



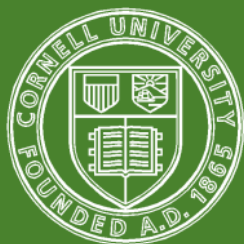
# CORNELL VEGETABLE PROGRAM TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

QUARTERLY HIGHLIGHTS APRIL - JUNE 2016

## CORNELL VEGETABLE PROGRAM

A premier regional agriculture 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 1,000 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
- 1,260 people attended meetings where presentations were made by Cornell Vegetable Program Specialists



## Partnering with RIT to Investigate Use of Drones for Improved Disease Management in Processing Crops

Large acreage processing vegetable fields lend themselves readily to digital imaging sciences via Unmanned Aerial Vehicles (UAV's), aka drones. CVP processing Vegetable Specialist Julie Kikkert and Cornell University Vegetable Pathologist, Sarah Pethybridge have partnered with scientists from the Rochester Institute of Technology (RIT) Chester H. Carlson Center for Imaging Sciences to investigate use of digital imaging for improved disease management in processing snap beans. One of the most difficult diseases to manage in snap beans is white mold, caused by the fungus *Sclerotinia sclerotiorum*. When favorable environmental conditions exist, spores of the fungus infect bean

flowers and the infection later spreads to the pods making them unmarketable. Currently, the disease is managed by a fungicide application applied at the onset of flowering and a second application at 100% bloom. As a start to the project, this summer the team is testing the technology to determine if the imagery can detect the onset and progression of flowering in snap beans in research trials at the Geneva Experiment Station. This would allow for more well-timed applications of fungicides, critical for disease management. The team recently submitted a grant proposal to the USDA CARE Program for funding to expand this research to develop a risk management model for white mold in snap beans. This is an exciting partnership utilizing the vegetable disease experience of CCE and Cornell, and the RIT group who are interested in using the imagery to gain scientific data. The project is also supported by advisory team members from Seneca Foods, Farm Fresh First, and Agrinetix.



Rochester Institute of Technology hexacopter drone demo.

Photo: Julie Kikkert, CCE Cornell Vegetable Program



## Fresh Market Vegetable Research Initiated at the Cornell Lake Erie Research and Extension Laboratory

The 2016 season kicked off with a new collaboration between the Cornell Vegetable Program and the Cornell Lake Erie Research and Extension Laboratory (CLEREL) as fresh market vegetable research and demonstration plots were planted in early June alongside grapes and hops in Portland, NY. The CVP fresh market specialists, Darcy Telenko, Robert Hadad, and Judson Reid, along with CCE Chautauqua Extension Educator Katelyn Walley-Stoll have been tending trials of tomato, cucumber, pumpkin, winter squash, and root crop vegetables this season.

The demonstration and research plots include:

- Organic pest management for early and late blight in tomato
- Organic pest management for downy mildew in cucumber
- Organic weed management options for pumpkin
- Organic weed management options for root crops
- Sweet corn herbicide demonstration

This collaboration will allow the CVP to expand an established annual Fresh Market Vegetable Field Day to an additional location at CLEREL, both locations showcasing the research trials. The [Sustainable and Organic Vegetable Pest Management Field Day](#) at CLEREL will be held on August 31 and will bring together researchers, educators, and industry representatives to provide on-farm organic and sustainable pest management training programs for vegetable growers within western NY. In addition to using the research plots for the field days, data collected will be used to educate growers statewide through our Extension publications and programs.

The Cornell Vegetable Program is excited about this new collaboration and looks forward to continue to utilize the CLEREL for future research and educational programming.

*These trials were supported by the Towards Sustainability Foundation Grant Program.*



Tomato variety trial in front of hops growing at the Cornell Lake Erie Research and Extension Laboratory. The Cornell Vegetable Program is excited to have the opportunity to use the site for research and educational programming.

*Photo: Darcy Telenko, CCE Cornell Vegetable Program*

## Cornell Vegetable Program Plays a Role in Local CSA Development

Community Supported Agriculture (CSA) farms have increased in popularity in our region. These farms are a win-win situation for the farms and the local community. Customers purchase a share of the farms produce ahead of the growing season, investing in the farm in a sense. Some CSA's require or encourage their members to spend some time working on the farm, whereas others do not. Regardless, CSA customers reap a weekly share of fresh vegetables and other produce grown on the farm. CVP Specialists routinely assist local CSA farms in our region.

