VI. DISEASES OF ORNAMENTAL PLANTS

ACONITUM - Monkshood

Crown Rot (Phytomonas Delphinii) infected odd clumps of A. bicolor (A. ?Fischeri) at Brandon, Man. This is the first record on Aconitum in Canada.

ALTHAEA ROSEA - Hollyhock

Rust (Puccinia Malvacearum) was moderate to severe at Summerland, Westbank, and Grand Forks, B.C. (G.E. Woolliams). A severe infection was found in one garden at Edmonton, Alta. It had not previously been recorded in Alta. (A.W. Henry). Rust was more severe at Winnipeg by July 25 than in former years. The disease was prevalent throughout Ont. in 1938 (J.E. Howitt). Rust was very severe in some places in western Que. (F. Godbout). It was severe and caused severe damage in many gardens in York county, N.B. (S.F. Clarkson). Hollyhocks were almost completely destroyed by rust at the Station, Charlottetown, P.E.I., by mid-summer. Spraying did not effectively control the disease because conditions were ideal for spore germination and subsequent infection throughout July and August (G.W. Ayers).

Leaf Spot (Ascochyta althaeina) infection varied from a trace to severe on the varieties at the Station, Charlottetown, P.E.I. The disease was also reported from Summerside and Souris (R.R. Hurst)

AMELANCHIER

Fire Blight (Erwinia amylovora) killed several branches on each of the following: A. levis, Cotoneaster sp., and Sorbus americana, at Macdonald College, Que. (I.H. Crowell)

AMMOBIUM ALATUM - Winged Everlasting

Foot Rot slightly affected this plant at St. Vital, Man.; Fusarium Solani was isolated from a diseased plant. (W.L. Gordon)

AMPELOPSIS QUINQUEFOLIA - Virginia Creeper

Leaf Spot (Cercospora Ampelopsidis) was severe on the leaves of this vine at Morden, Man.

Powdery Mildew (Uncinula necator). Infection was usually a trace, but in shaded locations it became moderate at Saskatoon, Sask.

ANTIRRHINUM - Snapdragon

Rust (Puccinia Antirrhini) infection was severe about Winnipeg, Man., in September. It was very injurious in gardens at Humberstone, Wallaceburg, and Walkerville, Ont. (J.E. Howitt). Snapdragons were very severely rusted by August in ornamental beds in Lincoln county. (G.C. Chamberlain)

W.R. Foster (Sci. Agr. 18:524-526. pl.1. 1938) finds that Bordeaux 4-4-40 plus a spreader, such as Agral 2, is an effective preventive of rust in snapdragons grown for seed in B.C. Two applications are made before the plants begin to flower. All volunteer and other snapdragon plants must be destroyed before spring. This fungicide renders the plants unsightly for ornamental purposes. Buisol, one pint to 10 gals.; Bordinette, 1 lb. to 10 gals.; Copper Hydro, 1 lb. to 10 gals.; Burgundy, 4-5-40 plus Agral 2 is recommended for trial on ornamental plants.

Root Rot and Wilt (cause unknown). A few plants were affected in a garden in East St. Paul and odd plants wilted at the Farm, Brandon, Man.

Root Knot (Heterodera marioni) caused a severe stunting in greenhouse plants in Lincoln county, Ont.

AQUILEGIA - Columbine

Rust (Puccinia Clematidis) affected a few cultivated plants forwarded to the Laboratory from Salmon Arm, B.C. (W. Jones)

ARISTOLOCHIA SIPHO - Dutchman's Pipe

Root Rot (Diplodia radicicola Tassi). Several specimens of Dutchman's pipe affected by a root rot were found in Ont. this year. Diplodia radicicola was found associated with the rot. (J.E. Howitt)

ASPARAGUS SPRENGERI

Yellowing and Foot Rot (?Fusarium spp.). A light infection was found in a greenhouse in Winnipeg, Man. The plants became prematurely yellow, due to a foot rot. The same disease has been reported in garden asparagus.

ASTER

Powdery Mildew (Erysiphe Cichoracearum) was severe on the lower leaves at Morden, Man.

Leaf Spot (Septoria atropurpurea) infection was severe at Morden, Man.

