III. DISEASES OF VEGETABLE AND FIELD CROPS

ASPARAGUS

RUST - Puccinia Asparagi DC.

Sask.- Asparagus was moderately infected by rust in the telial stage in the University gardens, Saskatoon, on Sept. 5.

Ont.- Twenty per cent of the plants of Martha Washington, a resistant variety, were rusted in a plantation in Lincoln county.

N.B.- Asparagus was slightly infected with rust at the Experimental Station, Fredericton.

CROWN ROT - Fusarium bulbigenum Cke. & Mass.

Sask.- A Fusarium was isolated from plants affected with crown rot in the University gardens, Saskatoon in August. The culture was identified as F. bulbigenum by Dr. W. L. Gordon (T.C. Vanterpool). A similar report was received last year under the name "basal stem root".

BEAN

RUST - Uromyces appendiculatus (Pers.) Lév.

N.B.- Rust caused severe damage to a variety of pole beans in a garden in Fredericton. A specimen was also received from Rothesay.

P.E.I.- A trace of rust was present in a garden in Queens county.

MOSAIC - Virus

B.C.- At least 50% of the bean plants were affected with mosaic at the Experimental Station, Summerland.

Alta.- Mosaic was observed in some Edmonton gardens.

Que.- Mosaic affected a trace to 6% of the plants at Macdonald College, the amount varying with the variety.

N.B. Mosaic is common in gardens in York county. On Golden Wax in a Fredericton garden, 5% of the plants were affected.

P.E.I.- One per cent of the plants were affected with mosaic in the several varieties grown at the Experimental Station, Charlottetown, while infections ranged from 0.1% to 0.5% in local gardens.

ANTHRACNOSE - Colletotrichum Lindemuthianum (Sacc. & Magn.) Bri. & Cav.

Que.- Anthracnose severly infected 50% of the plants of Golden Wax and Wardwell Kidney Wax among the several varieties of beans grown at Macdonald College.

N.B.- Anthracnose was severe in two gardens in Fredericton.

N.S.- A trace of anthracnose was reported in 3 acres of Pencilled Pod and Black Wax beans at North Kingston.

P.E.I.- Anthracnose slightly to severely affected bean varieties in the experimental plots, Charlottetown.

BACTERIAL BLIGHT - Pseudomonas Phaseoli E.F.Sm.

B.C.- Bacterial blight was fairly general on beans on Vancouver island, and caused a loss of about 20% of the crop in low lying areas.

Alta.- Bacterial blight caused severe damage in a few Edmonton gardens and light to moderate damage from this disease was common throughout the province.

Que.- Bacterial blight was first observed at Macdonald College on June 29. The amount of infection varied from a trace to 90% according to the variety. Scotia was the most resistant again this year, while 3 varieties were severely infected (90%).

N.B.- Bacterial blight caused slight damage in one garden in York county and in tne experimental plots of the Seed Testing Laboratory, Sackville.

WILT - Sclerotinia Sclerotiorum (Lib.) de Bary

N.B.- Wilt caused severe damage to beans in a private garden at the Experimental Station, Fredericton.

N.S.- A trace of wilt was present in a field of beans at North Kingston on July 21.

BEET

SCAB - Actinomyces Scabies (Thaxt.) Güssow

N.B.- Scab affected 2% of the beets in a garden in York county.

LEAF SPOT - Cercospora beticola Sacc.

Que.- Garden beets were moderately infected with leaf spot at Macdonald College.

N.B.- Leaf spot was common in the province. It caused slight damage in a small garden in York county.

P.E.I.- Leaf spot infection varied from a trace to heavy in local gardens in Queens county. The damage was slight.

SEEDLING BLIGHT - Fusarium sp.

Que.- Before the beets were thinned, 10% of the seedlings were killed by blight. No loss occurred in the mature crop.

CABBAGE

CLUB ROOT - Plasmodiophora Brassicae Woron.

B.C.- Club root was destructive in several fields in the Victoria and Vancouver districts.

Que.- Club root caused heavy losses in some fields of cabbage in Laval county.

N.B.- Three hundred plants were all infected and destroyed by club root on one farm in Sunbury county.

P.E.I.- Club root severely affected 2% of the Danish Ballhead plants in a commercial garden at Charlottetown and 1% in a garden at Brackley Beach.

BLACK ROT - Pseudomonas campestris (Pamm.) E.F. Sm.

Ont.- Black rot was present in the field in Waterloo county in 1932 and to some extent in the pits in January 1933. The damage was slight.

Que.- Black rot was unusually destructive at Macdonald College on turnip, swede, cauliflower and cabbage. It was estimated that 85% of the Danish Ballhead cabbage was infected and that the loss was 20%.

WIRE STEM - Corticium Solani (Prill. & Del.) Bourd. & Galz. (Rhizoctonia Solani Kühn.)

Man.- Wire stem caused some injury to cabbage at Winnipeg.

LEAF SPOT - Alternaria circinans (Berk. & Curt.) Bolle (=A. Brassicae Sacc.)

B.C.- Leaf spot was observed on a few plants on Vancouver island.

CARROT

YELLOWS - Virus

N.B.- Yellows severely damageed 90% of the carrots in a field in Sunbury county; a trace was found in a garden in Fredericton.

CAULIFLOWER

CLUB ROOT - Plasmodiophora Brassicae Woron.

B.C.- Club root was destructive in several fields about Victoria and Vancouver.

