Notes on Some Plant-parasitic Nematodes Encountered in Canada in 1957

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The clover-cyst nematode, Heterodera trifolii (Goffart, 1932) Raski & Hart, 1953, which attacks clovers and is fairly widespread in Canada, reproduced parthenogenetically in the greenhouse. White Dutch clover, Trifolium repens L., was found to be highly susceptible to the attack of this nematode, whereas Ladino and hairy vetch, Vicia villosa, were not as susceptible. Limited tests showed that strawberry clover, T. fragiferum, was lightly attacked; the following were not attacked: alsike clover, T. hybridum; red clover, T. pratense; crimson clover, T. incarnatum; zig-zag clover, T. medium; alfalfa (Narragansett), Medicago sativa; and soybean, Glycines max.

The oat cyst nematode, Heterodera avenae Filipjev, 1934, was found on a farm in the Blackwell area near Sarnia, Ontario. Examination of the soil revealed a heavy infestation of one cyst per gram of soil. The farmer's records showed that oats grown in this field since 1951 had shown progressively poorer growth. This is the first record of this nematode species in this area.

The northern root-knot nematode, Meloidogyne hapla Chitwood, 1949, attacked rose, delphinium, peony, and alsike clover in Ontario; vetch in British Columbia; and strawberry roots in New Brunswick. The southern root-knot nematode, Meloidogyne incognita (Kofoid & White, 1919) Chitwood, 1949, attacked gloxinia tubers in British Columbia; and rose, Cissus discolour, and Hova vine roots in Toronto greenhouses.

A root-lesion nematode, Pratylenchus pratensis (de Man, 1880) Filipjev, 1936, was encountered 30 times in collections from red clover, alfalfa, grass, oat, and strawberry fields in Quebec and Ontario, whereas P. penetrans (Cobb, 1917) Sher & Allen, 1953, was encountered only seven times in these habitats.

Examination of diseased African violet plants, grown by private individuals, revealed that large numbers of the root-lesion nematode, P. penetrans, had attacked both the roots and the crown, causing the plants to wilt.

A species of the awl nematode, Dolichodorus sp., attacked the roots of wild rice growing in the Beaufort marshes near Quebec City. This nematode had not previously been recorded from Canada.

The foliar nematode, Aphelenchoides ritzema-bosi (Schwartz, 1911) Steiner & Buhrer, 1932, caused widespread damage to chrysanthemum leaves in outdoor nurseries in southern Ontario.

A tree survey in Ontario and Quebec revealed a number of species of plant-parasitic nematodes associated with the roots of 17 kinds of trees. Most of the plant-parasitic nematodes encountered had not previously been recorded attacking forest trees in Canada. Species of Hemicycliophora, Rotylenchus, and Paratylenchus were observed to be the most frequent tree root parasites. Two ectoparasites, Criconema menzeli (Stefanski, 1924) Taylor, 1936, and Criconemoides demani (Micoletzky, 1925) Taylor, 1936, which were found associated with tree roots, had not previously been recorded from Canada. Another ectoparasite recorded for the first time from Canada was Criconema octangulare (Cobb, 1914) Taylor, 1936, found on moss roots.

Predaceous nematodes belonging to the genus Monochus were found in the soil of 50 per cent of the tree root samples examined from Ontario and Quebec. The six species encountered in order of abundance were: Mononchus papillatus (Bastian, 1865) Cobb, 1916; M. brachyurus (Buetschli, 1873) Cobb, 1917; M. muscorum (Dujardin, 1845) Cobb, 1916; M. parvus (de Man, 1880) Cobb, 1916; M. sigmaturus Cobb, 1917; and M. trionchus Thorne, 1924.

Phenological Data, 1957

In 1957, first anthesis dates for plants under observation at Ottawa were mostly slightly earlier than usual. This contrasts with 1956 when practically all the observed anthesis dates were later than the averages. Table I shows the dates of first anthesis in 1957 and the departure in days from the average date of previous years (I.J. Bassett).

The chief feature of the phenological data collected in the Prairie Provinces in 1957 is that the majority of the species recorded bloomed earlier than normal. There were no excessively wet or cool periods to delay the development of plant growth throughout the season until heading time. Late-flowering species bloomed slightly early and the wheat plots took less than the usual time for early sown wheat to mature (R.C. Russell).