Rust (Coleosporium Solidaginis). A few plants of A. apricus brought from Mt. Cheam and grown in a rockery at Agassiz, B.C., were rusted, (W. Jones)

AZALEA

Galls (Exobasidium Vaccinii) were present on a few plants of A. indica micranthae at Cowichan Lake and on Vancouver, B.C. (M. Wilson)

BERBERIS - Barberry

Rust (Puccinia graminis). Aecia were well matured on B. vulgaris on June 7 in the Arboretum, Ottawa, Ont. (C.N. Ross). Rust was severe on a hedge of B. vulgaris at Shediac, N.B. on June 10. One hedge was found at Hartland and two hedges at Dorchester in September. Rust was general on B. vulgaris in Queens county, P.E.I. in July.

CALENDULA

Yellows (virus). A trace was seen in private gardens at Saskatoon, Sask. (T.C. Vanterpool). Yellows affected up to 100% of plants in some gardens at Charlottetown, P.E.I. It was also reported from Summerside and Souris. (R.R. Hurst)

CALLISTEPHUS - China Aster

Yellows (virus) affected half the plants in one garden in Winnipeg, Man. Yellows occurred widely in varying amounts in P.E.I. (R.R. Hurst)

Wilt (Fusarium conglutinans var. Callistephi). Affected plants were received from the Substation, Creston, B.C. (G.E. Woolliams). Over half the plants of susceptible varieties, mainly California Giant Single, were severely affected in a garden at Edmonton, Alta. In adjacent rows of resistant strains of Crego's Giant Mixed and Giant Comet Mixed, infection was a trace and nil respectively (M.W. Cormack). Wilt was reported as severe in one garden in East St. Paul, Man. While the cause of wilt of China asters here is probably F. conglutinans var. Callistephi, other Fusarium spp., such as F. oxysporum f. 6 may be implicated (W.L. Gordon). Wilt was very conspicuous in gardens about Guelph, Ont. In some beds examined, 30-40% of the plants were destroyed (J.E. Howitt). At the Station, Lennoxville, Que., 60% of the plants were affected (H.N. Racicot). Slight infections were present in local gardens at Kentville, N.S. (J.F. Hockey)

CANNA

Soft Rot (Erwinia carotovora) of the rhizomes was severe in about 10% of the plants in one garden in East St. Paul, Man.

CARAGANA

Leaf Spot (Septoria Caraganae) was slight at Edmonton, Alta., but severe at Lacombe, where it caused considerable defoliation. Leaf spot was severe on many hedges at Saskatoon, Sask. This disease makes its appearance every year after July or early August rains. It hastens defoliation by one to several weeks (T.C. Vanterpool). Infection was severe on C. arborescens at Morden and St. Vital, Man., moderate at Bird's Hill, Brandon, and Winnipeg; moderate on C.

arborescens var. Lochbergi at East St. Paul; and severe on C. microphyllum var. Slender Lobe at Morden.

CENTAUREA

Foot Rot (?bacterial). A slight infection was found on Sweet Sultan at Brandon, Man. A trace was reported in a garden at St. Vital. No fungi were isolated from the Brandon material. (W.L. Gordon)

CENTAUREA CYANUS - Cornflower

Rust (Puccinia Cyani) was prevalent in the Horticultural garden, Central Experimental Farm, Ottawa, Ont. (F.S. Thatcher and I.L. Conners). A slight infection was found in a garden planting at Kentville, N.S. (J.F. Hockey). Specimens are in the Herbarium from Fulford, B.C., Toronto, and Westboro, Ont. The rust is reported by Arthur (Man. Rusts in U.S. & Can. p. 349. 1934) from Ont. (I.L. Conners)

CHRYSANTHEMUM

Grey Mould (Botrytis cinerea) affected 25% of the cuttings of Mrs. Seidwitz in Lincoln county, Ont. Several other varieties in the same cutting bed were not affected. (G.C. Chamberlain)

Leaf Spot (Septoria Chrysanthemi) caused slight defoliation of a few greenhouse plants at Melvern Square, N.S.

Yellows (virus) slightly to moderately affected the plants in a greenhouse at Redcliff, Alta.

Foliar Nematode (Aphelenchoides ritzema-bosi Schwartz) ruined a large percentage of large-flowered chrysanthemums of a grower at London, Ont. The leaves of affected plants showed dark spots or blotches. They then withered up and hung down. The flower buds remained small and failed to open. This is the first time the foliar nematode has been brought to my attention. (J.E. Howitt)

Powdery Mildew (Erysiphe Cichoracearum) was severe at Winnipeg, Man., in September. It was heavy on several greenhouse varieties in April at Charlottetown, P.E.I.