Ont.- About 50% of the plants were moderately infected with club root in a field in the Humber Bay district, but it did not seriously reduce the crop.

Que.- In Laval county club root affected from 5 to 20% of the plants in several fields and it caused considerable damage in some. The disease is becoming more and more prevalent.

N.B.- Club root caused severe damage in one garden in York county.

P.E.I.- Two per cent of plants were destroyed in a commercial garden in Charlottetown.

BLACK ROT - Pseudomonas campestris (Pamm.) E.F.Sm.

Que.- Black rot infected 95% of the Early Snowball cauliflower at Macdonald College and caused 70% damage.

WIRE STEM- Corticium Solani (Prill. & Del.) Bourd. & Galz. (Rhizoctonia Solani Kühn)

Sask.- Four plants were killed by wire stem at Saskatoon. Rhizoctonia was isolated.

CELERY

LATE BLIGHT - Septoria Apii Chester

Alta.- Celery was infected 100% by late blight in one Edmonton nursery and the disease was common and frequently severe in gardens.

Man.- Late blight moderately damaged celery at Brookside.

Ont.- In Lincoln county late blight is caused by both S. Apii and S. Apii var. graveolentis Dorogin. The former pathogen, although not as prevalent as the latter, nevertheless caused considerable damage. Several fields were observed, where only the "large spot" pathogen was found. Late blight, caused by S. Apii graveolentis was somewhat less prevalent than in previous years and did not appear until about July 15.

Que.- Moderate infections of late blight were seen in a few fields in Laval county.

N.B.- Late blight caused slight damage in one garden in Sunbury county.

P.E.I.- Late blight was very destructive this year on all varieties grown in Queens county.

YELLOWS - Fusarium sp.

B.C.- Yellows affected less than 1% of the plants in fields at Armstrong. The disease appeared sporadically in different parts of the field.

STUNT - ?Virus

Alta.- Celery was moderately to severely damaged in Edmonton gardens by a disease characterized by a stunting and yellowing of the plants. Attempts to isolate a parasitic organism failed.

BLACK HEART - Physiological

Ont.- In Lincoln county black heart was considerably more destructive than it has been for several years. The disease developed principally during the first week in August, after a rain following a prolonged dry period. It was observed chiefly on Golden Plume and Paris Golden.

P.E.I.- Black heart moderately affected celery in some commercial gardens in Queens county.

SOFT ROT - Bacillus carotovorus L.R. Jones
Ont.- Soft rot was destructive in January to celery in cold storage at Guelph. The plants were grown at Thetford.
In the field it caused no appreciable damage in Lincoln county in 1933.

DROP - Sclerotinia Sclerotiorum (Lib.) de Bary
Ont.- A single specimen affected with drop was seen in the experimental plots at the Laboratory farm, St. Catharines.

CUCUMBER

SCAB - Cladosporium cucumerinum Ell. & Arth.
N.B.- Scab was widespread and caused severe damage in Sunbury and Queens counties.
P.E.I.- It caused severe damage to cucumbers in some gardens at Charlottetown.

POWDERY MILDEW - Erysiphe Cichoracearum DC.
N.B.- Powdery mildew was present on cucumbers in a garden in Fredericton.

ROOT KNOT - Caconema radicicola (Greef) Cobb
Ont.- In a greenhouse in Welland 30% of the plants were affected with root knot in a small planting.

EGG PLANT

PHOMOPSIS BLIGHT - Phomopsis vexans (Sacc. & Syd.) Harter
Ont.- This disease was present on all varieties observed in Lincoln county, but it was not as prevalent as in previous years.

VERTICILLIUM WILT - Verticillium Dahliae Kleb.
Ont.- Verticillium wilt was common again this year in Lincoln county. It was found on the following varieties: New York Purple, Florida Highbush, Black Beauty, Early Dwarf, Blackie and Black Nagasakia. The damage varied from slight to 75% of the plants.

DRY FRUIT ROT - Alternaria sp.
Ont.- A dry fruit rot was observed in Lincoln county on the Florida Highbush, New York Purple and Blackie varieties. Not only were large external lesions formed, but also the internal tissue was invaded extensively. A species of Alternaria isolated from the internal tissue produced similar lesions when it was used to artificially inoculate healthy fruits and the organism

was re-isolated. Although the disease was observed on the fruits several times, the foliage was free of any Alternaria leaf spot. (J.K. Richardson).

SOFT ROT - Botrytis sp.
Ont.- A single specimen affected with soft rot was found in the Laboratory plots, St. Catharines.

EARLY BLIGHT - Alternaria Solani (Ell. & Martin) Jones & Grout.
N.S.- Early blight caused 5% damage to seedling egg plants at the Experimental Station, Kentville.

HOP

DOWNY MILDEW - Pseudoperonospora Humuli (Miyabe & Tak.) Wilson
B.C.- Basal spike infection by downy mildew was general on Cluster and Golding varieties in the spring in the Fraser River valley, although the disease was less prevalent than in previous years. It was kept in control by dusting the crowns with Bordeaux and by spraying with 1% Bordeaux. There was hardly any cone infection on account of a period of dry weather.
Field observations indicate that Golding, hitherto fairly resistant, is being attacked more heavily. Some plants of the Fuggles variety were slightly infected. (W. Jones)

CHLOROSIS - Virus
B.C.- Although several Golding plants were definitely chlorotic, the symptoms were not as pronounced as in 1932. Chlorosis was also observed in Fuggles, while in Clusters it may be present, but the symptoms were indefinite.

