III. DISEASES OF VEGETABLE AND FIELD CROPS

ASPARAGUS

RUST (Puccinia asparagi). Infection was tr. to sev. in plantings of Mary and Martha Washington in the Armstrong area, B. C. Rust appeared to be least prevalent in fields where air drainage was good, but most severe, causing premature death of the top growth, in fields surrounded by trees (G. E. Woolliams). Rust was heavy in a garden at Corkery, Ont. (J. W. Groves).

BEAN

GREY MOULD (Botrytis cinerea) infected 1-2% of the pods of Golden Wax in a 4-acre field at Berwick, N. S. Because sufficient grey mould showed on the pods to cause the crop to be rejected for canning purposes, the grower estimated a 50% loss of revenue (D. W. Creelman).

ANTHRACNOSE (Colletotrichum lindemuthianum). Tr. infections were found in test plots and occasional garden plots at Edmonton, Alta. (L. E. Tyner). Mod. infection was seen on the pods in a garden at Saskatoon, Sask.; the disease is not often reported in Sask. (T. C. Vanterpool). Infection was sl., but generally distributed in fields of white beans in Essex and Kent counties, Ont. (N. J. Whitney). A tr. infection was found on Burpee 242 lima bean in 2 gardens at Harrow (C. D. McKeen). Anthracnose was more common than in recent years in s. w. Que. In the fields inspected, percentage of plants infected was: At Stanbridge East, 10-acre field 60, small field 1-3; at Laprairie, 4 fields 15-20 (E. Lavallee). From specimens received it was evident that anthracnose was sev. about Amos, Abitibi Co.; several people who obtained seed from the same source suffered heavy losses (J. E. Jacques). A 3-acre planting of a canning variety showed lesions on stems and leaves at South Berwick, N. S. Some plants were already dying and drying up on 3 July and probably the whole crop was a total loss (D. W. Creelman). Anthracnose caused sl. to very sev. damage in all three counties of P. E. I.; one 10-acre field was a complete loss on 16 Aug. (R. R. Hurst). Sl infections in 2 gardens at Topsail, one at St. John's East, and one at Holyrood, Nfld. (G. C. Morgan).

DRY ROOT ROT (Fusarium solani f. phaseoli) caused sev. damage in some fields of white beans in Essex, Kent and Huron counties, Ont. (N. J. Whitney).

SOOTY MOULD (Heterosporium sp. associated). A mod. infection was seen on the pods of a crop being harvested in Kent Co., Ont.; the damage would be sl., provided the crop is not subjected to prolonged moist periods before threshing (N. J. Whitney).

HALO BLIGHT (Pseudomonas phaseolicola). Infection was sl.-sev. in plantings of garden beans examined in s. Alta. Several varieties were completely destroyed in the plots at Brooks. Resistant varieties of field

beans were also infected at Brooks, but they remained free from disease in the plots at Lethbridge (M. W. Cormack, F. R. Harper). Infections were tr. -sev. in garden plots at Edmonton and Athabasca. Probably on account of good quality seed, blight was less prevalent than usual in the test plots (L. E. Tyner, A. W. Henry). Specimens received from places in Man. indicated that infection was sev.; halo blight was prevalent in the variety tests at the University, Winnipeg (W. A. F. Hagborg). An average infection of 5% of the plants was recorded in fields of white beans in Essex, Kent, and Huron counties, Ont. (N. J. Whitney). Infection was a tr. in a small field of Golden Wax at Caanan, N. S. Production of snap beans in this district has declined from 4,000 hampers in 1949 to 1,000 in 1950, and 300 in 1951. In 1952, this one grower grew a small acreage. He secured clean seed and grew it on fields not recently in beans; he produced an excellent crop (K. A. Harrison).

BACTERIAL LEAF SPOT (Pseudomonas syringae). A tr. infection was seen in a white bean field at Grand Bend, Huron Co., Ont. (N. J. Whitney). This pathogen has not previously been reported on beans in Canada (I. L. C.).

ROOT ROT (Pythium debaryanum). Infection was sl., but infected plants were destroyed, in a field of Michelite at Grand Bend, Ont. (N. J. Whitney).

SCLEROTINIA ROT (S. sclerotiorum) was mod. on the pods in a garden at Claresholm, Alta. (M. W. Cormack).

RUST (Uromyces appendiculatus). Infection was heavy in only one field of white beans in Kent Co., Ont.; other fields showed a tr. (N. J. Whitney). Rust mod. infected a few plants of Kentucky Wonder pole beans in a kitchen garden at Kentville, N. S. (K. A. Harrison).

ROOT ROT (Verticillium sp.) infected 50% of the plants in a planting of lima beans in Kent Co., Ont., and caused mod. damage. A species of Verticillium was isolated consistently from the roots, but its pathogenicity has not been tested (N. J. Whitney).

COMMON BLIGHT (Xanthomonas phaseoli) was present in most plantings examined in s. Alta., but generally it caused less damage than halo blight with which it was usually associated (M. W. Cormack, F. R. Harper). Infection on white beans was 25-50% in Essex, Kent, and Huron counties, Ont. The disease was particularly sev. between Blenheim and Ridgetown; in some fields the leaves and later the pods were sev. damaged (N. J. Whitney). Low infections were noted in gardens in Queens Co., P. E. I. (R. R. Hurst).

BACTERIAL BLIGHT (Xanthomonas phaseoli and Pseudomonas phaseolicola). Numerous cases were observed in Sask.; damage was mod. (R. J. Ledingham). The disease appeared to be less common than usual in Sask., in spite of the high atmospheric humidity during the summer (T. C. Vanterpool). In the 6 fields inspected at Laprairie and Stanbridge East, Que.; infection was 1-2% of the plants (E. Lavallee).

MOSAIC (virus). A few infected plants were seen in a garden at Lethbridge and in the variety plots at Brooks, Alta. (F.R. Harper). Less than 1% of the Red Pod Kidney Wax plants were affected in a 1/2 acre plot at Ottawa, Ont. (V. R. Wallen). Mosaic (Phaseolus virus 1) infection was a tr. in a garden in Fredericton and 1% in a field of wax beans in Carleton Co., N.B. Yellow mosaic (Phaseolus virus 2) was found infecting 2-6% of the plants, mostly Kentucky Wonder, in 6 farm gardens in York and Sunbury counties; in all cases the beans were growing near gladioli that showed a faint mottle (D. J. MacLeod). Some 20% of the pole bean plants were stunted and killed in a garden at Kentville, N.S.; gladioli nearby showed sev. mosaic symptoms (K. A. Harrison).

2,4-D INJURY was severe in a garden at Ottawa, Ont.; brush around the garden had been sprayed with 2,4-D (H.N. Racicot).

BEET

LEAF SPOT (Cercospora beticola). Sl. infection was seen in a garden at Charlottetown, P.E.I. (J.E. Campbell).

LEAF SPOT (Phoma betae). A mod. infection was observed on a 1/2 acre plot of Detroit Dark Red #16 at Ottawa, Ont. (V.R. Wallen).

SCAB (Streptomyces scabies) caused sev. damage to a 1/2 acre planting at Rockland, N.S.; the field had been heavily dressed in the spring with chicken manure (D.W. Creelman). Mod. infection was seen in 3 fields at Manuels, Nfld. (G.C. Morgan).

BROAD BEAN

POWDERY MILDEW (Erysiphe polygoni) was seen occasionally on plants grown for seed at Lillooet, B.C. (G.E. Woolliams).

BROCCOLI

CLUB ROOT (Plasmodiophora brassicae). From a shipment of 100,000 plants from the Snider Division, General Foods, Albion, N.Y., consigned to the Dominion Preserving Co., Laprairie, Que., and inspected at Montreal, 91 plants were intercepted. When these were examined in Ottawa, it was found that in one group of 5 plants there were four with swollen roots. Sections of typical roots from 2 plants revealed the characteristic plasmodia of P. brassicae. Another bundle of plants was mostly affected by mild cases of Wire Stem (Rhizoctonia solani) and a third bundle showed Oedema (non-parasitic) (H.N. Racicot, I.L. Conners).

CABBAGE

POD MOULD (Alternaria tenuis) affected all the plants in 1/10 acre plot of Canadian Acre being grown for seed at Ottawa, Ont. Pods were moulded and not setting seed, causing 80% loss of crop (V.R. Wallen).

SOFT ROT (Erwinia carotovora) destroyed about 3% of the heads in a field under irrigation at Harrow, Ont. (C.D. McKeen). Two plants were infected in a 1/10 acre seed plot of Chieftan Savoy at Ottawa, Ont. (V.R. Wallen).

YELLOWS (Fusarium oxysporum f. conglutinans). A whole farm of 40 acres at St. Vincent de Paul, Que. seems infested with the organism. In a varietal test on the farm, the percentage of plants affected of each variety was: Green Acres 90.3; Golden Acre 86.7; Penn State Ballhead 85.4; Danish Ballhead 81.9; Jersey Wakefield H. Imp. 75.1; Winningstadt Hatif 47.6, and Copenhagen Market 38.3. Yellows has not been found elsewhere in Laval Co. (E. Lavallee).

CLUB ROOT (Plasmodiophora brassicae) was reported from Fort William, Ont.; the grower stated that he had had the same trouble for 4 years (H.N. Racicot). Club root is one of the main problems in the growing of crucifers in the Montreal district, Que. Many reports were received from farmers of loss in cabbage, cauliflower, chinese cabbage, turnip and radish, losses varying from 5 to 60% of the crop (E. Lavallee). Tr. infection was observed in Danish Ballhead in Queens Co., P.E.I., (R.R. Hurst). Club root is a very serious disease in Nfld., especially in areas where there is insufficient land for a rotation of crops. Losses were heavy in 10 gardens in Conception Bay and 8 on the Southern Shore; infection was light in a commercial planting at Clarke's Beach (G.C. Morgan).

BACTERIAL SPOT (Pseudomonas maculicola) was found affecting a considerable portion of the cabbages in a shipment from the United States (E. Lavallee, H.N. Racicot). The organism was readily isolated from the lesions and the isolate proved pathogenic (M.D. Sutton).

WIRE STEM (Rhizoctonia solani). Sev. damage occurred in a large bed in which the seedlings were crowded at Lethbridge, Alta. (M.W. Cormack). The disease was prevalent on seedlings in a few greenhouses at Leamington, Ont. (C.D. McKeen). Many seedlings of cabbage, cauliflower, and turnip were affected in Laval Co., Que. (E. Lavallee). Damage was sev. at Cole Harbor, Halifax Co., N.S. (D.W. Creelman, W.A.L. MacLaughlan).

STERILITY (?yellowstype of virus) was found affecting 2 plants grown for seed in a garden in York Co., N.B. (D.J. MacLeod).

CARROT

LEAF SPOT (Cercospora carotae) half defoliated a many-acre field at Ste. Rose, Laval Co., Que.; the crop could not be sold as bunched carrots (E. Lavallee). Leaf spot was severe in one field at Waterville, N.S. (K. A. Harrison).

SOFT ROT (Erwinia carotovora). A 20% infection was present in November in a ton of carrots grown in Mont Pearl and in storage at St. John's, Nfld.; 1/2 ton lot imported from Halifax, N.S., in the same storage was also infected (G. C. Morgan).

NEMATODES (Meloidogyne sp.). There are many fields more or less infected at St. Martin, Ste. Dorothee, and at St. Janvier, near St. Jerome in Que. (E. Lavallee).

VIOLET ROOT ROT (Rhizoctonia crocorum) caused a sl. infection on Chantenay and Danvers in the Thedford marsh, Ont., but the affected roots were a total loss (N. J. Whitney).

STORAGE ROT (Sclerotinia sclerotiorum) caused sev. damage this fall at Arborfield and Saskatoon, Sask., to carrots in home storage (T. C. Vanterpool).

BACTERIAL BLIGHT (Xanthomonas carotae). A sl. infection was seen in several fields of Chantenay and Nantes grown for seed in the Grand Forks area, B.C., but a 25% infection was present in one field (G. E. Woolliams). A tr. was present in the University plots, Winnipeg, Man. (W. A. F. Hagborg).

YELLOWS (Callistephus virus 1). A sl. infection was found on the seed crop in the Grand Forks area, B.C., and on the root crop at Summerland (G. E. Woolliams). A 1% infection was found in carrot fields at Taber, Barnwell, and Medicine Hat, Alta., by mid-September (F. R. Harper). Infection was sl. in the plots at Lacombe and 3-6% in the test plots at Edmonton. A few flixweed plants (Descurainia sophia) in an adjacent alfalfa plot were found with symptoms resembling those of yellows (T. R. Davidson). Yellows was severe on 15% of the plants in 3 fields examined in the north end of the Thedford marsh, Ont. (N. J. Whitney). A tr. was present in 1/2 acre seed crop of Chantenay #27 at Ottawa, Ont. (V. R. Wallen). Yellows infection, 5-10%, was commonly seen in carrot fields on Isle Jesus, in the Montreal district, Que. (E. Lavallee). Yellows was common on carrot in Carleton, Sunbury, Queens, and Victoria counties, N.B.; infection ranged from a tr. to 42%. In a private garden in York Co., 67% of the roots were sev. damaged (D. J. MacLeod). Only about 3% of the carrots in Kings Co., N.S., were affected this year; carrots were a poor crop and this fact may explain the low incidence of yellows (K. A. Harrison). A 1% infection was noted in a planting in Queens Co., P.E.I. (R. R. Hurst). Sl. infections were noted in 2 small fields at Clarke's Beach, Nfld. (G. C. Morgan).