The successful establishment and growth of one local CSA at Robb Farms in Spencerport, NY is a shining example of the impact CVP team members can have on local farms. Five years ago, Robb Farms contacted Fresh Market Vegetable Specialist, Robert Hadad about the feasibility of developing a CSA marketing program on their farm. Robert provided information to the owners and several of their adult children on how CSAs work and various scenarios for the types of programs they could run. They were interested in adding vegetables to their already established apple and small fruit orchard. They had an on-farm market store. They were very excited and assigned each family member a task to cover for creating this new market venture.

The next year they started their CSA rather small, less than a dozen members. The following year they doubled their membership. This year, the farm was excited to report that they had built up their CSA to over 150 members and had added meat products to their offerings. Word of mouth and their website seem to have made a big difference in the growth of their CSA. Sales have improved overall at their market store and their CSA shares have brought in more than \$20,000 a season. Additionally, the farm has become more of a family effort providing opportunities for the next generation.

The farm owners credited the CVP for providing them with great information and guidance while they got their CSA going.



Robb Farms, with information and guidance provided by the Cornell Vegetable Program, has grown their CSA to over 150 members. *Photo courtesy of Robb Farms.*

## Educating Potato Growers on a Serious New Seedborne Bacterial Disease

Bacterial blackleg *Dickeya* is a serious new potato disease threatening production in WNY. The disease first appeared in New York on Long Island in 2014 and 2015 causing up to 35% yield loss. (Serious infection occurred in one field in Wayne County in 2015.) Infected seed may rot in the soil before sprouting, sprouts may wilt and die shortly after emergence, or plants may appear normal until flowering, when stems wilt and die. No treatment can control the development of the disease in an infected potato plant, and there are no resistant varieties. The only control is planting blackleg-free seed. The majority of infection has been traced to common varieties of certified seed produced in Maine. Unfortunately there is currently no effective method of detecting infection in potato fields for seed production, or in potato tubers destined for seed, but seed certifiers and university researchers are busy looking for one.

The Cornell Vegetable Program invited Keith Perry, Cornell Plant Pathologist and in charge of the NYS Seed Certification Program, to speak on the blackleg *Dickeya* problem at the 2016 Empire State Producers Expo Potato Session in January. [Perry's presentation](#) is available on the CVP website. When more facts were learned this spring, Vegetable Specialist Carol MacNeil wrote an article for VegEdge explaining what was known, and has continued to keep growers abreast of emerging updates.

After being made aware of the situation, some growers found alternative seed, produced somewhere other than in Maine. At the time of planting, CVP growers were surveyed regarding their varieties and the source of the seed. Fields from Maine seed of the varieties which have had disease are being surveyed for symptoms. Samples from three fields sent to Keith Perry's lab tested positive for blackleg *Dickeya*. Surveying fields will continue, and Keith Perry will speak at the annual Cornell Vegetable Program on-farm potato meeting on August 25 in Marion, NY.



Potato infected with bacterial blackleg *Dickeya* showing characteristic inky-black color of sprouts and stems beginning below the soil line. This is a serious new potato disease threatening the WNY potato crop. The Cornell Vegetable Program is helping to keep growers aware of updates.

Photo: Amy Charkowski, Plant Pathologist, University of Wisconsin-Madison

## Cornell Cooperative Extension Saves "Special Permit" Pesticide Course

The "Special Permit" Training program allows pesticide handlers to legally apply federal restricted use pesticides without the "on-site within voice contact" supervision of a certified applicator. In Western NY, Special Permit Training is highly valued; over 80 farms send workers to Special Permit Training annually, because such direct supervision is virtually impossible on these farms with discontinuous properties.