LETTUCE

DROP - Sclerotinia Sclerotiorum (Lib.) de Bary
Alta.- Severe damage was caused by lettuce drop in many Edmonton gardens and at the Experimental Station, Lacombe.

TIP BURN - Non-parasitic
B.C.- Tip burn was present in all districts in the Okanagan valley. It is the limiting factor in the production of lettuce.

RUST - Puccinia patruelis Arth.
Man.- Several varieties bore aecia of the rust at Brandon.

RING SPOT - Marssonina Panattoniana (Berl.) Magn.
B.C.- Ring spot was found in one field near Voctoria. The damage was moderate, being rather severe in patches.

Ont.- Ring spot caused severe damage to leaf lettuce on a farm near Port Dalhousie.

MARGINAL LEAF SPOT - Pseudomonas marginalis (Brown) Stev.
(Phytomonas marginalis (Brown) Bergey et al.

Ont.- Marginal leaf spot caused severe damage at Ancaster. Two heads received at Guelph showed typical symptoms of the disease and pure cultures of the organism were obtained (D. H. Jones). This is the first report of this disease to the Survey.

BOTTOM ROT - Rhizoctonia Solani Kühn

Que.- One third of a crop of Big Boston was severely damaged by bottom rot in a planting in Jacques Cartier county. The lettuce was on a muck soil, which had not previously grown lettuce or other vegetable crops. The organism was isolated.(J. G. Coulson)

ROOT KNOT - Caconema radicicola (Greef) Cobb

B.C.- Root knot caused considerable damage to ½ acre of lettuce in a field near Victoria.

ONION

NECK ROT - Botrytis Allii Munn

B.C.- Neck rot was much more prevalent than usual in the Kelowna district and caused a loss of thousands of tons of onions. The weather was wet and rainy over a considerable period at a time when harvesting of the crop should have been taking place.

N.S.- A trace of neck rot was found at Kentville.

SMUT - Urocystis Cepulae Frost

Ont.- Thirty to 40% of the plants of Danvers Yellow Globe were infected with smut in a field in Lincoln county on May 29. The seedlings were about 3 inches high. No attempt had been made to control the disease.

N.B.- A trace of onion smut was found at the Experimental Station, Fredericton.

DOWNY MILDEW - Peronospora Schleidenii Unger

B.C.- Onions were infected approximately 90% by downy mildew in a few fields in the Delta region, Fraser River valley. The disease was general in other areas and caused moderate damage.

BULB ROT - Fusarium oxysoporum Schl. (=F. Cepae Hanz.)

B.C.- Bulb rot was in general more extensive in the Kelowna area than it has been and caused a loss of about 5% of the whole crop. Cultures of the organism were identified by Dr. W.L. Gordon.

SOFT ROT - Bacillus carotovorus L.R. Jones
Que.- The crop of Yellow Globe Danvers and Red Globe was almost a total loss at Macdonald College on account of soft rot.

PEA

POWDERY MILDEW - Erysiphe Polygoni DC.
B.C.- Powdery mildew was general on Vancouver island and the lower mainland; the damage was slight.
N.B.- Powdery mildew was common in Westmorland, Queens, York and Sunbury counties.

DOWNY MILDEW - Peronospora Viciae (Berk.) deBary
B.C.- Downy mildew was general in the Fraser valley and on Vancouver island. It caused moderate defoliation; the disease was heaviest where the crop was partially lodged.
Alta.- Downy mildew was severe on several varieties at Brooks.

LEAF and POD SPOT - Ascochyta Pisi Lib.
Alta.- This disease caused severe damage in several Edmonton gardens.
Que.- Leaf and pod spot was first observed on June 2 at Macdonald College. Pod infection varied from 3-5 per cent on July 15. In the Quebec Seed Board plots the Arthur variety was the most severely infected.
N.B.- A trace of the disease was present in the Seed Laboratory plots, Sackville.
N.S.- Leaf and pod spot caused slight damage in a garden at Kentville.

RUST - Uromyces Fabae (Pers.) de Bary
Que.- The varieties of peas were moderately infected at Macdonald College. It was not as prevalent as last year.

WILT - Fusarium sp.
Man.- A trace of wilt was found on peas at Morden.

PEPPER

ROT - Alternaria sp.
Ont.- Rot caused considerable damage to pepper in Lincoln county, the loss of fruit varying from a trace to 15%. Alternaria was constantly associated with the lesions, and positive results have been obtained from needle prick inoculations with the organism. (J.K. Richardson)

SCLEROTIUM DISEASE - Sclerotium bataticola Taub.

Ont.- Two fruits affected with this disease were found on a farm in Lincoln county.

POTATO

The following summary of the prevalence of disease in fields inspected for certification in Canada was supplied by Mr. John Tucker, Chief Potato Inspector. Fields for certification were grown from certified seed. Of the fields inspected, 1,931 or 24.1% failed to pass inspection on account of disease, etc. The presence of mosaic in excess of the amounts permitted by the regulations is the chief cause of rejection; over half or 55.8% of the rejections were on account of mosaic. The percentage of rejections on account of other diseases were as follows: black leg, 3.9%; leaf roll, 5.7%; and adjacent in diseased fields, 11.9%.

