Notes on Some Nematodes in Canada, 1956

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The cyst nematodes (Heterodera spp.) are practically all important crop pests. They are all capable of causing damage to some crops and they are notoriously difficult to control. The populations may often be considerably reduced by means of crop rotation to a level at which host crops can be grown successfully, but once these nematodes are well established in a field there is, at present, no known method of eradication. Probably the most publicized cyst nematode is the golden nematode, H. rostochiensis (Wollenweber, 1923) Franklin, 1940, which is known in Europe as the potato cyst nematode. This species has not yet been found in Canada. The sugar-beet nematode, H. schachtii Schmidt, 1871, and the oat cyst nematode H. avenae (Lind, Rostrup & Ravn, 1913) Filipjev, 1934, have been reported previously from Ontario in areas that do not overlap. There was no indication during 1956 of any marked spread of either of these pests. About 28 years ago another species was named and described from specimens found attacking wheat in the Prairie Provinces and since then has usually been referred to as the wheat nematode. However, this species, H. punctata Thorne, 1928, should more correctly be referred to as the grass cyst nematode. Though it has been found in Europe fairly frequently, it has always been found attacking grasses and not wheat. Surveys of wheat fields in Saskatchewan, where it was originally found, have failed to disclose it again on this crop. The only Canadian records of this species have been from the Prairie Provinces but in 1956 it was found at Cap Tourmente, Que., where roots of bentgrass, Agrostis palustris Huds., were heavily infested. It was also recorded from Lethbridge, Alta., where it was found in prairie grass sod. Records in Canada of the clover cyst nematode, H. schachtii var. trifolii Goffart, 1932, continue to accumulate, suggesting that this nematode may prove to be fairly common in this country (This form is probably a distinct species). New records for 1956 are from Ottawa, Ont., where roots of white clover, Trifolium repens L., were found heavily infested; from Durham County, Ont., on hairy vetch, Vicia villosa Roth; from Cap Tourmente, Que., on white clover, Trifolium repens L.; from Summerland, B.C., in lawn sod; from Agassiz, B.C., in oat soil; from Matsqui and Ladner, B.C., in soil; and from Victoria, B.C., on bean, Phaseolus vulgaris var. Tender Green.

The northern root-knot nematode, Meloidogyne hapla Chitwood, 1949, was found attacking carrots at Hemmingford, Que., and at Pembroke, Ont.; in a nursery at Toronto, Ont., roots of Viburnum sp. and Philadelphus coronarius L. were both heavily knotted; on alfalfa at Ottawa; and on red clover at Cap Tourmente, Que. The southern root-knot nematode, Meloidogyne incognita (Kofoid & White) Chitwood, 1949, was found at Macdonald College, Que., on red clover (in greenhouse); at Saskatoon, Sask., on roots of Coleus sp. (in greenhouse); and on roots of violet plants intercepted from Hong Kong, China. It is not yet clear whether this species can overwinter in the field in Canada.

During 1956 the potato-rot nematode, Ditylenchus destructor Thorne, 1945, was found in only one field in Prince Edward Island not previously reported, but this field was within an area where this species had been found previously.

Stunt nematodes (Tylenchorhynchus spp.) appear to be fairly common in Canada. T. magnicauda (Thorne, 1935) Filipjev, 1936, was found at Summerland, B.C., in grass sod; T. acutus Allen, 1955, at Kane, Man., on crested wheat grass; and at Wild Horse, Alta., on alfalfa; T. lenorus Brown, 1956, at Hilton, Man., in grass sod, and at Cardston, Alta., on wheat; T. leptus Allen, 1955, at Fort Macleod, Alta., in pasture sod; and T. maximus Allen, 1955, at Twin Butte, Alta., on alsike.

