S. (K.A. Harrison).

ALFALFA MOSAIC (virus). A few infected plants were found in 3 small fields nr. Harrow, Ont. early in the season. Aphid populations were light and little spread took place (C.D. McK.).

TOBACCO ETCH (virus). Slight infections occurred late in a few crops nr. Harrow, Ont. and damage was light (C.D. McK.).

POTATO

The data presented in Tables 1 to 3 were supplied by Mr. J.W. Scannell, Plant Protection Division, Production and Marketing Branch, Canada Department of Agriculture. Both the acreage entered and acreage

Table 1. Seed Potato Certification
Acreage Passed by Variety and Province - 1960

Variety	P.E.I.	N. S.	N.B.	Que.	Ont.	Man.. Alta.	B.C.	Totals
Sebago	20,750	13	552	84	407	-	23	21,829
Kennebec	1,497	191	3,692	1,224	127	130	265	7,126
Katahdin	1,014	13	5,108	337	163	-	8	6,643
Netted Gem	14	62	743	-	5	1,680	2,389	4,893
Green Mountain	728	35	194	2,534	28	-	25	3,544
Red Pontiac	140	30	1,961	-	4	522	42	2,699
Irish Cobbler	1,458	39	172	90	56	157	-	1,972
Keswick	75	29	739	476	70	-	4	1,392
Fundy	477	41	391	-	8	2	-	919
Norland	-	-	-	-	2	412	6	420
Warba	42	12	6	2	16	180	117	375
Cherokee	119	24	33	47	12	9	-	244
Chippewa	9	-	54	-	86	1	-	150
Huron	-	2	20	5	88	-	1	116
Waseca	1	-	-	-	5	73	36	115
White Rose	-	-	20	-	-	-	46	66
Others	51	38	49	20	1	217	59	436
Total	26,375	529	13,734	4,819	1,078	3,383	3,021	52,939
1959 Crop	26,336	532	14,762	4,386	1,239	3,774	2,570	53,599

Table 2. Seed Potato Certification
Summary of Fields and Acres Entered and Passed - 1960

Prov.	FIELDS, Entered	Passed	Percent Passed	ACRES Entered	Passed	Percent Passed
N. S.	287	246	86.0	529	438	82.5
N. B.	1,789	1,534	85.7	13,734	11,274	82.8
Que.	1,131	650	57.5	4,819	2,692	55.8
Ont.	479	345	72.0	1,078	701	65.0
Man.	112	94	84.0	1,169	1,033	88.3
Sask.	93	68	73.1	367	278	74.1
Alta.	253	223	88.1	1,847	1,547	83.7
Totals	9,608	7,915	82.3	52,939	43,133	81.8

Fields Rejected on Field Inspection - 1960

Prov.	Roll	Mosaic	Ring Rot	Blackleg	Wilts	Diseased Fields	Misc.	Total
P.E.I.	11	102	2	114	22	28	294	575
N. S.	3	9	3	-	-	16	9	40
N.B.	-	63	100	4	-	50	32	249
Que.	10	124	159	42	-	103	43	481
Ont.	55	11	6	10	23	-	27	132
Man.	1	-	5	6	1	2	4	19
Sask.	-	-	6	1	-	17	1	25
Alta.	-	-	1	6	-	1	5	13
B.C.	81	-	6	3	1	-	47	138
Total	161	309	288	186	47	217	462	1,670

passed as Foundation and Certified seed were close to the 1959 totals. The virus diseases, leaf roll and mosaic, were responsible for the greatest number of rejections, followed by bacterial ring rot and black leg. The incidence of mosaic increased sharply in Eastern Canada (D. W. Creelman).

