



Cornell University
Cooperative Extension
Cornell Vegetable Program

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CORNELL VEGETABLE PROGRAM HIGHLIGHTS

JANUARY – MARCH 2016

Recap of the 2016 Empire State Producers Expo

The winter meeting season kicked off with the 2016 Empire State Producers Expo in Syracuse. Cornell Vegetable Program (CVP) specialists Julie Kikkert, Carol MacNeil, Robert Hadad, Christy Hoepting, Judson Reid and Darcy Telenko participated alongside nearly 40 Cornell Cooperative Extension Educators organizing this educational event. The CVP specialists hosted sessions on topics covering processing vegetables, cabbage and Cole crops, weed management, pricing for retail success, high tunnels, soil health, onion pest control, specialty crops, potatoes, beginning farmers, food safety, and climate smart farming.

Dean Kathryn J. Boor, Ronald P. Lynch Dean, Cornell College of Agriculture and Life Sciences, presented the keynote on Cultivating Collaborations. Dean Boor described the generous commodity support of Cornell research and how CALS' land-grant mission drives agricultural innovations across New York. She emphasized how the collaborations between Cornell faculty and Cornell Cooperative Extension provide answers for continued sustained agriculture growth by citing a number of Cornell Vegetable Program projects including onion thrips scouting, swede midge, and the eastern broccoli project.

Attendance reached almost 700, even as winter weather caused the shutdown of the NYS Thruway for much of the day on January 19. Many of the 110+ presentations made at the Expo were given by Cornell Cooperative Extension personnel and other highly regarded speakers from across the country. Eight panel discussions featured 29 farmers sharing their experience and insights. Over 1,000 DEC credit hours were received by New York growers and professionals that were offered during 20 of the education sessions. Twenty-six Certified Crop Advisor (CCA) credits were also available with 73.5 CCA credits earned. Between sessions, attendees were encouraged to visit the trade show featuring 150 commercial vendors and non-profit exhibitors.

A few changes are in the air for the 2017 Empire State Producers Expo and Becker Forum, scheduled for January 16-19, 2017. Dr. Steve Reiners, Cornell Professor of Horticulture, has stepped down as event chair after 21 years of dedicated service organizing the Vegetable Conference 1995-2003 and Empire State Producers Expo from 2003-2016. Dr. Darcy Telenko, CVP specialist who co-chaired the event in 2016, will take over the reins from Steve for 2017. She stated, "As we look toward the future, we want to make sure the educational programming goals of the Empire State Producers Expo meet the changing needs and dynamics of our producers throughout the state. A number of new opportunities may be available to change the venue and revamp the program. We are looking for your feedback and will soon be sending out a survey on the Expo. Please share with us what you like and improvements you would like to see to make the Empire State Producer's Expo an educational experience you look forward to year after year."

Conference proceedings summarizing many of the presentations were published online and can be accessed for viewing or downloading at <http://www.hort.cornell.edu/expo/2016proceedings.php>.



Sweet corn session. Photo: Darcy Telenko, Cornell Vegetable Program

Vegetable Growers Choose Alternative Soil Management to Improve Soil Health

A summary of the results of the 2015 Cornell Soil Health Testing of 26 fields on 13 farms in the CVP area was reported at the 2016 Empire State Producers Expo Soil Health Session. Each grower's results were discussed individually at private consultations on the farm as well. Growers were concerned that their soils didn't test as well as they'd hoped, in terms of physical structure and biological activity, but dairy farms, with years of alfalfa hay and manure applications, are the comparison. The vegetable soils that tested best had some hay, or a small grain followed by a legume cover crop, in the rotation. Those soils which tested poorest had only vegetables and other row crops in the rotation, and no overwintering cover crops. The fields which had been aggressively cover cropped over many years, and had occasional hay or small grains did have significantly better physical and biological health. The comparison of soil biological and physical health in the 26 fields, along with the crop/cover crop and tillage history in each field, convinced most growers that a greater commitment to good soil management was needed. A couple of growers decided to lengthen their rotations, adding soil building crops. Others planned to be ready to plant cover crops in every open niche in their rotations, or to aim for over-wintering cover crops. Several are planting cover crop mixes, and more plan to try it, taking advantage of the benefits of both grasses and legumes, etc. in a single planting. Finally, others decided to inter-seed cover crops into late cash crops at the end of the season, to give the cover crop more time to grow. Participating in the Cornell Soil Health Testing project has been enlightening for the growers, and should result in improved soil health on their farms.

