CORNELL VEGETABLE PROGRAM TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

QUARTERLY HIGHLIGHTS JULY - SEPTEMBER 2016

CORNELL VEGETABLE PROGRAM

A premier regional agricultural Cornell Cooperative Extension team that provides educational programs and information to growers, processors and agribusiness professionals, arming them with the knowledge to profitably produce and market safe and healthful vegetable crops.

- Together, the Cornell Vegetable Program made more than 1,600 farm visits and phone/email consultations
- 15 educational events were organized by the Cornell Vegetable Program this quarter
- Cornell Vegetable Program Specialists gave presentations at 9 events hosted by Cornell Cooperative Extension Associations and other collaborative organizations
- 845 people attended meetings where presentations were made by Cornell Vegetable Program Specialists



CCE PROJECTS FEATURED AS ELBA MUCK WELCOMED NATIONAL ONION ASSOCIATION TOUR IN JULY

For the first time in over 25 years, the National Onion Association (NOA) held its annual summer convention in Western New York on July 13-16. Cornell Vegetable Program Onion Specialist, Christy Hoepting and Cornell University Entomologists, Dr. Brian Nault and M.Sc. candidate, Ashley Leach featured Cornell's unique brand of on-farm applied research and Extension programming during a tour of the Elba muck. Over 120 attendees that hailed from onion growing regions across the United States, Canada, England, New Zealand and Australia participated in the event. Hoepting shared her exciting new research results for post emergent control of ragweed in a lively demonstration of her herbicide trial, which was conducted onfarm at Mortellaro and Sons. The tour stop was very well received with attendees rushing into the trial to take photos of the best treatments and was cited as "adding



At a tour stop at the Elba muck during the National Onion Association summer convention, Hoepting gives a presentation of her exciting new research results for post emergent control of ragweed in an herbicide trial hosted by Mortellaro & Sons. Photo: Howard B. Owens, The Batavian

significant educational content to the event" by NOA Executive Vice President, Wayne Mininger.

Other tour stops featured Cornell's onion thrips research and onion scouting programs. Mark and Max Torrey of Torrey Farms, and Emma Long of CY Farms (and

former CVP Summer Intern!) described onion production in the muck as they showcased some of their onion fields. An earlier tour stop featured Lee Shuknecht and Sons, Inc. who build onion harvesters in Elba that are sold internationally. Earlier in the week at the NOA convention in Niagara Falls, Nault gave a presentation on the Cornell Onion Thrips Management Program, and Maureen Torrey, Owner of Torrey Farms in Elba, was the keynote speaker.

NOA tour to the Elba muck and CVP onion research was featured in the Sept/Oct issue of Onion World: http://tinyurl.com/onionworld-NOA.

The Batavian online newspaper also covered the story: <u>http://tinyurl.com/thebatavian-NOA</u>.



ON-FARM RESEARCH IN STRATEGIES TO MINIMIZE IMPACTS ON YIELD AND FOOD SAFETY RISKS POSED BY WILDLIFE IN VEGETABLES

Wildlife damage has wreaked havoc in many vegetable crops in 2016. The extreme drought conditions forced many animals to source water from succulent crops above and beyond the standard feeding damage many vegetable growers experience during a normal year. Cornell Vegetable Program Fresh Market Specialists Darcy Telenko and Robert Hadad, along with NYS IPM Program Specialist Marion Zuefle have partnered with six vegetable farms in central and western New York to continue evaluations of repellency tactics to minimize wildlife damage in sweet corn and other seeded vegetable crops in a 2-year New York Farm Viability Institute (NYFVI) funded grant.

Sweet corn research trials ran from early July, following the first bird migration on June 30, through August. Various tactics for bird deterrence were evaluated including the chemical deterrent, Avian Control, and timing of application of the chemical deterrent to determine best management practices in utilizing this option; detasseling to eliminate perching sites; scare-eye balloons; and an air-dancer. At each location, data was collected on overall bird activity on the farm, crop maturity, specific bird activity at each field location, crop maturity at application, and damage at harvest.

All data from the 2016 season has been collected and analysis is ongoing. Final results will be presented during production meetings this winter. A quick summary of what has been noted to date:

- Bird movement into non-research sites on cooperating farms caused significant damage.
- 80% damage of a first picking was noted on a farm at the end of June and damage continued throughout the season as the birds followed the ripening sweet corn.
- Birds moved in when other standard wildlife deterrent tactics being deployed on a farm were relaxed, increasing damage from 10% to 90% overnight.
- Success of deterrents has been variable. At one site 14% damage occurred in the untreated check, 11% with Avian Control, 5% with scare-eye balloons, 2% in detasseled corn and 0% with air-dancer plots. While at a second site all five treatments experienced little to no bird damage.

