III. DISEASES OF VEGETABLE AND FIELD CROPS

ASPARAGUS

SOFT ROT (Erwinia carotovora). Several crowns were severely affected in one garden in Queens Co., P.E.I. (R.R. Hurst)

RUST (Puccinia Asparagi). Some plants in a small home garden were quite severely affected, others slightly so and still others showed no infection at Summerland, B.C. (G.E. Woolliams)

BEAN

GREY MOULD (Botrytis cinerea) caused moderate damage to the pods of Kentucky Wonder late in the season at the Station, Sidney, B.C. (W. Jones). Infection was slight in a plot of Pencil Pod Black Wax being grown for seed at Ste. Anne de la Pocatière, Que. It was also severe in a field of Michelite, and the crop was almost a complete loss due to rotting of the pods. Rain was continuous for a period (R.C. Lachance). Rot occurred on 1% of the pods of Pencil Pod Black Wax in a garden at Kentville, N.S. (R.M. Lewis)

ANTHRACNOSE (Colletotrichum Lindemuthianum). Infection was severe on Round Pod Kindney Wax in the University plots and a trace in several gardens at Edmonton, Alta. (M.W.C.). A moderate infection was observed on Round Pod Kidney Wax, Slender Green Pod and Golden Wax at Portage la Prairie, Man. A slight general infection occurred on most varieties, and a somewhat heavier one on Davis White Wax, at Brandon, Man., where the disease was severe last year (W.L.G.). Anthracnose was general on most varieties throughout the Niagara Peninsula, Ont. in 1943, but it was less prevalent on the later varieties (J.K. Richardson). Infection was moderate on field beans in the Guelph district, Ont. (J.D. MacLachlan). Anthracnose was severe on 30% of the plants and slight to moderate on the rest in a partially shaded plot on the Aylmer Road, Hull, Que., on June 24; the disease was so severe that the plot was a total loss. It was also apparently severe in a home garden at Ivry Nord (H.N. Racicot). Some 10% of the pods bore one or two lesions each in samples of canned beans of Yellow Wax and Refugee Green received from Ste. Angèle; spores and setae were seen (L.T. Richardson). Anthracnose caused severe damage on all 26 varieties in a test in York Co., N.B., except Hudson Lond Pod, Medal Refugee and Stringless Refugee Wax, which showed but slight infection and little damage (J.L. Howatt). Infection was very heavy in P.E.I. this year and damage was severe. (R.R. Hurst)

HALO BLIGHT (Pseudomonas medicaginis var. phaseolicola) affected the leaves of about 50% of the plants of Round Pod Kidney Wax, with little or no pod infection in a field at Grand Forks, B.C. No disease was found in one other field examined in the district (G.E. Woolliams). The disease was common and caused slight damage in 4 out of 15 plantings visited in Saskatoon, Sask. (R.J. Ledingham). Although halo blight was general in Lincoln Co., Ont., in no field was there any significant decrease in yield (J.K. Richardson). A trace of halo blight was seen in a field at Murray Harbour, P.E.I. (R.R. Hurst)

BACTERIAL BLIGHTS (Pseudomonas medicaginis var. phaseolicola and Xanthomonas phaseoli). Severe damage occurred in many gardens at Edmonton and Calgary, Alta. This situation is evidently due to seed commonly distributed in packets being diseased. Drought retarded blight development in most of the southern sections of the province, but a trace to a slight infection was present in the plots at Lethbridge. Beans grown from "Calapproved", reputedly disease-free seed imported from California, did not develop blight when the trial plantings were sufficiently isolated from diseased seed (M.W.C.). Infection by the bacterial blights was moderate to severe on the varieties at Morden, Man., general but slight in the plots at Brandon; it was also slight to severe in plantings elsewhere. (J.E. Machacek)

STEM ROT (Rhizoctonia Solani) caused slight damage in a garden at Edmonton, Alta. (L.E. Tyner). Damping off, due to the same organism, caused slight to severe damage in all 3 counties of P.E.I. (R.R. Hurst)

SCLEROTINIA ROT (S. sclerotiorum). Damage was slight in a garden at Edmonton, Alta. (L.E. Tyner)

RUST (Uromyces appendiculatus) was general and caused moderate damage in a field of Kentucky Wonder at Matsqui, B.C. (W. Jones)

BACTERIAL BLIGHT (Xanthomonas phaseoli) was observed in 6 out of 15 plantings examined in Sask.; in some plantings injury was severe. Reports and samples received indicate that the disease is widespread in the province (R.J. Ledingham). Brittle Wax and Pencil Pod were a complete loss due to bacterial blight in the plots at Ste. Anne de la Pocatière, Que.; other varieties were mildly infected. One field of Brittle Wax was badly affected in the Montreal district, a few showed a trace, but most were clean. Several fields were almost a failure due to excessive rain. Tender Green was generally clean (R.O. Lachance). Bacterial blight was present in varying amounts in P.E.I. (R.R. Hurst)

MOSAIC (virus) moderately affected a strain of field beans at Lethbridge, Alta., and a trace was present there also in Round Pod Kidney Wax and Blue Lake Pole Bean, and in Budsease Oregon at Olds (W.C. Broadfoot). A trace was present in one out of 15 plantings examined in Sask. (R.J. Ledingham). Mosaic infection was slight to severe in plantings near the Laboratory, St. Catharines, Ont.; it mostly affected the leaves and only the occasional pod (J.K. Richardson). Mosaic was general, but not severe, in many Victory gardens made at the Botanical Gardens, Montreal, Que. (J.E. Jacques). A trace of mosaic was present on several varieties in Queens Co., P.E.I. (R.R. Hurst)

CHLOROSIS (excess lime) was severe on Round Pod Kidney Wax at Fort Whyte, Man. (J.E. Machacek)

SCALD (magnesium deficiency) was quite severe in most local gardens at Charlottetown, P.E.I. It caused some loss due to premature defoliation and impaired pod development. (R.R. Hurst)

SUN SCALD (non-parasitic) was moderate in Kentucky Wonder being grown for seed at the Station, Sidney, B.C. It was worse in staked plants. (W. Jones)

BROAD BEANS

BLIGHT (Alternaria sp.) was severe on leaves, stems and pods of some plants at Morden, Man. (W.L. Gordon)

BASAL ROT. An occasional plant was affected at Morden, Man. Fusarium oxysporum was isolated. (W.L. Gordon)

MOSAIC (virus) affected about 10% of the plants in one out of 3 plantings examined in Sask.

BEET

SCAB (Actinomyces scabies). Nearly all the roots were moderately affected in 2 gardens at Edmonton, Alta. This is a new host record for Alta. (M.W.C.). Scab infection was a trace to severe in gardens in Queens Co., P.E.I. (R.R. Hurst)

LEAF SPOT (Cercospora beticola). Infection was general and caused slight damage to seed crops on the lower mainland and Vancouver Island, B.C. (W. Jones). Infection was moderate in two gardens at St. Adolphe and slight in another at Middlechurch, Man. (J.E. Machacek). Very few plantings were entirely free from infection, but no severe attacks were observed this year in Lincoln Co., Ont. (J.K. Richardson). Infection was a trace to heavy in Queens Co., P.E.I. (R.R. Hurst)

DOWNY MILDEW (Peronospora Schachtii). Several plants were infected on May 27, in a row of beets being grown for seed by a Chinese truck gardener at Keating, B.C. The disease has been found previously on 2 farms on the lower mainland (P.D.S. 21:30), but this was the first time it has been found on Vancouver Island. (W. Jones)

LEAF SPOT (Phoma Betae). A slight infection was recorded, mostly on the lower leaves, in 3 seed crops on the lower mainland, B.C. (W. Jones). A slight infection was general at Morden, Man.; it was severe on some leaves. A trace was also present at Middlechurch (W.L.G.). Over 10 bu. out of a total of 50 bu. of Early Flat Egyptian grown at Ste. Clothilde, Que., in 1943, from seed produced at Agassiz, B.C., were worthless on acount of rot due to Phoma Betae. Affected roots when planted in the greenhouse, Division of Horticulture, Central Exp. Farm, Ottawa, had failed to grow, when examined in Feb., 1944. Isolations yielded the organism. (L.T. Richardson)

BLACK ROOT (Rhizoctonia Solani). Over 50% of the roots were severely affected in a planting at Canaan, N.S.; the planting had to be resown. (G.W. Hope)

RUST (Uromyces Betae). A slight infection was present in one garden at North Saanich, B.C. (W. Jones)

CROWN ROT (boron deficiency) was present in Queens Co., P.E.I.; in one planting, 16% of the roots were affected. (R.R. Hurst)

ROOT ROT (cause undetermined). Stecklings planted for seed made poor growth early in the season on the lower mainland, B.C. The condition appears to have been brought about partly by the decay of the fibrous root system and partly by the cold weather at and following planting. Poor growth occurred in plants where the main root appeared sound. (W. Jones)

BROCCOLI

BLOSSOM BLIGHT (Botrytis cinerea, Alternaria, etc.) affected the inflorescence of 50% of the plants of Italian Broccoli being grown for seed at the Farm, Agassiz, B.C. Damage was severe in the affected plants. The exact cause was not determined. (W. Jones)

CABBAGE

BLACK LEAF SPOT (Alternaria circinans) was fairly general on the lower leaves in a few gardens on the lower mainland, B.C. It was not observed in July in 5 plantings being grown for seed, but the disease is frequently more prevalent later in the season. (W. Jones)

RING SPOT (Mycosphaerella brassicicola) was observed in one field at Metchosin, B.C., causing slight damage; it was not found in several other seed crops inspected in the coastal area. (W. Jones)

DOWNY MILDEW (Peronospora Brassicae) caused slight damage to the lower leaves in 4 seed crops in B.C. in June. Considerable damage was suffered by seedlings in cold frames at the Station, Sidney, B.C., in the fall months, and the disease persisted on the plants after they were transplanted to the field. (W. Jones)

BLACK LEG (Phoma lingam). Up to 8% of the plants were affected in plantings in Essex Co., Ont. There were indications that the plants were grown from infected seed. (L.W. Koch)

CLUB ROOT (Plasmodiophora Brassicae) continues to be spread to more victory gardens on Vancouver Island, B.C., mainly through the purchase of infected seedlings of cabbage and other crucifers (W.R. Foster). Club root was severe in one garden in Queens Co., P.E.I. and was reported from Prince and Kings Co. (R.R. Hurst)

BACTERIAL LEAF SPOT (Pseudomonas maculicola (McCull.) Stev. Fungi P‡. Disease 28. 1913; Bacterium maculicolum McCulloch, U.S.D.A., B.P.I. Bull. 225:14. 1911; Bacterium maculicola McCulloch, Phytopath. 18:460. 1928). About 75% of the heads were attacked in cold storage, Division of Horticulture, Central Exp. Farm, Ottawa, Ont., on October 15, with damage in decreasing severity on Golden Acre, Copenhagen Market and Glory of Ekhuizen. A trace was present on 3 other varieties. (H.N. Racicot)

SCLEROTINIA ROT (S. sclerotiorum). A few heads were severely diseased at Saskatoon, Sask. in August. (R.J. Ledingham)

Cabbage

BLACK ROT (Xanthomonas campestris). Cabbage plants growing in a field of rutabagas in Oxford Co., Ont., were slightly injured. The disease appeared on the margins of most of the outer leaves (J.K. Richardson). Black rot heavily infected a planting in a garden at Westboro, Ont., but only a few heads were seriously affected, with soft rot following. (D.B.O. Savile)

BROWN HEART (boron deficiency) caused slight damage to 1% of the plants in a planting in Queens Co., P.E.I. (R.R. Hurst)

HEAD CRACKING (cause unknown). Splitting open of the head was more common than usual in cabbage in city gardens, Saskatoon, Sask. (T.C. Vanterpool)

WINTER KILLING. Where stecklings were overwintered in situ in the field there was considerable winter killing on the lower mainland and Vancouver Island, B.C. Two plantings of Copenhagen Market were completely killed. (W. Jones)

CARROT

SCAB (Actinomyces scabies) was moderate to severe in a garden at Edmonton, Alta. This is a new host record for Alta.