Farm	Active C	Aver Worms	Management
6	531	8	mod till, manure+, small grain, clover, corn, mustard
4	509	4	Till, manure, veg, sm grain, clover
4	468	9	ZT/till, manure, sm grain, clover, veg, grass/leg cover
3	466	6	Till, 2 yrs legume/grass hay
5	466	3	ZT, manure, corn, corn
4	460	6	ZT/till, manure, corn, grass cover, veg, grass cover
13	344	too dry	ZT/NT, sm grain, legume/grass/radish cover, corn
9	341	0.1	Till, 2 yrs veg, grass/crucifer cover
1	340	0.3	Till, veg, grass cover, veg, oat cover
13	313	5.3	ZT/NT, sm grain, legume/grass cover, corn
8	301	0.3	Till, soy, corn
1	176	2	ZT/till, 2 yrs veg, oat cover

Active Carbon (C) in the organic matter that's readily available to feed beneficial soil microbes, including earthworms, compared to the soil management practices in the field.

Food Safety (GAPs/Harmonized GAPs) Grower Training for New Market Entry

Farmers markets and CSAs have increased dramatically over the past decade but indications that the numbers have plateaued and this seems to be the case in NY. Many small farms have started up during that time to meet the demand for locally grown food. The more successful operations are starting to look to expand their markets, become more efficient with their time and labor. Focusing on one or more commodity crops that can be sold in quantity to wholesalers has an appeal. Food safety is one key component for getting into these markets. Held in East Aurora (Erie Co.) on March 7 & 8th with 35 farmers in attendance, this training was the first specifically organized to prepare growers for entry into new markets that required food safety training and then audit/certification.

This workshop is the first step for the growers to move from retail sales into commodity wholesaling. Half of the farmers in attendance had been recruited by the Eden Valley Food Hub through efforts by Harvest New York. Knowing that there is a huge difference in pricing and other considerations, assisting these growers along over the season will be crucial in ensuring that they will see an increase in profitability.

The other half of the farmers in attendance were from Erie and surrounding counties. Their interest in training was primarily to move forward with an understanding of food safety and for many, to write a farm safety plan, implement it, and go for an audit under GAPs. This will open up marketing possibilities they didn't have before.

What we have learned is that another branch of education is also needed: quality. There are grade and standards for produce packing that farmers need to follow in order to get into the wholesale business. This concept is in contrast to the retail side, such as at farmers markets, where all sizes and shapes of produce are sold. Farmers need to be educated on proper grading and packing standards which has created opportunities for Extension educators to build training programs to meet their needs.



Farmers receiving GAPs training.
Photo: Robert Hadad, Cornell Vegetable Program

Cornell Vegetable Program Delivers 46% Net Increase for Cooperating High Tunnels

The CVP recently completed a NYFVI sponsored project examining nutrient management for high tunnel crops. Vegetable farmers participating in this project improved their ability to manage soil and nutrients through intensive soil, water and foliar analyses and then implemented CVP Best Management Practices. The project team conducted 35 educational outreach events reaching over 1,100 growers with 24 farms cooperating on intensive sampling. 15 farms that provided economic data, documented an average net high tunnel income increase of \$4,931.88, or 46%. Tunnel area increased by 16%, representing new capital investment of \$32,050 in 12,820 square feet of high tunnel space erected during the project period. Participating growers reported at the end of the project that they will erect an additional 41,156 square feet of tunnel space within the next two years, an investment of over \$100,000. Continued funding has been sought from NYFVI, SCBG and the Towards Sustainability Foundation.



Tunnel tomatoes benefit from precision nutrient management (above). CVP Program Aide pulling soil samples in a cooperating high tunnel (right).



