

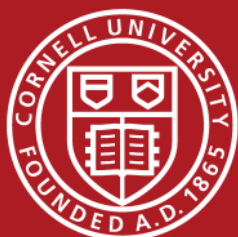
# CORNELL VEGETABLE PROGRAM TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

QUARTERLY HIGHLIGHTS JULY - SEPTEMBER 2017

## 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.

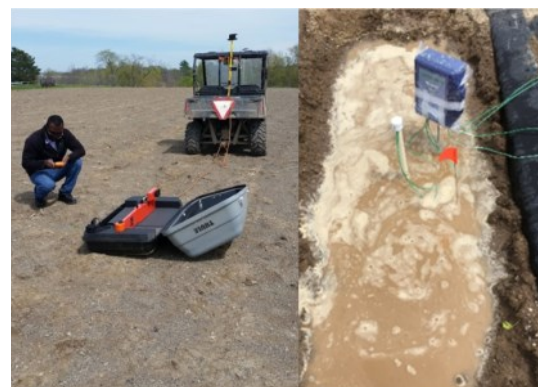
- Together, the Cornell Vegetable Program made more than 1,100 farm visits and phone/email consultations
- 26 educational events were organized by the Cornell Vegetable Program this quarter
- 530 people attended meetings where presentations were made by Cornell Vegetable Program Specialists



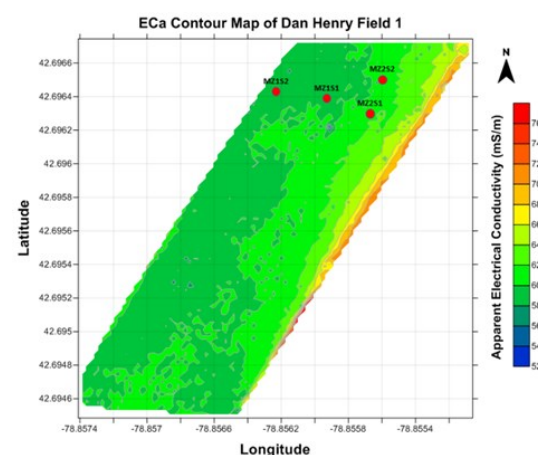
## ADAPTING PRECISION AGRICULTURE TOOLS FOR IMPROVED IRRIGATION IN VEGETABLE CROPS

Water and nutrient management are key to sustainable and profitable vegetable production. The water- and nutrient- holding capacities of soils are directly related to the soil properties. Current irrigation and nutrient management programs in vegetables in western NY employ field-wide water and nutrient application schedules without accounting for site-specific variations in the soil characteristics. Cornell Vegetable Program Specialist, Darcy Telenko has partnered with Environmental Geophysicist, Erasmus Oware from the University at Buffalo in a NYFVI sponsored project to identify and account for sub-field soil variability for efficient water and nutrient management practices. The project employed electromagnetic soil mapping to create sub-field management zones (MZ) to guide the application of precise amount of water and nutrient to reduce water, energy, and fertilizer expenditures. Once management zones were identified, infiltration tests were then used to determine optimal operating range of soil water content for each management zone in a field. During 2017, three farms in our region participated in the soil mapping and data collection.

The knowledge of spatial variations in soil characteristics can instruct site-specific water and nutrient management decisions to reduce input costs and increase productively by irrigating at the right time/amount for the crop in a sustainable, environmentally friendly approach.



The electromagnetic instrument is mounted in a sled that is drawn across the field for soil variability mapping (left). Irrigation experiment with soil moisture monitoring at the 10 cm and 30 cm depth of the soil profile (right).  
Photo: Darcy Telenko, CCE Cornell Vegetable Program



The red circles mark selected locations in two soil zones for irrigation experiments to determine their respective water-holding capacities.



## ASSISTING WITH QUALITY IMPROVEMENT IN GARLIC PRODUCTION

The garlic industry in New York is growing. There are about 300 garlic growers in NY with more than half in WNY. Seed stock garlic production is gaining acreage each year and the value of the seed stock industry is over \$10 million.