Foot Rot caused the death of a number of plants at Morden, Man. Fusarium spp. were isolated, but their identification is as yet incomplete. (W.L. Gordon)

CLEMATIS

Leaf Spot (Septoria Clematidis) was severe at Rosthern, Sask., and on C. ligusticifolia at Morden and Brandon, Man. It is destructive to this plant.

Leaf Spot (Cercospora squalidula) was moderate on C. ligustifolia at Indian Head, Sask.

CONVALLARIA MAJALIS - Lily of the Valley

Rust (Puccinia sessilis) affected 15% of the leaves and an occasional stem in a garden at Kentville, N.S.

COREOPSIS

Witches' Broom (?virus). Odd plants were affected at Brandon, Man.

COTONEASTER

Dark Berry (Phytophthora Cactorum (Leb. & Cohn) Schroet.) was general on C. horizontalis about Victoria, B.C. The normally red berries turn dark to black thus greatly reducing the value of the shrub as an ornamental. Oospore-like bodies were found in abundance in the affected tissue. It was also noted in Vancouver. (W.R. Foster)

CRATAEGUS - Hawthorn

Leaf Spot (Entomosporium Thuemenii (Cke.) Sacc.) was collected at Streetsville, Ont. on C. Oxyacantha (G.D. Darker 6651) and at Mount Denson, N.S. (J.F. Hockey). The disease was common in N.S. this year (I.L. Conners).

Rust (Gymnosporangium clavariaeforme) was heavy on C. Oxyacantha var. rosea in Queens county, P.E.I. (G.W. Ayers)

DAHLIA

Mosaic and Stunt (virus) affected 25% of the dahlias in commercial gardens near London, Ont. (G.C. Chamberlain). Stunt affected a few plants in a private garden at Fredericton, N.B. (J.L. Howatt). Stunt affected practically all the pompom varieties and several others at the Station, Charlottetown, P.E.I. It was also reported from Souris. (R.R. Hurst)

DELPHINIUM - Larkspur

Powdery Mildew (Erysiphe Polygoni) was severe at the Station, Summerland, B.C. A moderate infection was observed at McKague and Saskatoon, Sask. Powdery mildew was severe on dwarf perennial larkspur in one garden in East St. Paul, Man. A moderate infection was present in York county, N.B.

Bacterial Blight (Phytomonas Delphinii) affected a few plants at Salmon Arm, B.C. The disease was severe in York, Sunbury, and Saint John counties, N.B.

Foot Rot. A severe infection was observed in a garden in St. Vital, Man. Fusarium Solani was isolated from the diseased plants. (W.L. Gordon)

Mosaic (virus). An occasional plant was affected in Queens county, P.E.I.

DIANTHUS CARYOPHYLLUS - Carnation

Rust (Uromyces caryophyllinus) was slight to moderate in greenhouses at Lethbridge and Medicine Hat, Alta. It caused moderate damage in a greenhouse at Fredericton, N.B. A slight infection was observed at Sidney Mines and Halifax, N.S. A severe infection was present in the Station greenhouse, Kentville.

Bacterial Leaf Spot (Phytomonas Woodsii(E.F. Sm.) Bergey et al.) so severely affected 300-400 plants of Virginia Rose in greenhouses at Brampton, Ont., that they were destroyed and 300 others showed symptoms of the disease, out of 2,000 plants imported from New York, N.Y., on January 7, 1939. No disease was showing when the plants were imported on Dec. 22, 1938 (A.J. Hicks and W.H. Fowler). Severely infected material was received from a greenhouse in Peel county in Sept. (J.K. Richardson)

GAILLARDIA

Crown Rot (probably Sclerotinia sclerotiorum) caused the death of 5% of the plants in a garden in East St. Paul, Man.

Smut (Entyloma polyspermum) moderately infected this host at Morden, Man.

Yellows (virus) was heavy on all varieties in a private garden at Charlottetown, P.E.I.

GERANIUM

Rust (Uromyces Geranii). Some mature aecia were present on plants in the Arboretum, Ottawa, Ont., on June 8.

GLADIOLUS

Bacterial Blight (Phytomonas gummisudans) slightly infected one planting in Edmonton, Alta. The disease was severe in two gardens in Winnipeg and slight in a commercial planting in Fort Garry, Man. It was of little consequence in Manitoba this year.