CAULIFLOWER

WIRESTEM (Rhizoctonia solani) caused up to 5% damage to seedlings in flats in 2 greenhouses at Leamington, Ont. (C. D. McKeen). About 5% of the transplants were sl. affected in a greenhouse at St. John's, Nfld.; the decrease in infection over last year is credited to the use of Arasan-treated beds (G. C. Morgan).

WHIPTAIL (molybdenum deficiency) sev. affected 3 large fields at St. Martin and Ste. Dorothee, Que.; the crop was practically a total loss (E. Lavallee).

CELERY

BROWN SPOT (Cephalosporium apii) was again found near Burlington, Ont., and the organism was readily isolated from the brown spots (B. H. MacNeill). Several affected plants of Utah Salt Lake were brought in from a farm in Wentworth Co., Ont., where brown spot had not been noticed before; subsequent search revealed no other affected plants. A variety of fungicides including fixed copper, Dithane D-14 plus zinc sulphate, and ferbam was used. Magnesium sulphate was also added to each spray to correct a magnesium deficiency. Two growers in York Co., also sent in affected plants of various Utah varieties. Both growers claimed that the disease was also present in 1951. No estimate of the infection could be made at one farm because the crop was already harvested, but at the other 5% of the plants were affected. It is possible that the disease was spread from the former farm to the latter by the purchase of plants in 1951. In 1952 only home-grown plants were raised on the latter farm (C. B. Kelly).

EARLY BLIGHT (Cercospora apii) was more prevalent than late blight on 3 neighboring farms on muck soil at Ste. Dorothee, Laval Co., Que.; celery has been grown on the same land for many years (E. Lavallee).

VIOLET ROOT ROT (Rhizoctonia crocorum) was found sev. affecting 7% of the Epicure celery on a farm in the Thedford marsh, Ont. (N. J. Whitney). Although the fungus attacks a wide variety of plants, the present report appears to be the first of its occurrence on celery in North America (I. L. C.).

LATE BLIGHT (Septoria apii-graveolentis). A heavy infection developed in a one-acre field at Leamington, Ont., in June. Weekly sprays of fixed copper were applied, but their effectiveness was reduced by almost daily overhead irrigation (C. D. McKeen). Late blight was present on most celery whether grown in beds or fields in Laval Co., Que., but the damage varied with the spray program followed (E. Lavallee).

YELLOWS (Callistephus virus 1, Western strain). A 2% infection was found in one field in Sunbury Co., N. B. (D. J. MacLeod).

BLACK HEART (non-parasitic) affected 10-20% of the plants in parts of 2 small fields where growth had been most rapid in Kings Co., N.S. (K. A. Harrison). About 5% of the plants were affected in a planting in Queens Co., P. E. I. (R. R. Hurst).

CUCUMBER

LEAF SPOT (Alternaria sp.) has become quite common in Kings Co., N. S., in gardens where cucumbers are raised year after year; it has not been noticed in fields of pickling cucumber (K. A. Harrison).

GREY MOULD (Botrytis cinerea) was prevalent in April and May in a few greenhouses in the Leamington district, Ont. Protective spraying with ferbam has reduced disease incidence in recent years (C. D. McKeen).

SCAB (Cladosporium cucumerinum) was present, as usual, in most greenhouse crops in Essex, Co., Ont., but it caused little damage (C. D. McKeen). Mod. infection on cucumbers received from Casselman on 5 Aug. (H. N. Racicot). Only a small amount of scab developed along the Saint John River Valley and in the Grand Lake district, N. B. However, a few late fields were sev. damaged. No scab appeared in the plots sprayed with fungicides at Macdonald Corner (J. L. Howatt). Scab completely destroyed a field of pickling cucumbers at Kentville, N. S. The disease first appeared in that part of the field that overlapped on an area that bore a diseased crop in 1951; it then spread over the whole field (K. A. Harrison). Scab caused sl. damage to a crop of Chicago Pickling at Charlottetown, P. E. I. (J. E. Campbell).

BACTERIAL WILT (Erwinia tracheiphila) was present in most fields in the Harrow-Leamington area, Ont., destroying up to 3% of the plants. Late crops in Kent Co., were more sev. damaged (C. D. McKeen).

POWDERY MILDEW (Erysiphe cichoracearum) has become a destructive disease in the greenhouses in s. w. Ont. Powdery mildew entered a few greenhouses in the fall of 1951, where it developed on young cucumber plants and persisted throughout the winter months despite attempts to eradicate it. The purchase of young plants from greenhouses where the disease existed served to disseminate it over much of the greenhouse cucumber area. The harvest of several crops was curtailed by the death of mildew-infected foliage. Field crops were also severely infected in August and September (C. D. McKeen).

WILT (Fusarium sp.) affected cucumbers at Estevan and Regina, Sask. (T. C. Vanterpool).

WILT (Phomopsis sp.) A trace of wilt was found in one greenhouse at Leamington, Ont. This disease was previously attributed to Mycosphaerella citrullina, but cultural studies have shown that the fungus is a Phomopsis (C. D. McKeen).

ANGULAR LEAF SPOT (Pseudomonas lachrymans). A tr.-mod. leaf infection was observed in commercial plantings at Taber, Alta. The leaves were sev. damaged in a sprinkler-irrigated field at Medicine Hat, but plants made considerable recovery later in the season. No fruit infection was seen (F.R. Harper, M.W. Cormack). Angular leaf spot was very sev. in a field at St. Eustache, Man., on which a crop of cucumbers was grown in 1951. Damage was mod. in several other fields of pickling cucumbers. Good recovery of the crop followed treatment with a fixed copper. Pathogenic isolates 4028 and 4068 were obtained (W.A.F. Hagborg).

DAMPING-OFF (Pythium ultimum) caused the death of a few plants in several greenhouses at Leamington, Ont. (C.D. McKeen).

WILT (Verticillium albo-atrum) caused the total loss of crop on 2 1/2 acres of cucumbers at Steveston, Lulu I., B.C. (N.S. Wright).

MOSAIC (Cucumis virus 1) was present in several crops of field cucumbers in the Leamington area, Ont. It affected up to 30% of the plants of Burpee hybrid in one greenhouse. Whereas formerly this variety showed high resistance to Cucumis virus 1, recently it has been showing little resistance to the strains of this virus now present in Ont. (C.D. McKeen). Sl. infections were noted in several widely separated fields in Lincoln Co., (J.K. Richardson). A tr. of mosaic was seen in 3 plantings in Sunbury Co., N.B. (D.J. MacLeod). A sl. infection was recorded in Chicago Pickling at Charlottetown, P.E.I. (J.E. Campbell).

FOOT ROT (cause unknown) was found, as usual, in a few greenhouse crops where the soil had not been sterilized previously or at least not before the present crop was planted (C.D. McKeen).

2,4-D INJURY was reported on cucumber, tomato, and zinnia from Leader, Sask. (T.C. Vanterpool).

EGGPLANT

DAMPING-OFF (Rhizoctonia solani) again caused damage to seedlings in flats in several greenhouses in the Harrow area, Ont. (C.D. McKeen).

WILT (Verticillium albo-atrum) occurred in the Okanagan Valley, particularly at Summerland, Kelowna, and Vernon, B.C., affecting a few to 50% of the plants (G.E. Woolliams). The disease affected about 10% of the plants in 3 fields near Harrow, Ont. (C.D. McKeen).

JERUSALEM ARTICHOKE

POWDERY MILDEW (?Erysiphe cichoracearum) slightly infected a planting at Vancouver, B.C. (H.N.W. Toms).

RUST (Puccinia helianthi) was heavy in a garden at Pakenham, Ont., causing the death of the lower leaves (E.G. Anderson).

LETTUCE

BOTTOM ROT (Rhizoctonia solani). A tr. -3% of the plants were destroyed in several fields at Leamington, Ont. (C. D. McKeen).

DROP (Sclerotinia sclerotiorum) caused sev. losses in several market gardens at Medicine Hat, Alta.; it also killed some plants in gardens at Lethbridge (F. R. Harper).

YELLOWS (Callistephus virus 1) affected 3% of the plants in a small field, at Glenmont, N. S., where the seed was sown directly in drills (K. A. Harrison). Diseased specimens were received from North Sydney where infection was said to be general throughout 10,000 plants (D. W. Creelman).

FERTILIZER INJURY. Over 15 acres of young seedlings were completely burned off at Ste. Therese, Two Mountains Co., Que. Fertilizer had been applied in the rows immediately under the seedlings. Injury occurs when a heavy rain is followed by very hot sunny days (E. Lavallee).

TIP BURN (non-parasitic). It was estimated that 40% of a carload of lettuce imported into Montreal, Que., was affected (J. E. Jacques). Several small growers in Kings Co., N. S., complained that they were having trouble with late-planted crops (K. A. Harrison).

MELON

POWDERY MILDEW (Erysiphe cichoracearum) appeared in most fields in the Harrow-Leamington area, Ont.; heavy leaf and stem infection caused defoliation and death of vines, reducing the yield and lowering the quality of melons in crops maturing in late August (C. D. McKeen).

WILT (Fusarium bulbigenum var. niveum). Iroquois is being grown on farms infested with the organism in Ont., and to date has shown no evidence of loss of resistance. The appearance of wilt in fields of susceptible varieties indicates that the fungus is spreading to new areas (C. D. McKeen).

ROT (Fusarium sp.). Half the melons in the first 2 pickings from a 3-acre field near Harrow, Ont., were affected. The rot started at the blossom end of the fruit; the fungus gained entrance through a tiny opening in the region of the stylar scar. Later pickings were free of the trouble (C. D. McKeen).

DAMPING-OFF (Pythium irregulare). The starting of melon plants in wooden bands in outdoor beds has resulted in more late damping-off than formerly in s. w. Ont. Although the soil in the bands is steamed, the fungus readily reaches the roots of the young plants from the unsteamed soil below. On account of the cool weather in May plant growth was very retarded and the disease became more serious than usual. It also caused sev. losses after the plants were set in the field; 50% of the plants died on one farm at Harrow (C. D. McKeen).

WILT (Verticillium albo-atrum) killed 50% of the plants by mid-Sept. in the trial plots at Vancouver, B. C. ; only some fruit that matured before the attack began in early Sept. were harvested (H. N. W. Toms). Wilt was present in most commercial plantings in the Osoyoos district, affecting up to 20% of the plants (G. E. Woolliams).

MOSAIC (virus) was sev. in many fields in the Harrow-Leamington district, Ont. The virus was transmitted by infestations of cotton aphids. Near one field, where every melon plant was infected, half the low hairy ground cherry (Physalis pubescens) showed mosaic symptoms (C. D. McKeen).

ONION

PURPLE BLOTCH (Alternaria porri). About an acre of onions at Ste. Dorothee, Laval Co., Que., were so sev. affected that they could not be sold in bunches (E. Lavallee).

NECK ROT (Botrytis allii). A sev. infection occurred prior to harvest in a field near Barnwell, Alta. (F. R. Harper). An affected specimen was received from Medicine Hat (L. E. Tyner). Neck rot was present in specimens taken from a shipment of onions at Montreal. The crop had been grown at Newmarket, Ont. It appeared that the crop had grown very rapidly and were immature when harvested as the sound tissues were spongy (H. N. Racicot). During an inspection of a warehouse at St. John's Nfld., infection was 4-48%, av. 21% in a small shipment from the West Coast; in 50 bags from N. S., av. infection was 2% (G. C. Morgan).

NECK ROT (Botrytis cinerea followed by Penicillium sp.) was found affecting onions in storage at Saskatoon, Sask. ; the onions had not been properly cured (T. C. Vanterpool).

BULB ROT (Fusarium oxysporum f. cepae) was found at Kelowna, B. C., affecting plants growing in a field, in which the disease was first observed over 20 years ago (G. W. Woolliams).

DOWNY MILDEW (Peronospora destructor). The epidemic was less severe at St. Martin and Ste Dorothee, Laval Co., Que. this year than in 1951 (P. D. S. 31:52). Damage was 5-20%, depending on the degree of maturity (E. Lavallee).

ROOT ROT (Pythium irregulare). A few patches of diseased seedlings of Spanish onions was seen in one greenhouse bed at Leamington, Ont. (C. D. McKeen).

PINK ROOT (Pyrenochaeta terrestris) appeared in the Leamington marsh, Ont., again affecting the same areas. Besides P. terrestris, a Pythium and a Fusarium were isolated from the roots (C. D. McKeen).

