



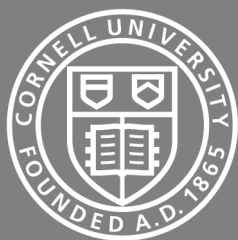
# CORNELL VEGETABLE PROGRAM TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

QUARTERLY HIGHLIGHTS JANUARY - MARCH 2018

## 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 410 farm visits and phone/email consultations
- 27 educational events were organized by the Cornell Vegetable Program this quarter
- Cornell Vegetable Program Specialists gave presentations at 15 events hosted by Cornell Cooperative Extension Associations and other collaborative organizations
- 1,277 people attended meetings where presentations were made by Cornell Vegetable Program Specialists



## 2018 EMPIRE STATE EXPO HELPS PRODUCERS GROW FOR THE HEALTH OF NEW YORK

The 2018 Empire State Producers Expo, an annual event supported by the NYS Vegetable Growers Association and Cornell Cooperative Extension (CCE), was held in January in Syracuse. All of the CVP vegetable specialists, which includes Julie Kikkert, Robert Hadad, Christy Hoepting, Judson Reid and Darcy Telenko, participated in the 3-day program alongside another 23 Cornell CCE Educators organizing educational sessions to support the NYS vegetable and fruit industries. CVP specialists hosted sessions on wildlife management, precision irrigation, biopesticides, processing vegetables, sweet corn, cabbage, weed management, high tunnels, soil health, onion pest control, food safety, and climate smart farming. The 2018 Expo recap by the numbers:

- 850+ in attendance across the 3 days
- 110+ presentations given by CCE personnel and highly regarded speakers from across the country
- 5 panel discussions featured 13 farmers sharing their experience and insights
- 790+ DEC Pesticide Recertification Credits were received by NY growers and professionals
- 28 education sessions
- 31 Certified Crop Advisor (CCA) credits were also available with 112.5 CCA credits earned

Between sessions, attendees visited the trade show featuring 116 commercial vendors and non-profit exhibitors. Conference proceedings are published online at <http://www.hort.cornell.edu/expo/2018proceedings.php>. Future meeting dates and information will be posted as available at <https://nysvga.org/>.



Chris Smart, Cornell, presenting to a packed room during the Tomato Session at the 2018 Expo in January. Photo: Darcy Telenko, CVP



## WINTER MEETINGS HIGHLIGHT NYFVI SUPPORTED RESEARCH PROJECT RESULTS

Over 170 vegetable growers attended winter programs that highlighted CVP research on two New York Farm Viability Institute (NYFVI) funded projects *"Minimizing wildlife impacts on yield and food safety risk in vegetables by utilizing repellency tactics"* and *"Application of electromagnetic electrical conductivity measurements for precision agriculture for NYS vegetable growers."* These sessions and workshops were presented at the 2018 Empire State Producers Expo, Western NY Fresh Market Meetings in Niagara (Lockport) and Monroe (Irondequoit) counties, and the 2018 Eastern New York Fruit and Vegetable Conference.

During these events the Wildlife Workshop Series featured talks about *"Bird Management in Sweet Corn – Evaluating New Tools"* by Darcy Telenko; *"Laser Scarecrows for Preventing Bird Damage in Sweet Corn"* by Dr. Rebecca Brown, University of Rhode Island; *"Deer Management Program and Permit Process"* by Ryan Rockefeller, NYS DEC; and *"Goose Management"* by Paul Curtis, Cornell University. The Precision Irrigation Workshop Series included talks on *"Precision Irrigation Opportunities for Growers: How and Why We Should Irrigate – an Example in NY Orchards"* by Jaume Sanahuja, Cornell University; *"Using Soil Electrical Conductivity Measurements for Precision Water Management in Vegetable Crops – Year 1 Research Update"* by Darcy Telenko; and industry updates on irrigation equipment available to growers by various industry representatives.

These events provide a great opportunity to showcase research projects and share updated information with growers across the state. Many growers walked away with new ideas to implement on their farms. A grower attending the Wildlife session at Expo stated he planned to implement "scare-eye balloons and/or [air]-dancers" next season. Following the workshop in Irondequoit, growers have begun to construct their own "laser scarecrow" to test in 2018.



