Plant Parasitic Nematodes in Southwestern Ontario - 1959

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Root Knot Nematode in Field Crops

There is little doubt that the northern root knot nematode, Meloidogyne hapla, has become considerably more prevalent in southern Ontario, particularly on sandy and muck soils. In the Bradford, Thedford and Port Colborne marshes this nematode was a serious problem on carrots in 1959. On one farm in the Bradford marsh affected carrots were more prevalent along an irrigation ditch, suggesting the possibility of spread by irrigation. According to Mr. W.S. Carpenter, Extension Specialist, Ontario Department of Agriculture, "a few hundred acres" in the Port Colborne marsh were heavily infested in 1959 and indeed, populations of 3000 larvae of M. hapla per pound of muck soil were recovered. On one farm in the Thedford marsh the grower was obliged to plough up four acres of infested carrots and a further six acres were seriously affected. The grower stated that he had observed trace amounts of root knot in previous years but the problem was much more serious in 1958 and 1959.

In the Burlington area on sandy soil, celery, lettuce and carrots were found to be infested by M. hapla in seven of fourteen farms examined. On two of these farms root knot was a serious problem in 1959. In young celery plants the foliar symptoms of root knot, stunting and chlorosis, somewhat resemble aster yellows. The presence of root galls and the absence of twisting of the petioles with root knot, however, readily separate these two diseases.

Near Milton, Ontario, a planting of strawberries of mixed varieties was severely attacked by M. hapla with the most seriously affected plants growing on sandy soil. There is some evidence to suggest that infestation of this field resulted from planting infested strawberry varieties imported from Maryland, U.S.A. five years ago.

Root Knot Nematode in Greenhouse Crops

Root knot nematode continues to be a serious pest in greenhouses. In 1959 the root knot nematodes Meloidogyne hapla, M. javanica and M. incognita var. acrita were recovered from various crops. In a Fonthill greenhouse geranium plants were affected by M. hapla and at Grimsby African Violet and Philodendron were attacked by M. incognita. In a greenhouse at St. Catharines M. incognita and M. javanica were recovered from galls on the roots of cucumber and tomato. A greenhouse crop of lettuce near Leamington was found to be infected with M. hapla. In other greenhouses in the same area, M. incognita and M. incognita var. acrita were recovered from tomato and cucumber roots.

In general, the presence of the southern forms, M. incognita, M. incognita var. acrita, and M. javanica, may be suspected when large, massive galls occur

Root Lesion Nematodes in Field Crops

Tobacco, The populations of Pratylenchus penetrans were very much lower throughout flue-tobacco soils in Ontario than they have been for several years. The lower populations could be due to a combination of two factors: (1) a lower initial population due to extensive killing by ice, of the rye cover crop upon which the nematode builds up during the preceding winter; and (2) the higher than average soil temperatures immediately following transplanting of the tobacco to the field resulting in a reduced rate of reproduction of the nematode, As a result, brown root rot was much less serious than usual in tobacco in 1959.

Peach. Failure of a one-year old peach orchard near Cedar Springs was associated with a high soil population of Pratylenchus penetrans, Previously this land had been planted to strawberries for three years.

Eggplant, Large populations of Pratylenchus penetrans were recovered from the roots of eggplant at Harrow. However, the nematodes did not appear to be causing any damage to the crop,

Sour Cherry. A sour cherry replant problem occurs in the Niagara Peninsula where cherries are planted on either former cherry or peach orchard sites. Because of lower than average rainfall during the past two years the problem has become more conspicuous. Some trees fail to become established, whereas others live but remain stunted. Foliar symptoms suggest drought and potash deficiency. Feeder roots are almost completely lacking and the trees do' not respond normally to fertilizer. The root lesion nematode, Pratylenchus penetrans is prevalent in affected orchards. From 100 to 900 P. penetrans per gm, of dried root have been recovered from roots of affected trees with the soil populations of the nematode varying from 100 to 650 per pound.

Celery, In the Burlington area ten out of fourteen farms surveyed showed that celery was being affected by high populations of Pratylenchus penetrans. Increased application of fertilizer and irrigation have helped to offset the effects of the nematode but soil fumigation is necessary to restore normal yield,

Strawberry. A survey carried out at Vineland in 1959 showed that fifteen commercial varieties of strawberries were infested with Pratylenchus penetrans. The populations varied from 60 to 3500 per gram,

Root Lesion Nematodes in Greenhouse Crops

In two greenhouses near Leamington chrysanthemums have been stunted by high populations of Pratylenchus penetrans. In both cases the nematode apparently was introduced in unsteamed soil which had been obtained from tobacco or tomato fields.

Pin Nematodes in Field Crops

Paratylenchus sp. continues to affect the growth of celery in several areas in the Thedford marsh and in a clay loam soil near London, Stunted rhubarb growing In the same area near London might also have been affected by high soil populations of the pin nematode.

Bulb and Stem Nematode in Onion

In the Leamington marsh Ditylenchus dipsaci, first discovered in 1957, continues to be a problem on only one or two farms where growers still refuse to follow the rotation recommendations made in 1957. On several farms where soybeans have replaced onions for two seasons the nematodes could not be recovered from soil samples submitted recently.