EARLY BLIGHT (Alternaria solani) was generally light in B. C, with the greatest amount occurring in the Interior (N. Mayers). It was found on most seed crops of Warba and Netted Gem in n. Alta. (E.C. Reid), caused considerable defoliation in Edmonton gardens (W. P. Campbell), and was widespread as tr. infections in s. Alta. (R.P. Stogryn, F.R. Harper). It was generally light in Sask. (A, Charlebois) and in Man. (D. J. Petty). It was fairly heavy in several fields in the s, -w. part of the Red River Valley, Man. (B. Peturson). Early blight infections were negligible in Ont. (D. J.P., H. W. Whiteside, C.B. Scott, F. J. Hudson, E.H. Peters). It was rated 109-sl. 15-mod./1, 131 fields in Que. mainly in the Chicoutimi and Lake St. John districts (B. Baribeau). Norland and the Fredericton selection F52100 were severely affected in contrast to sl. infections on Norgleam, Fundy and other Fredericton selections at Deschambault, Que. Green Mountain showed resistance when compared with others at L'Assomption and most varieties and selections had sl. -mod. infections at Ste. Foy, Que. (H. Genereux). Incidence was lower than normal in N. B. (C.E. Robinson) and it was reported as 15-sl. 2-mod/287 fields in N.S. (R.C. Layton). It was generally light in P.E.I. but a heavy infection was recorded in a garden at Charlottetown, (G.C. Ramsey, J.E. Campbell). A mod. infection was seen at Bay Roberts, Nfld. (O.A. Olsen).

GRAY MOLD (Botrytis cinerea) caused a trace of stem blight and wilt at Ste. Foy, Que. (D. Leblond). It also caused a tuber rot in the variety Pontiac in storage at Grand Falls, N.B. The rot was of a slightly watery, flabby nature and was confined to the stem-end of the tubers. Sclerotia were visible on the surface (K. M. Graham). Stem bases of the variety Avon were attacked at Charlottetown, P.E.I. (J.E.C.).

BLACK DOT (Colletotrichum coccodes (Wallr.) Hughes = C. atramentarium (Berk. & Br.) Taubenh,) was sl. -mod. on Norland at Ste. Anne de la Pocatiere, Que, Irish Cobbler, Warba and Teton'were less severely attacked (H.G.). Infection was 100% on Keswick at Kentville, N. S. (K.A. Harrison). It was observed on underground stem portions and stolons, especially on early varieties after maturity, in Queens Co, , P.E.I, (J.E. C.)

BACTERIAL RING ROT (Corynebacteriurn sepedonicum) was found in one seed crop at Grand Forks (N.M.) and as sl. -sev. infections in 7 table stock crops at Smithers, B.C. (W.R. Foster), It was found in only 1 crop of Waseca in s. Alta. (R.P. Stogryn), and in 6/93 fields inspected in Sask. where it appears to be on the increase (A.C.). Five fields were found infected in Man. and 1 in n. -w. Ont. (D. J.P.), It was present in 2/183 fields in the Barrie, Ont. district (H.W. W.). Of 136 suspect specimens submitted to O.A.C. Guelph, Ont., 105 were positive for ring rot (J.A. Carpenter). In Que., 159/1, 131 fields were infected, considerably fewer than in 1959 (B.B.).

One hundred /1, 789 fields were found infected in N.B. representing a slight decrease from the 1959 level (C.E.R.). Ring rot was found in 3/287 seed fields in N. S. (R. C. L.), and in 2/4, 952 fields in P. E.I. (G. C. R.). Forty positive cases of ring rot were diagnosed at the Charlottetown, P.E.I. laboratory in the first 11 months of 1960 (J.E.C.). Ring rot affected 10% of the tubers of Arran Victory in storage at Doyles, Nfld. (O.A.O.).

BLACK LEG (Erwinia atroseptica). There was an increase in the incidence of this disease in the Lower Fraser Valley, B. C. in 1960 (N. M.). It continues to be the most serious disease in seed crops in n. - and c. Alta. (E.C.R.) and it was found in 143/174 fields in s. Alta. (R.P.S.). In Sask. it was found in 24/93 fields inspected (A.C.) and in Man. 6 seed fields were rejected (D. J.P.). Black leg was found in 45% of the fields inspected in n. - w. Ont. (D. J.P.), was considerably less than in recent years in the Barrie , Ont. district (H. W. W.); caused the rejection of 1 field in the Guelph, Ont. district (C.B.S.); appeared to be on the increase in s. -w. Ont. (F. J.H.), and was tr. in 18/136 fields in e. Ont. (E.H.P.). It was less serious in Que. than in 1959 but was present in 503/1, 131 fields and caused the rejection of 42 (B.B.). Incidence was very low in N.B. although tr. amounts were found in one-third of the fields inspected (C.E.R.). It was found in 68/287 fields in N.S. but no fields were rejected (R.C.L.). It was rated 1,579-sl. 998-mod. 82-sev./4, 952 fields in P.E.I. (G.C.R.). Fundy, Keswick and Sebago were quite susceptible in P. E.I. while Katahdin, Kennebec and Netted Gem were fairly resistant (J.E.C.). Sl. infections were seen at St. John's West and in the Conception Bay area of Nfld. (O.A.O.).

