Cornell University
Cooperative Extension
Cornell Vegetable Program

Serving Allegany, Cattaraugus, Erie, Genesee, Monroe, Niagara, Ontario, Orleans, Seneca, Wayne & Yates Counties

CORNELL VEGETABLE PROGRAM HIGHLIGHTS

JULY – SEPTEMBER 2015

Cornell Vegetable Program Adapts Food Safety Training Methods to Meet the Cultural Needs of the Amish Farming Community

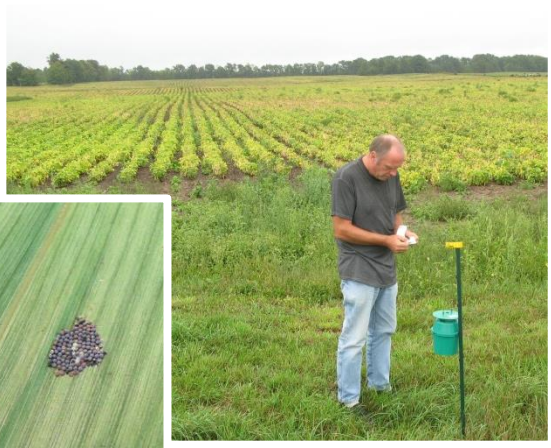
Responding to Allegany County Amish grower comments following a day-long intensive food safety education program last year which provided an overwhelming overview of food safety requirements, the Cornell Vegetable Program developed a series of GAPs farm food safety short courses.

- Produce Washing and the Associated Food Safety Practices, held spring 2015.
- Questions and Answers to Prepare for Writing a Food Safety Plan for Your Farm, held in September 2015. Eleven growers are now writing their plans.
- Review Your Draft Farm Food Safety Plan, planned for late winter.
- Are You Ready for a Food Safety Inspection?, a mock audit planned for early spring 2016.

These farmers, who sell through a produce auction, are determined to become certified not only to help improve their safe handling of produce but also to use the certification as a marketing tool to attract more buyers to the auction.

Dry Bean Growers Alerted to Threat of Western Bean Cutworm

The Cornell Vegetable Program has been organizing a moth trap network across the dry bean production area to monitor the population of Western bean cutworm (WBC) since 2011, when the invasive pest was first found in several spots in Western NY. While the WBC can reduce dry bean and corn yields, the primary concern in dry beans is damaged beans slipping through the grading process and ending up in consumers' cans of beans. Processors cannot accept the risk.



John Gibbons, CVP Technician, checking WNY Western bean cutworm trap near a dry bean field (above). *Photo: Carol MacNeil, CVP*

2015 WNY WBC egg mass on corn, purple-ready to hatch. *Photo: John Gibbons, Cornell Vegetable Program*

Since that time the season average WBC moth catch per trap has increased from 46 in 2011, to 92 in 2014, just below the threshold of concern (100/trap). Trace amounts of red kidney bean damage showed up at a couple of elevators after the 2014 season, however. In 2015 the average count jumped to 178 moths/trap, 7 out of 10 fields reached the threshold, and intensive field scouting for WBC pod damage began. Traps/scouting were in Genesee, Livingston, Monroe, Ontario, Steuben and Wyoming counties, with CCE Steuben and Wyoming, and the WNY Crop Management Association, assisting.

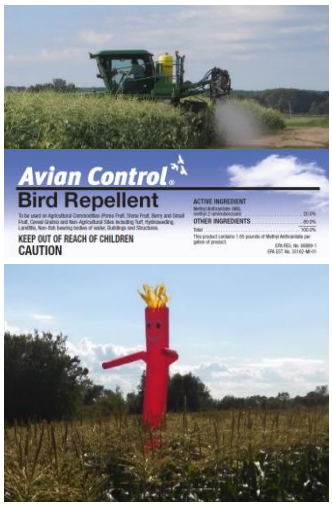
Around the time of peak moth catch, late July through early August, WBC egg masses and small larvae were found in corn near two of the monitored dry bean fields, indicating increased risk to dry beans. WBC damage was only seen in one late bean field, late in the WBC season, but several growers had sprayed insecticide earlier due to the high numbers of moths caught in traps on their farms. An alert had been sent to all dry bean growers and allied agribusinesses. If trap catches are high and/or if egg masses/larvae are seen in nearby corn, then dry beans should be scouted for WBC damage. If dry bean pod feeding is found, a single insecticide spray should be applied without delay. A trace amount of bean damage was found at one elevator in September. More may be seen when the beans are graded and cleaned this winter.