During the WNY Fresh Market Vegetable Growers Meeting in Irondequoit, Dr. Rebecca Brown, University of Rhode Island, gave a remote presentation via Zoom on Laser Scarecrows for Preventing Bird Damage in Sweet Corn. Photo: Jarmila Haseler, CCE Monroe County

## THE GREATER WNY VEGETABLE GROWERS TEACH-IN

This quarter, Robert Hadad piloted a new effort for bringing farmers together to discuss issues from field topics to marketing. The concept is to pick one to three areas of concern that farmers have communicated about in the previous season, invite the broad farming community in a given area to come together, share a lunch and openly discuss problems and share experiences. The program was dubbed "The Greater WNY Vegetable Growers Teach-In." There were 18 people in attendance on February 15 at Cornell AgriTech in Geneva.

The goal of the program is to have farmers learn from each other. Each farming operation is unique. Each farmer has learned to handle situations by experience. Collectively there are a lot of important lessons learned which provides information to share. Setting up the meeting and getting the farmers started in a conversation quickly turns into a learning situation.

The inaugural Teach-In was organized based on feedback from growers who mainly expressed interest in what "significant" pieces of farm equipment are necessary and efficient for starting out. Then the conversation moved to weed management techniques, from mechanization to hand labor. As expected, once you talk about tools requiring hand labor, the conversation moves to finding good laborers.

The outcomes of the Teach-In provided real-world examples of how smaller-scale vegetable farmers were creating better efficiencies. The shared experiences allowed for a deeper understanding of what worked and what didn't. Sharing experiences while they shared a lunchtime meal reduced barriers to greater open conversations. One success from the group was an attempt to work together to share laborers so the farms have some part time and seasonal help while workers can work full time and make some decent money doing work for local farms.

Possible topics for a mid-spring twilight Teach-In, slated for late May or early June, are currently being considered.



Attendees of the inaugural Teach-In (discussion group) learned from fellow farmers what farm equipment is necessary and appropriate for beginning and small-scale farms.

Photo: Robert Hadad, CVP

# OPTIMIZING HIGH TUNNEL SOIL, WATER, AND AMENDMENTS FOR INCREASED PROFIT

The Cornell Vegetable Program recently completed a project that educated farmers and students on managing soil health in high tunnels for long term productivity. In this second year, the project team followed previous cooperating growers to evaluate the efficacy of recommended practices over several growing seasons. Areas of focus included soil, fertility and irrigation water management and practices that support soil health and improve yield in high tunnels in both organic and conventional settings. The program also included workshops, presentations, and intensive learning experiences both on-farm and during the 2018 NOFA-NY annual Winter Conference and the 2018 Empire Producers Expo, technical assistance via articles online and in print publications, email, and farm visits. We developed and published a widely applicable set of [best management practices for long term high tunnel soil health and fertility](#), while continuing to provide soil, water and amendment analysis to organic and conventional farmers involved in implementation. This work was funded by the Towards Sustainability Foundation for \$10,000.

This funding supplemented additional funding streams that allowed the project team to work with a total of 29 high tunnel growers. Educational topics included soil preparation, soil testing and monitoring, fertility and soil pH management, effective crop rotations, and use of cover crops for soil health and yield in high tunnels used over multiple years on the same location in both organic and conventional settings.

Over 100 farm visits were made to cooperating growers and other high tunnel growers throughout NYS as part of the project. The growers also provided input and yield data via baseline and fall/winter surveys and interviews. This data tracks changes in management practices, trends in soil and foliar nutrient levels and allows us to correlate changes in yield and quality with management practices. The individual data from each farm was shared with the growers in real time to provide opportunity for

the growers to react and shift fertility practices throughout the season to maximize yield.

100% of the cooperating growers adopted at least 3 management practices that support long term soil health and fertility, with a median adoption rate of 9 (out of 18) practices.

