

VI DISEASES OF HERBACEOUS ORNAMENTAL PLANTS

ACI-IILLEA - Sneezewort

Rust (Puccinia millefolii) affected 50% of the A. ptarmica, variety Pearl, at the Research Station, Fredericton, N.B. (G.B. Orlob) (C.P.D.S. 40:2. 70, 1960).

AGERATUM

Aster Yellows (virus). Trace infections were seen in a planting at Winnipeg, Man. (W. L. Gordon).

ALTHAEA - Hollyhock

Rust (Puccinia malvacearum) was common in the Okanagan Valley, B.C. (G.E. Woolliams). It was tr. in a planting at Winnipeg, Man. (W.L.G.) A large planting, many years old, was 100% infected at Abbotsford, (D. W. Creelman), and specimens were received from Levis, Que, (D. Leblond). Rust was generally distributed throughout N.B. (G.B.O.) (C.P.D.S. 40:2. 70. 1960), and was also general in P.E.I. (J.E. Campbell).

ANTIRRHINUM - Snapdragon

Downy Mildew (Peronospora antirrhini) was found on all 300 plants of the variety Temptation Red at Vineland, Ont. Other varieties were not affected. Late afternoon watering and overcast days had aided disease development (W. G. Kemp).

Rust (Puccinia antirrhini). Slight infections occurred in the Okanagan Valley, B. C. (G.E. W.).

AQUILEGIA - Columbine

Powdery Mildew (Erysiphe polygoni) became quite general in the Okanagan Valley, B.C. after the bloom period (G,E. W.).

ASTER

Rust (Coleosporium ssterum) was widely scattered and light in N. B. (G.B.Q) (C.P.D.S. 40:2. 70. 1960).

Powdery Mildew (Erysiphe communis Wallr. ex Fries = E. cichora-cearum D.C.) was exceptionally sev. on all aster varieties in L'Islet and Kamouraska counties Que. Complete defoliation was often seen (L. J. Coulombe).

BEGONIA

Foliar Nematode (Aphelenchoides olesistus). Rusty, water-soaked leaves were found on all 50 plants in a small greenhouse at Fenwick, Ont.

Large numbers of the nematode were recovered. Severe damage also was found on 23/100 plants of the variety Lady Mac at Hamilton, Ont. (W.G.K.)

Powdery Mildew (Erysiphe communis Wallr. ex Fries = E. cichoracearum DC.) was noted on a few tuberous begonias at Lethbridge, Alta. (P.E. Blakeley). Infection ranged from tr. -mod. on 25 tuberous begonias at Ottawa, Ont. (D.W.C.), and it was troublesome on both indoor and outdoor tuberous begonias at Chute Panet, Portneuf Co., Que. (H.S. Thompson).

CALENDULA

Aster Yellows (virus) was tr. at Grand Pre, N.S. in Sept. (K.A. Harrison) (C.P.D.S. 40:2. 99. 1960).

CALLISTEPHUS - China Aster

Aster Yellows (virus) was sev. in a planting at Winnipeg, Man. (W. L. G.). Ninety % of the plants were infected in a planting at Fredericton, N.B. in Sept. (G.B.O.) (C.P.D.S. 40:2. 67. 1960). China asters at Kentville were 100% infected and infection was 50% at Grand Pre, N.S. (K.A.H.) (C.F.D.S. 40:2. 99. 1960). Damage in P.E.I. was mod. -sev. (J.E.C.).

CELOSIA - Cockscomb

Aster Yellows (virus) was tr. at Grand Pre, N.S. in Sept. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

CHRYSANTHEMUM

Gray Mold Blight (Botrytis cinerea) Twelve /300 plants of the variety Fred Shoemith, 36/100 of Yellow Shoemith and 12/100 of Luzon were severely infected with Botrytis blight in a greenhouse at Hamilton, Ont. (W.G.K.).

Powdery Mildew (Erysiphe communis Wallr. ex Fries = E. cichoracearum DC.) was seen on chrysanthemums at Fredericton, N. B. (G.B.O.) (C.P.D.S. 40:2. 69. 1960).

