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## NNYADP Project Success Story

Practical Research & Results for  
NY Farms, Economy & Communities  
*in Clinton, Essex, Franklin,  
Jefferson, Lewis & St. Lawrence Counties*

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### Battling an Agricultural Pest

*This August 28, 2012 Watertown Daily Times article by Ted Booker is reprinted for educational-use only.*

Riding in straight rows on his Yamaha ATV, Carthage dairy farmer Gary D. Sullivan sprayed millions of small, microscopic ringworms out of a 50-gallon plastic tank across his alfalfa field for about two hours Monday evening. Mr. Sullivan said millions of these predatory worms, called entomopathogenic nematodes, have routed the alfalfa snout beetle before it has had a chance to spread on his farm at 3769 Deer River Road. He has treated sections of his farm each year since 2006, and now the nematodes have spread to about 50 of his 80 acres of alfalfa.

By diligently spraying the fields and growing the nematodes, Mr. Sullivan said he is preventing a potential disaster at his dairy farm. Numerous farms in the area have had entire fields of alfalfa wiped out by the beetle, which is pervasive in Jefferson and Lewis counties. The beetles arrived during the 19th century in Oswego County, where scientists say they probably were spread by boat ballasts.

Mr. Sullivan began spraying his fields after noticing subtle signs of crop damage the beetles caused. By design, he has treated small sections of the fields at a time. Worms from those sections spread throughout the fields when they are harvested and tilled in the fall, he explained.

**"I've seen no damage since I started spraying,"** he said, adding the expense and time to do the work have been minimal. "By doing a little preventive maintenance, I've stayed ahead of the beetles."

The Carthage farm is one of about 150 farms in the north country that have been treated with nematodes for the alfalfa snout beetle over the past eight years with help from scientists at Cornell University, Ithaca. Cornell entomology professor Elson J. Shields, who has conducted research on the biological control method since the late 1980s, said nematodes have effectively diminished the presence of snout beetles at every farm that has been researched and treated. The nematode population on those farms has multiplied every year.

"The nematodes are increasing in both alfalfa and corn crops," he said. "We thought the nematodes would have trouble hanging on in the corn cycle, but they're continuing to spread."

Shields said farmers are advised to rotate their alfalfa to corn crops periodically to deter the spread of snout beetles, which primarily feed on alfalfa.



Photo: Kara Lynn Dunn

*Cornell University Entomologist Dr. Elson Shields presents NNYADP-funded ASB control research at a NNY farm field day.*

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**Learn more about the Northern New York Agricultural Development Program and its' research, outreach and technical assistance projects online at [www.nnyagdev.org](http://www.nnyagdev.org)**



## NNYADP Project Success Story

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### *Tandem project research is helping farmers battle crop pest with inexpensive, biocontrol solution*

Farmers may purchase cups of nematodes from Cornell University. The nematodes are bred by placing them in containers with wax worms, which are available for purchase at most bait shops. It then takes a waiting period of 14 to 18 days to breed the nematodes before they're applied on fields, Shields said. The price to breed enough worms to treat an acre of land — about 200 million — is approximately \$50.

Compared with the amount of money that could be lost from a snout beetle infestation, however, that investment is minimal, Shields said.

"The snout beetle will cost you about a \$200 to \$250 loss per acre, and you're investing about \$50 to prevent it," he said. "And each time you rotate the alfalfa to another crop, you're spreading the worms to more land and saving that potential loss."

The microscopic worms live anywhere from 6 inches to a foot deep in the soil, Shields said. They start killing the snout beetle when the adult population is introduced in the spring. If the beetles aren't killed before they lay eggs, the worms will attack the larvae as they spread to the alfalfa's roots from July to early October.

Despite the positive results of biocontrol research with nematodes, Shields said, there is still a large number of farmers leaving their fields untreated in the fall. Some farmers believe they don't have enough time to grow nematodes during the harvest season. Others who have suffered alfalfa damage have attributed losses to winter kill and believe their fields aren't infected with alfalfa snout beetles.

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**— Cornell University Entomologist Dr. Elson Shields**

farmers who've suffered losses but have not embraced this technology. They're sometimes in denial because they don't think they're dealing with insect damage. The only way to tell is to pull a shovel out to see if beetles are feeding on the (alfalfa) root."

**Cornell is also conducting (NNYADP-funded) research to develop alfalfa [varieties] that resist the alfalfa snout beetle.** Samples of [these varieties] are expected to be made available for farmers to test in the spring at Cornell extension offices. Eventually, Shields said, farmers will be able combat the alfalfa snout beetle using resistant alfalfa and nematodes.

**"Biocontrol with nematodes will be important to knock the population of beetles down so there aren't so many," he said. "But to maintain populations at a low level, we think snout-beetle resistant alfalfa is good so that fields can't be overrun by high (beetle) populations."**

**To view a how-to manual on treating alfalfa fields with nematodes, visit the Northern New York Agriculture Development Program's website at [www.nnyagdev.org](http://www.nnyagdev.org)**

*January 2013 Note: Dr. Elson Shields will receive the 2013 Entomological Foundation Award for Excellence in IPM in part for his development of an ASB biocontrol program for NNY.*



Photo: Kara Lynn Dunn

*NNYADP project intern and Cornell student Allyson Jones-Brimmer and Sheland Farms "junior partner" and Belleville-Henderson FFA student Erik Shelmidine beta-test the farmer-friendly ease of the protocol for the on-farm rearing of nematodes to control the destructive alfalfa snout beetle*