LATE BLIGHT - Phytophthora infestans (Mont.) de Bary

B.C.- Late blight was fairly general in the Chilliwack and Agassiz districts of the Fraser valley during August. Dry weather checked subsequent spread of the disease.

Que.- Thirty-five fields were rejected on account of late blight out of 1,616 inspected for certification.

N.B.- Late blight developed later than usual and caused moderate damage in York, Carleton (lower part), Madawaska, Westmoreland, Kent, Gloucester and Restigouche counties, and severe damage in the counties of Victoria and the upper part of Carleton. Dry weather prevented much tuber infection, especially in York county. It was reported on Irish Cobbler, Green Mountain and Bliss Triumph.

N.S.- Late blight caused practically no damage in well sprayed fields on Colchester county, but where the fields were not sprayed the damage was occasionally severe as the following records show: Early Rose unsprayed, infection severe, 50% of the tubers rotted; Irish Cobbler in the same field 3% of rot; Irish Cobbler, well sprayed, 75% of the fields free, highest loss 0.5%; Garnet Chili, unsprayed, 4% of rot; well sprayed, not over 0.5% of rot.

P.E.I.- Late blight caused slight to very severe damage in every county. All varieties were affected this year except certain resistant strains, only grown in an experimental way. This was one of the worst blight years on record.

RHIZOCTONIA - Corticium Solani (Prill. & Del.) Bourd. & Galz. (Rhizoctonia Solani Kühn)

Ont.- Rhizoctonia caused considerable damage to a 40 acre field of Dooley and Irish Cobbler in Kent county. The soil was a black muck.

N.B.- Rhizoctonia infected potatoes severely in Carleton, Madawaska and Victoria counties, moderately in Restigouche and Westmoreland, and slightly in Gloucester, York and Sunbury. Of 544 bins examined, 6.6% of the tubers bore rhizoctonia sclerotia.

N.S.- Rhizoctonia was less prevalent this year than usual. Instead of 6 to 8% of the tubers being infected, the average infection was not more than 3% in Colchester, Cumberland, Pictou and Halifax counties.

P.E.I.- Rhizoctonia infection ranged from a trace to 100%. All varieties were infected, Irish Cobbler being the worst.

COMMON SCAB - Actinomyces scabies (Thaxt.) Güssow

B.C.- Common scab was general, but the damage was only slight.

N.B.- Scab was severe in Carleton, Gloucester and Westmoreland counties; moderate in Madawaska, Restigouche, Victoria and Sunbury; and slight in York. Of 544 bins examined, 4.2% of the tubers were infected.

N.S.- An average of 3% of the tubers were affected by scab in Colchester, Cumberland and Pictou counties; the percentage was somewhat higher in Kings. In a field of Irish Cobbler in Colchester county 75% of the tubers were severely affected.

P.E.I.- Common scab caused slight to severe damage in all 3 counties. It was observed on Irish Cobbler, Green Mountain, Bliss Triumph, Spaulding Rose, McCormacks Peachblow, McCullough, Scotch Rock and Snowflake.

BLACK LEG - Bacillus phytophthorus Appel

B.C.- Black leg was found in the Duncan and Comox districts. The highest infections were on Columbia Russett and Epicure. Out of 253 fields inspected, 19 were not certified on account of black leg.

Alta.- Out of 214 fields inspected for certification 9 were rejected on account of black leg.

Sask.- Black leg was the cause of rejection in 4 fields out of 146 inspected for certification.

Man.- Two fields out of 70 inspected were rejected on account of black leg.

Ont.-Sixteen fields out of 525 inspected were rejected on account of black leg.

Que.- Black leg was the cause of rejection in 22 fields out of 1,616 inspected.

N.B.- Black leg was more prevalent in Irish Cobbler than in either Green Mountain or Bliss Triumph. The average infection was 0.02% in 876 fields examined.

N.S.- One per cent of the plants were affected with black leg in a field of Irish Cobbler in Colchester county. It was otherwise scarce in this county, practically absent in Kings and present to a very slight extent in Cumberland.

P.E.I.- The following black leg infections were reported:

Green Mountain, 1%; Irish Cobbler, 0.5%; Bliss Triumph, and Peachblow, 0.1%.

EARLY BLIGHT - Alternaria Solani (Ell. & Martin) Jones & Grout

B.C.- Early blight was fairly general in all potato growing districts. The damage was slight.

Alta.- Early blight heavily infected one field.

Que.- Early blight infected early varieties severely and late ones, moderately, at Macdonald College.

N.B.- Early blight caused severe infection in York, Sunbury, Carleton, Westmoreland, Gloucester, Victoria, Madawaska and Restigouche counties.

N.S.- In general, the average infection of early blight was slight to moderate. It was severe in the "Valley" district of Kings county, but owing to drought, damage due to early blight alone was difficult to estimate. In one field in Colchester county, infection was severe and the yield was reduced 50% on account of early blight and drought. In the same county, 1% of the tubers of Irish Cobbler were affected with Alternaria rot.

P.E.I.- Early blight caused slight to severe damage. It was observed on Green Mountain, Irish Cobbler, Early Rose, Spaulding Rose, Bliss Triumph and on many of the seedlings being grown at Charlottetown.

LEAF ROLL - Virus

B.C.- Leaf roll was reported from Summerland. Out of 253 fields inspected for certification in British Columbia, 3 were rejected on account of leaf roll.

Alta.- Leaf rollwas the cause of rejection of 3 fields out of 214 inspected.