Wilt (Fusarium oxysporum). Moderate infections were seen at La Gorgondiere, Que. (D.L.).

Stunting (Nematodes). A field of stunted chrysanthemums at Harrow, Ont. had a soil population of 40,000 Paratylenchus projectus per pound of soil. Heavy infestations of P. projectus and Pratylenchus penetrans were found in a similarly stunted field at Port Burwell and in a bed of stunted chrysanthemums in a Leamington, Ont. greenhouse (W. B. Mountain, R.M. Sayre).

Rust (Puccinia chrysanthemi). Infections ranged from tr. -sev. on outdoor chrysanthemums at Esquimalt, B. C. (R. G. Atkinson, W. R. Orchard) (C.P.D.S. 40:2. 109. 1960).

Leaf Spot (Septoria chrysanthemi) was severe and destructive on all plants of several varieties at Canard, N. S. (D. W. C.).

Leaf Mottle (virus). Specimens were received from 2 gardens in the Vancouver, B.C. area (H.N.W. Toms).

Stunt (virus) was extremely prevalent on the following varieties at Hamilton, Ont.: Harlequin 43/50, Dark Almega 100/100, and Acclaim 70/100 plants (W. G. K.).

CLEOME - Spider-Flower

Iron Deficiency. Moderate chlorosis was noted on C. spinosa in various plantings at Winnipeg, Man. (W. L. G.).

CONVALLARIA - Lily-of-the-Valley

Rust (Puccinia sessilis) affected up to 10% of the foliage in several gardens at Kentville, N.S. (J. F. H.).

COSMOS

Blossom Blight (Botrytis cinerea) occurred as trace infections late in the summer at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2, 68, 1960).

CYCLAMEN

Gray Mold Rot (Botrytis cinerae) was sl. in a commercial greenhouse at Summerland, B. C. (G. E. W.).

DAHLIA

Wilt (Verticillium albo-atrum) affected dahlias at Harrow, Ont. (A. A. Hildebrand).

Mosaic (virus), Susceptible varieties, such as Alma Kelly, were up to 100% infected at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2, 67, 1960).

DELPHINIUM - Larkspur

Powdery Mildew (Erysiphe polygoni) was seen frequently, late in season, throughout the Okanagan Valley, B.C. (G. E. W.).

Bacterial Leaf Spot (Pseudomonas delphinii) was generally light at, Fredericton (G.B.O.) (C.P.D.S. 40:2, 68, 1960), and was mod. in a planting at Shediac, N.B. (D. W. C.).

DIANTHUS - Carnation, Sweet William

Blight (Alternaria spp.). A. dianthi was found on carnation plants in greenhouses at Calgary, Lethbridge and Medicine Hat, Alta. All affected plants were from cuttings propagated in Denmark. The pathogen was determined by J. W. Groves (F. R. Harper). A. dianthicola was sev. on Sweet William at Bell's Corners and Ottawa, Ont. Stem blight was severe and plants were toppling (D. W. C.). It was sev. on Sweet William at St. Ephern,

Beauce Co., Que. (D. Leblond), and was frequently seen in gardens at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2, 69, 1960).

Root Knot (Meloidogyne incognita) was sev. on carnations in a range at Leamington, Ont. Plants were stunted and galls were present on roots throughout the range. The most severely affected plants were those which had been growing 2 years. The carnations followed a crop of tomatoes (W.G.K.).

Rust (Uromyces dianthi) occurred on carnations in a Summerland, B. C. greenhouse (G. E. W.).

FICUS - Rubber Plant

Anthrachnose (Gloeosporium cingulatum). A specimen was received from Desbien, Que. (P. Basu).

GLADIOLUS

Yellows (Fusarium oxysporum f. gladioli) was sl. at Ste. Foy and a specimen was received from St. Boniface de Shawinigan, Que. (D.L.).

Corm Rot (Fusarium sp.) destroyed 95% of the corms of van Zanten's Glory and 20% of those of the variety Friendship in a planting of 3,000 corms of each variety nr. Charlottetown, P. E.I. Other varieties in the 13-acre planting were not at all or only slightly affected, (J.E.C.).