BLACK ROT (Alternaria radicina). A few roots were found affected in carrots on the market in Vancouver, B.C. What was believed to be the same organism was isolated from a leaf spot and blight noted on the lower mainland (W. Jones). Black rot caused a loss of about 25% of the stecklings in storage last spring in the Grand Forks area, B.C. The disease caused most damage in storage cellars, but it was also present in pits. It was most severe on Chantenay, while Imperator appeared to be quite resistant. It also infected, in Oct., about 1% of the roots being grown at the Laboratory, Summerland, where the disease had not been observed previously. The land had not been planted to carrots before. These observations suggest that the pathogen is seed-borne. Affected roots were received from Vernon in Dec. 1943. (G.E. Woolliams)

A moderate infection of seedling blight was recorded at New Canaan, N.S. on July 29; the damage was placed at 20%. A very light infection of leaf spot was found at Kentville about the same time (G.W. Hope). A few affected roots were found at harvest in a small lot of carrots from untreated seed. Seed used in most commercial plantings was treated before sowing. (J.F. Hockey)

ROOT ROT (Botrytis cinerea) affected about 5% of the roots of Imperator and Chantenay stored in pits at the Station, Summerland, B.C. (G.E. Woolliams)

LEAF BLIGHT (Cercospora Carotae) was moderate in a victory garden in Lincoln Co., Ont., but damage was negligible (J.K. Richardson). Specimens of this leaf spot were collected by Frère M. Anselme at Mont Rolland, Que. (I.L. Conners)

SOFT ROT (Erwinia carotovora) destroyed about 10% of the stecklings in a few rows that had been set out for seed production at Agassiz, B.C. The loss was considerable in roots of seed plants in a field on Lulu Island; the crowns and leaf petioles were darkened (W. Jones). Roots affected by soft rot were received from Vernon. (G.E. Woolliams)

LEAF BLIGHT (Macrosporium Carotae) was found in a few gardens on the lower mainland, B.C., but the disease was not as general as usual. (W. Jones)

STEM ROT (Rhizoctonia Solani). A trace of infection was observed at Kentville, N.S. Affected plants showed dense mycelium girdling the petioles at the ground level. (J.F. Hockey)

SCLEROTINIA ROT (S. sclerotiorum) was present in a sample of roots received from Vernon, B.C. (G.E. Woolliams). Severe losses were reported in storage in Sask. during the winter of 1942-43 (T.C. Vanterpool). This rot caused 20% loss after two weeks in storage, in a crop of carrots that had followed beans; part of the crop that had followed potatoes was unaffected. (J.F. Hockey)

BACTERIAL BLIGHT (Xanthomonas Carotae) was present on June 29 on a trace to 5% of the plants in the Armstrong, Vernon, and Grand Forks districts, B.C. It was mostly on the seed crop, affecting not only the leaves but the developing umbels, which will result in reduced yields; it was also beginning to appear on the leaves of this year's seedlings. In July, Nantes was the most seriously affected variety in the Grand Forks district, while Imperator was the least injured. By Aug. 20, infection had become quite general on the seed crop; it appeared to be more prevalent than in 1942. Bacterial blight was found at Summerland for the first time, where it affected about 5% of the plants in the Laboratory plots. Carrots had not been grown previously on this land, but the seed used for this root crop was grown in 1941 and came from a field where bacterial blight was present. This seems to be direct evidence that the pathogen is seed-borne. (G.E. Woolliams)

Infection by bacterial blight was slight in the plots at Brandon and moderate to severe at Morden, Man. Slight to moderate infections were also recorded at Middlechurch and St. Vital (W.L.G.). A slight to moderate infection was present on July 20, on the leaves of a seed crop of the Division of Horticulture, Central Exp. Farm, Ottawa, Ont. On Aug. 13, 90% of the plants of Chantenay showed moderate to severe killing of the leaves with an occasional seed head killed (R.G. Atkinson). Bacterial blight was general, mostly on the leaf tips, of Imperator at the Botanical Garden, Montreal, Que., while other varieties were unaffected (J.E. Jacques). Diseased leaves collected by Father Léopold at La Trappe on Sept. 26, 1938 proved on examination to be affected by bacterial blight. (I.L. Conners)

YELLOWS (Callistephus virus 1) affected about 5% of the plants in a field in the Grand Forks area, B.C. (G.E. Woolliams). The disease was fairly widespread in Sask., but infection was usually a trace and was never over 5% of plants in the fields examined (R.J. Ledingham). Yellows was common in York, Sunbury, Queens, Kings, Westmorland and Albert Co., N.B. (D.J. MacLeod). The disease was less prevalent in N.S. in 1943 than in the previous year, but

fields were seen where 20% of the plants were affected. The average infection was about 5% (J.F. Hockey). Yellows was widely distributed in P.E.I.; a trace to 25% of the plants were affected in the individual plantings. (R.R. Hurst)

BORON DEFICIENCY (non-parasitic). Considerable difficulty was encountered with carrots being used for dehydration in the Vernon district, B.C. Samples showed symptoms of boron deficiency. These are a blackening of the central tissue which may be accompanied by one to several cavities. External symptoms are absent. Enquiry indicated that the trouble was fairly general in the Vernon area this season, but the percentage of roots affected was low. (H.R. McLarty and G.E. Woolliams)

CHLOROSIS (excess lime) slightly affected carrots in patches at Fort Whyte, Man. (J.E. Machacek)

CAULIFLOWER

BLACK LEAF SPOT (Alternaria circinans) was found in nearly all fields devoted to seed production in the coastal area of B.C., but losses were slight. The disease has been severe in some fields in other years (W.R. Foster). This spot was not general on the foliage of seed plants on the lower mainland and Vancouver Island, but an Alternaria was commonly associated with a curd rot. (W. Jones)

GREY MOULD (Botrytis cinerea). As a rot, this disease was observed in all fields in the coastal area of B.C., but the loss was slight (W.R. Foster). As a blight and wilt of the inflorescence it was fairly general in the coastal area and caused considerable damage to some seed crops. Affected branches of the inflorescence turn brown and woody. (W. Jones)

SOFT ROT (Erwinia carotovora) was observed in all fields devoted to seed production and caused slight to moderate damage in the coastal area, B.C. In one field 60% of the plants were affected, resulting in a loss of about 7%. To control the disease, once the curd is well formed, a grower must examine every head at intervals of one or two days, cut out the diseased portions found and apply copper lime dust. (W.R. Foster)

DOWNY MILDEW (Peronospora Brassicae) was general on the seed crop in the coastal area of B.C., but the losses were usually slight (W.R. Foster). Downy mildew was general on seedlings of 2 growers in North Saanich and at Duncan in April. Numerous plants were found systematically infected in 2 fields in North Saanich in September; affected plants suffered considerable damage. The mycelium was present in the main stems and the curd. The fungus also fruited on the bracts of the inflorescence. (W. Jones)

CLUB ROOT (Plasmodiophora Brassicae) affected a few plants in one seed crop in the coastal area, B.C. (W.R. Foster). A trace was present in several gardens and 15% of the plants were affected in one in Queens Co., P.E.I. (R.R. Hurst)

WIRE STEM (Rhizoctonia Solani) was observed in nearly all seed beds in the coastal area, B.C. (W.R. Foster). The disease caused moderate damage to seedlings in flats at Sidney and Elk Lake. The disease was completely controlled by treating the soil with formalin. (W. Newton)

WILT (Sclerotinia sclerotiorum) was found in 5 out of 10 fields examined in the coastal area, B.C. It appears to be increasing in importance and is compelling the growers to practise rotation (W.R. Foster). About 20% of the plants were affected in one seed crop on Vancouver Island. Affected plants may be killed (W. Jones)

BLINDNESS (cause undetermined). About 1-2% of the young plants were found to be blind in nearly all seed beds or in the field in coastal B.C. In one planting 40% of the plants were blind. Whiptail was suspected, but the hydrogen-iron concentration of the soil was pH 6.9, considerably higher than the average for the district, and the plants did not show other symptoms of whiptail. (W.R. Foster)

BOLTING occurred occasionally in the coastal area, B.C. One grower lost all his plants, which had suffered a severe check. Another grower whose plants started to bolt was successful in preventing virtually all the remaining plants from doing so by prompt application of fertilizer and water. (W.R. Foster)

BROWN HEART (boron deficiency). Traces were present in several gardens in Queens Co., P.E.I., but it caused severe damage in one small garden due to discoloration of the curd and stunting of the leaves. (R.R. Hurst)

CURD ROT (complex cause) was fairly general and caused slight to severe damage in seed crops on Vancouver Island and the lower mainland, B.C., but it caused less damage than in 1942. (W. Jones)

DROUGHT resulted in an almost complete failure to produce seed in one planting in the coastal area, B.C. (W.R. Foster)

FROST caused considerable loss of seedlings or young plants in Jan., 1943, in the coastal area, B.C. The principal loss was in insufficiently heated greenhouses. Young plants in well built cold frames, covered to protect the plants from sunlight, survived -6°F, in one case and 7°F. on several occasions. About 40% of plants out of doors survived the 25° of frost. (W.R. Foster)

CELERY

CROWN ROT (Ansatospora macrospora (Osterw.) Newh.), a serious cold storage disease of celery, is stated by A.G. Newhall (Phytopath. 34:92-105. 1944) to occur not only in New York State, but also in Ont. Although the disease is fairly widespread, losses tend to be confined to the late-grown celery from particular farms or fields. According to J.H.L. Truscott (in litt.), a culture of the organism from celery grown at Thedford, Ont. was sent to Newhall in 1935-36 and has proved to be this organism. (I.L. Conners)

LATE BLIGHT (Septoria Apii-graveolentis) was of fairly general occurrence on Vancouver Island and the lower mainland, B.C.; it caused less damage than usual due to dry weather in the fall (W. Jones). Commercial plantings were only mildly affected in the Armstrong district, B.C. About 25% of the plants showed slight leaf infection (G.E. Woolliams). Blight infection was moderate in one commercial planting and slight in a few gardens at Edmonton, Alta. (M.W.C.). Infection was moderate to severe south of Winnipeg, Man. (J.E. Machacek)

BLACK HEART (non-parasitic). Celery growing in a cold frame at the Station, Beaverlodge, Alta., was severely affected in August. Specimens from Mr. Albright, Superintendent, were sent to J.K. Richardson of the St. Catharines Laboratory, who diagnosed the trouble as physiological black heart. Similar symptoms were observed at Edmonton and Lethbridge. This is the first report for Alta. (G.B. Sanford). Losses from black heart are decreasing each year in the Niagara Peninsula, Ont., since growers are planting more resistant varieties and are reducing their plantings of the early crop (J.K. Richardson). Black heart affected 75% of the plants of Salt Lake and Golden Self Blanching at the Station, Ste. Anne de la Pocatière, Que. The affected plants were almost a total loss. (R.O. Lachance)

CHIVES

DOWNY MILDEW (Peronospora Schleideniana). Affected specimens were collected at Mount Rolland, Que., on Aug. 20 by Frère M. Anselme (DAOM 13235). This is a new host record for the Survey. (I.L. Conners)

RUST (Puccinia Porri (Sow.) Wint.) affected a few plants at Vancouver, B.C. on May 27 (DAOM 14082) (J.W. Eastham). A specimen on onion collected by W.R. Foster at Victoria, B.C. in 1939 (DAOM 6858) has been referred to this species. Only uredinia are present in both collections. (I.L. Conners)

CUCUMBER

LEAF SPOT (Alternaria cucumerina) caused moderate damage in plants grown for seed at Duncan, B.C. (W. Jones)

SCAB (Cladosporium cucumerinum) affected all the fruits in a garden at Almonte, Ont., and a diseased specimen was received from Islington (H.N. Racicot and L.T. Richardson). Scab caused serious damage to cucumber plantings in the Maugerville-Jemseg district, N.B. (J.L. Howatt). Traces occurred in many plantings in Queens Co., P.E.I., but no serious outbreaks were seen. (R.R. Hurst)

ANTHRACNOSE (Colletotrichum lagenarium) affected up to 80% of the plants in a field of cucumbers in Essex Co., Ont., and caused moderate damage.

WILT (Fusarium sp.) was found on several varieties being grown in the merit trial plots at the Station, Summerland, B.C. (G.E. Woolliams). A severe infection was found at Lac du Bonnet, Man. The diagnosis was not checked by isolations (J.E. Machacek)

ANGULAR LEAF SPOT (Pseudomonas lachrymans (Sm. & Bryan) Carsner, Jour. Agr. Research 15:201. 1918; Bacterium lachrymans Sm. & Bryan, Jour. Agr. Research 5:466. 1915). Infection was moderate on President and Vaughan in the plots at Lacombe, Alta. (W.C. Broadfoot)

FRUIT ROT (Pythium sp.) was severe on fruits in storage at Winnipeg, Man. (J.E. Machacek)

STEM and FRUIT ROT (Sclerotinia sclerotiorum) affected up to 5% of the plants of Perry's Special in a greenhouse in Essex Co., Ont., causing moderate damage. (L.W. Koch)

MOSAIC (virus) was found affecting some plants at the Station, Summerland, B.C. (G.E. Woolliams). Mosaic affected all the plants in an eighth of an acre being grown for seed in Wentworth Co., Ont.; consequently the crop was a total loss. The planting was heavily infested by aphids (J.K. Richardson). Some 2% of the plants were affected by mosaic in a field in Essex Co., Ont. (L.W. Koch). Mosaic (Cucumis virus 1) caused severe damage on two farms in Sunbury Co., N.B. (D.J. MacLeod). Mosaic was present in virtually all of the 21 plantings examined in P.E.I. (R.R. Hurst)

DILL

BLIGHT (Phoma Anethi (Pers.) Sacc.) was so severe in a planting of dill examined on Oct. 10, at Streetsville, Ont., that hardly any seed was formed (J.K. Richardson). Excellent material was received from Mr. Richardson for identification (DAOM 14065). The pycnidial stage present agreed with Phoma Anethi as represented in Fl. Hung. Exs. 105. A hyphomycetous stage was also present; this agrees with the description given for Cercosporina Anethi Sacc. (cfr. Sacc. Syll. Fung. 25:916. 1931), which is based on specimens collected at Kulm, N.D. and distributed in Brenkle, Fungi Dakotenses 253, Oct. 1914, as Cercosporella Anethi Sacc. (Mycologia 10:216. 1918). This disease is known from Germany, France, Sweden, Portugal and Belgium (Saccardo, Syll. Fung. 3:125), Denmark (J. Lind, Danish Fungi 1913), the Ukraine (R.A.M. 17:771) and the United States (Pl. Dis. Reporter 11(10): 126. 1927). (I.L. Conners)

EGG PLANT

WILT (Verticillium Dahliae) was present in all plantings observed in Lincoln Co., Ont.; infection ranged from a trace to 50%. (J.K. Richardson)

MOSAIC (virus). A single plant was found infected at Winnipeg, Man. (J.E. Machacek)

ENDIVE

LEAF DROP (Sclerotinia sclerotiorum). The disease caused dropping of the lower leaves of plants growing in a greenhouse bed at Winnipeg, Man. A soft decay with sclerotia was present. (J.E. Machacek)

HOP

DOWNY MILDEW (Pseudoperonospora Humuli) was general early in the season on Clusters and Golding in the Fraser Valley, B.C. The disease was later checked by dry weather and the crop was harvested during ideal weather (W. Jones). Almost all the leaves were spotted by downy mildew in the Arboretum, Ottawa, Ont., but it caused little damage. A moderate infection occurred on hops being used as an ornamental vine at Abbotsford, Que. The damage was slight, but sufficient to check the development of the inflorescence. A specimen was collected at Mt. Rolland by Frère M. Anselme. (D.B.O. Savile)

HORSE RADISH

WHITE RUST (Cystopus candidus) heavily infected a single patch at the edge of a garden at Abbotsford, Que.; the damage was severe. Although this disease is reported by K.J. Kadow and H.W. Anderson (Ill. Agr. Exp. Sta. Bull. 469. 1940) to be widespread in all countries where horse radish is grown, this is the first record in the Survey and no other specimens are in the Herbarium. Kadow and Anderson state that the form of C. candidus on horse radish is distinct from the forms common on cruciferous weeds; this may account for its scarcity in Canada, where horse radish is grown widely but not intensively. (D.B.O. Savile)

LEAF SPOT (Ramularia Armoraciae). A moderate infection was found in several plantings at Edmonton, Alta.