SMUT (Urocystis cepulae) was found infecting on examination at Vancouver about 30% of the seedlings in one shipment imported from Walla Walla, Wash. ,and consigned to Cloverdale, B. C. (W. Touzeau, W. Jones). Smut killed about 30% of the seedlings in 3 small fields infected with smut at St. Joseph de Sorel, Que. (E. Lavallee).

YELLOWS (Callistephus virus 1) was found affecting 3 plants in a garden in Sunbury Co., N. B. (D. J. MacLeod).

PARSNIP

GREY MOULD (Botrytis cinerea) was observed on a specimen in a store in Saskatoon, Sask. (T. C. Vanterpool).

ROOT KNOT (Meloidogyne sp.). A sl. infection was seen on the fibrous roots at Hatzic, B. C. (A. D. Christie, J. Bosher).

LEAF SPOT (Ramularia pastinacae). A sl. infection was observed in a field at Barnwell, Alta. (F. R. Harper, D. B. O. Savile). Infection was mod. in a garden at Kentville, N. S. (I. V. Hall, D. W. Creelman).

SCLEROTINIA ROT (S. sclerotiorum) was observed in a store in Saskatoon, Sask. (T. C. Vanterpool). Specimens also received from the Farm, Indian Head (R. J. Ledingham).

YELLOWS (Callistephus virus 1) caused tr.-1 1/2% infection in 3 gardens in Sunbury Co., N. B. (D. J. MacLeod).

PEA

LEAF and POD SPOT (Ascochyta pisi). A sl. infection in one field of peas being grown for seed was found by inspectors of the Plant Products Division at Creston, B. C.; the diagnosis was confirmed (G. E. Woolliams). Tr. leaf infections but no spots on the pods were observed in 5 fields in the Lethbridge area, Alta. A garden patch at Medicine Hat was mod. infected (F. R. Harper). Traces were found in plantings at Edmonton and Lacombe (T. R. D.). The disease was reported to be severe in a small garden at Hoosier, Sask. (T. C. Vanterpool). Infection was tr.-sev. in garden plantings in Queens Co., P. E. I. (R. R. Hurst).

POWDERY MILDEW (Erysiphe polygoni) was fairly prevalent late in the season in a garden at Summerland, B. C., after the crop was mostly harvested (G. E. Woolliams). Sl. damage was caused in a planting at the Forestry Station, Sutherland, Sask. (H. W. M.). Infection was sev. in a late planting in a garden at Kentville, N. S. (K. A. Harrison).

ROOT ROT (Fusarium spp.) caused a 40% reduction of the yield of the canning crop in the Montreal district, Que. The spring was excessively wet (R. O. Lachance). A 8-10 acre field at Napierville was a total loss (E. Lavallee). All the plants were killed in a garden patch in Fredericton, N. B. ; the ground was very moist and heavy (S. R. Colpitts). Root rot caused about 5% damage at Kentville, N. S. , in a new garden patch made 3 years ago and disease-free until this year. In an old garden nearby the crop was a failure on account of root rot (K. A. Harrison). Root rot destroyed 10% of the plants in a field in Freshwater Valley, St. John's, Nfld. ; peas have been grown in the same field for the last 4 years (G. C. Morgan). The wet conditions in some of the areas suggest that pathogens other than Fusarium spp. may have been active (I. L. C.).

MYCOSPHAERELLA BLIGHT (M. pinodes). Diseased plants were received from one grower in Man. ; no survey of pea diseases was made (W. A. F. Hagborg). A sl. infection was found in 1/10 acre block of Thos. Laxton-Wilt Resistant at Ottawa, Ont. (V. R. Wallen).

DOWNY MILDEW (Peronospora pisi). A sl. infection was seen on Onward at Sidney, B. C. (W. R. Orchard). Tr. -sl. infections were found in 5 fields near Lethbridge, Alta. (F. R. Harper) and a sl. infection in the plots at Edmonton (T. R. D.).

BACTERIAL BLIGHT (Pseudomonas pisi). Traces of leaf and pod infection were found in 13 fields near Lethbridge, Alta. by 31 July (F. R. Harper). A mod. infection was seen in Valley field peas at the Station, Melfort, Sask. ; the seed was from Ottawa (H. W. M.). Infection was sev. on samples received from a Man. firm who was having field peas grown under contract. At least one field was reported to be not worth harvesting (W. A. F. Hagborg).

ROOT ROT (Rhizoctonia solani). Tr. -mod. infection was noted in 3 fields near Barnwell, Alta. , by mid-June (F. R. Harper).

LEAF BLOTCH (Septoria pisi). A sev. infection was seen in a garden at Edmonton, Alta. (A. W. Henry). Mod. -sev. infections were present on some varieties at the Stations at Melfort and Scott. (H. W. M.). Infection was mod. on the lower leaves of Ottawa PE-4 in a 1/10-acre block at Ottawa, Ont. (V. R. Wallen).

RUST (Uromyces fabae). Infection was sl. in a 1/10-acre block of Ottawa PE-11 at Ottawa, Ont. (V. R. Wallen); tr. on Little Marvel at the Station, l'Assomption, Que. (H. Genereux); tr. on Fenland Wonder in a garden at Kentville, N. S. (K. A. Harrison).

MOSAIC (Pisum virus 1). Infection ranged from a tr. to 3. 5% in gardens in York and Sunbury counties, N. B. (D. J. MacLeod).

PEPPER

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

SOFT ROT (Erwinia caratovora) caused only sl. damage in fields in Essex Co., Ont. Corn-borer damage was light, thus reducing the number of infection courts (C. D. McKeen).

DAMPING-OFF (Pythium sp. and Rhizoctonia solani). A little damping-off developed here and there in flats of seedlings and in transplant beds in Essex Co., Ont., but losses were less than 1% of the plants (C. D. McKeen).

WILT (Verticillium albo-atrum) was found on several farms located in the Okanagan Valley, B. C.; infection varied from sl. to over 75% (G. E. Woolliams).

BACTERIAL SPOT (Xanthomonas vesicatoria) was more widespread in sweet pepper fields in Essex Co., Ont., than in previous years. The disease is seed-borne (C. D. McKeen).

TOBACCO and CUCUMBER MOSAIC (virus) caused sev. losses in 2 fields at Harrow, Ont. (C. D. McKeen). Mosaic (Solanum virus 2) was found on 3 plants in a garden at Fredericton, N. B. (D. J. MacLeod).

ETCH (virus) became widespread in two sweet pepper fields at Harrow, Ont.; infestation of the fields by the green peach aphid preceded the appearance of the disease (C. D. McKeen).

BLOSSOM-END ROT (non-parasitic) was very prevalent in Essex Co., Ont. Losses were probably greater than those caused by all other causes combined; a severe drought occurred in the area (C. D. McKeen).

SUN SCALD (non-parasitic). A high percentage of the fruit showed this condition in August in Essex Co., Ont. (C. D. McKeen).

POTATO

The Division of Plant Protection, Science Service, has supplied the data contained in Tables 5-8 on Seed Potato Certification. All fields entered for certification were planted with Foundation or Foundation A seed.

Table 5. Seed Potato Certification
Fields and Acres Inspected and Passed in 1952

Province	Number of Fields		Fields Passed	Number of Acres		Acres Passed
	Entered	Passed	%	Entered	Passed	%
P. E. I.	6,117	5,519	90.2	23,109	21,039	91.0
N. S.	411	359	87.3	662	572	86.4
N. B.	2,865	2,703	94.3	14,400	13,190	91.6
Que.	996	842	84.5	2,694	2,162	80.3
Ont.	709	614	86.6	2,009	1,720	85.6
Man.	124	107	86.3	444	369	83.1
Sask.	51	49	96.1	76	58	76.3
Alta.	177	163	92.1	702	578	82.3
B. C.	719	629	87.5	1,892	1,627	86.0
Total	12,169	10,985	90.3	45,988	41,315	89.8
Previous Yearly Totals						
1951	12,093	10,580	87.5	46,176	40,402	87.5
1950	16,203	13,292	82.0	75,352	61,933	82.2
1949	15,476	13,739	88.8	72,706	65,051	89.5
1948	15,635	12,504	80.0	70,561	57,392	81.3

Acres Entered		Acres Passed	
1952	45,988	1952	41,315
1951	46,176	1951	40,402
Decrease of 198, or 0.4%		Increase of 913, or 2.3%	

The acreage entered for Seed Potato Certification was almost the same as in 1951, when there was a sharp decline from the level of several post-war years. The percentage of fields rejected on account of disease in Que. was noticeably lower than for several years although the figure is still the highest in Canada. The rejections for bacterial ring have greatly declined in Que., but they have increased in Ont., so that the percentage of fields rejected for ring rot is almost the same in the two provinces (8.0% in Que. and 7.6% in Ont.). The most significant change in the varieties being grown was the large increase in acreage of the new Canadian variety Canso, of which 2,430 acres passed inspection. However, with the appearance of races of *Phytophthora infestans* capable of attacking the variety, it may attract little interest in the future.

Table 6. Seed Potato Certification
Acreage Passed by Varieties

Variety	P. E. I.	N. S.	N. B.	Que.	Ont.	Man. - Alta.	B. C.	Total
Katahdin	2,023	129	8,060	18	937	20	15	11,202
Sebago	10,099	68	189		41	1	6	10,404
Irish Cobler	4,423	55	627	169	89	45		5,408
Green Mountain	2,205	50	1,091	1,795	37	11	123	5,312
Canso	1,322	35	693	44	294	36	6	2,430
Netted Gem	42	40	149		2	528	1,154	1,915
Pontiac	545	26	713			96	15	1,395
Bliss Triumph	14	46	914			22		996
Keswick	184	7	255	48	51	15	12	572
Warba	131	11	33		12	83	89	359
Rural Russet		18	253		20			291
Chippewa	12	39	16		204		1	272
White Rose			95				135	230
Kennebec	12	29	53	44		12	2	152
Early Ohio						66		66
Others*	27	19	49	44	33	70	69	311
Total	21,039	572	13,190	2,162	1,720	1,005	1,627	41,315

* These varieties with the acreage of each were: Ontario 51, Columbia Russet 47, Teton 44, Early Epicure 31, Red Warba 26, Canus 22, Dooley (Rural New Yorker) 19, Early Rose 13, Sequoia 12, Garnet Chili 8, Mohawk 8, Burbank 7, Gold Coin 5, McIntyre 5, Great Scot 3, Pawnee 3, Manota 2, Wee MacGregor 2, Carter's Early Favorite 1, Sir Walter Raleigh 1, Arran Victory 0.5, and White Bliss 0.5.

EARLY BLIGHT (Alternaria solani) was reported as follows: Sl. -mod. infection in only 64 (8.8%) of the fields inspected in B. C., mostly in the Cariboo and central B. C. (H. S. MacLeod); in seed crops, infection very sl. in s. Alta. (R. P. Stogryn), but it occurred in 35 (33%) of the fields in n. Alta. (J. W. Marritt); sl. -sev. infections in commercial plantings at Medicine Hat (F. R. Harper) and Edmonton (G. B. Sanford); generally late in season in Sask., but less sev. than in 1951 (A. Charlebois); only sl. infection in Man., mostly about Winkler (D. J. Petty); infections tr. -sl. in most parts of Ont. (C. D. McKeen et al), being somewhat heavier in e. Ont. (E. H. Peters) and mod. -sev. in several fields of Canso (F. J. Hudson et al); infection was 179-sl. 33-mod. 1-sev./996 fields inspected in Que.; sl. infection of Alternaria rot in one lot of Teton tubers (B. Baribeau); infection sl. -mod. in most fields in N. B. and heavier than in 1951; heavier on Keswick and Canso than on other varieties; Alternaria rot affected a few tubers in 2 fields of Keswick at harvest (C. H. Godwin); infection usually sl. in N. S. in 1952 except for a few fields; noted first on Keswick on 3 July in Digby Co. (R. C. Leyton); infection again sl. in P. E. I. (H. L. McLaren); infection rather sev. on the Avalon Peninsula, Nfld., except in a few fields where fungicides were used (G. C. Morgan).