SOFT ROT (Erwinia carotovora). There was a 100% increase in the incidence of soft rot in the B.C. Interior and it was also of consequence in the Lower Mainland (N.M.). It was present, after digging, in Norgleam and Katahdin but not in Irish Cobbler or Sebago in the Thedford Marsh, Ont. (J.R. Chard). About 5% of the tubers of Kennebeck were affected in storage at Hillaton, N.S. (K.A. Harrison).

DRY ROT (Fusarium spp.) Infected specimens were received from Winnipeg, Man. (J.E. Scannell, D. W.C.). It was found in a few bins in e. Ont. Two lots of Warba were affected following digger injury and bruising (E.H.P.). Nine lots of Keswick were found with up to 3% dry rot in Que. (B.B.). Several instances of dry rot were encountered in Quebec City markets (D.L.). One lot of Sebago was 65% infected in May at Kentville, N.S. (K.A.H.). Dry rot reached serious proportions in Sebago in western P.E.I. in Nov. with some storages showing as high as 50% dry rot. A considerable tonnage of both seed and table stock potatoes were affected. Early digging in warm weather, bruising, and exceptionally warm weather conditions during storage were jointly responsible. It is hoped to have a more complete report of this serious outbreak for a later number of the Survey (D. W. C.).

WILT (Fusarium oxysporum f. tuberosi). Twelve-15% of a planting of Norgleam at Mount Stewart, P.E.I. showed a true wilt including a vascular

browning that extended halfway up the plant. There was no dry rot of the stalks. The pathogen was isolated and identified by W.L. Gordon. In contrast to Verticillium wilt, which appears in late summer and often involves only one side of the plant, these affected plants began to wilt in mid-July and the whole plant was uniformly infected. The same organism was isolated at Bedeque from Irish Cobblers which showed symptoms similar to purple top wilt except for the absence of nodal thickening and aerial tubers. The stems below groundshowed vascular discoloration (J.E.C., D.B. Robinson).

WILTS (Fusarium spp., Verticillium albo-atrum) were tr. in the Okanagan Valley, B.C. and sev. in 1 field of Norland in the Lower Fraser Valley (N.M.). They were tr. in both n. -and s. Alta. (E.C.R., R.P.S.). Eight % of the fields examined in Saskhad sl. infections (A. C.). One field was rejected in Man. (D, J.P.). Wilts increased in prevalence in the Barrie (H.W.W.), and in the Guelph, Ont. districts (C.B.S.). Most varieties were affected in s. -w. Ont. (F.J.H.) and wilts were found in 23/136 fields in e. Ont. and caused the rejection of 6 (E.H.P.). Kennebec was the variety most affected in Que. but losses were negligible (B.B.). Wilts were of relatively minor importance in N. B., occurring in tr. amounts in 58/1,789 fields (C.E.R.). In N.S., wilts were reported in 45/287 fields and caused the rejection of one field of Fundy, a variety which appears highly susceptible (R.C.L.). More P.E.I. fields had a higher incidence of wilt in 1960 than in 1959. Twenty-two seed fields were rejected (G. C.R.).

SILVER SCURF (Helminthosporium atrovirens) was seen in the Barrie, Ont. district, especially on the smooth, thin-skinned varieties Chippewa and Irish Cobbler (H. W. W.). Infection was light at Ste. Anne de la Pocatiere, Ste. Foy and Ste. Clothilde and some tubers were sev. infected at L'Assomption, Que. (H.G.). It was observed on some varieties in plots at Kentville, N.S. (R.C. L.).

RHIZOCTONIA (Pellicularia filamentosa) was rated as 257-sl. 139-mod. 14-sev./512 fields in B.C. Financial losses were incurred through downgrading of tubers (N. M.). It was present in all fields in n. Alta, (E. C. R.) and in most fields in s. Alta., where Netted Gem showed the highest incidence (R.P. S.). It was of minor importance in Sask. (A. C.) and in Man. and n.-w. Ont. (D, J.P.). Incidence is increasing in the Barrie, Ont. district (H.W.W.); it was very prevalent in s. -w. Ont. (F. J.H.); and it was 29-sl. 2-mod./136 fields in e. Ont. where it was more prevalent on sandy soils (E.H.P.). It was present in 166/1,131 fields and in 288 bin lots inspected in Que., up sharply from 1959 (B.B.). Levels of incidence were normal in N.B. and losses were negligible (C.E.R.). Slight infections were general in Kings Co., N.S. (R.C. L.). Mod. infections occurred in the Avalon Peninsula, Nfld. (O.A.O.).