LEEK

GREY MOULD (Botrytis cinerea) caused moderate losses as a rot in one large field in the coastal area, B.C. (W.R. Foster)

BLIGHT (Heterosporium Allii Ell. & Martin) was general on the lower leaves of 2 seed crops in the Victoria district, B.C.; the damage was slight (W. Jones). The fungus was identified by J.E. Jacques. This is the first report of the fungus to the Survey. (I.L. Conners)

LETTUCE

GREY MOULD (Botrytis cinerea). A few flowers and branches of the inflorescence were killed in a plot at the Station, Sidney, B.C. (W. Jones)

DOWNY MILDEW (Bremia Lactucae) was general on 3 seed crops in the Sidney and Victoria districts, B.C. and caused considerable damage (W. Jones). The disease affected about 30% of the seedlings, after pricking off, in a greenhouse in Lincoln Co., Ont.; many were stunted and killed. (J.K. Richardson)

ANTHRACNOSE (Marssonina Panattoniana) was general in a 2-acre field at Keating, B.C., and caused considerable damage to the foliage. (W. Jones)

ROOT ROT (Rhizoctonia Solani) caused moderate damage to several crops of early lettuce in Essex Co., Ont. (L.W. Koch)

DROP (Sclerotinia sclerotiorum). Damage was severe in several gardens at Edmonton, Alta., and was moderate to severe in the variety plots at Lacombe.

TIP BURN (non-parasitic) was present in the variety plots, Summerland, B.C. Infection varied from 29.5% in Sweetheart to 67.6% in New York No. 12. Some plants were so severely injured that their marketability was lowered, but the majority suffered only slightly, especially the tip-burn resistant Sweetheart. (G.E. Woolliams)

MELON

BACTERIAL WILT (Erwinia tracheiphila) affected up to 4% of the melon plants in plantings examined in Essex Co., Ont.; the damage was moderate (L.W. Koch). Wilt infection was general in Lincoln Co., but was never severe, the highest being 5%. (J.K. Richardson)

MOSAIC (virus) affected a few plants in the cantaloupe merit trials at Summerland, B.C. (G.E. Woolliams)

OKRA

WILT (Verticillium Dahliae) affected 50% of the plants in the single planting examined in Lincoln Co., Ont.; some plants were killed while others were only slightly affected with the result that the yield was reduced about 25%. (J.K. Richardson)

ONION

BLACK MOULD (Aspergillus niger). A slight infection was observed on Australian Brown at Victoria, B.C. (W. Jones)

NECK ROT (Botrytis Allii) was reported causing moderate rotting at Vernon, B.C., in stored bulbs, to be used for seed production in 1944, accompanied by an affected sample. It was also observed in the field at Grand Forks, Vernon and Oliver; a cool, backward spring apparently favoured its development (G.E. Woolliams). The disease caused severe rotting of onions in storage from a garden at Edmonton, Alta. (M.W.C.). Severe in onions stored in a basement, Saskatoon, Sask. in January (T.C. Vanterpool). Neck rot seemed less prevalent in 1943 than for the past several years in Lincoln Co., Ont., although most of the observations were made prior to the storage period (J.K. Richardson). A few onions were affected at Kentville, N.S. (J.F. Hockey)

SOFT ROT (Erwinia carotovora) was reported in August to be very prevalent at London, Ont.; affected specimens were received. (L.T. Richardson)

BULB ROT (Fusarium oxysporum f. Cepae) affected about 2% of the bulbs of the affected strains or varieties in the merit trials at the Station, Summerland, B.C. This is the first time the disease has been found at the Station, although it is a destructive disease in B.C. (cf. P.D.S. 19:43) (G.E. Woolliams). Multiplier onions and shallots grown in wet land in Kings Co., N.S. were affected by dry rot after a short period in storage; the loss was 10%. (J.F. Hockey)

DAMPING-OFF. About 5% of the seedlings grown in sterilized soil in flats in the greenhouse, at Sidney, B.C. were affected. A Fusarium isolated from the affected seedlings was identified by W.L. Gordon as F. Scirpi. (I. Mounce)

PURPLE BLOTCH (Macrosporium Porri) infection was a trace at Middlechurch and slight at Charleswood, Man., on Yellow Globe Danvers; a slight infection also occurred at Morden, Man. (J.E. Machacek)

DOWNY MILDEW (Peronospora Schleideniana) caused severe damage to 2 seed crops on Vancouver Island, B.C.; the loss was 50% of the crop. The disease was first noticed at Keating on a row of seed plants in mid-May. Later in the season it was present in all gardens inspected including young plants intended for seed production next year. Downy mildew was also widespread on the lower mainland (W. Jones). Downy mildew was found in July in the Grand Forks district on the seed crop grown close to the Kettle River, where the humidity was probably more favourable for the spread of the disease. The spring was cool and backward with periods when heavy rain showers occurred on consecutive days. Up to 80 to 90% of the plants were affected in some fields with lesions on both the leaves and flower stalks. By August the disease had become quite general in the bulb crop. This was the first time downy mildew had been observed in the Grand Forks district. It was again present in the Armstrong district; observations indicated that the disease was carried over in affected bulbs. (G.E. Woolliams)

Downy mildew affected 60% of the plants and caused moderate damage in a planting in Essex Co., Ont.; a system of overhead watering was used (L.W. Koch). A moderate infection of the seed stalks was observed at Streetsville, Ont. (J.K. Richardson). A severe infection of downy mildew, which reduced the stand 50%, was observed at St. Damase, Que. Traces were also observed in the plots at Ste. Anne de la Pocatière (A. Payette and R.O. Lachance). The disease was collected at Mont Rolland. (I.L. Conners)

LEAF SPOT (Stemphylium botryosum) was general on 2 seed crops on Vancouver Island, B.C., following attack by downy mildew. (W. Jones)

SMUT (Urocystis Cepulae). Infection was slight in one field and severe in another at St. Vital, Man. (J.E. Machacek)

BACTERIAL BLISTER. Leaves of Yellow Globe Danvers bore abundant whitish raised blisters in a planting at Lakeland, Man. Microscopic examination revealed plentiful bacterial ooze escaping from the blisters, and the blistered tissue filled with gas. (J.E. Machacek)

PARSLEY

LEAF BLIGHT (Septoria Petroselení) was general on one seed crop at Duncan, B.C., and caused slight damage to the foliage. (W. Jones)

PARSNIP

SCAB (Actinomyces scabies). A severe infection occurred in a garden at Edmonton, Alta. This is a new record for Alta. (M.W. Cormack)

LEAF SPOT (Cylindrosporium crescentum). Infection was general and slight at St. Norbert and severe in patches on Hollow Crown Guernsey at St. Vital, Man. (J.E. Machacek)

SOFT ROT (Erwinia carotovora). A severe infection occurred in a planting at Vernon, B.C., where at least 50% of the roots were affected, according to H.H. Evans, District Field Inspector, who submitted the specimens. (G.E. Woolliams)

LEAF SPOT (Ramularia Pastinacae). Infection was fairly general in 3 seed crops located at Cadboro Bay, Milner and Ryder's Lake, B.C.; it caused slight damage to the foliage (W. Jones). Infection was moderate to severe in a planting at Edmonton, Alta. (DAOM 14037, 14038, 14070) and a trace on Hollow Crown at Lacombe (W.C. Broadfoot). A moderate infection occurred on the foliage in an early planting at Upper Canard, N.S. (14086) (J.F. Hockey). This disease has also been reported as due to Cercosporella Pastinaceae. Besides the specimens recorded above, the fungus is represented in the Herbarium from Keating, B.C., July 10, 1940 (6485); Milner, B.C., July, 1942 (14085) and Big Tancook Island, N.S., Aug. 5, 1942 (12312). Critical study revealed that the Ramularia predominated in the specimens; but careful search usually yields some Cercosporella, and even immature Cercosporella and Ramularia spores attached to conidiophores in the same tuft. A full range of conidiophore differences may be seen associated with each spore type. A.D. Cotton (Kew Bull. Misc. Inf. 1:18-20. 1918) considered the two fungi, under the names Cercosporella Pastinacae Karst. and Ramularia Pastinacae Bubak, as distinct, but found them almost always associated with Ramularia predominant. J.I. Lindroth (Acta Soc. Faun. Flor. Fenn. 22(2):8. 1902) considered the fungus described by Karsten (Hedwigia 23:63. 1884) as Cercosporella Pastinacae to be a Ramularia and proposed the new combination, Ramularia Pastinacae (Karst.) Lindr. & Vestergr. P.H. Gregory (Trans. Brit. Myc. Soc. 23:24-59. 1939) has shown beyond all reasonable doubt, in his study of Ramularia Vallisumbrosae Cav. on Narcissus, that R. Vallisumbrosae and Cercosporella Narcissi Boud. (R. Narcissi Chit.) are identical. Monospore cultures of amerospores (one-celled), phragmospores (Ramularia) and scolecospores (Cercosporella) yielded the same fungus and upon inoculation of the host yielded typical Ramularia spots. W.C. Moore (Trans. Brit. Myc. Soc. 25: 208. 1941) gives evidence that Ramularia Primulae Thüm. and Cercosporella Primulae Allesch. are genetically identical. R. Virgaureae on Solidago appears to be similarly pleomorphic. Other cases may exist, for many genera are reported with both Ramularia and Cercosporella as parasites. Single spore isolations are required to clear up the identity of the two forms on parsnip. It may be noted that if the two forms prove to be distinct species, the

Ramularia is without a name, as Ramularia Pastinacae Bubak (1903) is a later homonym. This fungus is not to be confused with Cercospora Pastinacae (C. Apii var. Pastinacae) as present in Seym. & Earle, Ec. Fungi 443, on Pastinaca sativa, New Brunswick, N.J. 1892, Halsted; spots not clearly delimited; conidiophores pale brown, short; conidia 56-84 x 4-5.5 microns, 3-septate. The Cercospora is reported in P.D.S. from Ont., Que., and P.E.I.; but Canadian specimens seen, including that for the P.D.S. record for Ont., have proved to be the Ramularia. (D.B.O. Savile and I.L. Conners)

SCLEROTINIA ROT (S. sclerotiorum). Severe rotting occurred in one garden at Edmonton, Alta. (L.E. Tyner). This rot was found affecting 28% of the roots of Hollow Crown in a garden in Queens Co., P.E.I., on Aug. 3; the damage was severe. (R.R. Hurst)

YELLOWS (Gallistephus virus 1) affected 5% of the plants in a crop of Hollow Crown being grown for seed at Grand Forks, B.C. (G.E. Woolliams)

PEAS

LEAF and POD SPOT (Ascochyta Pisi). Infection occurred early in the season and the disease was severe in many gardens at Edmonton, Alta. Infection was slight to moderate in the variety plantings at Olds and Lethbridge, a trace to severe in garden peas and a trace to slight in field peas at Lacombe (M.W.C.). A slight infection was present at the Station, Ste. Anne de la Pocatière, Que. (R.O. Lachance). Leaf and pod spot was quite general in the Middleton district, N.S., on canning peas (J.F. Hockey). It affected about 2% of the pods and was quite heavy on the foliage in Queens Co., P.E.I. (R.R. Hurst)

LEAF SPOT (Cladosporium pisicola). A trace was noted in a planting in Queens Co., P.E.I. (R.R. Hurst)

POWDERY MILDEW (Erysiphe Polygoni). Infection was severe in many gardens at Edmonton, Alta., and varied from slight to severe in the variety plots at Lethbridge (M.W.C.). Powdery mildew was widespread, but did not appear until late in the season in Sask.; it was severe in gardens that were frequently watered (H.W.M.). A moderate infection was observed at Morden, Man., with leaves and pods severely affected on some plants (W.L. Gordon). Although powdery mildew may have been more severe in P.E.I., only a scattered infection was observed in one garden in Queens Co. (R.R. Hurst)

ROOT ROT (Fusarium Solani) was recorded in 6 plantings out of 12 examined in Sask. and caused 2 to 5% damage. Affected plants were wilting and dying and a reddish-brown cortical decay of the stem base was a common feature (R.J. Ledingham). A wilt caused considerable loss of plants in one garden at Wolfville, N.S. (J.F. Hockey)