Scab (Phytomonas marginata) was general in the bulb districts of B.C., up to 5% of the corms being affected. Slight infections occurred in single gardens at Lethbridge and Edmonton, Alta. Diseased specimens were received from Regina, Sask. (T.C. Vanterpool). A slight to moderate infection of scab was general in the Winnipeg area, Man.; it also occurred at Keewatin, Ont.

Yellows (Fusarium sp. Elegans Section) was much less common in the Winnipeg area, Man., than during 1937. A trace of infection occurred at Keewatin, Ont. In an experiment using corms from root rotted plants (Fusarium yellows) in 1937, only 3% of the corms grew when planted in 1938 at Winnipeg. The disease appears to be identical with that reported by R. Nelson (The Gladiolus, Int. Ed. 124-131. 1938). (J.E. Machacek and W.L.Gordon)

Yellows was prevalent throughout southern Ontario, especially on the varieties Albatross, America, Dr. F.L. Bennett, Break of Day, Crimson Glow, Duna, Halley, Purple Glory, and Star of Bethlehem. The damage was worst in districts, which had a hot dry spell in July (A.J. Hicks). For a more detailed account see A.J. Hicks. A survey of gladiolus growing in Ontario, with special reference to disease. Reprint Can. Gladiolus Soc. Annual 6 pp. 1939. (I.L. Conners). Yellows was severe on Rose Marie Pfitzer, Bagdad, Commander Koehl, Star of Bethlehem, Duna and Acadia in a garden at Cornwall, P.E.I. (G.W. Ayers)

Root Rot (unknown). Only traces of this root rot, which was in epidemic form last year could be found at Saskatoon, Sask., this year. This was true even for areas which were heavily infested in 1937. Growing conditions, however, were excellent in 1938. Out of some 12 isolates made from diseased roots in 1937, only a Pythium sp. caused conspicuous root rot in greenhouse tests. Some Fusarium spp. caused slight retardation of growth. (T.C. Vanterpool)

As a root rot, Yellows has been known from P.E.I. since 1933 (P.D.S. 13:68, 14:84; 15:67) and in Sask. and Man. since 1937 (P.D.S. 17:76) (cfr. also R. Nelson, Bull. Mich. Gladiolus Soc., Spring 1938, 4 pp. mimeo) (I.L. Conners)

Fusarium Corm Rot (F. oxysporum var. Gladioli Massey). Corms of the variety Gertrude grown at Winnipeg, Man., in 1937, developed this corm rot during storage. The variety was severely affected. Isolations of the causal organism were made and its pathogenicity compared with a culture originally obtained from the Centraalbureau, Baarn, Holland. Both were quite pathogenic. This is the first record of the disease in Canada (cfr. L.M. Massey. Phytopath. 16:509-533. 1926). (W.L. Gordon)

Penicillium Corm Rot (Penicillium Gladioli). Three hundred corms of the variety F.J. McCoy from a grower in the United States and planted at Winnipeg, Man., were partially or completely destroyed. Another lot of the same variety from a different source showed no sign of the disease (J.E. Machacek). Several affected corms were received from P.E.I. growers (R.R. Hurst). Storage rots caused by Penicillium sp. and Botrytis sp. caused a loss of 1% of the corms among the commercial growers in B.C. (R.J. Hastings)

Dry Rot (Sclerotinia Gladioli) was found affecting about 1% of the plants in the field and 1-20% of the corms in storage in B.C. (R.J. Hastings)

Hard Rot (Septoria Gladioli) was affecting 75% of the corms of a grower at Charlottetown, P.E.I.

Leaf Spot (virus suspected) was slight in the bulb areas of B.C., except in Libelle, E.J. Shaylor, Bill Snowdon, and others, in which infection was severe (R.J. Hastings). The disease was present

throughout southern Ont.; infection was 100% in the varieties J.W. Crow, T.E. Langford, Pink Lady, Byron L. Smith, Southern Cross, and Queen Mary. The symptoms are a red flecking or spotting on the leaves (A.J. Hicks).

Leaf Spot (cause unknown) was severe particularly in cormel stock at Belleville, Ont. It was specially severe in Commander Koehl, Marmora, Pink Magnet, Red Lory, and Vagabond Prince. The symptoms are fairly large, circular or oval spots, which are light brown at first, becoming darker later. Towards the end of the summer the affected leaves become shredded about the larger spots. (A.J. Hicks)

HELIANTHUS - Sunflower

Crown Rot (Sclerotinia sclerotiorum) severely affected the 2 plants of H. californicus in a garden at Charlottetown, P.E.I.

