Strawberry Root Insect Research - Dr. Elson Shields,
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The root weevil complex from the genus *Otiorhynchus* are all serious pests of agricultural, difficult to control and manage even with the use of soil insecticides. The common root weevils affecting berries are Black vine weevil, *O. sulcatus* and Strawberry root weevil, *O. ovatus*. All insects are female and flightless with fused wing covers. Therefore, it only takes the introduction of a single insect to start a new infestation on your farm, usually introduced in nursery stock. Due to the secretive nature of the adults, feeding only at night and the root feeding of the larvae, these new infestations go unnoticed for several years until the population has grown large enough to start killing out a significant part of the berry planting from the root feeding by the larvae. The loss of effective soil insecticides make management of this insect more difficult. Although, the use of soil insecticides never cured the root weevil problem, merely masked it and required repeat applications to hold this insect complex below the economic damage level.

Another *Otiorhynchus* species attacks alfalfa with devastating results in nine counties in NNY and has a large economic impact on the NNY dairy industry. Alfalfa snout beetle, *O. ligustici* often kills out entire alfalfa fields in a single year and cannot be controlled by any conventional methods. Over the past 25+ years, research has been focused on developing an effective biological program for this insect using native persistent entomopathogenic nematodes isolated in NNY. The focus of this program was to develop a biological control program where entomopathogenic nematode were introduced a single time for multiple year suppression of the alfalfa snout beetle. Techniques have been developed for farmers to rear their own nematodes and apply them through commercial spray equipment, requiring only slight modification. To date, approximately 10,000 acres have been treated with these native nematodes which attack the alfalfa snout beetle and the program is growing every year.

Since the root weevil complex attacking berries is also known to be sensitive to entomopathogenic nematodes, research and extension efforts have broadened to crops attacked by black vine weevil and strawberry root weevil. This talk will focus on the success use of native entomopathogenic nematodes against black vine weevil in upland cultured cranberries and the current ongoing research focused on the use of these nematodes in strawberries and blueberries. In both of the cases discussed, native entomopathogenic nematodes were introduced a single time and they are persisting for multiple growing seasons, causing a decline of the root weevils to a sub economic level.

The talk will end with a summary of the future directions for research and extension.