Scab (Pseudomonas nmarginata) affected 75/3000 plants nr. Victoria, B.C. Many of the diseased plants were stunted, but green and others were badly yellowed. **Most** either produced no flowers or showed only partial emergence of the flower stalk (R.G. Atkinson). Infection was light on Snow Princess at Berwick, N.S. (K.A.H.).

Dry Rot (Stromatinia gladioli) was prevalent in a commercial grower's fields in Louth Twp., Lincoln Co., Ont. (W. G.K.). Although less prevalent than in 1959, dry rot again was very destructive in 1960, A planting of Spotlight at Kentville, N. S. was 50% affected (K.A.H.).

Mosaic (virus) was observed in several commercial plantings in the Okanagan Valley, B.C. (G.E.W.). There was a general increase in mosaic incidence in 1960 in N.S. **Some** small plots were over 90% affected and commercial growers are concerned over their holdings (J. F.H., K.A.H.).

Streak (virus) was mod, -sev. in several varieties at Ste. Foy, Que. (D. L.), and was observed in beds at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2, 67, 1960).

HELIANTHUS - Sunflower

Powdery Mildew (Erysiphe communis Wallr. ex Fries = E. cichoracearum DC.) was seen on an ornamental variety at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2, 69, 1960).

Wilt (Sclerotinia sclerotiorum) was tr. in a garden at Winnipeg, Man. (W. C. McDonald).

IMPATIENS - Balsam

Root Knot (Meloidogyne hapla) was recorded on this host from a greenhouse at Edmonton, Alta. (J.E. Boshier) (C.P.D.S. 40:2. 107. 1960).

IRIS

Bacterial Leaf Blight (Bacterium tardicrescens). Slight-mod. symptoms were seen in 2 beds at the Research Station, Fredericton, N.B. It was also seen in other parts of the province (G.B.O.) (C.P.D.S. 40:2. 68. 1960).

Blossom Blight (Botrytis cinerea). Late infections caused little damage at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2. 68. 1960).

Leaf Spot (Didymellina macrospora). All plants of several varieties in a large planting at Bell's Corners, N.S. were moderately infected in June (D.W.C.). It was present, especially after bloom, in several areas in N.B. (G.B.O.) (C.P.D.S. 40:2. 69. 1960).

Bulb and Stem Nematode (Ditylenchus dipsaci) was found in a planting at Brentwood, B.C. (J.E.B.) (C.P.D.S. 40:2. 107. 1960).

Soft Rot (Erwinia carotovora). Specimens of infected rhizomatous iris were received from New Westminster, B.C. (H.N. W.T.). Light infections were seen on several varieties in N.B. early in May and again late in June (G.B.O.) (C.P.D.S. 40:2. 68. 1960).

LATHYRUS - Sweet Pea

Powdery Mildew (Erysiphe polygoni) was mod. -sev. at Murray Bay, Que. (D.L.).

LILIUM - Lily

Blight (Botrytis elliptica) was sev. on L. tigrinum at St. Romain, Frontenac Co., Que. (D.L.).

Mosaic (virus). A large planting of Regal lilies has been destroyed by mosaic over a period of 6 years at Kentville, N.S. despite rogueing and replanting (K.A.H.).

LINARIA - Toadflax

Aster Yellows (virus) was tr. at Grand Pre, N.S. in Sept. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

LYCHNIS

Leaf Spot (Septoria lychnidis) was abundant on 2 plants of L. coronaria at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2. 69. 1960).

MATRICARIA

Aster Yellows (virus). A 5% infection was seen at Grand Pre, N.S. in Sept. (K. A. H.) (C.P.D.S. 40:2. 99. 1960).

MATTHIOLA - Stocks

Foot Rot (Fusarium solani) caused sl. damage at La Gorgendiere, Que. (D. L.).

Aster Yellows (virus). Infection was 15% at Grand Pre, N.S. in Sept. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

NARCISSUS

Decline (Pratylenchus penetrans), Significant populations of the nematode were found in 12 samples at Saanichton, B.C. (J.E.B.) (C.P.D.S. 40:2. 107. 1960).

