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Lundström, Sweden - Final objectives in larval and maggot sugar beet
Detailed accounts of the progress of larval entomopathogens in sugar beet are lacking. The objectives

Smith, G. A. *, C. A. Wozniak, L. G. Campbell, and J. D. Eide, USDA, Agricultural Research Service, P. O. Box 5677 - University Station, Fargo, ND 58105. - Evaluation of entomopathogenic nematodes for control of *Tetanops myopaeformis*, the sugarbeet root maggot.

Nematodes which attack insects (not to be confused with those that affect plants) may offer a biological control for the sugarbeet root maggot (SBRM). They have a broad host range, can be easily mass produced, possess the ability to seek out and rapidly kill their host, are environmentally safe, and have been exempted from registration by the U.S. Environmental Protection Agency. The soil offers an excellent site for insect-nematode interaction, and soil is the natural reservoir of steinernematid and heterorhabditid nematodes. To determine the feasibility of potential nematode use for control of the sugarbeet root maggot, we asked the following: (1) Will nematodes infect the SBRM? (2) Will nematodes reproduce following infection? (3) Can nematodes be applied in the field and be infective? (4) If nematodes are infective in the field, how long will they persist? (5) Will nematodes infect and reproduce in adult flies? We evaluated six strains of nematodes in the laboratory and found that all strains infected, killed, and reproduced in the SBRM larvae. Mortality of the root maggots ranged from 50 to 85 percent in the laboratory. Death of the larvae occurred 24 to 48 hours after nematode infection. Reproduction within the larval cadavers produced several thousand infective juvenile nematodes 12 to 14 days after infection. Our first-year field tests, conducted in the summer of 1992, indicated that all strains tested infected the larvae in the field. Further laboratory tests determined that adult flies were infected after only two hours of exposure to the nematodes and that reproduction did take place in adult fly cadavers. The results of our investigation show the potential of pathogenic nematodes as a biological control agent for SBRM.