Up to the present the commonest root-lesion nematode in Canada appears to be Pratylenchus penetrans (Cobb, 1917) Sher & Allen, 1953. At Ottawa, Ont., it was found on raspberry and the fine roots of apple trees were heavily infested. It was also intercepted on heavily infested lily-of-the-valley pips from Germany. P. pratensis (deMan, 1880) Thorne, 1949, was found at Cap Tourmente, Que., in grass sod. P. vulnus Allen & Jensen, 1951, was found at Medicine Hat, Alta., on roses (in greenhouse); and on raspberry plants intercepted from France.

The grass seed-gall nematode, Anguina agrostis (Steinbuch, 1799) Filipjev, 1936, has been encountered rather frequently in Canada and it seems probable that at least some of these infestations have arisen through the importation of infested grass seed. New records are from Toronto Island, Ont., on Kentucky blue grass; from Colebrook, B.C., on red top grass; on bentgrass seed intercepted from Minnesota, U.S.A.; and on brown top seed intercepted from New Zealand.

New records of the ectoparasitic ring nematodes (Criconemoides spp.) include the following: C. lobatum Raski, 1952, from Ottawa, Ont., on red clover; and from Cap Tourmente, Que., on red clover. C. curvatum Raski, 1952, was found at Fort Macleod, Alta., in pasture sod and C. xenoplax Raski, 1952, at Ottawa, Ont., on white elm.

New records of ectoparasitic dagger nematodes (Xiphinema spp.) are as follows: X. americanum Cobb, 1913, at Ottawa, Ont., in large numbers on the roots of white elm; at Lethbridge, Alta., on alfalfa; at Hilton, Man., and Carmel, Sask., in grass sod; and at Summerland, B.C., in lawn sod. X. diversicaudatum (Micoletzky, 1927) Thorne, 1939, was found at St. Bruno, Que., on rose roots that were severely galled and stunted (It was reported that these plants had been imported from U.S.A. three years previously).

Radopholus gracilis (deMan, 1880) Hirschmann, 1955, was found in mud flats near Cap Tourmente, Que., infesting the roots of bulrush, Scirpus americanus Pers. Longidorus elongatus (deMan, 1876) Thorne & Swanger, 1936, was numerous in lawn sod at Ottawa, Ont. Aphelenchoides ritzema-bosi

(Schwartz, 1911) Steiner, 1932, was found infesting the foliage of Chrysanthemum sp. at Sarnia, Ont.; and a species of Trichodorus was numerous in soil around rose roots at Ottawa, Ont.

Records of predaceous nematodes belonging to the genus Mononchus include the following: M. incurvus Cobb, 1917, from St. Bruno, Que., near rose roots; M. macrostoma (Bastian, 1865) Cobb, 1916, from Blackburn Station, Ont., in a soy-bean field; M. lacustris (Cobb, M.V., 1915) Cobb, 1917, from Richmond, Ont., in soil near wild rice growing in water; M. longicaudatus (Cobb, 1893) Cobb, 1916, from Richmond, from near wild rice roots; from Picture Butte, Alta., in riverside soil; and from Summit, nr. Princeton, B.C., in streamside soil. M. parvus (deMan, 1880) Cobb, 1916, was found at Victoria, B.C., in orchard grass soil; M. papillatus (Bastian, 1865) Cobb, 1916, at Kamloops, B.C., in grass sod, and at Vernon, B.C., in soil of an apple orchard. M. muscorum (Dujardin, 1845) Cobb, 1916, was found at Richmond, Ont., near wild rice growing in water; at Ottawa, Ont., in grass sod; and at Fredericton, N.B., in grass sod. M. brachyuris (Buetschli, 1873) Cobb, 1917, was recorded from Point Pelee, Ont., in soil of an apple orchard; from Cyrville, Ont., in pasture sod; from Ottawa, Ont., in clover soil; and from Cap Tourmente, Que., in clover soil.

Records of identifications of nematodes from new hosts and new localities in Canada are published periodically from the Ottawa laboratory in The Canadian Insect Pest Review.