Sask.- Only traces of leaf roll were reported.

Man.- Leaf roll with mosaic caused the rejection of 3 fields out of 70 inspected.

Ont.- Four fields were rejected on account of leaf roll out of 1525 inspected for certification.

Que.- Leaf roll was the cause of 15.9% of the total rejections or 76 fields out of 1,616 fields inspected.

N.B.- Leaf roll was reported on Green Mountain, Irish Cobbler and Bliss Triumph. Out of 876 fields examined for certification, leaf roll was the cause of 3.3% of the rejections.

N.S.-Leaf roll was found in several counties. The heaviest infection was in Kings county in a field of Bliss Triumph, where 40% of the plants were affected.

P.E.I.- Leaf roll caused slight to severe damage throughout the province. The following range of leaf roll infections were reported: Irish Cobbler, trace to 50%; Green Mountain, trace to 15%; Bliss Triumph, trace to 28%; Spaulding Rose, trace to 5%.

MOSAIC - Virus

B.C.- Mosaic rather severely infected potatoes on Vancouver

island. Out of 253 fields inspected for certification in British Columbia, 28 were rejected on account of the disease. The highest infections were reported in Columbia Russett and Green Mountain, the lowest in Up-to-Date.

Alta.- Only one field out of 214 inspected was rejected on account of mosaic.

Sask.- Only traces of mosaic were recorded.

Man.- Mosaic alone or with leaf roll caused the rejection of 5 fields out of 70 inspected.

Ont.- Only 4 fields out of 525 inspected were rejected on account of mosaic. It may be noted that three-quarters of the acreage is planted to Rural New Yorker, which apparently remains comparatively free of mosaic under Ontario conditions.

Que.- Mosaic is the cause of 47.6% of the total rejections, 227 fields failing to pass out of 1,616 inspected.

N.B.- Mosaic was common in all the potato growing sections of the province. In fields inspected for certification, the presence of mosaic was the chief cause for rejection, for of the fields rejected, 80.7% were disqualified on account of mosaic.

N.S.- Mosaic was reported from 6 counties; the highest infection, 29.6%, was found in Kings.

P.E.I.- Mosaic was reported in the following varieties: Green Mountain, trace to 100%; Irish Cobbler, trace to 52%; King Edward, trace to 2%; Blue Victor, trace to 0.5%; Arran Banner, trace to 62%; and Champion, 12%.

WITCHES' BROOM - Virus

B.C.- Witches' broom was reported in Sir Walter Raleigh variety on Vancouver island.

SPINDLE TUBER - Virus

N.B.- A slight amount of spindle tuber was found in all the potato growing sections of the province. Irish Cobbler and Green Mountain were affected.

P.E.I.- Spindle tuber was found in seedlings and Irish Cobbler at the Experimental Station, Charlottetown.

GIANT HILL - Virus

B.C.- Giant Hill was present in all varieties, but it was most severe in Burbank and Netted Gem.

N.B.- This disease was present to a slight extent in all the potato growing sections.

STREAK - Virus

P.E.I.- Streak caused severe damage to seedlings in the experimental greenhouse, Charlottetown.

NET NECROSIS - Cause unknown

P.E.I.- Net necrosis affected 1% of the plants in a field in Queens county.

STEM END HARD ROT - Phomopsis tuberivora Gussow & Foster

B.C.- Only a few tubers were found affected with stem-end hard rot.

DRY ROT - Fusarium spp.

B.C.- About 1% of the tubers in storage were affected with dry rot in May at Saanichton. The disease was common in other areas.

Ont.- Some dry rot was present in a sample of Green Mountains received at the St. Catharines Laboratory.

N.B.- A trace of dry rot was found on the tubers in storage in the fall in several counties.

P.E.I.- Dry rot was reported from storage houses in all three counties in the late winter and spring. It was noted on Irish Cobbler, Green Mountain, King Edward, Bliss Triumph, and Garnet Chili.

WILT - Cause not determined

N.S.- Wilt affected 7% of the plants in a field in Pictou county. This wilt has been under observation for several years. Although roguing has been practiced, it has continued to increase (W.K. McCulloch).

SILVER SCURF - Spondylocladium atrovirens Harz

B.C.- Silver scurf was found on several tubers of different varieties. There was no apparent injury.

N.B.- Traces of silver scurf were found in Carleton, Madawaska, Gloucester, Restigouche and Victoria counties.

P.E.I.- Silver scurf was found on potatoes in storage in April and in the field in September. It was reported from Queens and Prince counties.

POWDERY SCAB - Spongospora subterranea (Wallr.) Lagerh.

B.C.- Powdery scab was found on Early Epicure certified seed potatoes grown at Pitt Meadows in 1932. The grade was "small size". (G.E. Woolliams)

This is the first record of the occurrence of powdery scab in British Columbia.

N.B.- A trace of powdery scab was found in Gloucester, Restigouche and Victoria counties.

P.E.I.- Reports of moderate infections of powdery scab were received from isolated parts of all 3 counties.

PHOMA ROT - Phoma tuberosa Melhus, Rosenb. & Schultz

N.B.- A trace of Phoma rot was found on Green Mountain in Victoria county.

P.E.I.- In April Phoma rot slightly to heavily infected Green Mountain and Irish Cobbler in Queens and Prince counties.

SOFT ROT - Pythium ultimum Trow.