HYDRANGEA

Grey Mould (Botrytis cinerea) affected a few leaves on a plant at Kentville, N.S.

IRIS

Leaf Spot (Heterosporium gracile) is usually present on the mainland and Vancouver island, B.C., wherever iris is grown. On German iris the disease causes a spotting or sometimes a blighting of the foliage. Where sanitary measures are strictly applied it is hardly evident. In bulbous iris it was prevalent in some plantings; in one the flower crop was a total loss and the early death of the tops greatly reduced the bulb yield. Beds that were boxed early to hasten flowering were more severely affected than open beds. On bulbous iris it causes a scorching of the foliage, but the lesion itself is grey, i.e., there is a grey spot surrounded by a reddish area (W. Jones and R.J. Hastings). The infection was reported to be slight at Windermere, B.C.; slight at Brooks and moderate at Vermilion, Alta.; severe on many species and varieties of Iris at Morden, and moderate at Brandon, Man.; slight in Lincoln county, Ont.; severe at Cap Rouge, Que.; very prevalent on some varieties at Kentville, N.S., and fairly prevalent in P.E.I.

Ink Disease (Mystrosporium adustum) affected 5-10% of the bulbous iris in B.C.; the damage was slight. The spots do not have the grey centre of the Heterosporium leaf spot. The reddish discoloration surrounds irregular dark areas, which lack a definite margin (R.J. Hastings)

Nematodes (Ditylenchus dipsaci) infected an average of 2-3% of the bulbous iris grown in B.C. (R.J. Hastings). Nematodes were evidently responsible for the failure of a large number of bulbous iris, variety Wedgewood, from B.C. in the hands of a florist at Brampton, Ont., in October. (J.K. Richardson)

Storage Rot (Penicillium spp.) affected 2-3% of the bulbous iris in B.C.

Mosaic (virus) affected 2-3% of the bulbous iris in B.C., judged by occurrence of flower spotting only (R.J. Hastings)

Rhizome Rot (Erwinia carotovora) caused moderate to severe damage at the Sub-station, Beaverlodge, Alta. Infection was severe at Brandon, Man., in June and in one variety at Morden. Rhizome rot was reported several times in P.E.I. and completely destroyed the plants in 2 gardens at Charlottetown.

Botrytis Rhizome Rot (Sclerotinia convoluta) was observed on one plant at Summerland, B.C. (R.E. Fitzpatrick). The only previous report of this disease in Canada is that of Drayton, who found it near Ottawa in 1927 (H.H. Whetzel and F.L. Drayton. Mycologia 24:469-476. 1932).

LATHYRUS ODORATUS - Sweet Pea

Powdery Mildew (Microsphaera diffusa) was present, but appeared too late in most gardens at Saskatoon, Sask., to cause any damage (T.C. Vanterpool). It was severe in one large planting in St. Vital, Man. Infection was moderate at Farnham, Que. It was very common and destructive in Queens county, P.E.I.

Mosaic (virus) affected a few plants at Victoria, B.C. (W.R. Foster)

Streak (virus). A trace was present in one garden at Saskatoon, Sask. It was severe in a garden at East St. Paul, Man. It was present at Charlottetown, P.E.I.

Root Rot. A slight infection of root rot and wilt occurred in a garden in East St. Paul, Man. Root rot (Fusarium sp.) had been severe for two years in a bed, where sweet peas had been sown for 15 years, at Farnham, Que. Root rot (Rhizoctonia sp.) was moderate to severe in a garden at Charlottetown, P.E.I.

LAVATERA - Tree Mallow

Leaf Spot (cause undetermined) was severe at Morden, Man.

LIGUSTRUM - Privet

Powdery Mildew (Microsphaera Alni) was prevalent, but caused little injury to L. vulgare in Lincoln county, Ont. It was heavy, causing early defoliation at the Station, Charlottetown, P.E.I.

LILIUM - Lily

Blight (Botrytis elliptica) was fairly prevalent in bulb growing sections of B.C., but damage was severe on L. candidum only. The disease was in general severe at Morden, Man., particularly on L. Davidii and L. martagon; at Brandon L. philadelphicum was moderately infected.

MAHONIA AQUIFOLIUM - Oregon Hollygrape

Rust (Uropyxis sanguinea) was general in North Saanich, B.C.

MATHIOLA - Stock

Powdery Mildew (Erysiphe Polygoni) was severe at the Station, Summerland, B.C.

