

# The Sugar Beet Nematode in Michigan

H. W. BOCKSTAHLER<sup>1</sup>

Occurrence of the sugar beet nematode (*Heterodera schachtii* A. Schmidt) near Sarnia, Ontario, was reported in 1941 by H. D. Brown, formerly chief agriculturist of the Canada and Dominion Sugar Company. This represented the first report of the pest in a sugar beet growing district east of the Mississippi. According to Brown, the sugar beet nematode was first noted in 1931 as two small patches in one field. When sugar beets were planted in this field in 1940, nematode injury again developed in the areas previously noted as affected. Infestations in other fields in the immediate vicinity were found in 1939 and 1940.

During the summer of 1948, the writer received a request to examine a field of sugar beets near Bay City, Michigan, in which the sugar beet nematode was thought to be present. Examination of the roots of wilted plants revealed the presence of large numbers of nematode cysts. Samples of the soil and of the sugar beet plants were sent to the Division of Nematology, Beltsville, Maryland, and the field determination was confirmed by Dr. G. Steiner. About three acres of the field, as evidenced by wilting and unthrifty appearance of the sugar beet plants, appeared to be infested seriously. The farmer in whose field the sugar beet nematode was found stated that he had observed poor growth of sugar beets in the affected area as early as 1942. His practice for this field was to alternate the sugar beet crop with potatoes.

Another field of sugar beets near Mount Clemens, Michigan, was examined on September 13, 1948. Sugar beet nematodes were present on the roots of wilted plants. The size of the infested areas and the injury to plants were less than in the Bay City field.

In 1949, Perc A. Reeve and Grant Nichol of the Farmers & Manufacturers Beet Sugar Association collected samples of sugar beets from four fields near Indiantown, northeast of Saginaw, Michigan. The sugar beet nematode was found on the roots and had caused dwarfing and wilting. The infested fields had been planted to sugar beets every two or three years for a considerable period. Decreased yields from affected areas for at least six or seven years had been noted by the sugar beet growers. The finding of the sugar beet nematode as a serious infestation in a few fields in sugar beet growing districts of Michigan indicates the need of surveys to determine the situation in eastern sugar beet districts.

Certain steps have already been taken to prevent spread. The practice in Ontario has been to retire certain fields from sugar beet cultivation and longer rotations have been proposed for others. Certain sanitary practices in handling sugar beets from fields found to be infested have been considered. The Farmers and Manufacturers Beet Sugar Association, in coopera-

<sup>1</sup> Pathologist, Division of Sugar Plant Investigations, Bureau of Plant Industry, Soils and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture.

tion with the Dow Chemical Company, has applied chemical treatments to infested areas near Saginaw. It is recognized that such treatments merely reduce the number of nematodes and have not served to eradicate the pest. Longer crop rotations than those in common use may now be required by beet sugar companies, not alone to prevent the spread of this new pest but as an improved farm practice. In this policy they are being guided by the experience of sugar beet growers in western United States where effective nematode control has been obtained through use of long rotations, as long as weeds which harbor the nematode have not been present to defeat the very purpose of the rotation. The recent development of new nematocides may assist in the control of the sugar beet nematodes. Far more important is the opportunity that now seems offered to the industry to confine the infestation essentially to its present rather limited distribution.

### **Summary**

Sugar beet nematodes were found in 1948 near Bay City and Mount Clemens, Michigan, and in 1949 in four fields near Saginaw, Michigan. The infested fields were in short rotations in which beets occurred every other year or every third year.

Longer rotations, sanitary practices in handling beets from infested fields, and chemical treatments of infested areas are recommended to confine the nematode to its present limited distribution in Michigan.