NIGELLA - Fennel-Flower

Aster Yellows (virus) was seen in plantings at Grand Pre, N.S. in Sept. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

OENOTHERA - Evening Primrose

Rust (Puccinia dioicae). All plants in a mixed bed at Fredericton, N. B. were slightly infected (G. B.O.) (C. P. D.S. 40:2. 70. 1960).

PAEONIA - Peony

Blight (Botrytis paeoniae) caused sl. damage in 2 home gardens at Lethbridge, Alta. (P.E. Blakeley). Damage was sl. at Saskatoon, Sask. (R. J. Ledingham). Half the young plants, recently set out in a garden at Ottawa, Ont. were sev. affected (D.W.G.). Specimens were received from Bedford, St. Michel and Sherbrooke, Que. (D.L.). Infection at the Research Station, Fredericton, N.B. averaged 5% (G. B.O.) (C.P. D. S. 40:2. 68. 1960).

Ringspot (virus) was generally distributed in the Fredericton, N. B. area but incidence was low (G. B.O.) (C.P.D.S. 40:2. 67. 1960).

Aster Yellows (virus). Infection at Grand Pre, N.S. was 20% in Sept. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

Mosaic (virus) affected 2% of the plants in a 50-foot bed at Ottawa, Ont. (D.W. C.).

PELARGONIUM - Geranium

Basal Stern Rot (Botrytis cinerea). Infection was 10-50% in stem cuttings in propagation beds at various places in the Okanagan Valley, B.C. (G. E. W.).

Blossom Blight and Leaf Spot (Botrytis cinerea) was mod. in large beds at Hull, Que. (**H.S.T.**).

Black Leg (Fusarium sp.) Ten % of 300 cuttings at Charlottetown, **P.E.I.** developed a black stem rot (J.E.C.).

Bacterial Leaf Spot (Xanthomonas pelargoni) affected 2000 plants in a plastic greenhouse at Peterborough, Ont. The disease was aggravated by poor cultural conditions and overcrowding (**R.J. Baylis**).

PHLOX

Powdery Mildew (Erysiphe communis Wallr. ex Fries = E. cichoracearum DC.) was common perennial phlox in Vancouver, **B.C.** gardens (H.N.W. T.). Specimens with sev. infections were received from Quebec City, Charlesbourg, East Broughton and St. Ephrem, Que. (**D.L.**). It was quite common in the Fredericton, N.B. area in Aug. (**G.B.O.**) (C.P.D.S. 40:2. 69. 1960).

Leaf Spot (Septoria divaricata) occurred early on perennial phlox at Fredericton, N.B. The organism was isolated from annual phlox in Aug. Leaf symptoms were severe (**G.B.O.**) (C.P. D. S. 40:2. 69. 1960).

Aster Yellows (virus) was tr. on perennial phlox and 10% on annual phlox at Kentville, N.S. in Sept. (**K.A.H.**) (C.P.D.S. 40:2. 99. 1960).

Streak (virus). A 1% infection was seen at Fredericton, N.B. (**G.B.O.**) (C.P.D.S. 40:2. 67. 1960).

SAINTPAULIA - African Violet

Root Knot (Meloidogyne incognita) was recorded at Saanichton, B. C. from plants newly imported from the U. S.A. (**J.E.B.**) (C.P. D.S. 40:2. 107. 1960).

SALVIA - Sage

Root Knot (Meloidogyne hapla). At Harrow, Ont., 100% infestation was seen in a home garden (**W.B. M., R.M.S.**).

Stem Rot (Sclerotinia sclerotiorum). Infection was 10% in a planting at Fredericton, N.B. (**G.B.O.**) (C.P. D.S. 40:2. 70. 1960).

TAGETES - Marigold

Wilt and Stem Rot (Phytophthora cryptogea) was seen on marigolds in Essex Co., Ont. (**A.A.H.**).