MECONOPSIS BAILEYI - Tibetan Poppy

Bacterial Blight (Phytomonas papavericola Bryan & McWhort.) was severe in a garden at Salmon Arm, B.C.; the plants gradually die down (W. Jones). This is the first report of the disease in Canada.

NARCISSUS

White Mould (Ramularia vallisumbrosae) rarely occurs in field plantings of narcissus in B.C., but in 1938 it was found in the Victoria, Gordon Head, and Cowichan districts of Vancouver island and at Bradner, B.C. The injury was slight, but up to 50% infection occurred in certain varieties. The greatest injury occurred on varieties with small leaves which were killed back to a considerable degree, while on large-leaved varieties, the leaves were split, curled or distorted. (R.J. Hastings)

Scorch (Stagonospora Curtisii) was general but injury was slight in B.C.

Smoulder (Botrytis narcissicola) was slight in B.C., except in Golden Spur and Obvallaris varieties where losses amounted to 10-30%.

Nematode (Ditylenchus dipsaci) was in general slight in B.C., but in some plantations up to 10% of the plants were affected.

Mosaic (virus) was slight in B.C.

NIGELLA - Love-in-a-Mist

Foot Rot (Fusarium spp. associated). A slight to moderate infection occurred on the variety Miss Jekyl, at Brandon, Man. The identification of the isolations from diseased plants is as yet incomplete. (W.L. Gordon)

OENOTHERA - Evening Primrose

Powdery Mildew (Erysiphe Polygoni) moderately infected the lower leaves of cultivated Oenothera at Morden, Man.

Leaf Spot (Septoria Oenotherae) affected a few plants at Agassiz, B.C. (W. Jones). A slight infection was observed at Morden, Man.

PAEONIA - Peony

Blight (Botrytis Paeoniae). As a leaf blight the disease was generally slight at Morden, Man., but it was severe on some varieties; crown rot and wilt occurred on odd plants at Brandon. Blight was very prevalent about Guelph, Toronto, and Kincardine, Ont. (J.E. Howitt). Blight affected about half the flower buds at Ste. Anne de la Pocatiere and Cap Rouge, Que., and in 3 gardens visited in Quebec City. Only an occasional stalk went down with the disease (C. Perrault). Blight caused moderate to severe damage in York, Sunbury, Carleton, and Saint John counties, N.B. The disease can be held in check by applying 2 sprays of Bordeaux mixture before the plants come into blossom (J.L. Howatt and S.F. Clarkson). Infection was slight in most gardens at Kentville and moderate at Nappan, N.S. Infection was usually heavy in all parts of P.E.I.

Root Knot (Heterodera marioni) was severe on 2 plants in a garden at Charlottetown, P.E.I. (R.R. Hurst)

Mosaic (virus). What appears to be a mosaic has been under observation for 3 years on one plant in a garden at Charlottetown, P.E.I.

Ring Spot (virus) was moderate at Saskatoon, Sask. Ring spot was much less severe than in recent years at Morden, Man.; it was severe on Albatross; moderate on Souvenir d'Auguste Miellez, Atro-sanguinea and Triomphe de l'Exposition de Lille.

Leaf Mould (Cladosporium Paeoniae) infection was general and heavy in late summer at the Vineland Experimental Station, Ont. (D.L. Bailey)

Leaf Spot (Phyllosticta Commonsii) infection was moderate at Vermilion, Alta.

Leaf Spot (Alternaria sp.) was heavy on one plant at Saskatoon, Sask.

PAPAVER - Poppy

Foot Rot slightly affected poppies of the Shirley group at Brandon, Man. Fusarium spp. were isolated from diseased plants. (W.L. Gordon)

PELARGONIUM - Geranium

Grey Mould (Botrytis cinerea) was general as a leaf spot in one greenhouse at Victoria, B.C. (W. Newton)

PENTSTEMON

Leaf Spot (?Ramularia sp.) moderately infected a few plants of P. secundiflorus and P. unilateralis at Morden, Man.

PETUNIA

Powdery Mildew (?Erysiphe Cichoracearum) became severe in November on P. hybrida flore pleno brought into the house at Winnipeg, Man. It appeared late in the season on window-box petunias at Ottawa, Ont.

Yellows (virus) slightly affected petunia at Lethbridge, Alta. The disease, although common in 1937, was absent this year at Saskatoon, Sask. (T.C. Vanterpool).

