



Northern New York Agricultural Development Program News

PRESS RELEASE: October 14, 2014

Contacts:

Cornell Entomologists Art Agnello, 315-787-2341, and Elson Shields, 607-255-8428

NNYADP Publicist Kara Lynn Dunn, 315-465-7578, karalynn@gisco.net

Link: <http://www.nnyagdev.org/index.php/2014/10/14/nny-biocontrol-may-help-ny-apple-growers/>

NNY-Developed Biocontrol for Alfalfa Pest May Be Useful to NY Apple Growers

Ithaca, NY. A biocontrol treatment developed to help Northern New York alfalfa growers is now showing early promise of proving useful to New York apple growers.

Early field trials in four NY orchard plantings have shown a reduction of 70 to 97 percent, compared with untreated plantings, in the populations of plum curculio, a key pest of eastern U.S. apple crops.

With long-term funding from the farmer-driven Northern New York Agricultural Development Program, Cornell University entomologist Elson Shields developed a biocontrol protocol for using a combination of native New York nematodes to reduce alfalfa snout beetle populations in NNY alfalfa crops.

Shields and Cornell colleague Art Agnello are now applying nematodes to control plum curculio in organic-production apple plantings.

Plum curculio is especially troublesome for organic growers whose main defense has been multiple applications of kaolin clay to act as a physical barrier to attack by the insect pest. Organic treatment programs for managing plum curculio can easily range from \$150 to \$450 per acre per year and fruit damage often remains at five to 20 percent.

Trials evaluating the effectiveness of nematodes for controlling plum curculio moved from Cornell laboratories to field testing in 2012 in a young Idared apple planting and a mature block of Empire apples at the New York State Agricultural Experiment Station farm in Geneva. Three commercial apple orchards in the Hudson Valley joined the research in 2013.

As with the NNY alfalfa trials, a combination of two species of nematodes appears to be effective at killing plum curculio larvae in both the top and deeper layers of soil in the apple orchards.

“The work done in Northern New York to isolate the native New York nematode strains and develop an effective and economical application protocol that works in alfalfa fields

set the foundation for what we believe will be a successful contribution of biocontrol in New York apple orchards,' Agnello says.

'We are seeing results for reducing the number of plum curculio larvae that reside in apple orchard floors due to dropped infested fruit when the correct nematode species and strain are properly introduced into and established in the orchard system,' Agnello adds.

Native NY nematode strains hand-raised following the farm-rearing protocol developed for the NNYADP project are showing long-term persistence in field soil compared to commercially-raised nematodes that suffer population reductions below effective levels after six months.



Cornell University student Allyson Jones-Brimmer and Erik Shelmidine of Sheland Farms prepare nematodes for application to alfalfa fields on the Jefferson County farm. Photo: NNYADP/Brian Whattam

The economics of farm-rearing of the cold-adapted, beetle-busting nematodes is a bonus. Alfalfa growers rearing their own nematodes in NNY can effectively treat their fields for \$5-10/acre.

"Alfalfa snout beetle was a significant insect pest damaging our crops and impacting dairy production. The farmers who guide the Northern New York Agricultural Development Program made a commitment to see the research through to an effective solution. With 25 years of science and hard work, not only is that solution helping agriculture in our area, it now appears to have widespread application for growers of all types of crops statewide," says NNYADP Co-Chair and St. Lawrence County dairy farmer Jon Greenwood.

Agnello notes, 'Although our current work focuses on organic production, conventional apple growers who see plum curculio damage to 2-3 percent of their crops in spite of as many as three insecticidal treatments per year will be able to add the use of nematodes to their pest control practices.'

Plum curculio is a major pest of apples, pears, peaches, cherries, and other stone fruit.

Shields is also assisting a team led by Cornell entomologist Greg Loeb investigating the use of nematodes to control grub populations in NY grape vineyards as a way to manage Japanese beetles which defoliate grapevines.

The Shields' Laboratory also has active research projects investigating the effectiveness of these native NY biocontrol nematodes against the root weevil complex attacking strawberries, blueberries, and raspberries. The nematodes have been effective in controlling black vine weevil in 200 acres of cranberries grown in non-flooding culture.

The Northern New York Agricultural Development Program receives funding for its grants program from the New York State Legislature through the support of the New York State Senate, the state Senate and Assembly Agriculture Committees, and NNY representatives.

The NNYADP has also funded selective breeding of alfalfa snout beetle-resistant varieties of alfalfa, other crops research, and dairy, livestock, local foods, maple, horticulture, and bioenergy projects. The Alfalfa Snout Beetle Control Manual and more information are online at www.nnyagdev.org.

The Cornell researchers will be evaluating soil and fruit samples from the apple harvest at the 2014 trial sites later this year. Their current work is supported by a NYS Specialty Crops Block Grant and federal Hatch Funds through Cornell University.