MYCOSPHAERELLA BLIGHT (M. pinodes (Ascochyta pinodes) was general in variety plantings at the Farm, Agassiz, B.C.; and caused considerable damage (W. Jones). This blight was observed in several localities in Man.; infection moderate in a 2-acre field at Gonor, trace on leaves and pods of Little Marvel at Middlechurch, slight on Harrison's Glory and B.C. Blue, none on Alaska at

Portage la Prairie (J.E. Machacek); trace, but general at Morden. Spores 12.5-17.5 x 3.5-6 microns (W.L. Gordon). Considerable infection was observed in several plantings in Lincoln Co., Ont., but the pods were already well formed; accordingly, loss of yield was probably slight. (J.K. Richardson)

DOWNY MILDEW (Peronospora Pisi) was widely distributed on peas on Vancouver Island and the lower mainland, B.C., but the damage was very slight. (W. Jones)

BACTERIAL BLIGHT (Pseudomonas Pisi). Infection was severe on Meteor but only a trace or slight on other varieties at Lacombe, Alta. (W.C. Broadfoot). Infection was recorded in Man. as severe in a 12-acre field at Middlechurch (most pods unsaleable), moderate in a 2-acre field at Gonor, slight at St. Norbert, trace at Parkdale and on Alaska at Portage la Prairie (J.E. Machacek), slight to severe on leaves and pods in plantings at Morden (W.L. Gordon). A slight scattered infection was found on Thomas Laxton and Laxton Progress out of the 5 varieties inspected in the plots, Division of Horticulture, Central Experimental Farm, Ottawa, Ont.; the damage was negligible. (R.G. Atkinson)

LEAF SPOT (Septoria flagellifera). A few spots were found on the leaves at Brandon and Winnipeg, Man. Spores 75-165 x 2.5-3.0 microns. S. flagellifera is much less common than S. Pisi. (W.L. Gordon)

LEAF BLOTCH (Septoria Pisi). Infection was moderate at St. Norbert, Man. and on a canning variety, #103, at Portage la Prairie, slight on Little Marvel at Middlechurch (J.E. Machacek), usually slight at Brandon, rather heavy on lower leaves of Onward at Morden. Spores 27.5-47 x 2.5 microns. (W.L. Gordon)

RUST (Uromyces Fabae). A slight infection was observed in a field of Stratagem, grown for seed at North Saanich, B.C. (W. Jones). Rust was quite common on garden peas at the Station, Vineland, Ont. (D.L. Bailey). Rust was present on all varieties at Ste. Anne de la Pocatière, Que., with infection trace to slight (R.O. Lachance). A trace of rust was recorded at Middleton, N.S. (D.M. MacLeod). Infection was generally quite heavy on peas in Queens Co., P.E.I., and caused moderate to severe damage. (R.R. Hurst)

MOSAIC (virus) was recorded in one planting out of 12 examined in Sask.

DIE BACK (?boron deficiency). A new disorder developed on peas growing in the reclaimed area at Creston, B.C. It is characterized by a die back of the growing tips soon after seed germination, which results in a proliferation of growth. From one to three shoots, which have died back, may be found and the first shoot, if it continues to grow, reaches an ultimate length of about 6 inches. Alfalfa on the area sometimes shows signs of boron deficiency, and this "die back" is thought to be due to the same cause. Percentage of plants affected varied from a trace to 50% depending on the variety; Alaska and Surprise were most affected, while Thomas Laxton was only slightly in ured. (G.E. Woolliams)

PEPPER

WILT. Botrytis sp. was isolated from one plant showing definite symptoms of wilt at the Station, Sidney, B.C. W. Jones)

FRUIT ROT. Some 75% of the fruit in a retail store in Winnipeg, Man., was damaged by a rot with which Penicillium and Botrytis were associated. (J.E. Machacek)

ROOT ROT. An unidentified fungus was isolated from pepper plants affected by a root rot in a greenhouse at Medicine Hat, Alta. (G.B. Sanford)

INFECTIOUS CHLOROSIS (virus) affected a few plants at the Station, Summerland, B.C. (G.E. Woolliams)

Pepper plants were found affected by an unusual chlorotic symptom in the Brantford district and in Lincoln Co., Ont.; they were found to be affected by a strain of Medicago virus 1. (G.H. Berkeley and G.C. Chamberlain)

MOSAIC (Solanum virus 2). Two out of 16 plants of Banana were infected at the Station, Morden, Man. Other varieties and hybrids were free from disease (J.E. Machacek). Although no planting was seen in Lincoln Co., Ont., with more than 5% of the plants affected by mosaic, few were observed where the disease was absent. (J.K. Richardson)

POTATO

The Plant Protection Division, Science Service, had supplied the compilations on the extent of the seed potato industry, the acreages of the leading varieties passing inspection, the number of fields which failed to pass inspection, and the average percentages of the diseases - black leg, leaf roll, and mosaic - found in the fields. All fields entered for certification are planted with certified seed.

The acreage of potatoes grown for certification was increased in 1943 by 4,966 acres or 16.6% over that of 1942, but the acreage passing inspection was very little higher than the previous year for the percentage that passed fell from 62.9% to 54.8%. This further deterioration was largely due to the alarming increase of leaf roll. About 25% of the fields entered for certification were rejected for leaf roll in P.E.I. and N.B., the two leading seed potato producing provinces. Mosaic, however, is also an important cause of rejection, although it has yielded first place to leaf roll. The amount of bacterial ring rot has decreased somewhat and already the policy of refusing registration to seed stocks growing on farms where bacterial ring rot was present in other plantings seems to be having a beneficial effect. The elimination of seed stocks from farms where bacterial ring rot was found in other fields in the current season, should reduce the chances of healthy seed stocks becoming contaminated. A similar policy to assist the larger table stock growers to get rid of any diseased stock they may have, should reduce serious economic losses from the disease to a minimum. The disease is still firmly established in Que. and there were more rejections than usual in Man. and Alta.

Table 4: Seed Potato Certification: Number of Fields and Acres Inspected, 1943.

Province	Number of Fields		Fields Passed %	Number of Acres		Acres Passed %
	Entered	Passed		Entered	Passed	
P.E.I.	4,260	2,362	55.4	16,481	8,555	51.9
N.S.	346	214	61.8	780	546	70.0
N.B.	1,955	1,168	59.7	11,459	6,725	58.6
Que.	1,302	512	39.3	2,511	810	32.3
Ont.	773	582	76.0	1,879	1,314	69.9
Man.	105	80	76.2	172	121	70.3
Sask.	89	76	85.4	88	72	81.8
Alta.	166	128	77.1	428	245	57.2
B.C.	566	398	70.3	1,149	760	66.1
TOTAL	9,562	5,520	57.7	34,947	19,148	54.8
Previous Yearly Totals						
1942	7,947	5,023	62.2	29,981	18,875	62.9
1941	9,813	6,404	65.3	37,668	24,405	64.8
1940	12,388	8,676	70.0	48,111	34,094	70.1
1939	10,805	8,201	75.9	40,286	31,545	78.3

Acres Entered		Acres Passed	
1942	29,981	1942	18,875
1943	34,947	1943	19,148
Increase of 4,966 or 16.6%		Increase of 273 or 1.4%	

Table 5. Seed Potato Certification: Acreages Passed by Varieties, 1943

Variety	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.-Alta.	B.C.	Total
Green Mountain	2,512	45	2,035	697	65	22	52	5,428
Katahdin	852	230	3,240	16	823	26	13	5,200
Irish Cobbler	4,332	142	238	45	138	55	7	4,957
Bliss Triumph		32	1,153			4	2	1,191
Sebago	814	45	45		23			927
Netted Gem	3				5	253	501	762
Chippewa	5	6	6	14	213		24	268
Warba		10	2		22	25	27	86
Houma	33		2	35		1		71
White Rose							52	52
Early Epicure							36	36
Sequoia	1	25			2	1		29
Other Varieties	2	11	4	3	23	51	46	141
TOTAL	8,555	546	6,725	810	1,314	438	760	19,148

COMMON SCAB (Actinomyces scabies) was severe in Man. in one lot of tubers; the lot could not be certified. Slight amounts of scab were prevalent throughout the province (W.A. Cumming). Common scab was quite severe in Ont., notably in Wellington Co. and parts of York Co. A skin scurf, somewhat resembling scab, was noted in Norfolk Co., where the iron content of the soil is high (J.W. Scannell). Affected specimens were received from Aylmer and Beaverton (L.T. Richardson, H.N. Racicot). Scab was of minor importance in Que. in fields entered for certification, except in 3 fields, where lime had been applied in past years. Reports indicate that in some parts of the Montreal district, fields of table stock were seriously affected (B. Baribeau). A slight infection was noted in a few lots of tubers on bin inspection in N.B. (C.H. Godwin). Common scab was found in over a third of the lots inspected, and the average tuber infection was about 2%, or double that of 1942, although this season was unusually wet (W.K. McCulloch). Traces of scab were present in table stock throughout P.E.I. (R.R. Hurst)

Table 6. Seed Potato Certification: Fields Rejected on Field Inspection, 1943.

Province	Leaf Roll	Mosaic	Ring Rot in field	Ring Rot on farm	Adjacent Diseased Fields	Black Leg	Foreign Varieties	Misc.	Total
P.E.I.	1,174	378			139	43	52	112	1,898
N.S.	44	33			25	2	10	18	132
N.B.	485	110	39	23	76	3	33	18	787
Que.	210	182	155	15	92	28	18	90	790
Ont.	5	39	8	9	24	15	31	60	191
Man.	5		8	4		2		6	25
Sask.	1	3			3	3		3	13
Alta.	11	3	4	4	10	3		3	38
B.C.	54	40			46	6		22	168
TOTAL	1,989	788	214	55	415	105	144	332	4,042
Rejections as a percentage of fields:									
Entered	20.8	8.2	2.2	0.6	4.4	1.1	1.5	3.5	42.3%
Rejected	49.2	19.5	5.3	1.4	10.3	2.5	3.6	8.2	100.0%

Table 7. Seed Potato Certification: Average Percentage of Disease found in Fields, 1943.

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	.18	.08	.04	.08	.09	.14	.13	.13	.05
Leaf Roll	2.21	1.16	1.97	.95	.32	.54	.09	.99	.94
Mosaic	.90	.85	.48	.86	.08	.05	.28	.18	.70
Fields passed: (final inspection)									
Black Leg	.05	.04	.02	.01	.02	.07	.01	.02	.03
Leaf Roll	.29	.24	.32	.15	.12	.10	.01	.02	.09
Mosaic	.09	.04	.14	.09	.04	.01	.05	.01	.07

EARLY BLIGHT (Alternaria Solani) was unusually severe in central Alta., and caused the premature death of the vines in many plantings of early varieties at Edmonton. The later planted varieties were not so severely affected (M.W.C.). Diseased specimens were received from Lanigan and Speers, Sask., following a newspaper warning to be on the look-out for late blight; it probably was not serious (T.C. Vanterpool). Early blight was prevalent throughout Man., but no severe damage was seen (W.A. Cumming). Infection was recorded as a trace in one field, slight in 2, moderate in 2, and severe in one in Man. (J.E. Machacek). Early blight caused very slight damage in Que., except in a few fields in the Lake St. John district, where a heavy infection was present as early as July 5 (B. Baribeau). Early blight was more prevalent than usual in N.B., owing to the favourable season (C.H. Godwin). Early blight was reported in Kings Co., N.S., on Aug. 12 and in Colchester Co. on Aug. 19. It was much less noticeable than usual, probably because of the greater prevalence of late blight. Sometimes the two diseases were seen on the same leaflet. Most of the infection was on Irish Cobbler. No Alternaria rot was seen (W.K. McCulloch). Traces were present in most fields of Irish Cobbler in P.E.I., but there was little development of the disease. Alternaria rot was seen occasionally on tubers of the 1942 Irish Cobbler crop in May, 1943. (R.R. Hurst)

GREY MOULD (Botrytis cinerea) caused a rot in 28 tubers (8%) out of 360 of Sequoia, from which an eye had been removed for tuber indexing and which had been kept in cold storage over the winter at Saanichton, B.C. Tubers of White Rose, Early Rose, Burbank, Early St. George, and Warba, from which eyes had been similarly removed, were not affected (W. Jones and E.R. Bewell). Sclerotia of Botrytis are found abundantly each year on dead potato tops in P.E.I. (R.R. Hurst)

BACTERIAL RING ROT (Corynebacterium sepedonicum). A shipment of potatoes from Man. was sold to the Army, because a few infected tubers were found upon inspection. Instead of using all the shipment for food as advised, some of them were used for seed at Esquimalt, B.C., because other potatoes were not available. This disease was recognized by army personnel and brought to my attention. Efforts to eradicate it were made. This is the first case observed on Vancouver Island (W.R. Foster). The disease was also found at Vancouver, on Dec. 2, in a shipment of table stock White Rose potatoes from Ladner, B.C., by Mr. Robinson, Fruit and Vegetable Inspector. A few tubers were found in the bin, when it was visited later. This is the first case in locally grown potatoes on the lower mainland. Steps have been taken to eradicate the disease. (H.S. MacLeod, W. Jones)

A considerable enlarged survey for bacterial ring rot was conducted in southern Alta. in 1943. About 1,000 farms were visited in 55 townships, most of which contained irrigated land. Dr. L.E. Tyner, Dominion Laboratory of Plant Pathology, Edmonton, again verified the presence of the disease by microscopic examination of specimens. The results of the survey may be summarized as follows:

District	Farms Visited	Farms Affected	Acreage Affected	Acreage not Affected	Total Acreage on Affected Farms
Lethbridge	700	216	1,712	340	2,052
Brooks	185	8	35	46	81
Calgary	40	6	21	2	23
Medicine Hat	15	2	1	1	2
Drumheller	10	3	6	9	15
Others	50	0	-	-	-
TOTAL	1,000	235	1,775	398	2,173

In 1942, the disease was known to be present in four separate districts of southern Alta. The chief centre was in the irrigated area that embraces Lethbridge, Taber, Raymond and Picture Butte, while slight infections were known to exist at Drumheller, Brooks-Rosemary and Medicine Hat (P.D.S. 22:54-55). The more intensive survey disclosed an increase in the number of affected farms. In addition, 6 affected fields were found near Calgary.