Though WBC originally migrated into NYS from Michigan and Ontario, it is now overwintering here, and is expected to be a dry bean pest into the future.

Funded by the NYS Dry Bean Industry Committee

Evaluating Novel Tools for Bird Management in Sweet Corn

Bird damage continues to be a persistent problem for vegetable producers, particularly in fresh market sweet corn. Wildlife damage not only leads to yield loss but the possibility of microbial contamination poses a huge food safety issue. We initiated a NE SARE funded project in 2015 to evaluate two novel techniques – Avian Control and the "air-dancer" in sweet corn for bird deterrence.



Photos: Darcy Telenko, CVP

- **Avian Control** (methyl anthranilate)
  - > Primary repellant that is an irritant to many birds.
  - > Contact stimulates temporary pain in taste and smell receptors rendering the food source unpalatable.
  - > Additional advantages - short re-entry, no pre-harvest intervals, and a reasonable cost of $36/A/application.
- **Air-dancer**
  - > A brightly colored air balloon that inflates then partially deflates over and over again.
  - > Creates a very tall and foreboding presence.
  - > Constantly jumping up noisily and shaking at random provides "scare" to keep wildlife afar.
  - > Reusable tactic costs approximately $600 ($200 for the air-dancer plus $400 for generator power).

Four on-farm evaluations were established to test these techniques. Timing was critical as it only took an evening for birds to migrate into a field as one grower noted after experiencing 25% ear damage at a loss of $549/A. Unacceptable bird damage was also noted where nuisance permits and gas-fired cannons were deployed at a loss of $220/A. Both Avian Control, a chemical deterrent, and an "air-dancer" successfully dissuaded birds at all farms increasing yield 1 to 19% ($22-$418/A) over untreated plots with bird damage ranging 2 to 30%. Average harvestable ears were increased 4.2% with two applications of Avian Control and 9% with the "air-dancer" when compared to untreated areas in the same field. Success was highly dependent on application timing, placement, and crop maturity. Cooperating farms were so excited about both Avian Control and the "air-dancer" tactics they had us testing in several locations as sweet corn ripened. One grower stated "the birds have not moved into this field like they regularly do, can we move the air-dancer over there next to the woods?" Cooperators identified the need for future research to develop Best Management Practices (BMPs) for Avian Control and the "air-dancer" and explore their potential use on other crops and wildlife in future seasons. The Cornell Vegetable Program plans to expand our research to further replicate the success of these techniques, refine the timing of application of Avian Control, and identify the best placement and expanded use of the air-dancer. We aim to create best management guidelines for wildlife management that growers can implement and potentially save them from wildlife damage and contamination.

Research-Based Solutions to Managing Pests in Processing Vegetable Crops

With a focus on New York's processing vegetable industry, vegetable specialist Julie Kikkert partners with faculty from Cornell and other institutions each year to conduct research on weed and pest management. The majority of projects have an on-farm component which often involves pest identification and monitoring, sample collection and on-farm trials. Projects conducted in 2015 include:

- Slugs in processing pea fields
- Cercospora leaf disease and weed management in red beets
- Tan leaf spot and white mold in lima beans
- White mold and European corn borer in snap beans
- Management of herbicide-resistant weeds in muck-grown carrots

Processing vegetables are grown on roughly 40,000 acres in New York each year, with a value of $53.5 million (USDA Ag Statistics, 2014). Research is supported by the industry, and various state and federal grants.