PHLOX

Powdery Mildew (Erysiphe Cichoracearum) was very prevalent about Guelph, Ont.; some varieties were ruined by it. (J.W. Howitt). It was also present in many gardens about St. Catharines, but it caused only slight damage. (G.C. Chamberlain)

Leaf Spot (Septoria divaricata) was relatively severe on P. divaricata varieties O. Wittig, Carillon, Ada Blackjack, and Miss Lingard at Morden, Man. It has been previously reported in Man. on P. Drummondii (W.L. Gordon). The disease was general and heavy on several varieties of perennial phlox causing much leaf killing at Vineland Experimental Station, Ont. (D.L. Bailey).

PRUNUS - Plum

Black Knot (Dibotryon morbosum) was so severe in a hedge of P. Pissardi at Port Hope, Ont., that the correspondent fears it will be eventually destroyed. (H.N. Racicot)

Blight (Sclerotinia americana). Diseased specimens of P. triloba were received from Montreal, Que. (H.N. Racicot)

RHAMNUS - Buckthorn

Crown Rust (Puccinia coronata). The aecia were abundant on June 1, on the leaves and also on stems and fruits of a R. cathartica hedge at the Station, Fredericton, N.B. (J.L. Howatt). Infection was slight on R. cathartica hedge at St. Croix, N.S.; maturing aecia were present on June 18 (J.F. Hockey). Rust on buckthorn was general, but not abundant in Queens county, P.E.I.

ROSA - Rose

Rust (Phragmidium spp.) was severe on both cultivated and wild roses on Kipling island, Lake of the Woods, Ont. It was severe on some plants of Banchee and other varieties at Morden, Man. Rust is abundant on roses in gardens about Guelph, Ont. (J.E. Howitt). Rust infection was slight on roses at Ste. Anne de la Pocatiere, Que. Earliest infections were noted about mid July (C. Perrault). Rust caused severe damage to roses in Carleton, York, and Sunbury counties, N.B.

Powdery Mildew (Sphaerotheca pannosa) was severe at the Station, Summerland, B.C. The disease was light at Saskatoon and Indian Head, Sask. It was commonly found on Captain Heywood at Winnipeg, Man. Powdery mildew was particularly prevalent this year on hybrid tea, hybrid perpetual, and rambler roses in the Lincoln county area, Ont.; and caused more damage than usual on account of its early appearance (G.C. Chamberlain). It was prevalent on rambler roses throughout the province (J.E. Howitt). Powdery mildew was severe on rambler roses at Macdonald College, Que., and moderate at Farnham. The disease was troublesome this year on rambler roses in P.E.I. (R.R. Hurst)

Black Spot (Diplocarpon Rosae) was general and caused some defoliation on Vancouver island and the Fraser valley, B.C. (W. Jones). It was severe on Austrian Copper and moderate on Persian Yellow at Saskatoon, and several varieties at Indian Head, Sask. A moderate infection occurred on some varieties at Morden, Man. Black spot disfigured to a marked extent, hybrid tea roses at Guelph, Ont., and caused severe defoliation of 20-30% of the plants (J.E. Howitt). In Lincoln county black spot was less prevalent than usual and only of some importance very late in the season on hybrid teas (G.C. Chamberlain). Black spot was severe in commercial greenhouses at Fredericton, N.B.; damage was severe on unsprayed garden roses in York county (S.F. Clarkson). The disease was heavy on Mrs. John Lang, Blaze, and Frau Karl Druschki at Charlottetown, P.E.I. It was also reported from Alberton, Freetown, and Souris. (R.R. Hurst)

Stem Canker (Coniothyrium Fuckelii) was found slightly affecting only Briarcliffe hybrid tea in a greenhouse at Grimsby, Ont. (G.C. Chamberlain)

Grey Mould (Botrytis sp.) destroyed about 40% of the flower buds in a garden at Ste. Anne de la Pocatiere, Que., in July, which greatly reduced the number of flowers and shortened the blooming period. (C. Perrault)

SOLIDAGO - Goldenrod

Leaf Spot (Septoria sp.) was moderate on cultivated goldenrod at Morden, Man.

Rust (Coleosporium Solidaginis) infection was severe on two varieties at Morden, Man.

STATICE

Leaf Spot (parasitic) was severe on S. sinuata at Morden, Man.; the fungus was too immature for positive identification.

Foot Rot (Fusarium spp. associated). Odd plants of Yellow Statice were affected at Brandon, Man.