The areas where the disease was known to exist were designated as "pest areas" early in 1943 by the Alberta Department of Agriculture. Any grower living within an area so designated and wishing to grow potatoes beyond his own needs is required to obtain a permit from the Department authorizing him to plant potatoes. Only when a prospective grower had satisfied the Department that the seed he proposed to plant was likely to be free from ring rot was he given authority to plant. Growers who failed to obtain such authority are prohibited by law from moving any potatoes grown in the current year from their premises. The present survey was mostly among "authorized" growers.

These regulations, necessitating the planting of seed stocks believed to be completely free from ring rot did appear to accomplish one thing. There was a significant reduction in the intensity of the infection. Whereas the majority of the infected fields in 1942 showed from 20 to 50% of the plants diseased, this year the average number of diseased plants was close to 10%. Accordingly the crop was more marketable and loss to the individual farmer was less. Many growers, for the first time, have begun to realize the value of using clean seed and of employing sanitary measures (J.L. Eaglesham). Four fields in Alta. were rejected because they were diseased and 4 others because ring rot occurred in other fields on the same farm.

Bacterial ring rot was found in one city garden out of 30 examined at Saskatoon, Sask., Aug. 5-6; ring rot symptoms were not yet well developed. In the Pike Lake area, ring rot was found in one or more of the potato patches on 9 farms out of 12 visited on Aug. 16; 13 out of 30 plantings were diseased. (R.J. Ledingham)

Nine fields were rejected in Man. on account of bacterial ring rot in the field and 4 others because the disease occurred on the same farm (W.A. Cumming). In the spring of 1943, a survey was made of seed potatoes being planted by the growers; 242 samples of tubers were collected by the Agricultural Representatives. Bacterial ring rot was found in 20, or 8.3% of the samples

from 13, in part widely separated, localities. Other diseases were also very prevalent (S.W. Edgecombe, J.E. Machacek). In late September 44 fields grown by market gardeners were surveyed around Winnipeg, Portage la Prairie, Balmoral and Beauséjour. In each field 10 consecutive hills were dug. Rotting tubers were found in 27 fields, 11 of which proved to be due to bacterial ring rot (J.E. Machacek, W.A.F. Hagborg). The disease was also encountered in 4 out of 5 other samples received for identification. (W.A.F. Hagborg)

Eight fields in Ont. were rejected for bacterial ring rot in the field and 9 because it occurred on the same farm. In addition, Inspectors of Crops, Seeds and Weeds Branch, Ont. Department of Agriculture, found the disease on 160 farms, comprising about 1,400 acres of table potatoes, by Sept. 18, according to R.E. Goodin. Except in very obvious cases, samples were submitted for examination at Ottawa. (H.N. Racicot)

In 1943, 155 fields or 12% were rejected for bacterial ring rot in Que. out of 1,302 entered for certification, compared with 186 or 18% out of 1,057 inspected in 1942. The number of fields rejected because ring rot occurred on the same farm, dropped sharply, viz. from 92 in 1942 to 15 in 1943, the second year this regulation has been in force. In the Chicoutimi and Lake St. John districts, 94 fields out of 163 were rejected on account of ring rot in 1942. In the same districts, due to more attention to sanitary measures, only 9 fields out of 227 were disqualified because of ring rot in 1943. The disease is still persisting and spreading in table potatoes in Que. due largely to the use of contaminated implements and of uncertified, contaminated potatoes for seed (B. Baribeau). In N.B., 39 fields were rejected on account of bacterial ring rot in the field and 23 others due to the disease being on the same farm; in 1942 the figures were 80 and 47 respectively (C.H. Godwin). No information is available on the amount of bacterial ring rot in table stock in N.B. (I.L. Conners). Bacterial ring rot was not reported in 1943 in N.S. (W.K. McCulloch) or in P.E.I. (R.R. Hurst)

SOFT ROT (Erwinia carotovora). Affected tubers taken from a shipment of 300 bags of potatoes from Norfolk, Va. were received from W.A. Fowler, Toronto, Ont. "Practically all of the bags appear to be infected with a varying percentage of disease." (L.T. Richardson)

BLACK LEG (Erwinia phytophthora) affected 10% of the plants in a low lying field of Irish Cobbler at Cloverdale, B.C. (W. Jones). Black leg was fairly prevalent in central Alta.; 15% of the plants were affected in a field at Oliver (M.W.C.). Black leg was found in 5 out of 30 plantings examined in the Pike Lake area, Saskatoon, Sask.; the average damage was 4% (H.W.M.). Infection was severe at Winnipeg and St. Jean, moderate at Letellier and slight at Brandon, Man. (J.E. Machacek). Black leg was found in 17 fields out of 105 entered for certification; 4% of the plants were affected in one field, 2% in 2, and less than 1% in the others. (W.A. Cumming)

Black leg was again more prevalent in the Chicoutimi and Lake St. Jean districts than elsewhere in Que. Of the 28 fields rejected, 19 were from these districts, where the weather was cool and wet early in the season (B. Baribeau). Black leg was less prevalent in N.B. in 1943 than in the previous year; 3 fields were rejected on account of the disease (C.H. Godwin). Black leg was

less widespread in N.S. in 1943 than last year, but more disease was present in the affected fields. Black leg was found in 58 fields and it caused the rejection of 2 (W.K. McCulloch). In a survey of table stock fields in P.E.I., the average infection was 1.5% in 27 fields of Irish Cobbler and 0.5% in 58 of Green Mountain (R.R. Hurst). The disease caused the rejection of 43 (2.3%) of the fields entered for certification. (S.G. Peppin)

STEM-END ROT (Fusarium Solani var. eumartii) was not observed in Ont. in 1943 (J.W. Scannell). A slight infection was found in L'Islet Co., Que. (B. Baribeau). Two tubers of Early Ohio rather severely affected by stem-end rot or vascular necrosis were received from Truax, Sask. (H.N. Racicot)

WILT (Fusarium sp.) was found in 10 fields out of 105 entered for certification in Man.; in one field 2% of the plants were affected. (W.A. Cumming)

STORAGE ROT (Fusarium spp.) caused heavy losses in Green Mountain, Irish Cobbler and Katahdin in P.E.I., particularly in table stock, during the winter 1942-43. (R.R. Hurst)

RHIZOCTONIA (Pellicularia filamentosa (Rhizoctonia Solani). About 5% of the plants were affected in gardens at Saskatoon, Sask. on Aug. 5 (H.W.M.). Two tubers received from Truax were affected (H.N. Racicot). Rhizoctonia caused slight damage to the growing plants in most fields in Man. Sclerotia were abundant on the tubers in fields where digging was delayed, especially on the lighter soils. (W.A. Cumming)

Rhizoctonia caused only slight damage in fields entered for certification in Que., and development of sclerotia on the tubers was slight. It was slightly more prevalent in the Chicoutimi and Lake St. Jean districts than in 1942, due to late digging (B. Baribeau). Rhizoctonia caused some misses in the fields in N.B. at planting time; tuber infection was not unusual at harvest (C.H. Godwin). Rhizoctonia was less evident that in 1942 in N.S. It was reported in 40% of the fields of Katahdin, 35% of Irish Cobbler, 28% of Bliss Triumph and 27% of Green Mountain; it also occurred in Chippewa, Warba, Sequoia and Sebago. The average infection on the tubers was about 5% (W.K. McCulloch). Rhizoctonia affected on the average about 1.5% of the plants in 27 fields of Irish Cobbler and a trace in 58 fields of Green Mountain in P.E.I. Seed piece decay affected about 6% of the hills in one field in June. (R.R. Hurst)

PHOMA ROT (P. tuberosa). A very little of the rot was observed in April in P.E.I. (R.R. Hurst)

PINK ROT (Phytophthora erythroseptica). The organism was isolated from tubers grown at Kelowna, B.C., and its pathogenicity was proved. Typical pink rot symptoms develop in infected tubers. The disease is said to have appeared in spots in the field and caused a loss of about 30% of the crop. (W. Jones)

LATE BLIGHT (Phytophthora infestans) was less prevalent than usual in the coastal district of B.C. The disease appeared late in the season and little tuber infection occurred due to satisfactory weather at harvest. Possibly a severe cold period in the winter, which killed down volunteer plants, may have been responsible for its late development. (W. Jones)

Late blight was found for the first time in Alta. when the disease was noticed on vines at Edmonton, toward the end of Aug. It became rather prevalent in many fields in the district by early Sept. The disease was also observed on the foliage 60 miles south, 12 miles west and 25 miles east of Edmonton. A survey was made of the tubers in 90 fields and gardens in or near the city during harvest. Although the total loss was not large, in several instances 50% of the tubers were rotted and in one 30-acre field 42% were diseased. On the river flat, where conditions were apparently very favourable for the disease, both Netted Gem and white varieties were attacked with about equal severity. On the upland, where most of the crop is grown and over 95% of the acreage is in Netted Gem, serious rotting occurred only in the white- and red-skinned varieties. If the acreage of the latter varieties had predominated, the loss from late blight would have been large (M.W.C.). Late blight in epidemic form was present for the third successive year in Man. Severe loss of tubers was reported from potato growing areas north of Winnipeg along the Red River, particularly at Selkirk and East Selkirk. The disease occurred this year outside the Red River Valley at Great Falls, Steinback, Glenboro, Brandon, and Dauphin (W.A. Cumming). The disease was severe in 2 gardens in Winnipeg and at Golden Bay, moderate at Lac du Bonnet, and a trace at St. Jean and at Letellier, near the international border (J.E. Machacek). Late blight was severe in Ont. in 1943. Many growers sprayed or dusted their crop 8 to 10 times during the season, and obtained quite good control (J.W. Scannell). Affected tubers were received from 6 points including Harlowe (15% loss) and Halloway (50% loss). In the latter case the potatoes were dug 2 or 3 days after the tops were completely blighted. At that time very few tubers were rotten. (H.N. Racicot)

Late blight was reported in most potato districts in Que. from Abitibi to Gaspé, but it was most prevalent in the central part of the province. It was first reported on Aug. 3 in Labelle Co. and a few days later in the Eastern Townships. The potato foliage was completely destroyed near the St. Lawrence in Témiscouata Co. by Aug. 25 and in the Gaspé peninsula in the first few days of Sept. Heavy and frequent rains during the season made control difficult. The damage to the crop, especially about Montreal and in the northern part of the province, where rainfall was abundant, was severe, due to tuber rot. Late blight was found in 54% of the bins of seed potatoes inspected, infection varying from a trace to 37%, and averaging 1.2% (B. Baribeau). Affected specimens were received from 4 points in Que. (L.T. Richardson)

Late blight appeared early in N.B., and, owing to the weather being continually wet, spray operations were interfered with and the disease spread rapidly. However, little tuber rot was found (C.H. Godwin). Late blight was widespread and severe in N.S. It was first reported in Kings Co. on Aug. 7 and the foliage was destroyed in a great many fields by Aug. 17. The disease appeared in Colchester Co. and eastward about Aug. 19. An abnormally wet season kept the soil more or less water-logged, prevented the free use of sprayers, and upset growing conditions. Tuber rot, however, was only about 0.5%. In soils with a gravelly or sandy subsoil, crops of 300 to 400 bu. of sound tubers were harvested, but under less favourable conditions yields were much reduced. The average reduction in yield was estimated to be about 27% (W.K. McCulloch). Late blight was first recorded on July 25 in the western sections of P.E.I. Other outbreaks quickly followed from many other areas and by mid-

August, the vines were dead over a considerable acreage. The epidemic this year was most the destructive as far as our records go. The premature killing of the tops greatly reduced yields, although there was little loss from tuber rot in these fields. Tops that remained green as a result of ordinary spray applications eventually contracted blight and the crop suffered from severe rot. However, where applications of fungicide were made both ways in the rows at 5 to 7 day intervals and the tops were killed late in the season by means of chemicals, a good crop containing very little rot was harvested. (R.R. Hurst)

R. Bonde and E.S. Shultz (Me. Agr. Exp. Sta. Bull. 416. March, 1943) discuss "Potato refuse piles as a factor in the dissemation of late blight." They find that late blight infected tubers usually decay when planted, and of those that grow very few produce late blight infected plants and these plants rarely survive to cause infection. On the other hand, a high percentage of refuse piles develop late blight early in the season and if they are favourably located local epidemics are to be found in adjacent fields well in advance of the date spraying usually begins. They consider these dump piles are probably the most important centre for late blight dissemination and recommend that waste potatoes be burned or incinerated. This does not remove the possibility that there may not be some long distance spread of late blight as has been demonstrated for the spread of downy mildew of cucurbits.