Early this year, the New York State Department of Environmental Conservation (NYSDEC) concluded that the Special Permit Training program, developed and implemented jointly by the Cornell Vegetable Program and Lake Ontario Fruit Program for the last 16 years, would not be approved for 2016. Specifically, NYSDEC expressed concerns relating to the large number of individual pesticide labels issued on the Special Permit and the lack of testing for individual trainees to demonstrate their acquired knowledge. In response, CCE Extension Educators alerted the Dean's office at Cornell and conversations were had with NYSDEC Administration regarding continuing this highly valued program. A revised training program that included only 11 specific pesticide labels and a written test was finally approved by NYSDEC on March 15. Hoepting and her regional ag team colleagues (Dan Donahue and Anna Wallace, ENYCH; Liz Tee, LOFT; and Libby Eiholzer, NWNy) then had only two weeks to organize the revised Special Permit Training, including development of new handouts, presentations and test questions. On April 5 and 6, the CVP/LOFT offered Special Permit Training to 302 farm workers in Newark (160) and Albion (142) in both English (141 total) and Spanish (161). Of those, 277 received their Special Permits with 96% passing the test (required minimum 70% correct to pass) with an average test score of 88%. The remaining 25 trainees received a certificate for worker protection standard training. As the EPA proposed new rulings could eliminate Special Permits, growers were encouraged to have their workers become certified pesticide applicators.



Cornell Vegetable Program Specialist Christy Hoepting teaching at the Special Permit Training in Wayne County on April 5, 2016.

Photo: Liz Tee, CCE Lake Ontario Fruit Team



## Cooperating with Cornell Faculty on Season Extension Disease Research

Tomato leaf mold, caused by the fungal pathogen *Passalora fulva* is more severe in high tunnel tomato production than in the field, limiting the profitability of local farms. Leaf mold can become so severe that yield is significantly impacted and plants can be defoliated. To address this issue, the Cornell Vegetable Program is working with NYSAES Plant Pathologist Chris Smart to determine the diversity of the pathogen (races or strains present) in New York, working with growers to identify the best resistant tomato varieties for high tunnel production, and determining the efficacy of commercially available disease control products that have not been previously tested. This information will be disseminated to high tunnel producers across NY. It is anticipated that there will be an increase of leaf mold resistant varieties grown based on increased knowledge of pathogen diversity and on knowledge of horticultural traits including growth habit, fruit flavor, texture and yield. Growers will also gain information about control product efficacy.

*This work has been funded by New York Farm Viability Institute for \$109,000 over 2 years.*



Severe defoliation due to tomato leaf mold causing significant yield loss. The Cornell Vegetable Program is working with growers to identify the best resistant tomato varieties for high tunnel production and the efficacy of commercially available disease control products that have not been tested.

*Photo: Judson Reid, CCE Cornell Vegetable Program*

## CVP Receives Over a Quarter Million Dollars in Grants this Quarter

To maintain our high standard of educational outreach to WNY vegetable growers, 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 to support NYS agriculture:

- **Best Management Practices for Long Term Profitable High Tunnel Soil Fertility and Health**, New York Farm Viability Institute (NYFVI), 4/1/16 - 3/31/18, \$116,126 (Reid, Hall, NOFA-NY)
- **Supply Chain Analysis for Emerging NYS Malting Barley Industry**, NYFVI, 4/1/16 - 3/31/2018, \$33,190 (Thayer, Newbold, Reid)
- **Increasing Yield by Controlling Leaf Mold in Tomato High Tunnel Production**, NYFVI, 1/1/16 - 12/31/17, \$108,977 (Smart, Reid)
- **Advancing Vegetable Production in Northern New York**, NNY Ag Development Program, 4/1/16 - 12/31/2016, \$19,256 (Reid, Ivy)
- **Minimizing Wildlife Impacts on Yield and Food Safety Risk in Vegetables by Utilizing Repellency Tactics**, NYFVI, 6/1/16 - 5/31/2018, \$74,534 (Telenko, Hadad, Zuefle)
- **Developing an Eastern Broccoli Industry through Cultivar Development, Economically and Environmentally Sustainable Production and Delivery**, National Institute of Food and Agriculture (NIFA), 9/1/16 - 8/31/18, \$5,351,783 (Bjorkman, Sams, Farnham, Davis, Coolong, Zotarelli, Ozares-Hampton, Thayer, Bihn, Griffiths, Hoepting, Slack, Wind)
- **Improving Profitability of Garlic Production through Understanding and Management of Fusarium Diseases**, New York Specialty Crop Block Grant (SCBG), 10/1/16 - 12/31/18, \$100,000 (Stewart, Hoepting, Hay, Hadad, McGrath, Menasha)



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