Aster Yellows (virus) was tr. in a planting at Winnipeg, Man. (**W.L.G.**). A mod. infection developed late in the season in an Ottawa, Ont. garden (**D.W.C.**). It was seen at Fredericton, N.B. (**G.B.O.**) (C.P.D.S. 40:2. 67. 1960), and ranged up to 100%, depending on variety, at Kentville and was 20% at Grand Pre, N. S. in Sept. (**K.A.H.**) (C.P. D.S. 40:2. 99. 1960).

TROPAEOLUM - Nasturtium

Aster Yellows (virus). A 10% infection was recorded at Cole Harbor, N.S. (K.A.H.) (C.P.D.S. 40:2. 99. 1960).

TULIPA - Tulip

Fire (Botrytis tulipae) damaged 30% of the tulips in a Vancouver, B.C. planting (H.N. W.T.). It was first noted 20 May on Red Emperor at Fredericton, N.B. Infection was 80% on one large bed of mixed varieties (G.B.O.) (C.P.D.S. 40:2. 69. 1960). Fire was seen, but was not troublesome in N.S. in 1960 (K.A.H.).

Gray Bulb Rot (Sclerotium tuliparum) was sev. in an Ottawa, Ont. garden in May (R.J.B.).

Break (virus) was seen occasionally in the Okanagan Valley, B.C. (G.E.W.). It was tr. in a mixed planting at Ottawa, Ont. (D.W.C.).

VERONICA - Speedwell

Downy Mildew (Peronospora grisea). Several plants were infected in the Fredericton, N.B. area (G.B.O.) (C.P.D.S. 40:2. 68. 1960). This constitutes a new record to the Survey (D.W.C.).

Powdery Mildew (Sphaerotheca macularis Wallr. ex Fries) W. B. Cke. = S. humuli (DC.) Burr.) was mod. on several plants at Fredericton, N.B. (G.B.O.) (C.P. D.S. 40:2. 68. 1960).

VIOLA - Pansy

Gray Mold (Botrytis cinerea). Pansies in a border at Fredericton, N.B. were 20% infected (G.B.O.) (C.P. D.S. 40:2. 68. 1960).

Crown Rot and Leaf Spot (Centrospora acerina) was again extremely sev. in a bed of several thousand plants at Centerville, N.S. so much so, in fact, that the grower has given up this crop. Fungicidal sprays in the fall of 1959 appeared to have held the disease but it spread rapidly in the cool, wet spring of 1960. A second grower at Cambridge reported the disease in a large bed planted in 1959 (K.A.H.).

Leaf Spot (Cercospora violae). Infection was about 1% in a planting of several thousand plants at Centerville, N.S. (K.A.H.).

Powdery Mildew (Sphaerotheca macularis Wallr. ex Fries = S. humuli (DC.) Burr.) was general at Summerland, B.C. late in the season (G.E.W.).

ZINNIA

Blight (Alternaria zinniae) was sev. on most plants in a garden at Madoc, and was prevalent in gardens at Ottawa, Ont. (H.S.T.). It caused some damage in home gardens at Fredericton, N.B. (G.B.O.) (C.P.D.S. 40:2. 69. 1960). At Kentville, N.S. there appeared to be varietal differences in resistance to blight (K.A.H.).

Powdery Mildew (Erysiphe communis Wallr. ex Fries = **E. cichoracearum DC.**) was mod. at Brookfield in July (D. W. C.) and was very sev. at Kentville, N.S. in the fall (K.A.H.).

Root Knot (Meloidogyne hapla) affected 100% of the plants in a Harrow, Ont. garden (W. A. M., R. M. S.).

Wilt and Stem Rot (Phytophthora cryptogea) was observed at Harrow, Ont. (A.A.H.).

Sclerotinia Rot (S. sclerotiorum) affected 20 out of several hundred plants at the Research Station, Kentville, N.S. (K. A.H.).

Aster Yellows (virus) was seen at Fredericton, N. B. (G. B.O.) (C.P.D.S. 40:2, 67, 1960), and was tr. at Grand Pre, N.S. in Sept. (K.A.H.) (C.P.D.S. 40:2, 99, 1960).