SEED-PIECE DECAY (Chiefly Phytophthora infestans). Many fields in P.E.I. showed up to 15% rotted seed pieces in June. (R.R. Hurst)

SOFT ROT or LEAK (Pythium ultimum). Early in the season 2 car loads of potatoes shipped from Brooks, Alta., to Calgary were severely damaged and others were slightly affected. (L.E. Tyner)

SCLEROTINIA ROT (S. sclerotiorum) caused a decay of the stalks in 6% of the plants of Irish Cobbler in a low lying, 20-acre field at Cloverdale, B.C. (W. Jones). Every plant was severely affected in one plot of Irish Cobbler at Charlottetown, P.E.I. (R.R. Hurst)

SILVER SCURF (Spondylocladium atrovirens) was observed in a few lots of Irish Cobbler in the Gaspé peninsula, Que. (B. Baribeau). Silver scurf was found on 75% of the tubers of Katahdin when half a bag from Hartland, N.B. was examined on June 5. Infection was slight to moderate, affecting 5 to 35% of the surface. The determination was verified by inducing the fungus to fruit on the tubers in a moist chamber (H.N. Racicot). Silver scurf was reported during March and April on Irish Cobbler and Katahdin in N.S. The infection was generally slight, but it amounted to 15% in one case (W.K. McCulloch). Traces were found in the Laboratory storage, Charlottetown, P.E.I., in May, on Irish Cobbler, Katahdin, and Green Mountain. (R.R. Hurst)

POWDERY SCAB (Spongospora subterranea). Potatoes grown at Chaton, Alta., from imported eye sets were infected (A.W. Henry). Powdery scab was prevalent only in Témiscouata Co., Que. The disease was found in 70% of the bins in the county, infection varying from 0.5 to 50% and averaging 5%. In other counties only a few tubers were found. The development of the disease seems to be correlated with the weather and the rotation followed. The spring, summer, and fall were very wet in Témiscouata (B. Baribeau). About 6% of the

tubers were affected in one field of Irish Cobbler and 20% in one of Bliss Triumph in N.S. (W.K. McCulloch). Two specimens of powdery scab in P.E.I. in Green Mountain were brought to the Laboratory. (R.R. Hurst)

WART (Synchytrium endobioticum). No cases of wart have been seen since the original case in 1941. Further trials were made this season of "English" potatoes; and the small garden in Halifax where the disease was found was kept under observation but not a trace of wart was seen. (W.K. McCulloch)

WILT (Verticillium albo-atrum). A severe infection was found in one planting at Calgary, Alta. It was observed in several other plots and was apparently very common (G.B. Sanford). Wilt was reported in 5 fields in N.S., with the average infection in the affected fields about 0.5%. In all cases, specimens were taken to the Laboratory of Plant Pathology for identification (W.K. McCulloch). Wilt was general in many fields of table stock in P.E.I.; it affected 22% of the plants in one field of Irish Cobbler. (R.R. Hurst)

WILT (Verticillium and Fusarium). Wilt was the major potato disease at Saskatoon in 1943. Dry conditions, and the light texture of much of the soil probably aggravated the trouble. The disease was present in 14 out of 20 city gardens at Saskatoon, with average damage 20%; it was present in 9 out of 30 plantings in the Pike Lake area with average damage of 5%. Where isolations were made Verticillium was the principal organism isolated. (R.J. Ledingham)

CALICO (Solanum virus 10). One plant of Green Mountain was found in a plot at the Station, Fredericton, N.B. The virus was transmitted by sap inoculation to Datura Stramonium, Solanum nodiflorum, Capsicum annum, Nicotiana Tabacum and Lycopersicum esculentum, in which it produced the characteristic symptoms of calico virus, Solanum virus 10. (D.J. MacLeod)

LEAF ROLL (virus). Disease caused more loss in potatoes than in any other crop in Victory gardens on Vancouver Island, B.C. Leaf roll and mosaic were the most important, mainly because of an insufficient supply of certified seed (W.R. Foster). Leaf roll was very serious and widespread in Alta. and was especially noticeable in city gardens (G.B. Sanford). Leaf roll affected 8 out of 30 gardens at Saskatoon, Sask.; 5% of the plants were affected (H.W.M.). Four fields entered for certification were rejected on account of the disease in Man. Two were fields of Chippewa and one of Sequoia planted with seed grown in Man. in 1942; there was a sharp increase in the incidence of the disease over the readings of the previous year. The fourth field was planted with Irish Cobbler seed obtained from the Maritimes (W.A. Cumming). Leaf roll affected 20% of the plants at Plum Coulee (J.E. Machacek). Leaf roll appears to be increasing in Que. In all, 209 fields out of 1,302 inspected were rejected in 1943, an increase of 4.6% over the corresponding figures of the previous year. The weather was dry and aphids abundant in 1942. It should also be noted that many fields that were rejected were planted with seed from car load lots imported into the province. In some districts every field planted with this seed was rejected on account of leaf roll (B. Baribeau). In N.B., leaf roll was present in smaller amounts in the fields inspected for certification in 1943, but more fields were affected than in the previous year. In all, 485 fields were rejected for leaf roll, an increase over 1942 (C.H. Godwin). Leaf roll (Solanum virus 14) was found in 2 plants of Solanum Jamesii

in an experimental plot at the Laboratory, Fredericton, N.B. (D.J. MacLeod). A further increase of leaf roll occurred in N.S. in 1943; 44 fields out of 346 were rejected (W.K. McCulloch). In P.E.I., out of 4,260 fields, 1,174 or 27.6% were rejected on account of leaf roll, whereas last year 14.4% were rejected (S.G. Peppin). The disease was also prevalent in table stock; the average infection was 13% in 27 table stock fields of Irish Cobbler and 47% in 58 fields of Green Mountain. (R.R. Hurst)

A Roll and Streak of virus origin was present in seedlings at the Station, Fredericton, N.B. The disease causes a rolling of the leaves resembling leaf roll and a discontinuous streaking of the stems. In some seedlings the streaking was lacking. In some plants the lower and middle leaves collapsed and fell off the plant. The disease is tuber-borne and in some seedlings the rolling and streaking recurred in the second generation plants. The rolled leaves are usually stiff, but not as brittle as in true leaf roll. The disease was transmitted by grafting to Irish Cobbler, Katahdin, and four seedlings. All attempts to transmit the virus by sap inoculation failed. (D.J. MacLeod)

MOSAIC (virus) was present in 5 out of 20 city gardens at Saskatoon and in 13 out of 30 plantings in the Pike Lake area; the average infection was about 5% (H.W.M.). Mosaic was recorded in 14 out of 105 fields entered for certification in Man.; 1% or less of the plants were affected (W.A. Cumming). A moderate to severe infection of mild mosaic was seen at Fort Whyte, Man., and slight to moderate infection of mosaic occurred at Letellier, Plum Coulee and St. Jean (J.E. Machacek). In Que., 182 fields or 14% were rejected on account of mosaic as against nearly 3% in 1942. The increase was in districts where certified seed was brought in from outside the province in 1943; aphids were also abundant in 1942 (B. Baribeau). Mosaic developed unexpectedly in N.B. in Aug., when the weather was cool. The outbreak was more pronounced in Green Mountain and Bliss Triumph than other varieties. It was more serious than during the previous 5 years (C.H. Godwin). There was also an increase of mosaic in fields of certified stock in N.S.; it was found in 40% of the fields and 33 or nearly 10%, were rejected (W.K. McCulloch). In P.E.I. 378 fields out of 4,260 were rejected for mosaic (S.G. Peppin). In table stock fields, the average infection was 37% in 27 fields of Irish Cobbler and 56% in 58 fields of Green Mountain. (R.R. Hurst)

PURPLE DWARF. Several affected plants were present in the Laboratory disease nursery. (G.B. Sanford)

PURPLE TOP or BUNCH TOP (virus) showed up late in the season in Katahdin in Ont. (J.W. Scannell). Purple top was not as prevalent in 1943 in N.B. as last year (C.H. Godwin). Bunch top was common in Katahdin and several new seedlings at the Fredericton Station and the Alma Substation. In most cases the plants showed a purpling or yellowing of the foliage. Symptoms were severe in a few seedlings without loss of their normal green colour. Tubers from six seedlings showing severe symptoms in turn produced severely diseased plants indicating that the disease is tuber-borne. Bunch top was transmitted 8 times to healthy seedlings by grafting. The virus was also transmitted by grafting to Datura Stramonium, Nicotiana rustica and Lycopersicum esculentum. A severe distortion of the foliage and a vein clearing was produced on these hosts

(D.J. MacLeod). Purple top was much less in evidence in N.S. than last year; it was reported in Katahdin only, with an average infection of 0.5% in 9 fields (W.K. McCulloch). Very little purple top was seen in 1943 in P.E.I.; it was observed in two varieties, Green Mountain and Katahdin. The disease, however, had one important effect in 1943. As pointed out last year (P.D.S. 22:61) tubers from affected plants were often flabby and a considerable proportion of the tubers in last year's crop were so affected. When these tubers were planted they failed to produce sprouts. In consequence, there was a very high percentage of misses in fields of Katahdin and Green Mountain. (R.R. Hurst)

SPINDLE TUBER (virus). Two fields planted with the same seed were rejected in Man. on account of the sharp increase of spindle tuber over 1942 (W.A. Cumming). The disease was found in many districts of Que., but the average percentage of affected tubers was low (B. Baribeau). Spindle tuber is still quite common in Irish Cobbler in N.B.; 4 fields were rejected (C.H. Godwin). Spindle tuber was not reported in the field in N.S., but many pear-shaped tubers of Katahdin and cylindrical ones of Irish Cobbler were seen during grading. (W.K. McCulloch)

WITCHES' BROOM (virus) was observed in one planting in the Pike Lake area, near Saskatoon, Sask. (H.W.M.). The disease affected 4% of the plants of Irish Cobbler in one small field in Queens Co., P.E.I. (R.R. Hurst)

YELLOW DWARF (virus) was noted in one field of Dooley in Ont. (J.W. Scannell). According to "The Packer" of Aug. 7, 1943, experiments by S.G. Younkin, Ithaca, indicate that the daisy (?Chrysanthemum Leucanthemum) is the most important over-wintering host for yellow dwarf; 45% of the daisy plants in test fields were infected. Out of 136 other plants tested, 44 were found susceptible, but none showed more than 3% infection; clover is an unimportant host. When the hay is cut, the leaf hoppers migrate to the potatoes. If daisies cannot be controlled or avoided, resistant varieties such as Katahdin and Sebago should be planted. Green Mountain and Rural are most susceptible. Infected daisies have dwarfed, curled and deformed leaves, but later the plants recover and show no symptoms except for small size.

BLACK HEART (non-parasitic) affected nearly all the tubers in a seed lot from the Scott area, Sask. (H.W.M.). An occasional affected tuber was seen in May in Queens Co., P.E.I. (R.R. Hurst)

CHEMICAL INJURY. A portion of a local 1943 crop stored at Saskatoon, Sask., in salt bags had darkened areas next to the sacking (H.W.M.). Examination at Quebec City by B. Baribeau, of a carload of Green Mountains grown in P.E.I., revealed that the tubers, in the bottom layer of bags, and in contact with the floor, were burned by a chemical believed to be common salt. (H.N. Racicot)

GIANT HILL was observed in a few fields in Que. (B. Baribeau). Giant hill was not conspicuous in N.S. in 1943; it was reported in one field of Green Mountain (W.K. McCulloch). An occasional hill was seen during the survey of fields of table stock in P.E.I. (R.R. Hurst)

CONTACT FROST and LOW TEMPERATURE INJURY. The Division was consulted in six cases of injury in seed potatoes. In some cases the injury was due to contact frost at the time the potatoes were dug in 1942 or to low temperature during storage or transport. An additional six cases were seen in the 1943 crop, mostly due to freezing temperatures before shipment. Only in one shipment was it clear that injury occurred during transit (H.N. Racicot, L.T. Richardson). Low temperature injury caused severe losses in both table and seed potatoes during the fall and winter of 1942-43. (R.R. Hurst)

FROST. A heavy frost at the end of October damaged the crop in most districts of Que, (B. Baribeau)

HOLLOW HEART (non-parasitic) occurred occasionally in some fields on Katahdin and Green Mountain in P.E.I. (R.R. Hurst)

INTERNAL BROWN SPOT (non-parasitic) caused considerable damage in one lot of potatoes from Scott, Sask. (H.W.M.)