PINK ROT (Phytophthora erythroseptica). Infected tubers were received from a Quebec City, Que. market (D.L.).

LATE BLIGHT (Phytophthora infestans) was of consequence only in the Lower Mainland area of B.C. (N.M.). Traces were recorded in n.-w. Ont. (U.J.P.) and in the Barrie, Ont. district (H.W.W.). Only one sev. infection was seen in the Guelph, Ont. area (C.B.S.) and a very light infection occurred on Irish Cobbler in the Grand Bend Marsh (J.R.C.). It was 12-sl. 2-mod./136 fields in e. Ont. (E.H.P.) It was rated 175-sl. 36-mod. 7-sev./1, 131 Que. fields and caused the rejection of four. Dry weather generally kept the disease in check (B.B.). Although late blight was reported early in N.B., local infections only developed and the disease did not cause any damage (S.F. Clarkson). A similar situation prevailed in N.S. (R.C.L., K.A.H.) and in P.E.I. (G.C.R.). A heavy infection was seen on Irish Cobbler at Salmonier on the s.-w. part of the Avalon Peninsula, Nfld. and sl. infections occurred at Musgravetown on Bonavista Bay and in the Conception Bay areas (O.A.O.).

LEAK (Pythium ultimum) was troublesome in all areas in the B.C. Interior and was found in tr. amounts in the Lower Fraser Valley, B.C. (N.M.). Two cases were seen in Sask. (R. J. Ledingham). Disease incidence, after 2 weeks in storage, of tubers grown in sandy soil at Ste. Anne de la Pocatiere, Que. was as follows: Green Mountain, 5.4%; Warba, 5.2%; Early Rose, 2.5%; Bintje, 2.2%; Keswick, 2.0%; Irish Cobbler, 1.2%. A light infection was also seen in a 5-acre field on loam (H.G.). Many lots throughout N.S. were affected. The organism was isolated from Xeswick, Sebago and Green Mountain (R.C.L., K.A.H.). Five-770 of the tubers of F-5350 were affected after two weeks of storage at Charlottetown, P.E.I. (J.E.C.).

SCLEROTINIA ROT (*S.* sclerotiorum). Specimens were received from storage at Forestville, Que. (D.L.).

POWDERY SCAB (Spongospora subterranea). Two very sev. cases were reported at harvest in the Chicoutimi, Que. area, Infections were 25 and 70%. A few sl. infections were found elsewhere at bin inspection (B.B.). Mod. infections were seen on Kennebec at St. Germain and on Green Mountain in a 5-acre field in the Lake St. John district (H.G.). Some heavy infections were reported from the Scotts Bay district in N.S. (R.C.L.). Light to mod. infections were seen on several varieties at St. John's West, Nfld. (O.A.O.).

COMMON SCAB (Streptomyces scabies) was present on all white-skinned varieties in the B.C. Interior (N.M.). It was a serious problem on Warba in n. Alta. and caused the rejection of most crops of this variety (E.C.R.) but was not serious in s. Alta, (R.P.S.). It was sev. on a farm at Cando, Sask. (T.C. Vanterpool). Scab was sev. in a field of Early Ohio nr. Winnipeg, Man. and sl.-mod on this variety and Warba elsewhere in Man. (D.J.P.). Crops in n. Simcoe Co., Ont, showed a high level of pitted scab (H.W.W.); sl. infections were general in s.-w. Ont. (F.J.H.); and in Ontario and Durham counties on white-skinned varieties (E.H.P.). It was rated 386-sl, 16-mod, 4-sev./1, 131 Que. fields, about the same

level as in 1959 (B.B.). Levels in N. B. were at about the 1959 level (C.E.R.). Slight amounts were seen in seed stocks in N.S. but there were reports of some sev. infections in table stock (R.C.L.). Scab was very heavy at Brigus, Nfld. and was more prevalent than usual throughout the Avalon Peninsula (O.A.O.).

WART (Synchytrium endobioticum) was generally light in the Avalon Peninsula, Nfld., probably because of the dry summer. Only a few sev. infections were seen (O.A.O.).