Vegetable Specialist Julie Kikkert examines carrots in her weed management trial. *Photo: Missy Call, Cornell Vegetable Program*

Vegetable Growers Plant More Cover Crops, More Cover Crop Mixes

The Cornell Vegetable Program has conducted dozens of educational programs for hundreds of growers on improving soil health for over ten years. Cover crop use had dropped on most vegetable farms over 20-30 years, with just a rye or wheat cover crop being used occasionally 2005. Soil health was suffering, with poor water infiltration and water-logging, erosion, compaction, soil crusting, etc. all reducing crop potential. Growers were concerned, and attendance at local and statewide meetings (Expo in Syracuse), jumped.

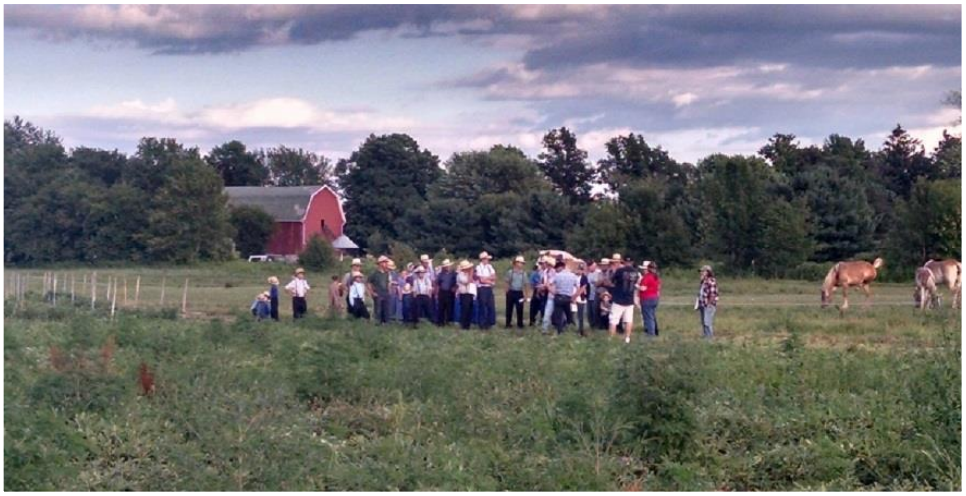
Clover cover crop.
Photo: Judson Reid, Cornell Vegetable Program

A survey of thirteen growers in the CVP region who have some interest in their soils was conducted in September 2015. Only one grower planted (or intended to plant) no cover crops in 2015. Among the other twelve growers cover crop planting had occurred or was planned on 6, 519 acres. All the growers planted grass cover crops (rye, ryegrass, wheat, barley, oats, sorghum sudan, triticale); 73% planted legumes (red clover, Crimson clover, Austrian winter pea, hairy vetch, sweet clover, soybeans, Balsana clover, sunnhemp); 64% planted crucifers (radish, mustard); 4% planted buckwheat or sunflower; and, all but one planted some mixed cover crops (from two to nine species). Mixed cover crops were planted on over 700 acres. Mixed cover crops complement each other, providing more benefits to soil health than any single cover crop can. Overwintering grasses take up the nitrogen that legumes produce, thus stimulating the legumes to produce more nitrogen, but saving it until the grasses are tilled under or killed. Tillage radish in a mix roots very deeply, producing root channels for cash crop roots and water percolation, which most other cover crops can't do. Interest in cover crops has thus skyrocketed.

The Soil Health Session of the 2016 Empire State Producers Expo, Syracuse, was organized, with two of the most innovative cover croppers on the program. Donn Branton, LeRoy, will speak on diverse cover crop mixes and interseeding cover crops into late cash crops to get a "jump" on cover crop growth. Klaas Martens, Penn Yan, will speak on using cover crops to best advantage, such as seeding buckwheat or yellow mustard ahead of dry beans to reduce weed pressure.
Funded by an NRCS-Conservation Innovation Grant