LIGHTNING INJURY. Affected plants were received from Sterling, Ont. The affected area was about one square rod in extent. (L.T. Richardson)

MAGNESIUM DEFICIENCY was severe on Green Mountain in an experimental plot at the Station, Fredericton, N.B. In some cases the foliage was completely destroyed. Katahdin and two of the new seedlings growing in the same plot showed only a trace of injury indicating that these potatoes are somewhat resistant to the disease (D.J. MacLeod). Magnesium deficiency affected many fields throughout P.E.I. and caused widespread and serious damage. Magnesium sulphate sprayed on along with each Bordeaux application at the rate of 10 lb. per 80 gallons gave good control. Some of the factors in this unprecedented outbreak were: (1) excessive soil acidity; (2) heavy applications of acid-forming fertilizers lacking magnesium; (3) low organic content; (4) leaching out of magnesium by prolonged rains. (R.R. Hurst)

NET NECROSIS was found in a few bins on the Lower St. Lawrence, Que.; a slight infection was observed in a few tubers only (B. Baribeau). The trouble is still quite severe in Green Mountain in N.B. and for the first time, to our knowledge, it has been observed in Irish Cobbler. (C.H. Godwin)

POTASSIUM DEFICIENCY was present in many fields of table stock in P.E.I.; 11% of the plants were affected in one field. (R.R. Hurst)

SPINDLING SPROUT was observed in tubers of Bliss Triumph in N.B.; this condition may be associated with leaf roll. (C.H. Godwin)

SPRAIN was seen in one lot of tubers of the 1942 crop brought to the Laboratory, Charlottetown, P.E.I. (R.R. Hurst)

STEM-END BROWNING was seen in a few lots of seed potatoes in the spring, 1943, but the discoloration did not penetrate more than $\frac{1}{4}$ of an inch into the tuber (B. Baribeau). The trouble still appears in Green Mountain in N.B., but the infection is a more moderate type than formerly (C.H. Godwin). Two cases were reported in May, 1943 in P.E.I.; it was not seen up to Oct. in the 1943 crop. (R.R. Hurst)

SUN SCALD. Considerable sun scald was seen in P.E.I. in many fields of the chief varieties. (R.R. Hurst)

TIP and HOPPER BURN was observed in specimens received from Strathroy, Owen Sound, and York Mills, Ont. (L.T. Richardson)

PUMPKIN

POWDERY MILDEW (Erysiphe Cichoracearum) was found on some plants in the merit trial plots at the Station, Summerland, B.C. (G.E. Woolliams)

RADISH

CLUB ROOT (Plasmodiophora Brassicae) severely affected all the plants in a planting in Queens Co., P.E.I. on July 25. (R.R. Hurst)

YELLOWS (Callistephus virus 1). A trace was found in a garden in York Co., N.B.; the disease caused a sterility similar to that in turnip. (D.J. MacLeod)

RHUBARB

CROWN GALL (Agrobacterium tumefaciens) was found on a single plant in a home garden, Summerland, B.C. (G.E. Woolliams)

LEAF SPOT (Ascochyta Rhei). Moderate infection on the leaves of some plants at Morden, Man.; spores 7.5-12 x 3 microns. (W.L. Gordon)

LEAF SPOT (Phyllosticta straminella). A light infection occurred on rhubarb leaves at the Botanical Garden, Montreal, Que. (J.E. Jacques)

LEAF SPOT (Ramularia Rhei) was fairly heavy on the variety Strawberry in a planting in Queens Co., P.E.I. (R.R. Hurst)

CROWN ROT (bacteria associated) caused considerable damage to certain clumps at Morden, Man.; reddening of the leaves was pronounced. (W.L. Gordon)

SALSIFY

WHITE RUST (Cystopus cubicus) was moderate on Mammoth Sandwich Island at the Botanical Garden, Montreal, Que. (J.E. Jacques)

SPINACH

LEAF SPOT (Cercospora sp. inedit). A leaf spot was collected on the upper leaves of seed plants of Bloomsdale spinach at Pied de la Montagne, Que., by Paul Bertrand, Seed Inspector, in Sept. Examination revealed a Cercospora. Chupp (in litt.), to whom material was sent, says, "I agree with

you that it is not C. beticola (C. Spinaciae, C. flagelliformis, or C. spinacicola), but I also believe it is not C. dubia." He characterized the species as follows: "Leaf spots circular to angular, 0.5-3 mm. in diameter, dark olivaceous to grayish brown, occasionally with reddish brown margin; fruiting amphigenous; stromata slight to 40 microns in diameter, pale to medium brown; fascicles mostly dense, compact to divergent; conidiophores pale to very pale brown, paler and more narrow toward the tip, rarely septate or branched, straight to curved, 0-1 abruptly geniculate, subtruncate tip, 3-5 x 10-40 microns; conidia hyaline, cylindric to almost acicular 3-7 septate, straight or slightly curved, truncate to subtruncate base, obtuse tip, 3-5.5 x 15-65 microns." In common with C. dubia on Atriplex (P.D.S. 19:32) and Chenopodium the conidia are mostly cylindric with obuse tips, but they contain more septa and both conidia and conidiophores are less robust than those of C. dubia. (I.L. Conners)

DOWNY MILDEW (Peronospora Spinaciae) was general in one seed crop at Cadboro Bay, B.C., and caused considerable injury to the foliage (W. Jones). The disease was general and caused slight to moderate damage on Vancouver Island (W.R. Foster). A slight infection was observed at Morden, Man. (J.E. Machacek)

SCLEROTINIA ROT (S. sclerotiorum) affected 10% of the stems in one planting in Queens Co., P.E.I. (R.R. Hurst)

LEAF SPOT (Stemphylium botryosum) was fairly general on the seed crop at the Station, Sidney, B.C. The spots varied from small to large, roughly circular, light brown to cream coloured, few to many. The fungus was amphigenous. (W. Jones)

MAGNESIUM DEFICIENCY was general in many plantings in Queens Co., P.E.I. (R.R. Hurst)

SQUASH

STORAGE BREAKDOWN (Botrytis and Fusarium). Market gardeners throughout N.B. suffered much loss this year due to breakdown of squash caused primarily by Botrytis and Fusarium. Apparently the fungi gained entrance through wounds. (J.L. Howatt)

POWDERY MILDEW (Erysiphe Cichoracearum) was found on several varieties of squash in the merit trial plots at Summerland, B.C. (G.E. Woolliams)

SWEET CORN

RUST (Puccinia Sorghi). Traces were observed on Golden Bantam and Golden Giant sweet corn in Queens Co., P.E.I. It was also general on fodder corn, causing considerable damage, at the Station, Charlottetown. (R.R. Hurst)

SMUT (Ustilago Zeae). A trace was found in one planting out of 10 examined in Sask. (H.W.M.). Smut was severe in garden and field at Morden, Man., while infection was moderate at Brandon (W.L. Gordon). The disease was general but not severe in Lincoln Co., Ont. (J.K. Richardson). About 5% of the ears were smutted in a late-sown, thickly planted garden patch in Westboro, Ont.; a little

was seen in an earlier planting (D.B.O. Savile). A specimen for identification was received from Montreal, Que., from a planting where 15% of the plants were said to be affected (J.E. Jacques). A trace was found in Golden Bantam at Canard, N.S. (J.F. Hockey). An occasional infected plant of Golden Bantam was seen in Queens Co., P.E.I. (R.R. Hurst)

LEAF SPOT. A severe infection of an unknown leaf spot was seen at Morden, Man. Isolations yielded Helminthosporium halodes, H. sativum and Alternaria sp., det. J.E. Machacek. (W.L. Gordon)

SWEET POTATO

ROT (Pythium sp.). Quite a number of roots grown locally in Lincoln Co., Ont., showed small lesions at harvest, which spread rapidly at room temperature. (J.K. Richardson)

ROT (Rhizopus sp.) completely rotted roots, with mycelium abundant internally and sporangia with hyphae in mats on the outside, were received from Can. National Railways at Saskatoon, Sask. (H.W.M.)

TOBACCO

The account given below by Dr. L.W. Koch was the result of surveys of the old and new tobacco belts of Ont. conducted by him at various times during the past year. Information concerning the Que. tobacco-growing districts was supplied to him by Mr. R. Bordeleau of the Experimental Station, L'Assomption, Que.

Diseases in the Seedbed

YELLOW PATCH (unbalanced fertilization) was again the most important disease of tobacco seedlings in both the old and new tobacco belts of Ont. Damage varied widely. In Essex Co., numerous seedbeds were mildly affected, showing patches of chlorotic, stunted seedlings, some of which recovered in time for transplanting. In both tobacco belts, some cases of severe damage were either observed or reported in which seedlings in all or the greater portion of seedbeds were destroyed. The application of "high nitrogen" fertilizers was definitely assigned as the cause in some instances.

BLACK ROOT ROT (Thielaviopsis basicola) caused only mild damage in seedbeds of Essex Co., Ont. In the Woodslee district, several cases of severe infection were noted in beds which were imperfectly drained. In certain localities of Norfolk Co., mild infection was present in some seedbeds. An attempt was made to locate the source of infection as it seems to recur each year in the same areas. Such seedlings are almost invariably overlooked and transplanted to the field.

DOWNY MILDEW or BLUE MOULD (Peronospora tabacina) was reported in seedbeds of two widely-separated areas (35 miles) in Essex Co., Ont. Damage was moderate in each case. Eradication of affected seedlings was practised

in both cases, though in the one instance transplanting to the field was completed before the disease was identified.

DAMPING-OFF (Rhizoctonia and Pythium sp.). Damage from damping-off was severe in many seedbeds of Essex and Kent Counties, Ont. Its severity was due largely to excessive rainfall early in the season, which kept practically all cloth-covered burley seedbeds too wet. For the same reason, the disease took a heavy toll of seedlings in parts of Que.

BLACK LEG (Erwinia ?aroideae). Two cases of black leg were recorded near Cottam, Ont., where the disease was confused with damping-off by the growers.

CHLOROSIS (chilling) was widespread in Essex Co., Ont., during a short period when there was little sunshine and night temperatures were sub-normal. So far as observed, all seedlings recovered.

NEMATODES (Heterodera marioni). Patches of affected seedlings in one seedbed of the old tobacco belt, Ont., were recorded.

MUSHROOMS. Fleshy fungi caused some damage in seedbeds in the Blenheim-Ridgetown area of Kent Co., Ont. In some seedbeds mushroom growth was traced to the use of small amounts of manure as a base for the seedbed soil.

Diseases in the Field

MOSAIC (virus). In Norfolk Co., Ont., mosaic caused considerable damage in fields where two successive crops of tobacco were grown. Elsewhere in the same district damage varied from a trace to moderate. In Essex County, two cases of severe infection were reported in fields both of which were in tobacco for the second year and were also apparently infected by mosaic the previous year. The usual amount of infection was also reported from the tobacco-growing districts in Que.

STREAK (virus). A scattered infection was observed in burley fields in the Blenheim district of Kent Co., Ont.

RING SPOT (virus) caused local damage in some fields of burley tobacco in Essex Co., Ont.

SORE SHIN (Rhizoctonia Selani) caused severe damage in many fields of Essex Co., Ont., particularly in the Oxley-Colchester district. This disease has been increasing in prevalence and severity for several years and damage continued so late during the past year that almost mature, affected plants frequently broke off at the base of the stem after windstorms. Infection up to 10% was recorded in fields of flue-cured tobacco.

Unusually severe damage was also recorded in Que. on shade-grown cigar leaf tobacco in the Abbotsford district.

BLACK ROOT ROT (Thielaviopsis basicola) caused moderate damage on susceptible varieties in both the old and new tobacco belts of Ont. Total damage

was mild in Essex Co. because of the high percentage of the resistant variety, Harrow Velvet, grown. In a field test for varietal resistance in the Delhi District, Silver Dollar was again the only variety showing a fair measure of resistance.

NEMATODES (Heterodera marioni) were observed on the roots of stunted plants in one field in Norfolk Co., Ont. Damage was slight.

ANGULAR LEAF SPOT (Pseudomonas angulata). Damage from angular leaf spot was slight in both Ont. and Que. This was probably due in part to the unsual drought in Ont. during the latter part of the season.

BROWN ROOT ROT (cause undetermined) was not widespread in Ont. during the past year, although where it did occur, it was severe. The varieties Halley's Special and Harrow Velvet were most severely affected. Total damage was moderate.

DOWNY MILDEW or BLUE MOULD (Peronospora tabacina) was present in one field where infected plants were transplanted. Infection resulted in large chlorotic spots up to ½ inch in diameter on the lower leaves. Affected leaf tissues finally dropped out giving rise to a shot-hole symptom. Infection did not appear to spread and high temperature appeared to arrest development of the leaf spot in most cases.

TOMATO

EARLY BLIGHT (Alternaria Solani) was fairly general in a seed crop at Duncan, B.C.; it caused considerable damage to the foliage and, as a canker, to many of the stems (W. Jones). A slight infection was observed at Edmonton, Alta. (M.W.C.). Early blight was fairly general on both staked and field crops in Lincoln Co., Ont., but it did not appear to cause any appreciable decrease in yield (J.K. Richardson). The disease became general in the Annapolis Valley, N.S., by Aug. 10, and caused severe defoliation in some plantings (J.F. Hockey). Early blight was heavy in one planting in Queens Co., P.E.I., in Sept. (R.R. Hurst)

Alternaria tenuis was found fruiting on the occasional blemish on tomato fruits on Aug. 25 at Centreville, N.S. (J.F. Hockey)

GREY MOULD (Botrytis cinerea). Up to 10% of the plants were affected by a stem girdling resulting in the death of plants in some greenhouse crops of New Improved Vetomold in Essex Co., Ont. Infection was evident 7-10 days after inoculation. (L.W. Koch)

LEAF MOULD (Cladosporium fulvum). New Improved Vetomold, V121, is being grown by nearly every grower of greenhouse tomatoes in the Victoria district, B.C. It has proved resistant to leaf mould and the growers are well pleased with the variety (W.R. Foster). This variety was widely planted in Ont. during the fall of 1943 and showed a high degree of resistance to leaf mould. Only traces of the disease were seen in a few Leamington greenhouses (L.W. Koch). Although leaf mould was a problem in greenhouse tomatoes in the Niagara peninsula in 1942-43, little damage was encountered where Vetomold

was grown (J.K. Richardson). An affected specimen was received from Fort William (L.T. Richardson). Moderate infection occurred on greenhouse tomatoes at Berwick, N.S. except where Vetomold was grown (J.F. Hockey). A heavy infection was seen in a section of a greenhouse in Queens Co., P.E.I. (R.R. Hurst)

ANTHRACNOSE (Colletotrichum phomoides). Fruits brought in from more than one garden at Ottawa, Ont., to ripen indoors became affected. (J.W. Groves)