Table 7. Seed Potato Certification: Fields Rejected on Field Inspection, 1952

Province	Leaf Roll	Mosaic	Ring Rot in field	Ring Rot on farm	Black Leg	Wilts	Adjacent Diseased Fields	For-eign Var.	Misc.	Total
P. E. I.	89	108			27	32	53	176	113	598
N. S.	4	8				9	17	11	3	52
N. B.		5	31	18	1		1	99	7	162
Que.	3	21	54	13	26	1	10	18	8	154
Ont.	8	5	15	31	5	1	1	10	19	95
Man.			4	2	4			6	1	17
Sask.		1			1					2
Alta.			1	1	8	2			2	14
B. C.	3	5			14	8		3	57	90
Total	107	153	105	65	86	53	82	323	210	1,184
Rejection as a percentage of fields:										
Entered	0.9	1.3	0.9	0.5	0.7	0.4	0.7	2.6	1.7	9.7%
Rejected	9.0	12.9	8.9	5.5	7.3	4.5	6.9	27.3	17.7	100%

Table 8. Seed Potato Certification: Average Percentages of Diseases found in Fields, 1952

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	.19	.03	.04	.19	.04	.11	.03	.26	.14
Leaf Roll	.16	.09	.02	.04	.05	.01	.07	.23	.05
Mosaic	.10	.11	.03	.09	.06	.01	.11	.09	.06
Fields passed (Final inspection)									
Black Leg	.09	.03	.03	.09	.03	.05	--	.10	.05
Leaf Roll	.05	.06	.02	.01	.02	.01	.01	.01	.02
Mosaic	.03	.07	.02	.04	.02	.01	.01	--	.01

GREY MOULD (Botrytis cinerea). Traces were found in all fields visited in Kings Co., N.S., in October; growers are misled frequently into thinking late blight is present (K. A. Harrison). Infection was sev. on 2% of the Irish Cobbler plants in a small garden in Charlottetown, P. E. I. on 27 Aug. (R. R. Hurst).

BLACK DOT (Colletotrichum atramentarium). Traces were noted on dead stalks that had matured early at Kentville, N.S. (K. A. Harrison). Black dot sev. affected about 1% of the plants in a field of Irish Cobbler at East Baltic, P. E. I., on 28 Aug. (D. B. Robinson).

BACTERIAL RING ROT (Corynebacterium sepedonicum) was not found in any crops grown for certification in 1952 in B. C. (H. S. MacLeod). It was found, however, in the Fraser Valley in a 4-acre field of White Rose, where 15% of the tubers were affected. The source of infection could not be traced. No recurrence of the disease was observed on any farms where it had previously been found. At digging time a survey for ring rot was made on Lulu Island, where 125 acres of potatoes were inspected and found free of the disease. Tubers affected with ring rot were found in a carload of Netted Gem from Washington State in January and the shipment was returned to the point of origin by the wholesaler (W. R. Foster).

In Alta., all lots of the 1951 crop infected by bacterial ring rot were disposed of through approved channels by the end of that year. Early disposal gave growers ample time to clean up their premises before seed stocks to be planted in 1952 were brought in. As the potato crop matured somewhat earlier than usual in 1952, ring rot symptoms could be readily detected during the ring rot survey. Of the 601 fields (6,296 acres) inspected in the pest control areas of Edmonton, Calgary, Brooks, and Lethbridge, 75 fields were found infected by ring rot, an over-all increase from 7.7% in 1951 to 12.5% in 1952. The increase was due to a sudden flare-up of the disease in the Lethbridge area, while there were lower percentages in all other areas (W. Lobay). Ring rot was found in one field entered for certification in s. Alta. (R. Stogryn).

Ring rot was again seen in several lots of table stock grown about Lumsden, Sask. (A. Charlebois). Affected specimens were received from only 2 growers, one at Indian Head and the other at Maple Creek. Although it was not uncommon several years ago to receive 10-25 specimens each fall, it is doubtful that the disease is now less prevalent, because many growers have come to recognize the disease (R. J. Ledingham). A tr. of ring rot was found in 2 fields in Man. and 2 others were rejected because the disease had been found in the same stock (D. J. Petty). Ring rot was present in 4 samples of Man.-grown potatoes received for diagnosis (W. A. F. Hagborg).

Bacterial ring rot caused the rejection of 4 fields in district 1 (F. J. Hudson) and in 11 in district 3, Ont.; infection was tr.-1% (H. W. Whiteside). In 1952, 231 specimens of potatoes suspected of being infected with ring rot were received at either St. Catharines or Ottawa for diagnosis. Of the 231 specimens, 202 proved positive. The corresponding figures were: 155 positive in 1951 and 362 in 1950. The number of fields surveyed in the provincial survey is unknown (H. N. Racicot). Ring rot caused the rejection

of 54 (5.5%) of the fields inspected in Que., compared with 15.8% in 1951. Although ring rot is still the main cause of rejections, growers are taking great care in disinfecting their implements, etc., and paper bags have become popular for handling the crop. Infection was usually not more than 0.1%. No ring rot was recorded in Teton entered for certification (B. Baribeau). Ring rot caused the rejection of 49 (3.2%) of the fields entered for certification in N.B.; compared with 3.4% in 1951 (C.H. Godwin). No survey of fields of table stock potatoes was made in N.S. Many of the fields entered for certification were inspected 3 times for possible occurrence of ring rot, but the disease was not encountered (R.C. Layton). Ring rot was not observed during field inspection in P.E.I., but 10 cases were found later in the tubers, 5 of which belonged to seed growers and 5 to table-stock growers (H.L. McLaren). Two cases from St. Peters Bay were found on the 1951 crop in May (R.R. Hurst).

POTATO-ROT NEMATODE (Ditylenchus destructor) slightly affected 0.5% of the tubers of mixed varieties in a garden at Victoria, B.C. Bulbous iris known to be affected with nematodes were grown in the same garden the previous year. The identification was made by Dr. A.D. Baker (J. Bosher).

SOFT ROT (Erwinia ?carotovora). A few tubers were sev. rotted shortly after digging of 2 early-harvested fields at Lethbridge (M.W. Cormack). Very little soft rot was seen this year in district 3, Ont. Disinfection of storage spaces seemed to have reduced its occurrence. Canso and Sebago are the varieties most affected (H.W. Whiteside). Incipient soft rot was observed in many tubers in a shipment of Florida-grown potatoes sent by transport to Toronto in February 1953; presumably moist conditions prevailed for some time before arrival at destination (J.K. Richardson). Several specimens were received in September and October from N.B. fields (J.L. Howatt). The disease was prevalent both in the e. and w. coasts of Nfld., this year, particularly in Canso and Arran Comrade. A sl. infection was also present in a few fields of Arran Victory. The weather was very wet (precipitation, August to October, 16.56 in.) at harvest after an unusually dry July (0.73 in.). There were considerable mechanical injury and hollow heart present (G.C. Morgan).

BLACK LEG (Erwinia phytophthora) was reported in 171 (23.9%) of the fields inspected in B.C. and caused 14 to be rejected. Its prevalence is attributed to the very cold wet spring especially in the interior, where little black leg develops as a rule (H.S. MacLeod). Black leg was present in 92 (52%) of the fields inspected in Alta. and caused 7 fields to be rejected. It was very prevalent in the irrigated districts in s. Alta., where all commercial stocks are affected. It was present in all districts except the Peace River. Above normal moisture supply favoured the development of the disease (J.W. Marritt, R. Stogryn). Black leg was very prevalent in the Edmonton district; in one commercial field 50% of the plants were infected with lesser amounts in others (T.R.D.). Black leg was unusually common in Sask. in 1952 (T.C. Vanterpool). About half the potato specimens received at the Saskatoon lab. were affected with the disease. Black leg was reported to be

bad where potato eyes had been used for seed (R. J. Ledingham). Black leg caused the rejection of one field, the only one in which it was found (A. Charlebois). Black leg was recorded in 20% of the fields inspected in Man. and caused 4 to be rejected (D. J. Petty).

In Ont. a sl. infection was noted in 4 places in the London district; numerous plants were noted in one part of a large Sebago field at Mt. Brydges (F. Hudson). Black leg was most prevalent in fields adjacent to corn infested with insects. For this reason little certified seed is now grown in Waterloo Co., where corn is extensively grown (W. L. S. Kemp). Black leg was found in 2 fields in Dufferin Co. (H. W. Whiteside). Of the 45 fields inspected in e. Ont., one field of Irish Cobbler grown from P. E. I. seed was rejected and 9 others were sl. infected (E. H. Peters). Black leg was reported in 320 (32. 2%) of the fields inspected in Que. and caused 26 to be rejected, 20 fields being in the Chicoutimi and Lake St. John districts (B. Baribeau). Sev. infection was noted in 2 fields in Saguenay Co. (H. Genereux). Black leg was noted in only a few fields in N. B. and only one was rejected. It was less prevalent than usual because of the very dry season. Seed treatment is not practised in N. B., but growers of Sebago in the Bath area report a measure of control by delaying planting until the seed bed is warm and dry followed by a very light hilling until the plants are well above ground (C. H. Godwin). Black leg was reported in 41 (10%) of the fields inspected in N. S. In one district where black leg has caused the rejection of most Sebago fields, one grower planted Chippewa this year and secured a crop only sl. infected with the disease (R. C. Layton).

Only 27 fields were rejected on account of black leg this year in P. E. I. compared with 131 in 1951; good growing conditions prevailed throughout the season (H. L. MacLaren). In 20 fields of table stock inspected in P. E. I. the average infection was 0. 5% (R. R. Hurst). Climatic conditions were ideal in 1952 for the development of black leg in Nfld., particularly in the Avalon Peninsula. Infection was as high as 10% in a few fields and averaged 2%. Canso, Sebago, Arran Victory, Irish Cobbler, Arran Comrade, and Kerr's Pink were infected (G. C. Morgan).

WILT (Fusarium oxysporum, Verticillium albo-atrum) was found in 38 (5. 6%) of the fields inspected in B. C.; 8 fields, all planted with White Rose seed imported from Lynden, Wash., were rejected (H. S. MacLeod). Wilt was present in 29 (40%) of the fields inspected in s. Alta. In 2 fields near Lethbridge 10 and 40% of the plants were affected; in the others infection was a tr. See under V. albo-atrum (R. P. Stogryn). In n. Alta., wilt was found in only one field in the Edmonton area (J. W. Marritt). Small amounts of wilt were recorded in a third of the fields inspected in Sask. (A. Charlebois). Little wilt was observed in Man. (D. J. Petty).

Wilt was present in most fields inspected in the London district, Ont., being particularly noticeable in some fields of Canso (F. J. Hudson). Only a single field was rejected for wilt in district 2 (W. L. S. Kemp). Traces occurred in most fields in district 3; it was most prevalent in Canso and tubers from infected plants showed some stem-end browning by August (H. W. Whiteside).

Sl. amounts of wilt were noted in 9 fields chiefly of Irish Cobbler and Canso in e. Ont. (E. H. Peters). Wilt was present in several fields in N. B. ; one 20-acre field of Kennebec from Maine-grown seed at Hartland was rejected. The disease was less prevalent than usual in York Co. (C. H. Godwin).

DRY ROT (Fusarium spp.) was not a problem in n. Alta., as most potato crops were harvested under ideal conditions (J. W. Marritt). A wet odourless rot affected tubers of the Ontario variety received from 2 growers at Harrow, Ont. Entrance was through wounds made at digging time. Bacteria and Rhizoctonia were also isolated (C. D. McKeen). Dry rot was of little importance in district 2; careful handling of the crop, clean storage, etc., have reduced losses (W. L. S. Kemp). Dry rot was more prevalent than usual in the 1951 crop in Que. and loss in some bins was fairly heavy. Delay in planting cut sets on account of heavy rains in May and June allowed some dry rot to develop; in some lots of Kennebec 20% of the sets were rotted (B. Baribeau). Dry rot was also a problem in Que. in the fall of 1952, when temperatures were high in October and November. It was particularly noticeable on injured tubers (O. Caron). Dry rot was observed in a few bins of the 1951 crop at shipping points in N. B. ; it caused some loss in a shipment to the Dominican Republic. Elsewhere loss was confined to a few bins where the tubers were stored under improper conditions or had been bruised as a result of rough handling (C. H. Godwin). A black rot, similar to that described in Wash. State Coll. Popular Bull. 195, was found in a lot of Netted Gem at Centreville, N. S. ; the tubers showed slight bruises on the surface with extensive black rot of the interior (K. A. Harrison). Dry rot caused about 1% loss of tubers in storage in P. E. I. (H. L. McLaren). About 50% of the tubers in a small lot of Keswick in storage were affected by F. coeruleum at Charlottetown (R. R. Hurst). Rot due to F. sambucinum f. 6 was also heavy in a lot of Keswick from Brookfield and in Sebago from O'Leary (G. W. Ayers). A destructive seed-piece rot occurred in a lot of Keswick which was being eye-indexed in the greenhouse (G. Ross).

STEM ROT (Fusarium sp.) affected 10% of the plants in two fields, one of Green Mountain and one of Canso at Glenwood, P. E. I. ; affected plants were grouped together (G. W. Ayers).