Garlic disease identification and management proved particularly problematic this year with two diseases emerging in our region in addition to persistent common diseases, like fusarium, a disease that can affect plants in the field and cause storage rot. White mold is one of the new diseases affecting garlic production. Over time, white mold can destroy a garlic crop and survive in the soil for decades so there is not only an economic loss of the seasonal crop but also the land can be lost to garlic production for years. The second disease is Colletotrichum, or sometimes called garlic anthracnose. For the previous two years, we have only seen this disease on a couple of isolated farms and the fungus seemed to only attack the flower stem. This season, however, the disease was quite widespread and we have seen a great deal of stem rot and even bulb damage.

Early disease detection, cultural practices, and other management tools have allowed many garlic farmers to grow a better product despite the challenges. Education efforts were led by CVP Specialist Robert Hadad in our region.

Several area garlic growers have become new suppliers of seed stock to Harris Seeds in Rochester, NY (Monroe County). Robert has worked with these growers to improve their garlic quality and consistency to meet the standards of Harris Seeds. Selling seed stock to Harris Seeds allows growers to sell their crop locally, earn greater profits, and expand their businesses which, in turn, means more farm labor jobs since growing garlic is very labor intensive. Harris Seeds will sell the garlic seed nationally.



A farmer scouting his garlic field for disease. Cornell Vegetable Program Specialist Robert Hadad worked with this farmer to improve his crop.  
*Photo: Robert Hadad, CCE Cornell Vegetable Program*

## MUCK DONUT HOUR IS THE HEART OF THE CVP ONION PROGRAM

Every Tuesday morning during peak onion growing season, Cornell Vegetable Program Specialist Christy Hoepting meets with her Elba onion growers for “Muck Donut Hour” at the corner of Transit and Spoilbank in the Elba muck. Although Christy cannot take credit for inventing Muck Donut Hour, she has certainly kept the 20+ year CCE outreach tradition alive and well.

In preparation for Muck Donut Hour, Christy and her technicians vigorously scout onion fields in Elba muck, and then she diligently writes up the results and sends out a scouting report to the grower participants on Monday night, so that they have the report in their hands on Tuesday morning. Donut Hour is where “the rubber meets the road”. Here, Christy and her growers meticulously discuss pest pressure and management strategies as they relate to latest research findings and scouting reports. In a constant back-and-forth striving for sustainability, the group challenges current management practices and propose research questions for future studies. Muck Donut Hour is where relationships and teamwork are nourished and has become the heart of the CVP onion program.

In 2017, Muck Donut Hour ran for 12 consecutive weeks from June 6 until August 29 and had a total of 30 participants and 95 individual contacts. The regulars are five onion growers that account for 80% of Elba’s onion production, but all of the growers participate. In addition, five special guests from the private ag industry, three next-generation muck farmers (i.e. growers' kids) and seven Cornell Entomologists made appearances at Muck Donut Hour this year.

With Muck Donut Hour being the envy of other growing regions, Christy decided to hold a Muck Donut Hour in Wayne County. This additional meeting was attended by five appreciative onion growers, who claim to want more Muck Donut Hours in the future.



Bring your child to Muck Donut Hour, August 1, 2017. From left to right: Matteo Mortellaro (son of onion grower Matt), Rosie Mortellaro (daughter of onion grower Paul), Christy Hoepting (CVP), Paul Mortellaro (in white shirt), Matt Mortellaro (by truck), Alex Yos (special guest from BASF in green shirt), Jules Hoepting (Christy's daughter), and Gar Thomas (blue shirt).  
*Photo: Audrey Klein, CCE Cornell Vegetable Program*



## DISEASE AND WEED MANAGEMENT RESEARCH IN TABLE BEET INDUSTRY

CVP Vegetable Specialists partnered with Cornell faculty, local growers, crop consultants, produce brokers and processors on five grant-funded research projects to improve table beet production in New York. Four on-farm research trials (Genesee and Orleans Co.) demonstrated that the incidence and severity of leaf spot disease was reduced with either hand-weeding or applications of the organic fungicides Cueva (copper) + Double Nickel (a bacterial extract). The trials provided important data on management of bacterial leaf spot, which was prevalent for the first time this year because of the continued wet conditions. The leaf disease complex, which also includes *Cercospora* and *Phoma* leaf spot, can defoliate plants, thus reducing yield, quality and the ability to harvest by top-pulling machinery. Two additional on-farm trials in Genesee County tested the timing of fungicide sprays based on weather and crop scouting data. Replicated small plot trials, conducted at Cornell research stations in Geneva and Freeville, were designed to test the efficacy of multiple organic and conventional fungicides for leaf disease management, disease forecasting/fungicide timing, and herbicide options for weed management. At the end of the season, beet roots with decay were collected from 10 grower fields for pathogen isolation and characterization, which will be used in future research to provide more robust management recommendations. In addition to research plot data, participating growers will be interviewed during the winter months to determine change in management practices and the effect on profitability of the crop. Furthermore, data and recommendations will be presented at the December advisory meeting, Empire State Producers Expo, and local winter meetings.