This on-going project aims to identify those tools that have the potential to reduce wildlife impacts on vegetable production and establish wildlife management guidelines that vegetable growers can use to reduce wildlife damage and contamination on their farm. Currently these tactics have shown variable benefits in providing the desired management objectives. Our goal is to continue to build on the preliminary data, replicating successful techniques and/or refine timing, placement for optimal use, and identify new tools that have future potential.

Darcy Telenko is collecting wildlife damage estimates and would appreciate your feedback. If growers have had damage and are willing to share their experiences they can contact Darcy at dep10@cornell.edu or 716-697-4965.



Birds in sweet corn. Photos: Darcy Telenko, CCE Cornell Vegetable Program



An air-dancer protects a sweet corn field. This is one of the bird deterrence options being evaluated by the Cornell Vegetable Program in on-farm research trials supported by a 2-year NYFVI grant. *Photo: Darcy Telenko, CCE Cornell Vegetable Program*

IN-FIELD PROGRAMS SHOWCASE CVP RESEARCH AND VEGETABLE EXPERTISE

CVP team members were busy setting up and managing research and demonstration plots throughout the region this summer. Growers and industry partners were invited to view plots, learn about research results, and tap into the expertise of our team at the 15 events organized by the CVP this quarter.

The meeting season kicked off with a Fresh Market Vegetable Field Day (Genesee) that focused on early disease detection and weed management. Demonstration trials were showcased.

Six farms in the CVP region (Chautauqua, Monroe, Niagara, Ontario, Orleans, and Seneca) hosted on-farm meetings where cultural and pest management practices in fresh market vegetables, in both field and greenhouse/high tunnel, were presented to over 300 vegetable growers.

Onion growers had the opportunity to meet informally each week with the CVP onion specialist in the Elba muck (Genesee, Orleans). Research trials and up-to-the-minute results were presented at the Elba Muck Onion Twilight Meeting in August.

Later in the season, an Ontario Co. farm hosted the Finger Lakes Soil Health Discussion Group. Potato growers visited a Wayne Co. farm for the annual Fresh Market Potato Meeting to view variety trials and hear presentations from Cornell researchers. An Organic Dry Bean Discussion Group was held at a Yates Co. farm, and the 2016 NYS Dry Bean Field Meeting was hosted at the NYS Ag Experiment Station (Ontario) where variety trials and breeding plots could be viewed.

Lastly, a Sustainable and Organic Vegetable Pest Management Field Day was held at the end of August at the Cornell Lake Erie Research and Extension Lab (Chautauqua), host to research plots on fresh market vegetables for the first time this year.

Meeting locations vary year by year, based on meeting topics and research sites. A busy winter meeting season is planned. A listing of all past and future events can be found on the CVP team website <u>http://cvp.cce.cornell.edu</u>.



Cornell Vegetable Program Specialist Darcy Telenko discusses the cultivation demo by KULT Kress at the Sustainable and Organic Vegetable Pest Management Field Day in Chautauqua County, August 31, 2016. *Photo: Julie Kikkert, CCE Cornell Vegetable Program*

PROTECTING NEW YORK DRY BEANS FROM THE NEW PEST, WESTERN BEAN CUTWORM

Western bean cutworm (WBC), originally a Western U.S. bean and corn pest, has moved east, first reaching New York in 2009. Since WBC trapping began in 2011 moth catches have increased every year, from an average of 46 moths/trap, to 243 moths/trap in 2016. In 2014 and 2015 trace levels of suspected WBC damage were found in red kidney beans at three elevators. Dry bean pods with feeding damage were first seen in a Western NY field in 2015. Two fields had damage on 1 to 2 pods each in 2016. Whether damaged beans are found this fall and winter remains to be seen.

Trap counts of WBC moths can pinpoint when to begin scouting bean pods for damage. WBC pheromone traps were set up in 16 dry bean fields in 2016. The CVP coordinated a trapping network of CVP staff, CCE staff from counties within the dry bean production area, and a WNY Crop Management Association consultant, to check traps weekly and scout for dry bean damage. Peak WBC moth flights occurred at the end of July. For the first time all traps had a cumulative catch of more than 100 moths/trap, the threshold of concern. Two traps caught over 400 and 600 moths, respectively!