RHIZOCTONIA (Pellicularia filamentosa (Rhizoctonia solani)) was widespread in B. C. ; infection was 250-sl. 118-mod. 15-sev. /403 fields inspected. It is believed to be the most important single disease of potatoes in B. C. (H. S. MacLeod). Rhizoctonia was present in most fields in Alta., but usually infection was sl. (R. P. Stogryn, J. W. Marritt). Rhizoctonia was present in every field inspected in Sask., and sev. losses occurred in some which were planted early on heavy soil (A. Charlebois). The perfect stage developed well in mid-summer in garden plots at Saskatoon, Sask. (T. C. Vanterpool). Sl. infections were noted in Man. (D. J. Petty). A few plants were affected by rhizoctonia in fields about Strathroy and Scotland, Ont. (F. J. Hudson). Some 25-50% of the crop required regrading on account of rhizoctonia sclerotia in district 2 (W. L. S. Kemp). Rhizoctonia was particularly noticeable in the northern part of district 3. It affected 5-50%

of the tubers (H. W. Whiteside). A sl. amount of rhizoctonia was seen on bin inspection in e. Ont. (E. H. Peters). Infection was 65-sl. 5-mod./996 fields inspected in Que. In general, tubers were sl. affected, but some lots were mod. affected in Matane and Rimouski counties (B. Baribeau). Rhizoctonia was general on the growing crop in N. B. Some development of sclerotia was observed in a few lots on bin inspection, but losses were sl. (C. H. Godwin). Only sl. infections were observed in the field in N. S. No sev. infections of the tubers have been observed and what scurf occurs can be graded to seed standards with little loss (R. C. Layton). Rhizoctonia was of little importance in P. E. I. although sl. more prevalent than last year (H. L. McLaren). The perfect stage was observed on an occasional plant in a field of Green Mountain in Queens Co. on 7 Sept. (R. R. Hurst). Sl. infections were noted in a few fields of Green Mountain and Irish Cobbler in Nfld. (G. C. Morgan).

GANGRENE (Phoma ?foveata Foister). A few tubers were picked in May 1952 from a crop of Green Mountain showing typical "thumb impression" symptoms of gangrene at Fredericton, N. B. The cause of the trouble was confirmed (J. Munro). This disease has not been previously reported in Canada, at least it has not been identified with the old-world disease (I. L. C.)

LATE BLIGHT (Phytophthora infestans). A sl. infection was found on the foliage in 12 fields inspected in the coastal area of B. C., and tr. amounts of rot were seen in the tubers (H. S. MacLeod). A late blight forecast service was set up this year in cooperation with the Laboratory of Plant Pathology at Vancouver. On 13 June, growers on the lower mainland were warned that the weather of the previous 2 weeks had been favourable for blight and if it continued blight might be expected. However, the weather turned hot and dry and sl. infections of late blight were first reported the 2nd week of August on Lulu Island and in the Ladner district. On 13 Aug. growers were told that there was no imminent danger of blight as long as the hot weather lasted, but that they should be ready to spray if the weather changed. After this date, late blight became general in the lower mainland but the infections were sl.-mod. (W. R. Foster).

Late blight was found for the first time in s. Alta., when leaf infection was general in 6 fields in early Sept. near Rainier, killing the plants in patches. Most growers destroyed the tops before harvest and very little tuber infection occurred (M. W. Cormack, F. R. Harper). A sl. infection was observed on the foliage in 15 gardens at Edmonton on 22 Aug. The disease started early but was checked by fine weather. The organism was isolated from one lot of affected tubers (G. B. Sanford). A sl. infection was found in early September in a field near Estevan, Sask., but few tubers became infected (A. Charlebois). One specimen of late blight rot was received from a field at Margo in e. Sask. (R. J. Ledingham). Tr. to sl. infections were seen about Portage la Prairie, Man., by mid-August (D. J. Petty). The mod. early appearance of late blight in Man. suggested for a time that the disease might become widespread and sev. However the low rainfall in the autumn permitted the crop to be harvested under very good conditions with almost no tuber rot (J. E. Machacek).

Late blight was almost entirely absent from s. w. Ont. (F. J. Hudson). but it was general in district 3, being of some importance in the Muskoka-Parry Sound, and Cochrane districts and sev. in the Temiskaming district. In the s. part of the district late blight appeared late, but it eventually caused some tuber rot several weeks after harvest. Late blight was seen on the foliage in several fields of Canso but not on the tubers. Ontario again appeared to possess some resistance (H. W. Whiteside). Late blight was observed on Green Mountain in a spray plot at Ottawa, on 15 July, but the plot was sprayed with Dithane D-14 and no further spread was observed. The disease was next reported in a field of Canus at Melcalfe on 11 Aug. After this date late blight gradually spread and increased until it was general, infection being sl. -mod. in well protected fields and sev. in fields left unprotected (H. N. Racicot). Late blight was observed in e. Ont. from 11 Aug. on. Infection was sev. in 2 fields near Westmeath and mod. in one 15-acre field of Canso at Metcalfe. Tuber rot was very light (E. H. Peters). Late blight was found in a cull-pile at St. Martin, Laval Co., Que. on 24 June (E. Lavallee). Climatic conditions were very variable during the growing season in Que., with considerable differences in various parts of the province. Late blight was first reported in fields about 6 Aug., a date over 3 weeks later than in 1951, in several widely scattered points in Que., and by 18 Aug., it was known in many districts. Late blight was slow in developing, but warm weather accompanied by heavy dews and rain favoured its development in September. Many growers dug their potatoes while the tops were still green or partly destroyed by late blight and stored the tubers in warm storage spaces. Losses at digging time were as high as 10-80% of the crop. Late blight rot was also heavy in the tubers already harvested, amounting to 10-60% when the tubers were graded for market. It is conservatively estimated that 10%, or 1 1/2 million bushels, of the crop was lost. Fields dug after the tops were killed with a herbicide showed little tuber rot. Late blight caused some defoliation at two places on Canso, Kennebec, and Keswick (B. Baribeau, H. Genereux).

Late blight was first reported at Bath, N. B., on 12 July and reports of the disease were received from most potato areas during the summer. However late blight never reached epidemic proportions and infection was largely confined to scattered fields inadequately sprayed or dusted. Late blight rot caused little trouble; what little occurred was in Carleton and Victoria counties in small lots of table stock from fields improperly sprayed or harvested while the tops were green (C. H. Godwin). Some late blight developed in unsprayed fields of Keswick and Canso, particularly in York Co. (J. L. Howatt).

Late blight was noted on a cull pile in Kings Co., N. S., on 8 July. It was found in a field in Digby Co. on 28 July. The disease developed rapidly until in late August when sev. local infections were present in several counties. A dry spell and a frost on 9 Sept. checked blight in many places, but it continued to spread in frost-free areas into October. Even where the vines were killed with a herbicide 2 weeks before digging, tuber rot sometimes caused losses of 25% of the crop. In general tuber rot was much greater than last year, when late blight was epidemic on the foliage (K. A. Harrison, R. C. Layton). Plants of Solanum nigrum scattered along the

seashore at Pembroke were sev. affected by late blight (D. W. Creelman, A. E. Roland). Late blight was first found at O'Leary, Prince Co., P. E. I., on 21 July. The weather was not favourable for the development and spread of the disease. The mean temperature for July to September was 3.6°F. higher than last year and the rainfall was 7.11 in. compared with 15.61 in. in 1951. The disease was virtually absent in e. Kings Co.; in the rest of P. E. I., it was readily controlled by spraying. Blight, however, was sev. on the foliage of Canso, of which there was a considerable acreage in Queens and e. Prince counties. Growers had to kill the vines with chemicals to reduce tuber rot. Growers are persuaded that spraying is just as necessary for Canso and Keswick as it is for the older varieties (L. C. Callbeck, H. L. MacLaren). Late blight appeared first in Nfld. in early August. Later it became general and caused heavy foliage infection and mod. tuber rot in e. Nfld., where 16.56 in. of rain fell in August to October. On the west coast rainfall and late blight infection was much lighter. Late blight was seen in 2 fields of Canso with an odd tuber rotting. No blight was seen in Keswick and Kennebec (G. C. Morgan).

LEAK (Pythium ultimum). A few tubers were found affected during harvesting and in the bins of two growers at Saanichton, B. C. (W. Jones). Leak was found several times affecting Keswick; in one 5-acre field at Chilliwack, 20% of the tubers harvested became decayed (W. R. Foster). Leak occurred in tr. amounts in 5 crops in the Pemberton area (H. S. MacLeod). The disease was sev. in one lot of early harvested tubers in storage at Lethbridge, Alta. (M. W. C.). Considerable rotting occurred in tubers harvested from the plots at Edmonton, more particularly in potatoes grown on heavy soil. Some damage was also reported by commercial growers (T. R. D.).

VIOLET ROOT ROT (Rhizoctonia croccorum). A sl. infection was found on a farm on the Thedford marsh, Ont.; the disease occurs periodically on potatoes in the s. end of the marsh (N. J. Whitney).

SILVER SCURF (Spondylocladium atrovirens). Little silver scurf was seen at bin inspection in district 3, Ont. It was observed on tubers of smooth-skinned varieties at the Royal Winter Fair in Toronto in November. The disease has been seen most frequently in potatoes grown on light, sandy soils (H. W. Whiteside). Traces were recorded on Irish Cobbler in Queens Co., P. E. I. (R. R. Hurst).

POWDERY SCAB (Spongospora subterranea). A sev. infected tuber of Green Mountain from Milner, B. C., was received 16 Dec. (H. N. Racicot). The disease was reported from a few bins in the Lower St. Lawrence district, Que. (B. Baribeau). A sl. infection was reported in tubers of Bliss Triumph grown at Scott's Bay, Kings Co., N. S. (R. C. Layton). Infection was sl.-mod. in 3 fields at Brigus, Nfld. (G. C. Morgan).

COMMON SCAB (Streptomyces scabies) was more severe this year than last in B. C. Five crops of smooth-skinned varieties grown in the Okanagan were rejected (H. S. MacLeod). Infection was tr. -sl. on most table stock at Edmonton, Alta. (T. R. D.). A sev. infection was found on potatoes grown near Whitehorse, Yukon; the soil was a sandy loam cultivated since 1926 (G. B. Sanford). Scab was found on tubers of Netted Gem, a variety rarely affected, in 2 seed stocks in the Lacombe area. The disease in general was less sev. than usual due to optimum moisture in soil during the growing season (J. W. Marritt). Little scab was found in Man. (D. J. Petty).

Most fields in the London district, Ont., were affected with some sl. scab; a few tubers grown at Strathroy showed sev. scab (F. J. Hudson). Growers and shippers in s. Ont. report that scab was unusually prevalent this year. Growers found that it was virtually impossible to grade their stock to Canada No. 1 standards. The lesions were mostly of the mild scurfy type causing little real damage except loss of appearance (J. K. Richardson). Scab is less sev. in district 2 since the planting of susceptible varieties such as Irish Cobbler and Chippewa has been curtailed. Some table stock growers in the Ancaster area are now planting large acreages of the resistant Ontario and are having little trouble with scab (W. J. S. Kemp). Scab was less prevalent in district 3 than for several years. Growers whose farms appeared infested with scab are now growing Ontario. Weather conditions in 1953 were also unfavourable for scab development (H. W. Whiteside). Sev. affected tubers were received from a garden at Lancaster (H. N. Racicot). A sev. infection was noted in a few lots grown in the Lower St. Lawrence district, Que. (B. Baribeau). Common scab was more prevalent than usual in N. B., but the average loss is not likely to be high (C. H. Godwin). Scab was evidently more prevalent than usual in N. S. Some lots of seed potatoes contained too much scab to be graded. Similarly, some lots of table stock could not be graded to meet the standards of Canada No. 1 (R. C. Layton). Common scab was prevalent on all varieties grown in P. E. I. Except for Sebago and Netted Gem, the varieties showed about 5% scab. It is estimated that 15 bu. per acre will be graded out on account of scab (H. L. McLaren). Infection was 15-sl., 15-mod. 2-sev. in Nfld. Scab was so heavy in a commercial planting of Canso and Keswick that the crop was unmarketable (G. C. Morgan).

WART (Synchytrium endobioticum). As in 1951, losses from wart were not high in Nfld. Very low precipitation in July and high rainfall in the next 3 months when the soil was near saturation did not favour the spread of the wart organism. In the Conception Bay area, wart infection was again less than in previous years. Many growers have changed over from growing the susceptible varieties Arran Victory, Arran Comrade, Arran Pilot, Kerr's Pink, Great Scot, Northern Beauty, and Bliss Triumph to the mauve-blossomed Sebago, which has proved highly resistant to wart. Losses from the disease are high in small plots where the common varieties are still grown on the south shore, St. Mary's and Colinet; wart was found in 27 out of 31 gardens visited. In recent wart trials, Kennebec appeared to be one of the best of the highly resistant varieties (G. C. Morgan).

VERTICILLIUM WILT (V. albo atrum) was found occasionally in potato fields about Osoyoos and Summerland, B. C. (G. E. Woolliams). Damage was sl. -sev. in 15 fields examined in s. Alta. About 30% of the plants were killed in a field of Netted Gem near Lethbridge (F. R. Harper), M. W. Cormack). Wilt was found in 33 (3. 3%) of the fields inspected in Que. and caused one rejection (B. Baribeau). Wilt was reported in 91 (22%) of the fields inspected in N. S. The disease was quite sev. this year; in some fields of table stock, over 50% of the plants were affected. It was most prevalent in Kennebec followed by Canso, Sebago and Irish Cobbler (R. C. Layton). Verticillium wilt was general in Sebago affecting tr. -20% of the plants in P. E. I. (G. W. Ayers). Wilt was about as prevalent as in 1951; 32 fields were rejected (H. L. McLaren).