*Funding provided by: New York Vegetable Research Association/Council, New York State Specialty Crop Block Grants, USDA NIFA CPPM, and Towards Sustainability Foundation.*



Cornell Vegetable Program Specialist Julie Kikkert in a research plot in a commercial beet field.  
*Photo: Z. Hansen, Cornell*

## SELECTED TO SUBMIT PROPOSAL ON HIGH TUNNEL COVER CROPS

Judson Reid and Cordelia Machanoff successfully developed a Northeast Sustainable Research & Education pre-proposal to research winter cover crops in high tunnel tomato production.

The integration of winter cover crops into warm season high tunnel systems can potentially decrease nitrogen demand of the summer crop, leading farmers to apply less fertilizers and/or compost. Decreasing applications of N will decrease P, Mg and Ca inputs as these are part of most N applications. This will lead to increased fruit yield and quality, profitability per tunnel, and soil quality. The reduction of excess cations such as Mg, Ca will increase K uptake (essential for tomato quality).

The pre-proposal was one of 18 out of 64 competitive applications selected for full proposal development. Wish us luck!



CVP Technician, Cordelia Machanoff, evaluating a high tunnel cover crop in Cattaraugus County.  
*Photo: Judson Reid, Cornell Vegetable Program*

# HOW DO COOPERATIVE EXTENSION RESOURCES FIT INTO YOUR FARMING OPERATION?

At the Fresh Market Vegetable Field Day in Batavia this summer, Cornell Cooperative Extension Communications Staff Writer, R. J. Anderson interviewed Ed Fraser, a Monroe County certified organic garlic grower and owner of Fraser's Garlic Farm, LLC. Here's what Ed had to say about his interactions with Cornell Cooperative Extension through his the years.

"Boy, I'll tell you. Without Cooperative Extension, I think it would have had a lot more learning and hanging out on a limb on my own, really. Robert Hadad, Christy Hoepting, Crystal Stewart, especially - we worked very, very closely together over the years. Whenever I need some bug identification or I need some plant diseases taken care of, they can jump right in there and help me out with it. Things I can't identify easily and what kind of things I need to do in order to mitigate some of the problems. So they've been extremely helpful over the years. And I'm just so happy to be a member of the Cornell Vegetable Program. It's just been invaluable to me.

Also, I teach other farmers now how to farm and a lot of my knowledge comes from what CVP personnel have been able to tell me and teach me over the years. Especially with the garlic, I do still grow a lot of garlic but I can't possibly grow as much as I can sell. I now have 4 other farms that I co-manage under my wing. These are people that do not want to market the garlic – they want me to take care of all that – and all they want to do is grow. So I work with them and a lot of the information that I give to them is things that I've learned through the Cornell Vegetable Program and, of course, on my own on my farm.

They're great people and very knowledgeable. We do trialing together – we trial different kinds of products, we trial different kinds of vegetables, different ways of growing garlic especially, mitigating diseases in garlic, etc. – stuff like that. I mean they're just amazing!"

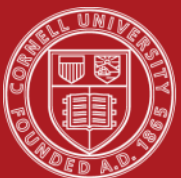


Ed Fraser, a local garlic farmer, shares the knowledge he's gained from Cornell Cooperative Extension and his own farming experience with other farmers in the area.  
*Photo: R. J. Anderson, Cornell Cooperative Extension*

## NEWLY FUNDED GRANTS

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

- **Trials to Reduce Onion Rot**, New York Farm Viability Institute (NYFVI), 4/1/17 - 3/31/18, \$119,715 (Beer, Hoepting, Bonasera, Asselin), (\$6,000 for Hoepting)
- **Performance of Fomesafen on Dry Bulb Onion**, Inter-region 4 (IR-4), 9/1/17 - 8/31/18, \$5,000 (Hoepting)



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