B.C.- Soft rot, which causes the decay of the seed pieces after planting in spring, was found in several fields at Ladysmith and Cobble Hill. In 2 fields there were 50% misses.

GREY MOULD ROT - Botrytis sp. (B. cinerea type)

P.E.I.- In many fields the organism appears to be mildly pathogenic, but occasionally it is very parasitic, especially where the plants are suffering from lack of potash. In a field of Green Mountain in Prince county, 100% of the plants were infected and the damage was heavy.

SKIN SPOT - Oospora pustulans Owen & Wakef.

N.S.- Ten per cent of the tubers were affected with skin spot in British Queen, which was grown in the quarantine plots, Kentville, from tubers from Northern Ireland. (W.K. McCulloch)

FROST INJURY

N.B.- Slight damage was caused by a frost on Aug. 22, in the Saint Quentin district in Madawaska county.

P.E.I.- Frosts in September and October 1933, when the potatoes were still in the field, and low temperatures during transit caused heavy losses.

MAGNESIUM DEFICIENCY - Non-parasitic

N.B.- Severe damage was caused by this condition in a field of Green Mountain in York county; the loss was about 50% of the crop. The trouble has also been reported from Westmoreland, Carleton and Victoria counties.

Where plants are suffering from the lack of magensium they resemble those affected with physiologic tip-burn except the lower leaves are the first to show the symptoms. They also usually fall off. The plant does not die but growth is retarded and the yield of some plants is practically nil.

LENTICEL ENLARGEMENT - Non-parasitic

Sask.- Excessive enlargement of the lenticels was conspicuous about Saskatoon, on tubers dug after the heavy rains in September. The damage was negligible.

PUMPKIN

POWDERY MILDEW - Erysiphe Cichoracearum DC.

N.B.- Powdery mildew was found on pumpkin in a garden in Fredericton.

RHUBARB

CROWN ROT - Cause unknown

Alta.- Crown rot was general about Edmonton. Infection

was heavy and damage severe.

Sask.- Crown rot was strikingly less prevalent in 1933 at Saskatoon than it has been for the last 3 or 4 years. Formerly the general opinion was that the disease was worst during very hot summers. This view hardly seems tenable as the past summer was extremely hot and dry. (T.C. Vanterpool)

LEAF SPOT - Ascochyta Rhei Ell. & Ev. and Phyllosticta straminella Bres.

N.S.- Ascochyta leaf spot caused slight damage at Kentville, while Phyllosticta leaf spot killed some leaves of rhubarb in a garden in Halifax county.

P.E.I.- Ascochyta leaf spot caused moderate damage in Queens county.

RUST - Puccinia Phragmitis (Schum.) Körn.

Man.- The first record of this rust on rhubarb in Manitoba was made at Brandon by Dr. Machacek on June 7. Some varieties were heavily attacked. The rust was rather common; it was even sent in from Inwood as a "serious disease". (G.R. Bisby)

LEAF and PETIOLE SPOT - Cause unknown

Sask.- This trouble was conspicuous on Ruby in two seedling nurseries at the University, Saskatoon. On the petiole the spots were 1 to 2 mm. wide by 2.5 mm. long with light-coloured water-soaked centres and red to purple margins. See also Can. Pl. Dis. Survey 12:51. (T.C. Vanterpool)

SALSIFY

YELLOWS - Virus

N.B.- Two per cent of the plants were affected with yellows in a garden in York county.

WHITE RUST - Cystopus cubicus (Strauss) Lév.

Que.- White rust affected 100% of the plants in a garden in Laval county.

SWEET CORN

BACTERIAL WILT - Bacterium Stewartii (E.F.Sm.) Stev.

Ont.- Bacterial wilt was found in many plantings in Kent, Essex, Norfolk and Lincoln counties. Usually 5 to 50% of the plants were infected; in one field of Golden Bantam in Kent county 50 to 60% of the plants were diseased. Infected plants were a total loss (G.C. Chamberlain)

SMUT - Ustilago Zeae (Beckm.) Unger

Ont.- A specimen of sweet corn affected with smut was received from MacLennan.

Que.- At Macdonald College sweet corn was affected as follows: ear, 1-2%; stalk, 3%; tassel, trace. Field corn showed a trace to slight infection. In the Montreal district smut infections ranged from a trace to 12 and 15%; the damage was considerable. A specimen was also received from Ste. Anne de la Pérade.

N.B.- A trace of corn smut was found in a small field at the Experimental Station, Fredericton.

RUST - Puccinia Sorghi Schw.

Que.- Traces of rust were present on sweet corn in Jacques Cartier county. It was not as prevalent in the fields examined as it was in 1932.

P.E.I.- Traces of rust were present in local gardens in Queens county.

A specimen of Golden Bantam affected with Epicoccum neglectum was collected at Yarmouth, N.S. (K.A. Harrison & I.L. Conners)

TOBACCO

I am indebted to Mr. N. A. MacRae, Tobacco Division, Ottawa, and Mr. G.C. Chamberlain, Dominion Laboratory of Plant Pathology, St. Catharines, Ont., for data here presented.

(1) Seed-Bed

DAMPING OFF - Pythium de Baryanum Hesse

Damage from damping off was reported in a few beds in the Farnham district, Que., but it was not as serious as in 1932. Several cases of damping off in plant beds were reported from Essex and Kent counties, Ontario.