CCE Workshop Prepares Onion Growers for Battle Against Stemphylium Leaf Blight (SLB)

Stemphylium leaf blight (SLB) has emerged as an aggressive leaf disease of onion in New York. It is caused by a fungal pathogen, *Stemphylium vesicarium* that blights onion leaves. Severe epidemics can result in premature mortality of the onion plant. To alert onion growers of the seriousness of this disease and to provide them with management strategies, Hoeping organized a workshop at the Empire Producers Expo in Syracuse, NY on January 20, 2016. Dr. Mary Ruth McDonald was the featured guest speaker from University of Guelph in Ontario, Canada, who has studied SLB of onion since Ontario onion growers first experienced severe outbreaks of this disease in 2010. Cornell's new Vegetable Plant Pathologist, Dr. Sarah Pethybridge shared her first-year research findings, which included: 1) *Stemphylium vesicarium* was the most prevalent fungus associated with foliar disease in the 32 onion fields that were surveyed from across New York in 2015, occurring in 100% of the fields and at incidences ranging between 42% and 100% of symptomatic leaves within fields. 2) The isolation frequency of *S. vesicarium* was not significantly different between conventional and organic fields, suggesting fungicides used within the conventional program may not be sufficiently efficacious for the control of SLB. Finally, Hoeping shared the results from her 2015 SLB fungicide evaluation trial, key findings included: 1) Fungicides belonging to fungicide resistance group 11, failed to control SLB. 2) Most effective fungicides for controlling SLB belonged to fungicide resistance groups 3 and 7. And, 3) Onions that died prematurely from severe SLB blight resulted in twice as much bacterial bulb decay at harvest as those that lodged normally. Over sixty onion growers and allied industry representatives attended the SLB workshop. Ninety-eight percent rated the workshop as good to excellent (66% excellent). When asked what new piece of information was learned, several commented on the prevalence of SLB across New York state, which was previously not so commonly known. When asked what new technique they would implement on their farm, several commented on adjusting their spray programs to include fungicides belonging to resistance groups 3 and 7 and to look closely at fungicide labels to follow rotation restrictions for resistance management. Based on fungicide trial results, implementing an effective fungicide program for managing SLB can increase yields up to 32%, and improve storability.



Quadris (11)



Quadris Top (11+3)

Side-by-side comparison of the efficacy of Quadris (left) and Quadris Top (right) for control of Stemphylium leaf blight in onion in fungicide evaluation field trial, Elba, NY, 2015. Fungicides belonging to fungicide resistance group 11 (e.g. Quadris) failed to control SLB, while fungicides belonging to groups 3 (component of Quadris Top) and 7 (example not shown) provided best control of SLB with the healthiest foliage and proper lodging at harvest. Photos: Christy Hoeping, Cornell Vegetable Program

Excellence in IPM Award: Pheromone Trap Network Recognized

The New York State Integrated Pest Management (NYS IPM) Program's "Excellence in IPM" awards recognize exceptional IPM practitioners who do exceptional work. This year, the Pheromone Trap Network was a recipient of the award and CCE Cornell Vegetable Program staff members were honored to be included in the group award. *From Jennifer Grant, NYS IPM Program, "Sometimes keeping pests at bay takes a battalion of volunteers with boots on the ground. Since 1993, the Pheromone Trap Network has been dedicated to finding hotspots of pests, whether new or established, in cornfields around the state. Over the years, dozens of people have literally walked the talk to bring critical IPM news to thousands of growers on millions of acres of land all across New York."*



Robert Hadad checking a sweet corn pheromone trap in Eden Valley, July 2010.

Photo: Angela Parr, Cornell Vegetable Program

Advisory Meeting Kicks Off Grant Project to Build the Profitability of the Table Beet Industry

New York has long been the second leading producer of table beets nationally, with roughly 2,000 acres of red beets grown and processed for the canning industry (Seneca Foods, Inc.). With a new generation of beet enthusiasts, processors are offering new types of beet products such as shelf stable snack packs of diced beets. Other NY businesses such as Farm Fresh First, LLC are procuring beets for the juice market. LoveBeets USA in collaboration with G's Fresh and Lidestri Foods has opened a new processing plant in the Eastman Business Park in Rochester, NY. LoveBeets produces marinated baby beets, vacuum-packed cooked beets, beet juices, and beet bars. In 2015, LoveBeets USA procured 2,400 tons of beets worth \$810,000. The company projects that it will purchase \$2 million dollars of beets in 2016 and \$4 million the following year. More than 50 jobs have already been added at the LoveBeets facility (data from Rochester Democrat and Chronicle 2/7/2016 article).