LEAF ROLL (virus) was found in 106 (14. 7%) of the fields inspected in B. C., and caused 3 fields to be rejected; it was most prevalent in the Grand Forks area. Leaf roll necrosis was seen in the tubers in 2 fields late in the season (H. S. MacLeod). Leaf roll occurred in 38 (21%) of the fields inspected in Alta., but none were rejected. The disease was quite prevalent in garden plots in Edmonton and current season infection caused sev. necrosis in the tubers in some where certified seed was used (R. P. Stogryn, J. W. Marritt). Low infections were seen in fields inspected in Sask. (A. Charlebois). and in Man. (D. J. Petty). Little leaf roll was seen in the London district, district 2, and in e. Ont. (F. J. Hudson et al). In district 3, 8 fields were rejected, with 7% infection in a field of Canus (H. W. Whiteside). Leaf roll was noted in 233 (2. 3%) of the fields in Que.; in one of the 3 fields rejected 25% of the Canso plants were infected (B. Baribeau). Leaf roll was much less prevalent than usual in N. B. and no fields were rejected on account of the disease (C. H. Godwin). Leaf roll was recorded in 121 (29%) of the fields inspected in N. S. and 5 were rejected (R. C. Layton). Leaf roll caused 89 fields to be rejected in P. E. I. in 1952, compared with 36 in 1951 (H. L. MacLaren). Tr. to 10% infection was recorded in 20 fields in Nfld., highest infections were in English varieties (G. C. Morgan).

MOSAIC (virus) was found in 88 (12. 2%) of the fields inspected in B. C., and 5 were rejected (H. S. MacLeod). The disease was recorded in 14 (8%) of the fields inspected in Alta. (J. W. Marritt). Mosaic was present in 25% of the fields inspected in Sask.; one field was rejected. (A. Charlebois). Only low infections were present in Man. (D. J. Petty). Mosaic caused the rejection of a field of Keswick in district 2, Ont. (W. L. S. Kemp), 2 fields in district 3 (H. W. Whiteside) and 2 fields, one of which was Canso, in e. Ont. (E. H. Peters). Mosaic was reported in 329 (33%) of the fields inspected in Que. and 21 fields were rejected (B. Baribeau). Mosaic was less prevalent than usual in N. B. and only 5 fields were rejected; symptoms may have been masked to some extent during the hot dry weather (C. H. Godwin). The disease was reported in 118 (84%) of the fields inspected in N. S.; 8 fields were rejected (R. C. Layton). Mosaic was apparently less prevalent than last year in P. E. I.; 108 fields were rejected as compared with 200 in 1951. (H. L. McLaren). In 20 fields of Green Mountain table stock, average

infection was 4% (R.R. Hurst). Mosaic infection was high in many fields in Nfld., the highest being 50%, average 15% (G.C. Morgan).

LEAF STREAK (Solanum virus 1, N strain). A tr. was found in Katahdin, Chippewa and Keswick in a test plot at Fredericton, N.B. (D.J. MacLeod).

SIMPLE MOSAIC (Solanum virus 1, L and S strains) was observed in Kennebec, Canso, Chippewa, Keswick, Pontiac, Mohawk, Sebago and a number of unnamed seedlings in N.B. Two plants of Green Mountain affected by the S strain were observed in a tuber index test (D.J. MacLeod)

FOLIAR NECROSIS (Solanum virus 1, D strain). A tr. was found in Canso and Arran Victory grown in York Co., N.B. (D.J. MacLeod).

Plants of Keswick, which were found to be infected with slight, medium and severe strains of Solanum virus 1, showed practically no symptoms under field conditions in a test plot in Albert Co., N.B. While these strains appear to have no effect on Keswick, they showed a wide range of symptoms when inoculated into Datura stramonium (D.J. MacLeod).

RUGOSE MOSAIC (Solanum viruses 1 and 2). A tr. to 6% of the plants were found infected in 5 fields of table stock in Carleton and York counties, N.B. (D.J. MacLeod). A few plants were infected in 2 plantings in Lethbridge, Alta. (F.R. Harper).

CRINKLE MOSAIC (Solanum viruses 1, 2, and 3). A tr. was seen in 3 fields in York Co., N.B. (D.J. MacLeod).

MILD MOSAIC (Solanum viruses 1 and 3). Tr.-5% infection was observed in table stock fields of Green Mountain and Bliss Triumph in Carleton, Victoria, and York counties, N.B. (D.J. MacLeod).

RUGOSE MOSAIC (Solanum virus 2, strain 21). This unusual strain found in York Co., N.B., when inoculated into 6 plants each of 12 varieties, induced premature death by chlorosis in 9 varieties the first year and rugose mosaic developed the second year. No symptoms were observed in the other 3 varieties the first year, but rugose mosaic also appeared in them the second year (J. Munro).

FAINT MOSAIC (Solanum virus 3). An indistinct fleeting type of mosaic was observed in Arran Victory, Golden Wonder, Pontiac, Keswick, Sebago, Mohawk, and 4 unnamed seedlings in a test plot at Fredericton, N.B. In the same plot the Arran Victory, Keswick, Pontiac, and Sebago showed a mild mosaic when infected with a combination of Solanum virus 1 and Solanum virus 3 (D.J. MacLeod).

Recent studies at Fredericton on Solanum Virus 3 (Potato virus A) have shown that susceptibility to this aphid-transmitted virus is common among Canadian and American potato varieties. Canso, Irish Cobbler, and Mesaba, were found to react towards infection by virus A with acronecrosis, and are

therefore extremely resistant under field conditions. In 19 other varieties, however, a combination of this virus and the almost universally present Solanum virus 1 (virus X) produced the typical symptoms of mild mosaic indicative of susceptibility towards virus A. These varieties were: Ashworth, Bliss Triumph, Chisago, Green Mountain, Houma, Kasota, Kennebec, La Soda, Marygold, Mohawk, Norkota, Ontario, Placid, Pontiac, Russet Burbank, Russet Rural, Teton, Warba, and White Rose. In the variety Pontiac, no easily distinguished symptoms were produced by either virus A or a strong strain of virus X alone, but a combination of the two viruses produced a typical mild mosaic. The U. S. D. A. Seedling 41956, which is immune to virus X, shows only a slight waviness of the leaves when infected by virus A (R. H. Bagnall).

MILD MOSAIC (Solanum virus 11). A tr. to 3% was found in 5 fields of Irish Cobbler in Carleton and York Counties, N. B.; 2% was also found in Irish Cobbler grown in Carleton Co. sent in for a tuber-index test (D. J. MacLeod).

LEAF ROLLING MOSAIC (Solanum virus 11) was found in 4 fields of Green Mountain table stock in Carleton, Sunbury and York counties, N. B. (D. J. MacLeod).

NET NECROSIS. A tr. was found in Green Mountain, Irish Cobbler, and Netted Gem in 3 fields in N. B. When scions from the plants grown from tubers showing net necrosis were grafted to tomato and other indicator hosts, symptoms were produced in these hosts resembling those associated with purple top. Net necrosis in these varieties may thus be the result of infection by purple top (D. J. MacLeod). Very few fields showed net necrosis in B. C. (H. S. MacLeod). Mild net necrosis was seen in a few lots of tubers of Green Mountain grown in Madawaska Co., N. B. (C. H. Godwin). Net necrosis was observed in one lot of Green Mountain in N. S. (R. C. Layton).

PURPLE or BUNCH TOP (virus). Two of the 9 units affected with the haywire stage in B. C. (P. D. S. 31:72) were propagated in 1952. No symptoms appeared except that the plants were somewhat stunted. When scions were grafted to tomato and Cyphomandra betacea, no symptoms developed. Apparently the virus was not perpetuated in the tubers for a second year (N. S. Wright). Haywire was found in one field in s. Alta. (R. P. Stogryn). Haywire was found in 17 (15%) and purple top in 24 (19%) of the fields inspected in n. Alta.; both stages were most prevalent in the Peers district. Warba seemed the most susceptible of the varieties grown (J. W. Marritt). Traces of purple top were seen in a few fields in Man. (D. J. Petty). A single affected plant was seen in a field of Katahdin at Strathroy, Ont. (F. J. Hudson), and only the odd scattered plant was noted in district 2 (W. L. S. Kemp). Purple top was present in 8 fields in Canso, Katahdin, and Keswick in e. Ont. (E. H. Peters). A small percentage of purple top was observed in Katahdin, Sebago, Keswick, and Canso in district 3 (H. W. Whiteside). A sl. infection was noted in Que. in a few fields mostly

of Canso and Irish Cobbler (B. Baribeau). Purple top occurred to a sl. extent in all commercial varieties in N. B., notably on Green Mountain in York Co. (C. H. Godwin).

Purple top was common in potato fields in Carleton, Charlotte, Queens, Victoria, Sunbury, and York counties, N. B. It was observed in Canso, Chippewa, Bliss Triumph, Keswick, Katahdin, Green Mountain, Irish Cobbler, Kennebec, Pontiac, Sebago, and Netted Gem. Infection was tr. - 7%. The early stage of purple top, or late leaf-roll stage (P. D. S. 27:69) was widespread in the same counties where purple top was observed. It was noted on all varieties mentioned above except Pontiac and Netted Gem. Symptoms of purple top appear in a large percentage of the tops of some varieties such as Irish Cobbler and Green Mountain, but the virus passes into only a small percentage of the tubers of the affected plant. A trace of the haywire stage was seen in one field each of Irish Cobbler and Green Mountain in York Co. Misses as high as 22% were observed in fields of Canso, Keswick, and Katahdin in York Co. Nine seed-pieces out of 17 dug up and replanted in the greenhouse produced weak plants 6-10 weeks after replanting. When scions from these plants were grafted to tomato or other indicator plants symptoms of purple top were produced (D. J. MacLeod).

Tr. -sl. infection of purple top was seen in a few fields of Sebago and Canso in N. S. (D. J. Petty). Purple top was observed affecting on the average 1% of plants in 10 fields of Sebago in P. E. I. (R. R. Hurst).

SPINDLE TUBER (virus) was found in only one field in s. Alta., but 5% of the crop was affected (R. P. Stogryn). Some spindle-shaped tubers were observed in bins especially in Durham Co., Ont. (W. L. S. Kemp). The disease was observed in a field of Sebago in n. Ont. (H. W. Whiteside). A few affected plants were seen in a 40-acre field of Kennebec in Que. (B. Baribeau). A tr. was observed in several fields of commercial varieties in N. B. (C. H. Godwin). A tr. was noted in Canso, Green Mountain, Irish Cobbler and Kennebec in 4 fields in York Co. (D. J. MacLeod). Spindle tuber caused the rejection of 38 fields in P. E. I. compared with 31 in 1951 (H. L. McLaren). Infection averaged 0. 5% in several table stock fields examined in P. E. I. (R. R. Hurst). A sl. infection was seen on Arran Victory in Conception Bay, Nfld. (G. C. Morgan).

WITCHES' BROOM (virus) affected 1% of the plants of White Rose in a 4-acre planting on Sea Island, B. C. The potatoes had come from McBride, near Prince George, where they became infected in 1951 (N. S. Wright). Witches' broom was found in 56 (7. 6%) of the fields inspected in B. C., a marked decrease from the last 2 years; only 2 fields were rejected. Most of the disease is in the Cariboo and central B. C., but it also sl. affected a few crops of locally-grown seed in the North Okanagan (H. S. MacLeod). Witches' broom was found in 18 (17%) of the fields inspected in n. Alta., again being most prevalent in the Peers and n. e. areas (J. W. Marritt). The disease was again observed in the North Bay and Cochrane districts, Ont. (H. W. Whiteside). A tr. was found in one field each of Irish Cobbler and Green Mountain in York Co., N. B. (D. J. MacLeod), and in a field of Irish Cobbler in Queens Co., P. E. I. (R. R. Hurst).

YELLOW DWARF (virus). A few affected plants were seen in a field of Keswick in late July in district 3, Ont. (H. W. Whiteside).

BLACK HEART (non-parasitic). Affected a few tubers of Irish Cobbler in one bin in Queens Co., P. E. I. on 4 Feb. (R. R. Hurst).

FROST INJURY. A sl. amount of frost necrosis occurred in central B. C. (H. S. MacLeod). In some areas in n. e. Alta., 14 degrees of frost on 3 Oct. caused some damage to potato crops on lighter soils, up to 50% loss occurring in a few areas (J. W. Marritt). An early frost caused some damage in district 2, Ont. Exposed tubers were frozen in the field, and up to 25% loss occurred where the tubers had not yet been put in winter storage (W. L. S. Kemp). A field frost caused about 10% damage in 3 fields about Kemptville (E. H. Peters). Frost necrosis was prevalent about St. John's, Nfld. (G. C. Morgan).