DAMPING OFF - Rhizoctonia Solani Kühn

Damping off found to be caused by Rhizoctonia was encountered in one greenhouse in Norfolk county, Ont. It appeared in 3 areas in the greenhouse and was successfully corrected by drying off the beds and then giving careful attention to watering and ventilation.

In one greenhouse in the Norfolk district young plants were found rotted off at the ground level over an extensive area in the beds. The cause was apparently the high acidity (pH 4.8) of the muck dressing. When slacked lime was applied the acidity was neutralized, the plants put out fresh roots and made a satisfactory recovery.

BLACK ROOT ROT - Thielavia basicola Zopf

About 75% of the beds in the Farnham district, Que., were affected with black root rot. The damage in the majority ranged from 2 to 25%. In beds, however, where the mould was 3 to 4 years old and had been disinfected when the soil was wet, 50 to 80% of the plants were severely affected. The disease was reported to be very prevalent in L'Assomption district in beds, which were not disinfected with formalin, 10 to 100% of the plants being affected. Black root rot was also reported in one bed in the Essex-Kent area, Ontario.

WILDFIRE - Pseudomonas Tabacum (Wolfe & Foster) Stev.

Serious losses were caused by wildfire at the Central Experimental Farm, Ottawa, Ont.

(2) Field

BLACK ROOT ROT - Thielavia basicola Zopf

Black root rot was very prevalent throughout the L'Assomption district, Que. In the Farnham district, lack of heavy and frequent rains prevented serious losses although it was observed a number of times. Similarly black root rot was not observed in Ontario, where it might have been expected, probably because the hot dry season was unfavourable for its development.

WILDFIRE - Pseudomonas Tabacum (Wolfe & Foster) Stev.

Wildfire was reported from several farms in the Farnham district, Que. and a number of plants were affected at the Central Experimental Farm, Ottawa, Ont. Infection was traceable to the seed beds in most cases.

ANGULAR LEAF SPOT - Pseudomonas angulata (Fromme & Murray) Stev.

In the L'Assomption district, Que., several severe cases were reported. There appears to be differences in varietal resistance. Some of the large pipe types showed less disease than the small pipe types, but more than the cigar types. Angular leaf spot was reported in 6 fields in the Farnham district, infection ranging from 2 to 10%. A section of one field in Essex county, Ont., was moderately affected.

HOLLOW STALK - Bacillus carotovorus L.R. Jones

About 10% of the plants were affected by hollow stalk in 2 plantations in the L'Assomption district, Que.

MOSAIC - Virus

Mosaic was decidedly prevalent in western Ontario, especially on the lighter soil; secondary infection resulted in considerable injury. On several farms in Norfolk county, where the growth of the plants was followed the following percentages of mosaic

were recorded.

Severe mosaic	Mild mosaic
24%	61%
60%	23%
26%	58%
8%	31%
3%	6.5%
10%	30%

In the last three fields the grower practised early roguing of mosaic plants. It explains, no doubt, the low percentage of severe mosaic in these fields as compared with the others.

In both the L'Assomption and Farnham districts, Que., mosaic was present; in the former, mosaic spread rapidly and infection was on the increase. The disease was also present in British Columbia.

RING SPOT - Virus

Ring spot was reported in a few Burley fields in Essex and Kent counties, Ont.; infection was very localized.

FRENCHING - Nitrogen deficiency

A few isolated cases of frenching were reported from Norfolk county, Ont., and the Sumas district, B.C.

PHYSIOLOGICAL LEAF SPOT

This condition, though not serious, is quite prevalent in localized areas in all tobacco growing districts.

LEAF DROP - Cause unknown

Leaf drop is quite common where Burley is grown in the Kelowna district, B.C.

FIRING - Drought and heat.

Tobacco suffered considerably from firing in the higher fields on light sandy soils in western Ontario.

WIND and HAIL

Severe wind storms caused some damage here and there. Hail was the cause of heavy losses in a few plantations near Windham and Vanessa in Norfolk county, Ont.

FROST

Heavy frosts damaged about 1,000,000 lbs. of tobacco in the Norfolk district, Ont., in the early fall.

POTASH HUNGER

One field of Burley tobacco was severely affected by potash hunger in the Essex-Kent area, Ont.

SORE SHIN - Rhizoctonia Solani Kühn

Although sore shin caused by Rhizoctonia was seen several times in Norfolk county, Ont., the disease is of little importance.

(3) Curing Barn

POLE BURN

Some injury from pole burn was reported in scattered localities in Quebec.

TOMATO

BLOSSOM-END ROT - Non-parasitic

B.C.- Blosson-end rot was found in one field in Victoria district. Bonnie Best and Paynes Victory were severely affected, while Best-of-All, Lucky 13 and Essex Wonder showed less injury.

Man.- Tomatoes affected with blossom-end rot were received from St. Léon at the Ottawa Laboratory. The correspondent stated the crop was almost a total loss.

Ont.- Blossom-end rot was widespread and prevalent in many districts in Western Ontario and on several varieties. Weather conditions this year favoured the development of the disease.

N.B.- Blossom-end rot caused severe damage in Queens and Victoria counties.

P.E.I.- In a garden in Queens county 15% of the fruit was affected.

MOSAIC - Virus

Ont.- In a greenhouse in Welland county in October 100% of the plants were affected with mosaic. The growth of the plants was stunted.

Que.- Mosaic was reported from Macdonald College and it developed on seedlings grown from imported seed at Ste. Anne de la Pocatière.