BACTERIAL CANKER (Corynebacterium michiganense) suddenly appeared in epiphytotic form among field tomatoes at Vernon, Kelowna, and Westbank, B.C., after being quiescent for two years; 33-90% of plants were wilting and dying in one planting examined on July 26, at Vernon (G.E. Woolliams). Bacterial canker destroyed 10,000 plants of Grand Rapids in a commercial greenhouse in Saskatoon, Sask. The disease became epidemic only after the plants were well advanced. The grower began to discard the plants on Oct. 15, while ordinarily harvesting would have started Nov. 1. The organism was isolated from the specimens by W.A.F. Hagborg; "the isolates conformed to the description of Corynebacterium michiganense and were capable of causing typical bacterial canker on tomato plants in the greenhouse" according to him. (R.J. Ledingham)

Diseased leaves collected by Frère M. Anselme on Aug. 24 at Mont Rolland, Que., were found to be affected by bacterial canker. The determination was confirmed by smear preparation by D.B.O. Savile. (I.L. Conners)

WILT (Fusarium sp.) caused severe damage in quite large localized areas in 2 greenhouses in Middlesex Co., Ont., on July 15. These areas were 10 to 15 ft. in radius from the infection centre (J.K. Richardson). Diseased specimens were received from W.A. Fowler, Inspector, at Toronto (L.T. Richardson). Wilt (F. exysporum) caused moderate loss in 2 gardens at Saskatoon, Sask. The seedling plants in both cases were obtained from the same source (H.W.M.). An affected plant received from the Montreal district, Que., developed F. Equiseti when placed in a moist chamber. (L.T. Richardson, J.W. Groves)

ROOT KNOT (Heterodera marioni) caused moderate damage in a greenhouse at Drumheller, Alta. This is the first record for Alta. (A.W. Henry)

LATE BLIGHT (Phytophthora infestans). The pathogen was isolated from a fruit rot that started in the field at Edmonton, Alta., and continued in storage, where it caused severe losses. Severe rotting of green and ripe fruit also occurred in a commercial greenhouse which was open during the fall and was nearly surrounded by a planting of potatoes severely infected with late blight (G.B. Sanford). The lower leaves were severely blighted on tomato plants growing along side a patch of blighted potatoes at Winnipeg, Man.; the green fruit, when picked and placed in storage, developed rot (J.E. Machacek). Some fruit rot was observed in a few fields in Lincoln Co., Ont., but the disease was of little economic importance (J.K. Richardson). Diseased specimens were received from several Ont. points; at Sioux Lookout, 7 bu., harvested green on Sept. 15 and stored away to ripen, were a total loss, and all the tomatoes in the town appeared to be similarly affected (H.N. Racicot). Late blight was reported from various places in Que. as having been very severe. All varieties seem to be equally susceptible. Loss was considerable in some fields, where 50% of the crop was discarded on account of fruit rot (C. Perrault). Diseased specimens were

received from 5 places; at Arundel one grower stated that he had lost all his tomatoes for the past 3 years from this cause (L.T. Richardson). Late blight caused very heavy losses to tomato growers throughout N.B.; losses were light, where the plants were adequately protected by spraying with Bordeaux Mixture (J.L. Howatt). Late blight was first observed on the foliage in N.S. on Aug. 10, and on the fruit on Aug. 25. Loss was heavy in a few plantings, but good control was obtained in sprayed plantings until the final picking. Up to 15% of the green fruit placed in storage developed rot (J.F. Hockey). Late blight caused heavy losses in Queens Co., P.E.I., and was reported to have been destructive in the other counties. (R.R. Hurst)

FRUIT ROT (Phytophthora parasitica). A slight infection was seen on Abel at the Station, Sidney, B.C. in July (W. Jones). A grower lost almost the entire crop from the first 3 trusses of fruit in a crop of Vetomold and Globelle at London, Ont., in June; in one picking he discarded 30 bu. of fruit, when tomatoes were selling at 30¢ per lb. (J.K. Richardson)

BACTERIAL SPECK (Pseudomonas tomato) was slight to severe on the fruit at Morden, Man.; a slight to moderate infection was also noted on several varieties at St. Vital and Winnipeg. (J.E. Machacek)

DAMPING-OFF (Rhizoctonia Solani) occurred on various varieties in a greenhouse at Winnipeg, Man.; the soil was deficient in phosphorus (J.E. Machacek). Damping off affected 65% of the plants in seed flats in a greenhouse in Queens Co., P.E.I., in February; the attack was checked by reducing moisture, adjusting the ventilation and raising the temperature of the greenhouse. (R.R. Hurst)

SCLEROTINIA ROT (S. sclerotiorum) caused slight to moderate rotting in one planting at Edmonton, Alta.; the pathogen was isolated. (M.W. Cormack)

LEAF SPOT (Septoria Lycopersici). Infection was moderate at Hamiota and Winnipeg, Man.; and severe at Gilbert Plains (J.E. Machacek). Infection was slight at Morden, but severe on the lower leaves at Brandon. Spores were 37.5-67 x 3.5-4 microns (W.L. Gordon). Leaf spot caused severe damage toward the end of the harvesting period in Essex Co., Ont. In certain fields the new variety, Bounty, appeared to be extremely susceptible (L.W. Koch). The disease also became general late in the season in Lincoln Co. (J.K. Richardson). A severe infection was observed on Bounty in Durham Co. on Sept. 1; the plants were being defoliated and 40% of the fruit was unmarketable. The variety appears to be extremely susceptible (G.C. Chamberlain). A trace was recorded in Queens Co., P.E.I. in Sept. (R.R. Hurst)

WILT (Verticillium albo-atrum). A slight infection was observed in a few greenhouses in the Victoria district, B.C. (W. Jones). Verticillium wilt was recorded for the first time in the Okanagan Valley, B.C., when it was observed in the Vernon district and in the verification trial plots at Summerland. Usually over 50% of the plants were affected. It is thought to have been introduced on the seed (G.E. Woolliams). The disease caused moderate damage in greenhouses in P.E.I. in March. (R.R. Hurst)

BASAL ROT (undetermined fungus) was found in a greenhouse in Middlesex Co., Ont.; several rows were severely infected while others on either side were growing vigorously and producing a good crop of fruit. (J.K. Richardson)

FERN LEAF (?cucumber mosaic virus). A single infected plant was observed at Brandon, Man.; it was stunted and bore no fruit. (W.L. Gordon)

MOSAIC (virus) was present in 60% of the greenhouses of Chinese growers in the Victoria district, B.C. (W.R. Foster). A severe infection of a single plant was noted in a garden at Winnipeg, Man. (W.L. Gordon). Mosaic continues to be a problem in greenhouses in Lincoln Co., Ont., in spite of apparently careful cultural practices. Up to 5% of diseased plants had to be rogued out from a number of varieties being grown for seed (J.K. Richardson). Traces only were present in several gardens at Charlottetown, P.E.I. (R.R. Hurst)

PURPLE TOP (virus). A trace of purple top was found in a field in Sunbury Co., and in a garden in York Co., N.B. This disease was repeatedly transmitted to tomato by grafting. The virus was also successfully transmitted to Datura Stramonium and Nicotiana rustica in which it gave rise to a clearing of the veins and a severe distortion of the foliage. In N. rustica, a large number of axillary shoots were formed, giving the plant a bushy effect (D.J. MacLeod). Traces were observed in gardens at Charlottetown, P.E.I. (R.R. Hurst)

BLOSSOM-END ROT (non-parasitic) was found in 2 out of 15 plantings in Sask. (H.W.M.). A moderate to severe infection was present in the Winnipeg area, Man. (J.E. Machacek). Entire sets of fruits were affected in some Leamington, Ont. greenhouses. In all houses the disease was transitory and indicated uneven watering (L.W. Koch). A slight amount of blossom-end rot was present in the plots at Ste. Anne de la Pocatière, Que. (R.O. Lachance). This trouble was not abundant this year in P.E.I.; however, in one garden at Charlottetown, 75% of the fruit was affected. (R.R. Hurst)

BLOTCHY RIPENING (non-parasitic) was present in 2 greenhouses at Gordon Head, B.C.; one grower obtained good control by applying a heavy dressing of potash and by watering heavily in the early growth stages. (W.R. Foster)

TURNIP

SCAB (Actinomyces scabies). A slight, fairly general infection was observed on Swede turnips at Edmonton, Alta. This is a new record for Alta. (G.B. Sanford)

GREY LEAF SPOT (Alternaria Brassicae). A moderate infection occurred in a garden at Edmonton, Alta. This is a new record for Alta. (L.E. Tyner)

WHITE LEAF SPOT (Cercosporella Brassicae). A slight infection was noted in one field of Laurentian in Waterloo Co., Ont. (J.K. Richardson)

SOFT ROT (Erwinia carotovora). A 2-acre field of Laurentian was a total loss near Tavistock, Ont., due to soft rot and black rot; both diseases were severe and many plants were infected with both diseases. (J.K. Richardson)

POWDERY MILDEW (Erysiphe Polygoni). A heavy infection was observed on Laurentian at Summerside, P.E.I.; the damage was thought to be considerable as the plants evidently lacked vigour. (R.R. Hurst)

DOWNY MILDEW (Peronospora Brassicae). Infection was general on all seed crops examined and caused slight damage to the lower leaves in the coastal areas of B.C. (W. Jones)

CLUB ROOT (Plasmodiophora Brassicae) destroyed the entire crop of a planting of Hazard's Improved in Queens Co., P.E.I. (R.R. Hurst)

STORAGE ROT (Rhizoctonia Solani) was observed on turnips in storage in Sask. R. Solani was obtained in pure culture by plating pieces of tissue from the margin of affected areas. Possibly wire-worm injury provided an avenue for the entrance of the Rhizoctonia. (R.J. Ledingham)

WILT (Sclerotinia sclerotiorum). A trace was found on seed stock of Ditmars at Deep Brook, N.S. (J.F. Hockey)

BLACK ROT (Xanthomonas campestris). Infection was severe on Swede turnips in the early crop in Oxford and Middlesex Counties, Ont., where the fields were grown from untreated seed. Very few plantings, however, showed appreciable amounts of the disease where the seed had been disinfected. The crops that were still standing in late October showed much less disease than the early harvested fields, but many of the leaves were yellowing and dying due to poor growing conditions (J.K. Richardson). A few affected roots of Acadia and Laurentian were found at the Agr. College, Truro, N.S., at harvest and were sent to the Laboratory for examination (J.F. Hockey). There appears to be very little black rot in P.E.I., although traces have been found in Laurentian, Millpond, Hazard's Improved and other varieties. The disease was positively identified in each case by isolation of the pathogen. In one instance the organism was cultured from infected seed pod pedicels. Fearing trouble from this disease, we treated all foundation seed used in P.E.I. by the hot water method and distributed Ceresan to all seed growers, most of whom used it to treat their own seed. For this reason very little disease might be expected in this year's plantings, which fact is borne out by our survey. (R.R. Hurst)

FALSE BLOSSOM and STERILITY (virus). A trace of this disease was found in 6 fields in York Co., N.B. The disease was transmitted by grafting to healthy turnip; it is believed to be of virus origin. The virus resembles Callistephus virus 1. When the virus was introduced by grafting, the earliest symptoms were a clearing of the veins of the youngest leaves. This vein clearing was of short duration, 1 to 2 weeks. The secondary symptoms, distortion of floral structure and sterility followed in about 30 days. (D.J. MacLeod)

BROWN HEART or WATER CORE (boron deficiency) was sporadic in occurrence in the Guelph district, Ont., and possibly was not as prevalent as in other years. Development of water core was prevented by spraying the leaves with a borax solution on more than 250 acres of Swede turnips in various parts of western Ont. In 7 of the sprayed fields, containing 46 acres, adequate checks were left. Examination of the checks revealed that the fields would have been condemned for water core, had they not been sprayed, whereas complete control was obtained in the sprayed portions (J.D. MacLachlan). Brown heart caused a loss of 90% of the crop in a field of Ditmars in Beauce Co., Que.

The disease was very severe, such as usually observed in sand cultures only (R.O. Lachance). Brown heart caused severe damage in P.E.I. in most fields where boron had not been applied this year; it was recorded in Bangholm, Wilhelmsberger, Ditmars, Hazard's Improved, Millpond, Laurentian, etc. (R.R. Hurst)

MAGNESIUM DEFICIENCY was general in some fields and scattered in others, but present in most throughout P.E.I. (R.R. Hurst)

A BACTERIAL DISEASE was observed on the foliage of Swede turnips in 3 fields several miles apart in the Guelph district, Ont., during the latter part of Sept. The following observations were made in one field: The symptoms in no way resemble those of black rot (Xanthomonas campestris). The bacteria apparently avoid the vascular system and no blackening of the veins occurs. First to appear are small yellowish interveinal lesions with watersoaked margins. Then the entire leaf blade and petiole became blanched and the leaf falls. Due to the whitened leaves the diseased areas are very conspicuous in the field. The disease progresses rapidly. It was first noticed at one end of a field, particularly within and surrounding a locus of aphid infestation. Within a week's time, virtually all the leaves had turned yellowish white and dropped with the exception of a few small ones on the crown. These small leaves bore many small lesions. The disease remained confined to one end of the field except for some small isolated patches. Rape that was growing immediately alongside the diseased turnips was not affected. Although the turnip roots showed no symptoms of disease, the almost complete defoliation prevented further growth. A bacterium was isolated from young lesions. (J.D. MacLachlan)

VEGETABLE MARROW

LEAF SPOT (Ascochyta sp.) was slight on 2 seed crops at North Saanich and Duncan, B.C., respectively. Spots many, scattered, up to 5 mm. in diameter, mostly small, irregular, light cream to dirty white with well defined brown margins; pycnidia few, dark; spores oblong 0-1 septate, 7-9 x 3-3.5 microns (W. Jones)

SCLEROTINIA ROT (S. sclerotiorum) destroyed all the plants in a single hill in a planting in Queens Co., P.E.I. (R.R. Hurst)