LEAF ROLL (virus) incidence was at about the same level in Canada as in 1959, and a considerable drop in the level of incidence in B.C. was offset by a sharp rise in the number of fields affected in eastern Canada, notably in Ontario. A few representative reports are given below (D. W. Creelman).

Seventy-five of the 81 fields rejected because of leaf roll in B.C. were in the Lower Fraser Valley. (N. M.). It was found on one-third of the fields inspected in n. Alta. (E.C.R.) and in 46/174 s. Alta. fields (R.P.S.). In Sask., 45% of the inspected fields were affected (A.C.), and it was tr. in Man. and n. -w. Ont. (D.J.P.). It was the most significant disease problem in the Barrie, Ont. district where Huron and Sebago were the varieties most affected (H. W. W.). Ten/24 fields inspected in the Guelph, Ont. district were rejected (C.B.S.), and it showed a definite increase in s.-w. Ont. (F,J. H.). Late infection in e. Ont. produced necrosis in Netted Gem (E.H.P.). Its incidence in Que, and N.B. was at about the 1959 level (B.B., C.E.R.). An increase was noted in N.S., primarily in Kennebec and Netted Gem (R.C.L.), as well as in P. E.I. (G.C.R.).

MOSAIC (virus) was the largest single cause of rejections of seed fields in 1960; the number of fields rejected because of severe mosaic being about three and one-half times as great as in 1959. The increased incidence was in Que. and the Maritime Provinces (D. W. C.).

Incidence in B.C. was lower than in 1959 (N.M.). Traces of aucuba mosaic were seen in n. Alta. (E.C.R.), and incidence in s. Alta., 12/174 fields, was abnormally high for the area (R.P.S.). It was tr. in 19% of Sask. fields (A.C.) and in 1 field in Man. (D. J.P.). Three fields were rejected in the Barrie, Ont. district (H. W. W.); two in the Guelph district (C.B.S.); one in s. -w. Ont. (F. J.H.); and three in e. Ont. (E.H.P.). It caused the rejection of 124/1,131 fields in Que. compared with only 28 fields in 1959 (B.B.). Sixty-three fields were rejected in N.B., a six-fold increase over 1959. Green Mountain and Keswick were the principal varieties concerned (C.E.R.). Mosaic still continues to be the chief cause of rejection of seed fields in N.S. Its incidence in 1960 was double that in 1959 (R.C.L.). Rejections in P.E.I. in 1960 were 102 compared with 45 in 1959 (G.C.R.). It was sl. at Bay Roberts, Brigus and St. John's and mod. at Cartyville, Nfld. (O.A.O.).

PURPLE TOP WILT (virus) was seen in 13% of n. Alta. fields (E.C.R.) and in 16/174 fields in s. Alta. (R.P.S.). It was tr. in Sask.

(A.C.). and its incidence in the Barrie, Ont. district was much lower than in 1959 (H.W.W.). It was tr, in N.B. (C.E.R.) but far more prevalent in N.S. (R.C.L.). About 5-10% of Sebago plantings in P.E.I. were affected (G.C. R.).

SPINDLE TUBER (virus) was seen in 1 crop in n. Alta. (C.C.R.), and relatively high percentages were observed in 2 fields in s. Alta. (R.P.S.). It was definitely more prevalent in Sask, , occurring in 10/93 inspected fields (A.C.), and was observed in Sebago and Huron in the Barrie, Ont. district (H. W. W.). Tr. amounts were seen in the Guelph, Oat. district (C.B.S.). It was sl. in 5 bin lots in Que. (B.B.). In N.B. it was observed in 115/1, 789 fields and was responsible for the rejection of six (C. E. R.). Spindle tuber increased in incidence in N.S. in 1960, principally in Kennebec and Avon. Three fields of Avon were rejected and many fields of Kennebec failed to reach Foundation standards (R.C.L.). An increase was also noted in P.E.I. where 33 fields were rejected (G.C.R.). It was sl, on Arran Victory at Robinsons, Musgravetown and St. John's West, Nfld, (O.A.O.).

WITCHES BROOM (virus) reached its highest level in several years in the Cariboo district, B.C. where it appears to be endemic (N. M.). It was tr. in the Peers and Peace River districts of n. Alta. (E.C.R.) and in 1 field in s. Alta. (R.P.S.).

LITTLE LEAF (? genetic) was found in 219/4, 952 fields inspected in P.E.I. (G.C.R.).

WILDING (? genetic) occurred in 159/4, 952 P.E.I. fields (G.C.R.).