Yellows (virus) was severe on S. latifolia in a garden in East St. Paul, Man.

SYRINGA - Lilac

Blight (Phytomonas Syringae) moderately affected about 20% of the bushes at Blackfoot, Alta. (A.W. Henry). Blight was first observed at Marysville, N.B., and the Station, Fredericton, on June 13. In N.B. infection was heavy and the damage severe in the spring; the first shoots are blackened and killed and the first leaves heavily spotted. (J.L. Howatt and S.F. Clarkson)

Powdery Mildew (Microsphaera Alni) was prevalent in June in Lincoln county, Ont. (G.C. Chamberlain). Lilac hedges were all severely affected by September in N.B. (S.F. Clarkson). Traces of powdery mildew were observed in Queens and Prince counties, P.E.I., in Sept. (R.R. Hurst)

Grey Mould (Botrytis cinerea) was severe as a twig blight on the hedges in Saint John and York counties, N.B.; it was associated with bacterial blight (J.L. Howatt and S.F. Clarkson). A moderate infection of twig blight was present on some white lilacs at Charlottetown, P.E.I. The disease was very troublesome in 1936 and 1937, but it was less severe in 1938. (R.R. Hurst).

Root Rot (cause unknown). A few bushes were wilted due to a root rot at Morden, Man.

TAGETES - Marigold

Foot Rot (Fusarium spp. associated). Odd plants of the variety Golden Gem were infected at Brandon, Man.

Yellows (virus) was observed on T. patula in Charlottetown, P.E.I.; the individual plants were severely affected.

TULIPA - Tulip

Fire (Botrytis Tulipae) infection was general in commercial plantings on Vancouver island, B.C. Primary infection varied from 0.1 to 5% (R.J. Hastings). The disease was very prevalent about Guelph and in many other parts of Ont. In one bed over 40% of the plants were disfigured by fire (J.E. Howitt). Diseased specimens were received from Hemmingford, Que. (F.L. Drayton). A few affected plants were seen in a test bed at Kentville, N.S., and specimens were received from Annapolis county (J.F. Hockey). The disease was general in many gardens about Charlottetown, P.E.I. (R.R. Hurst)

Break (virus). The incidence of tulip break has been reduced by roguing on Vancouver island, B.C. (R.J. Hastings). Break affected 1% of the plants in a garden at Charlottetown, P.E.I.

Basal Rot (Fusarium bulbigenum and F. Solani) severely infected several small bulbs of the 1938 crop at Winnipeg, Man. Isolations yielded most commonly, Fusarium bulbigenum and occasionally F. Solani. Rhizoctonia Solani was isolated to a limited

extent and in association with the Fusaria. It was thought to be secondary. (W.L. Gordon)

Bulb Rot (Sclerotinia sp.) had destroyed about 10% of a planting of 200 bulbs in a garden at Westmount, Que., when it was examined on May 20. This was the same bed, where the disease was observed two years ago. The soil had been removed and replaced with fresh soil at that time (H.N. Racicot). The disease has been found in Canada on two occasions previously, and cultures of the fungus are indistinguishable from a fungus causing a root rot of sweet clover in Alta., which has been studied by Dr. Cormack (Progress Rept. Dom. Bot. 1935-37. pp. 40-41. 1938).

Blossom Blight (Phytophthora Cactorum (Leb. & Cohn) Schroet.) was found at Belleville, Ont., this year. (J.E. Howitt). This is evidently a new disease for Canada.

ZANTEDESCHIA - Calla Lily

Soft Rot (Erwinia Aroideae) was estimated to have destroyed one third of the tubers of 9,000 plants at Brampton, Ont., in Jan. 1938. About 4% of the plants were affected by a crown rot in a greenhouse in Lincoln county in Oct. 1938. (G.C. Chamberlain)

ZINNIA

Powdery Mildew (Erysiphe Cichoracearum) was common in gardens in Lincoln county, Ont. (G.C. Chamberlain).

Yellows (virus) was severe on 8-10% of the plants in a garden at Charlottetown, P.E.I.

Wilt (Fusarium sp.) affected 20% of the plants at the Station, Summerland, B.C. (G.E. Woolliams)

Stem Rot (Sclerotinia sclerotiorum) destroyed 1% of the plants in a bed at Senneville, Que.

Grey Mould (Botrytis sp.) destroyed a small planting of Dwarf Double Spun Gold zinnias in a garden at Charlottetown, P.E.I.