Display of beet and beet products at the New York Loves Food Conference in Geneva, NY. Photo: Julie Kikkert, Cornell Vegetable Program

To support the growing beet industry in western, NY, CVP specialists have partnered with Cornell University Plant Pathologists and Weed Scientists to address critical issues in table beet production. To kick off a two year NY Specialty Crops Block Grant that the Cornell team recently received, an Industry Advisory Meeting was held on March 22, 2016 in Batavia, NY. The group of 22 attendees included growers from five local processing beet farms, each of the 3 processing companies, as well as commercial crop consultants, Cornell faculty, and local extension educators. The Advisory Group helped to focus research trials that will be conducted on leaf disease, and weed management this season. Additional priorities such as root disease management will be the focus of future work. The CVP/Cornell research will also provide information to the fresh market beet industry in New York.

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:

- **Best Management Practices for Long Term High Tunnel Soil Sustainability**, Cornell Toward Sustainability Foundation, (Reid, Hall), \$10,000, 4/1/16 – 3/31/17.
- **Climate Smart Farming Extension Team**, Hatch, (Chatrchyan, Telenko), \$5,000, 10/1/15 – 9/30/16.
- **iPiPE: Vegetable Component**, USDA-NIFA-AFRI, (Telenko), \$76,714, 3/1/16 – 2/28/18.
- **Evaluation and Demonstration of Integrated Disease and Weed Management Options for Organic Vegetable Production**, Cornell Toward Sustainability Foundation, (Telenko, Hadad, Reid), \$10,000, 3/1/16 – 2/28/17.
- **Weed Management Research for Sweet Corn, Peas, Snap and Lima Beans, Beets, and Carrots**, New York Crop Research Association/Council, (Telenko, Reiners), \$42,000, 4/1/16 – 3/31/17.
- **Weed Management Research in Dry Beans**, New York State Dry Bean Industry Advisory Committee, (Telenko, Reiners), \$3,000, 4/1/16 – 3/31/17.
- **Evaluating New Herbicides for Potential Registration in Transplanted Cabbage and Broccoli**, Cabbage Research and Development Program, (Telenko, Hoepting, Reiners), \$7,222, 4/1/16 – 3/31/17.
- **Determine the Magnitude and Distribution of Western Bean Cutworm, and the Risk to Dry Beans, in the Major Production Area in New York**, New York State Dry Bean Industry Advisory Committee, (MacNeil), \$3,000, 7/1/16 – 6/30/17.
- **Optimizing Management of New Invasive Species, Swede Midge on Small-Scale Organic Farms: Part II**, NESARE Partnership, (Hoepting), \$14,999, 2/12/16 – 4/15/17.
- **Prevention of Brassica Crop Losses from New Invasive Species, Swede Midge on Small-Scale Organic Farms: Part II**, Cornell Towards Sustainability Foundation, (Hoepting), \$10,000, 1/1/16 – 12/31/16.
- **Improving Profitability of Garlic Production through Understanding and Management of Fusarium Diseases**, NESARE Research and Education, (Stewart, Hoepting, Hay, Hadad, McGrath, Menasha), \$125,531.
- **Nitrogen Dynamics in Cabbage Part III: Nitrogen Stabilizers**, Cabbage Research and Development Program, (Hoepting), \$7,500, 4/1/16 – 3/31/17.
- **Weed Management in Muck-Grown Onions**, Onion Research and Development Program, (Hoepting), \$14,110, 4/1/16 – 3/31/17.
- **Fungicide Evaluation for Control of Botrytis Leaf Blight in Onion**, Onion Research and Development Program, (Hoepting), \$5,822, 4/1/16 – 3/31/17.
- **Improved Management of Stemphylium Leaf Blight in Onion in NY**, Onion Research and Development Program, (Hay, Pethybridge, Hoepting), \$16,472, 4/1/16 – 3/31/17.

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- **Together, our team made more than 1,000 farm visits and phone/email consultations**
 - **20 educational events were organized by the Cornell Vegetable Program during this quarter**
 - **Cornell Vegetable Program Specialists gave presentations at 18 events hosted by Cornell Cooperative Extension Associations and other collaborative organizations**
 - **1,793 people attended meetings where presentations were made by our Vegetable Specialists**
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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>



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