GIANT HILL occurs widely in B. C., but no fields were rejected (H. S. MacLeod). A few plants were found affected in fields inspected in n. Alta. (J. W. Marritt). A few affected plants were observed in Green Mountain in the North Bay district, Ont. (H. W. Whiteside). and in Que. (B. Baribeau). Giant hill was seen in a number of fields of Green Mountain in N. S. (R. C. Layton).

HOLLOW HEART (non-parasitic) affected 3% of the tubers in one lot of Sebago examined in P. E. I. 27 Oct. It was reported frequently in Sebago and 15 times in Irish Cobbler (R. R. Hurst). Hollow heart was noted in Canso at a few places in e. Ont. (E. H. Peters).

JELLY END-ROT (non-parasitic) affected about 2% of the tubers in two lots of potatoes in Kings Co., N. S. Early growth was severely checked by dry conditions followed by a wet August and secondary growth (K. A. Harrison).

INTERNAL BROWN SPOT or SPRAIN (non-parasitic). Mod. affected 10% of the tubers of Irish Cobbler in a field in Kings Co., P. E. I. (R. R. Hurst).

LENTICEL SPOT (cause undetermined) affected a few tubers of a seedling at Saanichton, B. C. It was found in previous years on Warba and White Rose. The symptoms are similar to the disease described by Blodgett and Rich (Wash. State Coll. Popular Bull. 195:67. 1949) as caused by Erwinia carotovora (W. Jones).

LIGHTNING INJURY was observed in 2 fields in Nfld. (G. C. Morgan).

LOW TEMPERATURE INJURY. About 75% of the tubers were injured in a field of Green Mountain at O'Leary, P. E. I., from contact with frozen ground during digging (R. R. Hurst). In all, 5 cases of severe chilling in storage were diagnosed in the St. John's area, Nfld. (G. C. Morgan).

MEASLES (cause unknown) affected about 10% of the tubers in 2 fields, one of White Rose and another of Kennebec, at Invermere, B.C. (J.C. Hamilton, N.S. Wright). The symptoms of measles (Wash. State Coll. Popular Bull. 195:31. 1949) are "a rough scaly skin and a dull lifeless appearance of affected tubers. There may be a tan-coloured area, usually around the lenticels, which enlarges and extends into the tuber forming a pocket of pink or brown tissue... Later in storage the affected tissue may become darker, almost black, and appear as raised puffy areas which finally resemble black rot..." (I.L.C.).

NO-SPROUT TUBERS (non-parasitic). There were several poor stands, particularly of Canso and Ontario in district 3, Ont. The buds on the seed piece had failed to grow and small tubers were formed about the eye on short stolons. In most cases, the growers had planted the tubers directly after removing them from storage. Weather was cool and wet at planting time (H.W. Whiteside). In one field of Canso in Que., 24% of the sets failed to produce tops; several small tubers were formed close to the set (B. Baribeau). Up to 40% of misses were reported in a number of fields of Canso in Kings Co., N.S.; the eyes developed small tubers instead of sprouting (K.A. Harrison).

STEM-END BROWNING (non-parasitic) was prevalent in medium-sized and large tubers of Canso in district 3, Ont., affecting up to 30% of the crop in some fields. Large tubers were often hollow as well (H.W. Whiteside). About 1% of a small sample of Irish Cobbler was affected in Queens Co., P.E.I. (R.R. Hurst).

PUMPKIN

POWDERY MILDEW (Erysiphe cichoracearum) was observed in the plots at Vancouver, B.C. (H.N.W. Toms); and was fairly heavy late in the season in some fields at Summerland. (G.E. Woolliams).

RHUBARB

GREY MOULD (Botrytis cinerea). A sl. infection was noted on many stalks at Langley, B.C.; the fungus gained entrance where the stalks had been nicked by the cutting knife (I.C. MacSwan).

RED LEAF (cause unknown) is extremely prevalent and destructive in Sask., making the growing of rhubarb hazardous in this province. On account of the intensification of the colour in infected plants containing anthocyanin, the name "red leaf" for this disease seems more appropriate than "crown rot", the name used earlier in the Plant Disease Survey reports (R.J. Ledingham).

SPINDLY STALK (?virus). About 1% of the roots, when forced in March at North Kingston, N.S., produced small spindling petioles (K.A. Harrison).

SALSIFY

WHITE RUST (Cystopus cubicus) was general on plants, with several pustules on most leaves, at the Botanical Garden, Montreal, Que. (J. E. Jacques).

SPINACH

RUST (Puccinia subnitens). A sl. development of the aecia was present on leaves received from Kamloops, B. C. (I. C. MacSwan).

SQUASH

GREY MOULD (Botrytis cinerea). A tr. was seen at Cambridge, N. S. (K. A. Harrison).

POWDERY MILDEW (Erysiphe cichoracearum) was found on half the plants late in the season at Summerland, B. C. (G. E. Woolliams). Most crops became sev. infected in August and September in Essex Co., Ont. (C. D. McKeen).

BLACK ROT (Mycosphaerella citrullina) affected about 10% of the Sweet Keeper squash in storage on 12 Feb. 1952 at Cambridge, N. S.; the fungus was isolated (K. A. Harrison).

MOSAIC (virus) affected up to 50% of the plants in several fields in Essex Co., Ont.; loss of crop in one field was estimated at 30% (C. D. McKeen).

SCALD (non-parasitic). A superficial brown scald disfigured 80% of the Sweet Keeper squash in storage on 12 Feb. 1952 at Cambridge, N. S.; Blue Hubbard in the same cellar was not affected. No organism was present in the scalded areas, but the affected tissue favoured the entry of Botrytis. A large quantity of apples was stored in the same place (K. A. Harrison).

SWEET CORN

STALK ROT (Erwinia dissolvens) affected a few plants in a garden at Victoria, B. C. (N. Siefert, W. E. McKeen).

SMUT (Ustilago maydis) was observed on Southern Bantam in the Vancouver area, B. C. (I. C. MacSwan).

MAGNESIUM DEFICIENCY. Typical symptoms of magnesium deficiency were seen in an acre field at Pereaux, Kings Co., N. S. The field symptoms were confirmed by a quick test made by C. A. Eaves. Two applications of 50 lb. of magnesium sulphate, separated by 7 days, were effective and a good crop was obtained (K. A. Harrison).

TOBACCO

A special report on tobacco diseases in Ontario was prepared by Dr. Z. A. Patrick.

Seedbed Diseases

BLUE MOULD (Peronospora tabacina) did not occur either in the New or Old Tobacco Belts of Ont. until the last week of May, when scattered infections appeared in numerous districts. By this time, transplanting was well under way and damage was slight because after the plants became infected the dry weather proved unfavourable for development of the disease.

YELLOW PATCH (excessive nutrients) caused some damage throughout the Old and New Tobacco Belts. Many growers still tend to overfertilize their tobacco seedbeds even though they are aware of the danger from so doing.

DAMPING-OFF (Pythium sp. and Rhizoctonia solani) was widespread and caused mod. damage during the early part of the season. Continued cloudy weather provided favourable conditions for the disease, but it caused damage for the most part where plants in the seedbeds were too crowded and where water was applied in excess or in a faulty manner. In all beds where heavy damage was observed the growers had not followed the recommended program for control of blue mould.

This program consists of a spray application of ferbam 4 lb. in 100 gal. of water, using 4-5 gal. per 100 sq. yd. of seed bed. First application is made when the leaves on the young seedlings are the size of a dime and the applications are repeated twice a week until transplanting time. The value of the program for the control of damping-off as well as blue mould has been observed repeatedly over the last 10 years.

MUSHROOMS caused mild damage throughout the burley and dark tobacco areas of Kent Co.

2,4-D INJURY. A number of cases of injury were noted; it may apparently arise from using improperly cleaned sprayers or from drift from adjacent weed-spraying operations.

Field Diseases

BLUE MOULD (Perenospora tabacina). Due to the extremely dry weather conditions during and after transplanting, damage to tobacco in the field by the blue mould fungus was insignificant in the tobacco growing regions of Ont.

BROWN ROOT ROT (nematodes) was widespread causing sl-mod. damage to susceptible burley and flue varieties throughout Ont. The disease was perhaps more serious during 1952 than in any recent year because the first 5-6 weeks after transplanting were extremely dry.

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

FRENCHING (? soil toxins). A few fields of flue tobacco in Kent, Norfolk and Simcoe counties were a partial loss on account of frenching. This disorder was limited, however, to fields where the soil type is unfavourable for growing tobacco.

WILT (Fusarium oxysporum var. nicotianae) was widespread throughout the tobacco-growing areas of Ont. The damage was sl., however, because relatively few plants in each field were affected.

MOSAIC (virus) was widespread throughout the burley, dark and flue-cured tobacco growing areas of Ont.

ETCH (virus) again proved to be responsible for most of the damage on burley and black tobaccos.

RING-SPOT (virus) was observed throughout the burley, dark and flue-cured tobacco area; damage was very slight.

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

SORE SHIN (?Rhizoctonia solani) occurred in several fields of flue-cured and burley tobacco in Essex and Kent counties. The disease was limited to a few plants growing in parts of the field where drainage was poor.

Other Observations

ETCH (virus) affected a few scattered plants belonging to cigar varieties in the plots at Ottawa, Ont. (D. B. O. Savile, L. W. Koch).

TOMATO

EARLY BLIGHT (Alternaria solani). Tr. infections were observed in the plots at Lacombe and Edmonton, Alta. (T. R. D.). The disease became widespread late in the season on the canning crops in s. w. Ont. and caused much defoliation. The collar-rot phase was found affecting 6% of the plants of an importation from Georgia; up to 30% of the plants died in the field and the remainder was severely stunted (C. D. McKeen). Infection was sev. on leaves of plants from a home garden at Ottawa, Ont. (K. M. Graham). Early blight was present in every field in Laval Co., Que., but the damage was sl. (E. Lavallee). Commercial varieties were less sev. affected than usual in Kings Co., N. S., but several hybrids under test at Kentville were sev. defoliated in August. There were no complaints of losses during ripening

(K. A. Harrison). Tr. infections were seen in several gardens in Queens Co., P. E. I. (R. R. Hurst). Early blight caused little damage in most gardens and no heavy losses were noted or reported in Nfld. (G. C. Morgan).

GREY MOULD (Botrytis cinerea) affected 1% of the fruit of Stokesdale at Kentville, N. S. The disease causes losses of this order every year; it is usually found on fruit under the heaviest foliage and is heaviest towards the close of the season (K. A. Harrison). The disease affected about 2% of the plants in a greenhouse at St. John's, Nfld; a few of the fruit in contact with the soil rotted (G. C. Morgan).

LEAF MOULD (Cladosporium fulvum). A sl. infection was reported from Grande Prairie, Alta. (A. W. Henry). Cladosporium fulvum fruited profusely on fall crops of Vulcan in some greenhouses at Leamington, Ont.; in others the variety was free from mould. Improved Bay State showed resistance to the forms of C. fulvum present in s. w. Ont. (C. D. McKeen). Leaf mould caused sev. damage in a number of garden plots in London, causing in some complete crop failure. Its occurrence appeared to be associated with frequent heavy watering during very hot spells (R. A. Ludwig). Leaf mould caused sev. losses in a greenhouse at Hantsport, N. S. where the disease has caused losses in the past (D. W. Creelman). Leaf mould is destructive in greenhouses in St. John's, Nfld. Of the 5 greenhouses visited, foliage infection was sev. in 3 and sl. in 2. Growers state that Vetomold and V121 used to be highly resistant, but during the last few years they have proved highly susceptible. The varieties grown in 1952 were Vetomold, V121, Carter's Sunrise, Bonny Best and Burbank (G. C. Morgan).

ANTHRACNOSE (Colletotrichum phomoides) was sev. in many canning crops in s. Essex Co., Ont. especially in fields on sandy soils. In some fields the losses were mod. even where several ziram sprays had been applied (C. D. McKeen). One grower in Lincoln Co. reported that 50% of fruit in one large planting were sev. affected on 8 Oct. Diseased specimens were also received from Wentworth Co. (W. G. Kemp). Anthracnose is increasing slowly in prevalence in the Kentville area, N. S., infecting 50% of the fruit in one planting. It has also been found outside the area. Most commercial growers are using a fairly long rotation and ziram is being used as a spray (K. A. Harrison).

BACTERIAL CANKER (Corynebacterium michiganense). A tr.-sl. infection was seen in fields about Vernon, Kelowna, and Lillooet, B. C., but in one field at Vernon, 20% of the plants of Clark's Early were affected. Bird's-eye spot, the fruit spot phase of this disease, was observed in several fields in the Kamloops and Ashcroft districts. The infection was low and the affected fruit were culled out during packing. The spot was seen on plants that showed no vine infection (G. E. Woolliams). A sl. infection was present in the University variety plots at Winnipeg, Man. (W. A. F. Hagborg). An isolated field of 3000 plants was severely affected at St. Joseph du Lac, Two Mountains Co., Que. (E. Lavallee).