Series of On-Farm Produce Auction Grower Meetings Held in Four Counties

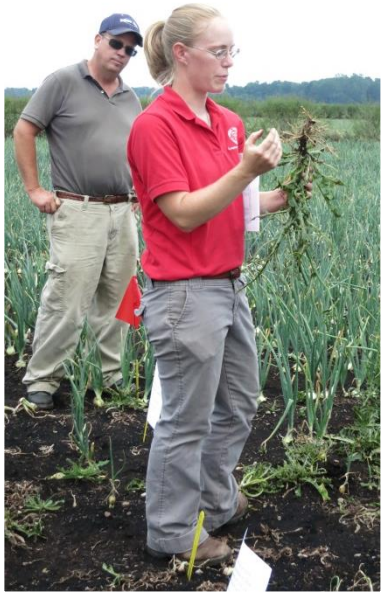
The peak growing season saw our program coordinate a series of on-farm Produce Auction Grower Meetings in 4 different counties involving 5 different Cornell Vegetable Program staff, offering a range of expertise from season extension, disease management, food safety and weed control. Over 300 farmers attended these events for a total of 7 available pesticide license re-certification credits. To quote a Seneca Produce Auction grower "I don't know what I'd do without [the CVP]."



Produce auction growers gather with 3 Cornell Vegetable Program Specialists for in-field education about diseases and weed control.
Photo: Elizabeth Buck, Cornell Vegetable Program

Elba Muck Onion Twilight Meeting: A Weed Control Extravaganza

The Cornell Vegetable Program is killing it! Killing weeds in large-scale muck onion production that is! Weed escapes have emerged as a serious issue in muck onion production in New York resulting in exorbitant hand weeding expenses and reduced yield. In 2015, Hoepting began a three-year project that seeks to identify effective economical management strategies for the most important weed problems through extensive on-farm research trials and educational/outreach activities. On July 1st, Hoepting and Buck held a twilight meeting featuring the latest research results from six on-farm herbicide trials that included pre- and post-emergent control of mixed broadleaf weeds, especially ragweed, smartweed and pigweed, and yellow nutsedge and Perennial sowthistle. Twenty-six onion growers representing 3 of the 5 major muck onion growing regions in New York, and industry representatives from allied pesticide, fertilizer and seed industries attended. Ninety-three percent of the growers that returned a program evaluation rated the program as "Excellent" and claimed to have learned a lot. When asked what new technique they will implement on their farm, several cited optimizing the timing of herbicide application to susceptible weed stage, increasing herbicide rates and/or frequency in response to our demonstrations of improved weed control and crop safety, and trying some of our suggested novel approaches for some of their more challenging weeds. Also, onion growers look forward to the CVP continuing research and optimization of pipeline products for weed management in muck grown onions. Hoepting has the lofty goal of reducing the number of hand weeding events in muck grown onions from 3-5 to one by optimizing the standard herbicide program and finding effective strategies to control problem weeds.



CVP Program Aide, Elizabeth Buck, speaking about weed control at the Elba Muck Onion Twilight meeting.

Newly Funded Grants

Each year, the Cornell Vegetable Program is tasked with generating a certain percentage of our operating funds, or Program Generated Income (PGI), through research grants, sponsorships, and meeting registration revenue. This quarter, we are pleased to have received the following grant funds:

- **Vegetable Crop Pest Program (CPP) in New York,** Pest Information Platform for Extension and Education (iPiPE) Cooperative Agricultural Project (CAP) – The iPiPE CAP, funded by a 2015 USDA AFRI 5-yr $7 million grant, provides such an infrastructure with cyber-age tools, information products and expert commentary for detection and management of new, foreign, or emerging target pests and endemic pests that threaten U.S. crops. (Telenko), $42,000, 2016-2017.
- **Building the Profitability of the Table Beet Industry in New York State,** NYS Specialty Crops Block Grant (Pethybridge, Kikkert, Bellinder, Vaghefi), $124,339, 12/01/15 – 12/31/17).
- **Increasing Yield by Controlling Leaf Mold in Tomato High Tunnel Production**, USDA Specialty Crop Block Grant, (Co-PI Smart, Reid), $108,977

- **Together, over 1,750 farm visits and phone/email consultations were made by our team**
- **13 educational events were organized by the Cornell Vegetable Program during this quarter**
- **Nearly 700 people attended meetings where presentations were made by our Vegetable Specialists**

For more information about our program, contact Julie Kikkert at jrk2@cornell.edu or 585.394.3977 x404 or visit our website

http://cvp.cce.cornell.edu