

OCCURRENCE OF THE NORTHERN ROOTKNOT NEMATODE *MELOIDOGYNE HAPLA* ON FIELD-GROWN CUCUMBER IN MANITOBA¹

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In June 1968 cucumber plants, *Cucumis sativus* L. 'SRX-6758', in a field near Winkler, Manitoba, appeared stunted and showed some yellowing of the foliage. Diseased plants occurred throughout the field with occasional patches of more severely affected cucumber plants showed rootknot or gall formation (Fig. 1). Dr. K. C. Sanwal, Entomology Research Institute, CDA, Ottawa, Ontario, identified the organism as *Meloidogyne hapla* Chitwood, the northern rootknot nematode. Initially the crop appeared to be a complete loss, but the plants recovered with the advent of above-normal rainfall and cooler temperatures.

The soil, a sandy loam, was apparently heavily infested with the pathogen and the high inoculum density may be explained by the fact that alfalfa, which is highly susceptible to the nematode (1), was grown in five of the seven preceding years. From 1961 to 1965 this field was planted with a mixture of alfalfa-brome grass, in 1966 with oats, and in 1967 with flax.

A pathogenicity test was carried out using soil from the diseased field. Typical gall formation occurred on the roots of 100% of the plants of carrot 'Eureka', cucumber 'Morden Early', and tomato 'Meteor', but not on the roots of sweet corn '62C60 B. I. B.', wheat 'Manitou', or rye (mixture). The respective susceptibility and resistance of these crops to this nematode agrees with that mentioned by Chester (1). What is important is that two other susceptible crops, peas and potatoes, are rather widely grown in southern Manitoba. Crop rotations in which the cereals wheat, rye, barley, oats, or corn are included and in which susceptible crops are not planted more often than once every three years should give good control of this pathogen. It should also be pointed out that the effect of control by crop rotation will be reduced if susceptible weeds are not eliminated. Other hosts found to be naturally infected in the cucumber field were wild buckwheat, *Polygonum convolvulus* L.; wild mustard, *Sinapis arvensis* L.; and cultivated flax, *Linum usitatissimum* L. The occurrence of this nematode on the roots of flax constitutes a new host record for Canada.



Figure 1. Cucumber plants from a rootknot-infested field near Winkler, Manitoba. The plant on the right is healthy. Rootknot formation caused by *Meloidogyne hapla* Chitwood is severe on the roots of the other plants, which are somewhat stunted.

Also of interest is that *M. hapla* has not previously been reported in Canada from cucumber seeded directly in the field though it has been reported on greenhouse-grown cucumber in British Columbia and Ontario (2).

Literature cited

1. Chester, K. Starr. 1947. Nature and prevention of plant diseases. 2nd ed. The Blakiston Company, Philadelphia-Toronto. 525 p.
2. Connors, I.L. 1967. An annotated index of plant diseases in Canada. Can. Dep. Agr. Pub. 1251. 381 p.

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