FUSARIUM WILT (F. lycopersici) caused losses in both early and late crops of tomatoes in Essex Co., Ont. The extremely hot summer favoured the disease and revealed several infected areas, where the fungus was previously unknown (C. D. McKeen).

ROOT KNOT (Meloidogyne sp.) caused sev. damage to a crop in a greenhouse in Sunbury Co. N. B.; the transplanting soil was apparently infested (S. R. Colpitts).

PHOMA ROT (P. destructiva). Only a tr. was seen in the ripening rooms in Kings Co., N. S., this year (K. A. Harrison).

LATE BLIGHT (Phytophthora infestans) was heavy late in the season on Stokesdale-4 in the plots at Vancouver, B. C.; other staked varieties were disease-free (H. N. W. Toms). Late blight infected both the foliage and fruit in a series of greenhouses at West Lorne, Ont., but the loss caused is unknown. No other outbreak was encountered in s. w. Ont. (C. D. McKeen). Late blight was noticed on the foliage and fruit at Ottawa about 1 Sept. It continued to increase until 30 Sept. it was present in every garden and commercial field, fruit infection being tr. -25%, av. 5% (H. N. Racicot). Late blight was first observed on 26 Aug. in Laval Co., Que. By 1 Sept, 20% of fruit were affected, increasing to 40% when picking was about completed (E. Lavallee). Late blight was much less sev. than last year. It appeared 18 Aug. in Richelieu and Quebec districts and 15 Sept. at Ste. Anne de la Pocatiere. On 22 Sept. a 10% infection was observed at Mistassini, Lake St. John district, being heaviest in Quebec 13, Asgrow and Quebèc 5 (H. Genereux). Late blight was found 23 Aug. severely affecting a planting of tomatoes, adjacent to affected Keswick potatoes in York Co., N. B. Considerable fruit rot developed late in the season in some localities (J. L. Howatt, S. F. Clarkson). Excellent control was obtained by large growers in Kings Co., N. S., but several garden plots were sev. infected (K. A. Harrison). Infection was tr. -sev. in Queens Co., P. E. I. (R. R. Hurst).

BUCK-EYE ROT (Phytophthora parasitica) affected only a few fruits in several fields in s. Essex Co. (C. D. McKeen).

BACTERIAL SPECK (Pseudomonas tomato). A small percentage of the fruits in the University variety plots, Winnipeg, Man., were unmarketable on account of the disease (W. A. F. Hagborg).

STEM ROT (Sclerotinia sclerotiorum). A few scattered plants were dead or dying in the variety plots at Brooks, Alta. (M. W. Cormack, F. R. Harper). A few plants in each of several flats were girdled at Pereaux, Kings Co., N. S.; cankers bore mycelium and sclerotia. A tr. of fruit and stem rot was present in the plots at Kentville in September (K. A. Harrison).

LEAF SPOT (Septoria lycopersici). Unlike most years, leaf spot was of no economic importance in most early and late canning crops in Essex Co., Ont. Apparently extreme drought conditions prevented the development of

the disease (C. D. McKeen). Leaf spot was sev. on the lower leaves by 21 July in a planting at Ottawa, Ont. (H. N. Racicot). Leaf spot caused more or less defoliation in many fields in Laval Co., Que., in August. In one field, the disease was already severe by 2 June (E. Lavallee). Young plants in several flats showed heavy infection of the older leaves in a greenhouse at Pereaux, N. S. The grower started his spray program early and the disease caused little defoliation in the field (K. A. Harrison).

VERTICILLIUM WILT (V. albo-atrum) caused stunting, wilting and death of up to 75% of the plants in a commercial greenhouse in Vernon and one in Kelowna, B. C. Wilt was prevalent and occurred in most commercial fields in the Okanagan, Thompson and Upper Fraser valleys. An extensive survey revealed an average of 55% of the plants affected. As the yield of affected plants suffered an average reduction of 12% in yield, it was calculated that yield was reduced by 6.6% or 2,725 tons over the entire area (G. E. Woolliams). It may be noted that Verticillium Wilt is found nearly every year in Essex Co., Ont., but it has never become an important disease. In the last 7 seasons at Harrow, I have not observed serious epidemics like those seen in the Niagara Peninsula (Can. J. Res. C. 21:95-117. 1943). The disease is most prevalent following a cool, wet spring (C. D. McKeen).

MOSAIC (virus) affected a few plants in fields about Osoyoos and Vernon, B. C.; it caused little damage (G. E. Woolliams). Mosaic infected up to 100% of the plants in many canning tomato fields in Essex Co., Ont., but no estimate of damage was made. The date on which symptoms appeared varied appreciably from farm to farm (C. D. McKeen). In two fields at Ste. Dorothee, Laval Co., Que., nearly all the plants were affected; the crop was noticeably reduced and 20-30% of fruits were of poor quality (E. Lavallee). In one greenhouse, at Kingston, N. S., where an attempt was made to control mosaic, the infection was definitely slower in becoming established although by March all the plants were affected. In previous years all the plants were infected early in the season. Workers were asked not to smoke while working and to wash their hands after smoking and handling diseased plants. Mosaic was not conspicuous in the field crop in Kings Co. this year (K. A. Harrison). Some 10% of the plants showed infection when the crop was examined in 3 greenhouses in St. John's, Nfld. (G. C. Morgan).

PURPLE TOP (virus). A tr. was seen in 3 plantings in York Co., N. B., and 10% infection in a garden at Fredericton (D. J. MacLeod).

STREAK (virus) caused sev. damage to 20% of the plants in a field of Gem at Vernon, B. C. (G. E. Woolliams). In Welland Co., Ont., streak appeared at one end of a greenhouse; about 200 of the 800 plants had to be removed to stop the spread of the disease (J. K. Richardson).

BLOSSOM-END ROT (non-parasitic) was not reported or observed in the plots, Vancouver, B. C., or in the Lower Fraser Valley (H. N. W. Toms). The disorder affected the fruit on the first truss on many farms in the Okanagan,

Thompson and Upper Fraser Valleys (G. E. Woolliams). Blossom-end rot was widespread in the canning crop in s. w. Ont. during August, losses up to 40% being attributed to the trouble. Following rain in early September it disappeared (C. D. McKeen). Blossom-end rot was sev. on the first trusses in a field of staked tomatoes in Lincoln Co. (J. K. Richardson). The disorder affected 20% of fruit in plots in a dry location at Ste. Anne de la Pocatiere early in the season; elsewhere it was less destructive (R. O. Lachance). Blossom-end rot affected 20% of the fruit in a planting in Kentville, N. S., during dry weather in July. Few complaints were received this year (K. A. Harrison). One case of heavy damage was recorded in Queens Co., P. E. I. (R. R. Hurst). Blossom-end rot was common in gardens about St. John's and Topsail, Nfld. About 5% loss was noted in 2 greenhouses (G. C. Morgan).

BLOTCHY RIPENING (cause unknown) occurred on the early maturing trusses on several farms in Kings Co., N. S.; the uneven colouring was less pronounced than in some years. One sev. affected sample was received (K. A. Harrison).

CREOSOTE INJURY. Young seedlings were severely burned in a new greenhouse attached to a building that had been covered with tar paper at St. Joseph du Lac, Deux Montagnes Co., Que. The seedling boxes were removed to beds outside and the plants recovered (E. Lavallee).

SKIN CRACKING (non-parasitic) was severe in the canning crop in Essex Co., Ont. following a heavy rain at mid-harvest (C. D. McKeen). Several reports of severe skin cracking were received from the Avalon Peninsula, Nfld., following heavy rains in August, which were preceded by a very dry July (G. C. Morgan).

2,4-D INJURY. The leaves were malformed in 2 successive plantings in a greenhouse at Medicine Hat, Alta. Nearby grass had been sprayed with 2,4-D ester about a year previously and boards used subsequently in the starting bed had been in contact with the grass (F. R. Harper). Several truck growers about Saskatoon, Sask., have complained that drift of 2,4-D from spray or dust applications on grain fields in their area have caused sev. damage particularly to tomatoes. In one tomato planting of several acres, damage characteristic of 2,4-D was sev.; fruit production was delayed and the fruit were off-shape (R. J. Ledingham). Injury was also observed for the last 3 years at North Battleford, Sask. (T. C. Vanterpool). Sev. damage was reported in a city garden, Ottawa, Ont. (H. N. Racicot). Sev. damage (60% loss) was caused in a field of tomatoes when weeds along the highway were sprayed with 2,4-D ester in Sunbury Co., N. B. The vines were curled and twisted and sev. stunted; fruits were distorted and some failed to set seed (D. J. MacLeod).

SUN SCALD (non-parasitic) was noticed in 3 gardens in the Avalon Peninsula, Nfld., in which leaf development was poor (G. C. Morgan).

TURNIP

GREY MOULD (Botrytis cinerea) affected only 3% of the roots of Ditmars swede turnips in storage at Barton, N.S., where the loss was 30% in 1951 (P.D.S. 31:83). The storage space was disinfected with formaldehyde, and no cabbage were stored in the same space (K.A. Harrison).

SOFT ROT (Erwinia carotovora) was affecting 1% of the Ditmars roots at Barton, N.S., in October; entrance was through growth cracks (K. A. Harrison).

DOWNY MILDEW (Peronospora brassicae) was heavy on the leaves at Milner, B.C., on 25 July (H.N.W. Toms).

BLACK LEG (Phoma lingam) sev. affected 2% of the crop of Laurentian swede turnips in a field in Queens Co., P.E.I. (R.R. Hurst).

CLUB ROOT (Plasmodiophora brassicae) caused sev. damage in a field at Jemseg, N.B. (S.R. Colpitts). It caused 80% damage in 1/2-acre field of Ditmars at Barton, N.S. (K.A. Harrison). Club root was present in small amounts in most fields of swede turnip in P.E.I.; several sev. infections were reported in October from various points in the province (G.W. Ayers). Club root was again severe in home gardens in the Avalon Peninsula, Nfld., causing some heavy losses (G.C. Morgan).

STORAGE ROT (Rhizoctonia solani) caused sl. damage to swede turnips in storage in the Victoria district, B.C.; the fungus was isolated from the necrotic tissues (W.R. Foster, W. Jones). A sl. infection occurred on Ditmars in storage at Barton, N.S. (K.A. Harrison).

BLACK ROT (Xanthomonas campestris). Stecklings of a Foundation seed stock of Acadia swede turnip were noted to have black streaks through the tap roots, in Forage plots, Ottawa. Isolations yielded a culture of X. campestris, which proved virulent when tested on cabbage seedlings. A seed examination of the original seed yielded only 5% affected by bacteria of X. campestris type. Seed was sown on land new to turnips. Typical symptoms of black rot were not observed during the growing season. Infection was sev., destroying 60% of the crop in a 7-acre field of Laurentian near Kingston, Ont. Black rot was followed by soft rot. The crop was grown on bottom land, on which an excellent crop of turnips had been grown in 1951. The debris from the previous crop, however, was heavy and not removed. Here again no leaf symptoms were evident on plants examined in the field (R.J. Baylis).

MOSAIC (virus). Specimens apparently affected by mosaic were received from St. Leonard de Port Maurice, Hochelaga Co., Que. (R.J. Baylis). A 10-acre field of Laurentian at Riviere des Prairies showed 15-20% of the plants infected (E. Lavallee). A crop of stecklings of Ditmars were 100%

affected when lifted in 1951 and the roots were so weak when tested in the greenhouse that they were not planted in 1952. Plots in the same area in 1952 showed 50-90% of the plants affected at harvest. Infection on the wild radish (Raphanus raphinistrum) in the area was estimated at 20%. One commercial planting isolated from other fields was almost free of infection. (K. A. Harrison).

STERILITY (virus). About 1% of the plants showed sev. symptoms in a seed plot in York Co. N. B. (D. J. MacLeod). Sterility affected 1% of the plants of Ditmars at Barton, N. S. ; a little of the trouble shows up every year (K. A. Harrison).

WITCHES' BROOM (virus). A tr. was seen in a seed plot in York Co., N. B. (D. J. MacLeod).

BROWN HEART (boron deficiency). Affected specimens were received from Springhill, N. S. ; the grower claimed that the disorder appeared despite the use of fertilizer containing boron. (K. A. Harrison). Swede turnips were sl. affected in several garden plots in Conception Bay, Nfld. (G. C. Morgan).

VEGETABLE MARROW

POWDERY MILDEW (Erysiphe cichoracearum) was heavy on Long White Bush at Vancouver, B. C. ; it apparently caused no damage (H. N. W. Toms).

WATERMELON

ANTHRACNOSE (Colletotrichum lagenarium) was sev. in a 2-acre field at Harrow and in an 8-acre one near Aylmer, Ont. ; losses were 20-60% (C. D. McKeen).

BLOSSOM-END BROWNING (non-parasitic). Ironsides, which is resistant to Fusarium wilt, showed up to 40% of its fruits affected in the Laboratory plot at Harrow, Ont. ; no other varieties were affected (C. D. McKeen).