P.E.I.- Two and 60% of the plants respectively were affected by mosaic in 2 gardens in Queens county.

STREAK - Virus

B.C.- Streak caused an average loss of 5% of the crop in several greenhouses in the Victoria district.

Ont.- Streak severely affected 10% of the plants in a greenhouse in Welland county.

LEAF MOULD - Cladosporium fulvum Cke.

B.C.- Leaf mould was general in several greenhouses. It reduced the yield from 0.5 to 20%. Control measures are gradually being adopted.

Alta.- In a commercial greenhouse at Edmonton the plants were infected 100% by leaf mould.

Ont.- Outbreaks of leaf mould were observed in several greenhouses in Lincoln county. Riverside Favourite, a supposedly resistant variety, showed 75% infection in October.

Que.- Leaf mould caused some defoliation on different varieties in the field at Macdonald College.

N.B.- This disease was common in the field in York, Victoria, Sunbury and Carleton counties; the damage was slight.

EARLY BLIGHT - Alternaria Solani (Ell. & Martin) Jones & Grout

P.E.I.- Early blight caused severe damage in Queens county. Infections on the fruit ranged from a trace to 65% and on the leaves from a trace to 80%. It is the worst outbreak on record.

LEAF SPOT - Septoria Lycopersici Speg.

Que.- Leaf spot caused some defoliation on various varieties at Macdonald College.

WILT - Fusarium sp.

B.C.- Wilt caused the loss of 60% of the plants in one greenhouse and 5% in another near Victoria.

STEM ROT - Botrytis sp.

B.C.- A stem rot due to Botrytis caused small losses in several greenhouses near Victoria. A few fruits attacked by Botrytis were reported from a greenhouse, at Summerland.

WILT - Sclerotinia Sclerotiorum (Lib.) de Bary

B.C.- A single affected specimen was seen in a greenhouse at Summerland. Sclerotia were common on the stem about 12" above the ground, where infection apparently took place through a wound.

STEM ROT - Pythium sp.

Ont.- A few plants, just after they were set out, were destroyed by stem rot and had to be replanted in a field in York county.

BUCKEYE ROT - Phytophthora parasitica Dastur

B.C.- Buckeye rot was found in several greenhouses in Victoria district in the bottom trusses with 1% of the fruit affected.

BACTERIAL CANKER - Bacterium michiganense (E.F.Sm.) Stev.

B.C.- About 800 plants were destroyed by bacterial canker on one farm, near Summerland.

Man.- Bacterial canker caused some injury in gardens at Winnipeg.

TURNIP

CLUB ROOT - Plasmodiophora Brassicae Wor.

Que.- Club root infected 8% of the swedes in a field in Kamouraska county.

N.B.- Club root was widespread on turnips in the province. In 112 gardens examined, infection ranged from 0 to 100%; the damage similarly varied from slight to severe.

N.S.- Club root was found in 3 out of 6 fields examined in Colchester and Kings counties. In the infected fields it caused 5 to 25% damage.

P.E.I. The loss from club root was estimated to be $8,000. in the 3 counties. It was found on Bangholm, Halls Westbury, Hazards Improved, Millpond and Ditmar.

BROWN HEART - Non-parasitic

Ont.- Brown heart is widespread in turnip-growing sections. It was more conspicuous in early sowings. In one field in Wellington county 25 to 40% of the roots were useless on account of brown heart.

Que.- Three to 100 per cent of the swedes were affected by brown heart in the several varieties and strains grown at Macdonald College. The damage was correspondingly slight to severe.

The disease was observed in Kamouraska, L'Islet and Bellechase counties. It was less severe on farms where no chemical fertilizers were used or where the crop was grown on light, well-drained soil and harvested early in the fall. Large roots were more frequently affected than small. In one farm half the crop was useless.

N.B.- In 17 fields examined in Westmoreland, York, Carleton, Sunbury, Queens and St. John counties, brown heart caused slight to severe damage. It is probably the limiting factor in turnip production.

P.E.I.- Brown heart caused a loss of $25,000 to $30.000 in Prince Edward Island this year. It was particularly destructive in Queens county and part of Kings. The liberal use of barnyard manure prevents its occurrence (R.R. Hurst).

BLACK ROT - Pseudomonas campestris (Pamm.) E.F.Sm.

Que.- Black heart was unusually destructive this year at Macdonald College on swedes. Infections ranged from 10 to 85%.

STORAGE ROT - Corticium Solani (Prill. & Del.) Bourd. & Galz. (Rhizoctonia Solani Kühn)

P.E.I.- Storage rot causes slight to severe damage to turnips in the winter months in Queens county.

DRY ROT - Phoma Lingam (Tode) Desm.

N.S.- The dry rot organism was isolated from diseased swedes

received in February at Kentville from Yarmouth county.

P.E.I.- Severe damage was caused by dry rot to Halls Westbury in all counties; other varieties were less severely affected.

SCAB - Actinomyces scabies (Thaxt.) Güssow

P.E.I.- Ditmar was very slightly affected by scab in Prince and Queens counties.

SOFT ROT - Bacillus caratovorus L.R. Jones

Que.- Soft rot was very severe in some cases at Macdonald College. This rot may be caused by several organisms, of which Bacillus carotovorus is certainly one. (J.G. Coulson)

N.S.- Soft rot caused 2% damage to the Ditmar variety at Kentville.