SPRAIN (physiologic) was more prevalent than usual in P. E.I. in 1960. Several lots, some containing as many as 10% infected tubers, have had to be regraded (G.C.R.).

STEM-END DISCOLORATION (non-parasitic) was sl. in 23/485 bin lots inspected in Que. (B.B.),

MAGNESIUM DEFICIENCY, Severe symptoms were seen in Arran Victory at Robinsons on the west coast of Nfld, (O.A.O.).

FROST INJURY was reported in 143/485 bin lots inspected in Que., mainly from late frosts in Oct. Losses were from 5-20% in some lots (B.B.).

RHUBARB

LEAF SPOT (Ascochyta rhei) was mod. in a planting nr. Charlottetown, P,E.I. (D, W. Creelman).

CROWN ROT (Rhizoctonia solani) killed 50% of the plants in a garden at Winnipeg, Man. (W.C. McDonald).

VEIN CLEARING (? virus). Two plants in a garden nr. Charlottetown, P. E. I. showed pronounced vein-clearing symptoms, accompanied by necrotic spotting (D. W. C.).

SPINACH

ASTER YELLOWS (virus). A one-quarter-acre field at Cole Harbor, N.S. was a complete loss. It was adjacent to a lettuce field which was 100% infected (K.A. Harrison) (C.P.D.S. 40:2, 99. 1960).

SQUASH

STORAGE ROT (Fusarium sp.). It was reported from Fredericton, N.S. in Mar. that losses in storage had occurred in the district. The rot, which caused a cheesy or watery breakdown, seemed to start at the blossom end or on the side of the fruit. A Fusarium sp. was the predominant isolate (D. W. Creelman).

LEAF SPOT (Septoria cucurbitacearum). Trace infections appeared on Buttercup squash at Kentville, N.S. but spread was checked by the dry weather conditions (K. A. Harrison).

ASTER YELLOWS (virus) caused extreme dwarfing of several plants in a large field, adjacent to severely affected carrots, at Hillaton, N.S. (K.A.H.).

SWEDE TURNIP

DOWNY MILDEW (Peronospora parasitic?). Infected specimens were received from Milner, B.C. (H.N. W. Toms). Infection was sev. on Laurentian swedes in the Sydney, N.S. area (K.A. Harrison).

DRY ROT (Phoma lingam). Heavy incidence of dry rot caused the downgrading of a carload of swede turnips grown at Prince George, B.C. The lesions were not typical of dry rot but P. lingam was isolated (H.N. W.T., M.E. Elliott). It was tr. on Laurentian at Harbor Grace, Nfld. (O.A. Olsen).

CLUB ROOT (Plasmodiophora brassicae) was found in a low, damp area in a field on the Grand Bend Marsh, Ont. (J.R. Chard). Specimens were received from the Lake St. John district and from St. Edouard, Lotbiniere Co., Que. (D. Leblond). It severely affected 75% of the plants in a one-half-acre planting at Ste. Anne de la Pocatiere, Que. (R.O. Lachance). Club root was general on swedes in N.B. and caused complete loss of a 2-acre planting at Woodstock (S.R. Colpitts). Half of a 3-acre field of Laurentian swedes in the Sydney, N.S. district was 100% infected (K.A.H.). It was sev. at Colinet, Nfld. (O.A.O.).

WIRESTEM (Rhizoctonia solani) was sl. in a field in the Grand Bend Marsh, Ont. (J.R. C.).

SKIN ROT (Rhizoctonia solani) affected 5% of the roots in storage in March at Grand Pre, N.S. (K.A.H.).

SCAB (Streptomyces scabies) was tr. at Oromocto, N.B. (S.R. C.). It was present in a number of P.E.I. fields that had recently received an application of limestone. It was also enhanced by the use of soil insecticides for the control of root maggots (J.E. Campbell).

BROWN HEART (Boron deficiency) was seen in 25% of the roots at St. Joachin de Tourelle in the north Gaspé region, Que. (R.O.L.). Several growers in Kings Co., N.S. reported brown heart. Even a slight incidence represents a large loss as dealers will not buy roots from fields showing any degree of boron deficiency (K.A.H.). Severe brown heart occurred in a number of P.E.I. fields treated with fertilizer supposedly containing boron (3-15-6-B). There is evidence that the product was incorrectly labelled and contained no boron (J. E. C.).