All growers and cooperators were advised by email and the USPS to scout dry bean pods for WBC feeding damage. Areas at most risk were defined as those where moth catches were highest, where eggs/larvae were found in nearby corn, or where WBC damage was present, or had been seen in beans in the past. Only trace amounts of damage were found in two fields. One grower has sprayed insecticide where high moth catches occurred in the past, but in 2015, when moth catches jumped and WBC damage was first seen in beans more growers applied one spray of an insecticide. This may have prevented an increase in damaged beans at the cleaner/elevator. Processors have no tolerance for damaged beans in their canned products.



Western bean cutworm larval damage on dry bean pods, 2015. *Photo: Carol MacNeil, CCE Cornell Vegetable Program*

COMPARISON OF SANITIZER MONITORING STRIPS

Food safety practices are ever increasing in the daily tasks of vegetable producers. Over the years, the CVP has provided growers assistance with food safety through educational outreach and research. This assistance has grown from conducting trainings to on-farm food safety assessments, to wash line and packing post-harvest activities. The area that has become a critical point has been wash water.

To ensure the reduction of microbial contamination, farmers need to be using sanitizers to keep their vegetable wash water free from pathogens. Growers need to understand how they work, how to determine proper concentrations, and how to monitor the levels as the vegetables are going through the wash cycle.

Monitoring of sanitizer requires measuring the levels of the chemicals in a known volume of potable water. For a number of years, sanitizer monitoring test strips have been available. During a training of farmers earlier in the year, it was noticed that there might be discrepancies among brands of strips.

We undertook a trial to investigate any differences among brands of sanitizer monitoring strips, expiration dates, optical differences with the charts, or any other distinctions. An assortment of strips were purchased from various suppliers at different times over several months. Three replications were made testing all of the strips with observations of the monitoring strips done by two people.

The conclusions were that there are wide differences among brands. Suppliers carry strips but many of the ones purchased had already expired. Reading the directions of each brand of strips uncovered that every brand had very specific instructions and some required being able to read the color strip against a strip within 2-3 seconds. There were differences among strip readings based if the strips were being read outdoors in the sunlight, during a cloudy day, or indoors. Within brands, there were differences in the readings against the charts if the strips had expired or even if they didn't expire. This all created a very disturbing set of results. For this reason, it was decided that growers should only use strips that hadn't expired. Newly purchased strips should be stored in a cooler or refrigerator and used only for one season.

After careful consideration and a repeat of the testing, a set of guidelines for using the strips was developed. The critical point that needed to be stressed to growers was the accurate measurement of the sanitizer and the correct volume of wash water to be used. If the grower is confident in their measurements then when using fresh monitoring strips the color needs to match the known concentration started with. In other words, if you are sure that you added 60ppm of a sanitizer in an exactly measured amount of wash water then the monitoring strip should read that concentration. If it doesn't, get new strips. When ordering strips, several packages should be purchased at once for this reason.

These results were written up and published in VegEdge. The results were also given to post harvest researchers and food safety educators at a Northeast specialist meeting. The UMASS Extension VegNotes picked up the results and published the story to their growers. VT Extension educators also advised their growers based on our information. Other researchers conducted similar trials and found the same results.

Contacts with industry have been made to get their input for improving the quality of the strips. We were told that by early 2017 better strips would be coming on the market to address this problem.

NEWLY FUNDED GRANTS

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

- Towards a Durable Management Strategy for Cercospora Leaf Spot in Table Beet, USDA CPPM, (Pethybridge, Vaghefi, Hanson, Kikkert), \$324,858, 9/1/16 8/31/18.
- Beating Beet Diseases, CCE Summer Intern Program, (Pethybridge, Vaghefi, Kikkert), \$4,000, 6/1/16 8/30/16.
- Expanding Food Safety Outreach and Education to Small and Mid-Scale Farms, USDA, (NOFA-NY, Hadad, Kahlke, NOFA-VT, UVM), \$400,000, 1/1/17 12/31/19.
- Assessing Barriers to Wholesaling for Small-Scale Vegetable Growers: Case Study, USDA, (Hadad, Stewart), \$57,000, 11/1/16 12/31/17.
- The "In-Between": Pre-Cooling and Curing Fruit and Vegetables for Improving Quality and Profit, NESARE Research and Education, (UVM, Hadad), \$128,000, 10/1/16 9/30/18.



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