SWEET CORN

SMUT (Ustilago maydis). Two specimens were received at Saskatoon, Sask. (R. J. Ledingham).

TOMATO

EARLY BLIGHT (Alternaria solani) caused sev. defoliation followed by stem-end rotting of fruits at Edmonton, Alta. (W.P.C.). Trace infections were seen in plots at Winnipeg, Man. (B. Peturson). Most tomato fields in Prince Edward Co., Ont. were infected, especially those under a short rotation. Where longer rotations are practised and fungicidal control used, the disease is of little consequence (B.E. Beeler). Early blight was general and in the tr. -10% range in N.B., but losses were small (S.R. Colpitts). Severe defoliation from early blight seriously reduced the late crop at Berwick, N.S. Some loss from fruit rot was incurred in the early crop (K.A. Harrison).

GRAY MOLD (Botrytis cinerea). Stem rot and calyx-end rot of fruits became serious in several spring and fall greenhouse crops in Essex Co., Ont. There was some evidence that maneb was not effective in controlling the disease (C.D. McKeen). Botrytis stem cankers killed 3-4% of the plants in a greenhouse at Kingston; a light leaf infection was observed in a greenhouse at Falmouth; and 18% fruit loss was recorded in unsprayed Outdoor plots at Kentville, N.S. (K.A.H.).

GHOST SPOT (Botrytis cinerea and moisture beads). All fruits in a plastic! greenhouse at St. David's, Ont. were affected. Ventilation in the house was poor. An application of maneb and increased ventilation corrected the trouble (J. Bradbury).

LEAF MOLD (Cladosporium fulvum) caused extensive damage in commercial greenhouses at Kelowna, B. C. (G. E. Woolliams). It also

caused much damage in several crops of susceptible varieties in s.-w. Ont. Control is difficult in plastic houses where humidity tends to remain higher than in conventional glass houses (C.D. McK.). Heavy infections were seen in 2 fields at Berwick, N.S. The plants in both fields were obtained from the same greenhouse where a spring crop of tomatoes was being produced, Infection was 100% on Tuck Queen at Grand Pre (K.A.H.).

ANTHRACNOSE (Colletotrichum coccodes (Wallr.) Hughes = C. atramentarium (Berk. & Br.) Taubenh.) (Hughes, S.J. Can. J. Botany 36: 764. 1958). Adequate spray programs, based on maneb, gave good control of anthracnose in canning crops in Essex and Kent counties, Ont. in 1960. Very dry weather conditions may have helped in keeping the level of inoculum low (C.D. McK.). Some shipments of tomatoes were rejected, because of anthracnose, at canneries in Prince Edward Co., Ont. (B. E. B.). Infection was sev. in plots at the Research Station, Kentville, N. S. (K.A.H.).

BACTERIAL CANKER (Corynebacterium michiganense). Infection was 25% in a commercial greenhouse at Kelowna, B.C. Little damage was seen in field-grown crops (G. E. W.). It was tr. in plots at Winnipeg, Man. (B.P.). It was found in 20/200 fields causing an average damage of 5-10% in Prince Edward Co., Ont. (B. E.B., J. A. Carpenter).

WILT (Fusarium oxysporum f. lycopersioi) occurred in unsterilized greenhouse beds at Sydney, N.S. (K.A.H.).

LATE BLIGHT (Phytophthora infestans). For the third successive year, late blight appeared in varietal trial plots at U. B. C., Vancouver in Sept. Defoliation was light but 80-100% of the fruits bore lesions by the end of the month (H.N.W. Toms). About 20% defoliation occurred in a small sprinkler-irrigated planting at St. Catharines, Ont. There were also several severe outbreaks in unprotected plantings in the Niagara Peninsula (J.B.). For the first time in a great many years, no late blight was seen or reported in Nova Scotia (K.A.H.). It was tr. at St. John's West, Nfld, (O.A. Olsen),

NEMATODES (Pratylenchus penetrans). A field on sandy soil at Harrow, Ont. was heavily infested with 3600 nematodes per gram of root and another at Leamington, in which growth was poor, yielded more than 8,000 per gram of root (W. B. Mountain, R.M. Sayre).

BACTERIAL SPECK (Pseudomonas tomato). Damage ranged from slight-35% in 80/200 fields examined in Prince Edward Co., Ont. Copper sprays gave some measure of control (B. E. B., J.A.C.). Specimens were received from St. Pierre les Becquets, Nicolet Co., Que. (D. Lebtond).

SCLEROTINIA WILT AND ROT (S. sclerotiorum). A heavy outbreak occurred in experimental plots at Kentville, N.S. after irrigation in August. Fifteen per cent of the stalks were rotted. A 1% infection was seen in a greenhouse at Kingston in March (K.A.H.). A tr. of wilt was seen in a market garden nr. Charlottetown, P. E.I. in July (D. W. Creelman).

LEAF SPOT (Septoria lycopersici). Trace infections were seen in plots at Winnipeg, Man. (B.P.). Regular fungicide programs in recent years have reduced the incidence of this disease in the early basket, crops to a low level in s.-w. Ont. (C. D. McK.).

WILT (Verticillium spp.). Infection by V. dahliae occured in a number of commercial greenhouses in the B.C. Interior and in some cases was as high as 50%. It was found in most irrigated fields but its incidence was not as great as in previous years and little damage was incurred (G. E. W.). V. albo-atrum caused wilt in most fields planted for the early basket trade in the Harrow-Leamington, Ont. area. Losses were variable (C. D. McK.). At Grand Pre, N.S., 25% of the plants in a small greenhouse were infected by V. albo-atrum (K.A.H.).

BACTERIAL SPOT (Xanthomanas vesicatoria) was found in several canning crops in Essex and Kent counties, Oat. Untreated, contaminated seed proved to be the source of infection (C.D. McK.). Damage ranged from sl.-50% in 80/200 fields examined in Prince Edward Co., Ont. This disease is increasing in importance in the area each year. Seed contamination is the source of infection (B.E.B., J.A.C.). Infection was rated at 5% in a field of Bounty at Ste. Anne de la Pocatiere, Que. (L.J. Coulombe).

BLOTCHY RIPENING (? virus) was quite prevalent in a cominercial greenhouse at Kelowna, B.C. (G.E.W.). It was found in many fields in Prince Edward Co., Ont. The first few trussed were the most seriously affected. Weather conditions may have been partially responsible (B. E. B.).

BROWN WALL (tobacco mosaic virus) affected a few greenhouse and field crops in s.-w. Ont. The greenhouse forcing variety Vinequeen has been found to be more susceptible than others (C.D. McK.).

CURLY TOP (virus). One affected plant was found in an experimental plot at Ste. Clothilde, Que. It was reported that curly top was found in several fields north of Montreal (R. Crête).

DOUBLE VIRUS STREAK (virus). Infection was about 20% in a 1/2-acre field at St. David's, Ont. and in other areas in the Niagara Peninsula (J.B.).

FERN LEAF (virus) was seen on specimens received from Asbestos, Que. (D.L.).

MOSAIC (virus) was found in both greenhouse and field crops in the Okanagan Valley, B.C. (G.E. W.). Most fall crops of greenhouse tomatoes in s.-w. Ont. carried a serious infection. The productivity of many spring crops was also reduced (C.D. McK.). A spring greenhouse crop at Grand Pre, N.S. was 100% affected (K.A.H.).

PURPLE TOP (virus). Infections up to 5% were observed in Kings Co., **N.S. (K.A.M.) (C.P.D.S.** 40:2. 99. 1960).

BLOSSOM-END ROT (physiological) was seen in both greenhouse and field crops in most sections of the **B.C.** Interior **(G.E.W.).** It occurred in a number of garden plantings at Lethbridge, Alta. in late July and early Aug. **(P.E.** Blakely, F.R. Harper). Damage was mod. at Saskatoon, Sask. where this disorder appears to be the most important tomato trouble(R. J. Ledingham). It was observed in tr. amounts in and around Winnipeg, Man. **and** was much less prevalent than usual **(B.P.).** Blossom-end rot was widespread in Kamouraska and L'Islet counties, Que. Damage was as high **as** 50% and averaged **20% (L.** J.C.). It was tr. -5% at Oromocto, **N.B. (S.R.C.)** and affected about 15% of the fruits in a garden in Queens Co., **P.E.I. (J.E.C.).**

CATFACE (poor pollination). **A** considerable amount occurred in the first set of the **WR-7** variety in the spring greenhouse crop in **s. -w. Ont.** This condition appears to be an undesirable characteristic of the variety (C.D. McK.). It was sl. and not as prevalent as in previous years in Sunbury Co., **N.B. (S.R.C.).**

SUNSCALD was **sl.** at Ste. Foy, Que. (D. L.).