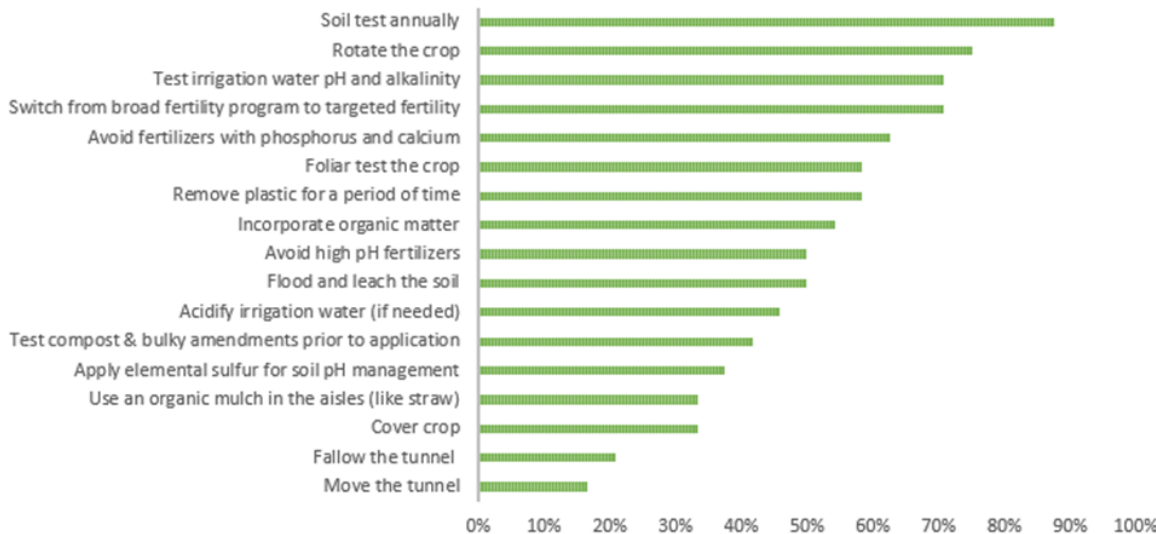
- **88%** intend to test high tunnel soil annually after participating in this project.
- **71%** switched from a “broad spectrum” fertility approach (using compost or general purpose fertilizers) to a fertility program targeting specific nutrients based on soil conditions and plant needs.
- **63%** are avoiding fertility amendments containing phosphorus.
- **71%** plan to regularly test irrigation water pH and alkalinity.
- **54%** plan to incorporate organic matter in their high tunnel soils.
- **58%** intend to continue foliar testing, while others reported that it had value as an educational tool but they do not plan to continue testing in the future.

The cooperators operated an average of 8,740 square feet of high tunnels per enterprise. The nineteen farms that provided complete economic data reported an average net annual high tunnel income of \$17,570 in 2017. This represents an average net high tunnel income increase of \$4307, a 47% increase from the baseline data provided by the growers. These economic gains were due to increased yields, improved quality reported by 29% of operations (with the remaining 71% reporting similar quality each year) and reduced inputs and labor costs due to a shift in management style from labor intensive bulky amendments and general purpose fertility to a targeted, minimal input approach tailored to the soil and plant conditions in each tunnel.



High tunnel workshop, January 18, 2018. Photo: Judson Reid, CVP

## BEST MANAGEMENT PRACTICES ADOPTION RATE





## 2018 NYS DRY BEAN MEETING ENGAGES GROWERS & PROCESSORS IN RESEARCH

Dry beans are packed full of health benefits, being high in protein, fiber, iron and other nutrients. According to the latest Census of Agriculture, 71 western NY farms produce about 9,000 acres of dry beans. Black beans and red kidney beans are the types that produce well in our soils and climate. After local beans are harvested, they are sent to one of several factories in NY or PA for cleaning and processing into canned product or packaged for the dry pack market. Product is sold to local, regional, export and organic markets. The value of the NY crop varies, but averages around \$7 million.

The 2018 NYS Dry Bean Meeting, organized by CVP specialist Julie Kikkert, was held March 6<sup>th</sup> in Batavia, NY. There were a total of 40 participants which included local dry bean growers, processors, and Cornell faculty and extension educators. The meeting was held in a roundtable format which allowed for maximum interaction among participants. Topics of high interest to the industry included market updates, development and testing of new varieties, as well as management of white mold disease, western bean cutworm insects and weeds. An educational presentation about crop insurance met with lively discussion that the insurance was not useful because the final planting date was too early in the season. As a follow-up, an effort is being made by the industry to move the final planting date for red kidney beans to July 10<sup>th</sup> instead of June 30<sup>th</sup>. Additionally, attendees learned about efforts to bring healthy bean dishes into New York Schools, through the Cool School Food Program [www.healthyschoolfood.org](http://www.healthyschoolfood.org), and were treated to tasty dry bean dishes and products during lunch.

The remainder of the meeting was spent prioritizing research projects. The dry bean endowment at Cornell allocated funds to 5 research projects for 2018, totaling \$31,764.



NYS Dry Bean meeting attendees sample dry bean dishes, including tasty black bean brownies, and products during lunch. Photo: Julie Kikkert, CVP

## CREATING RESOURCES FOR GROWERS ENTERING WHOLESALE MARKETS

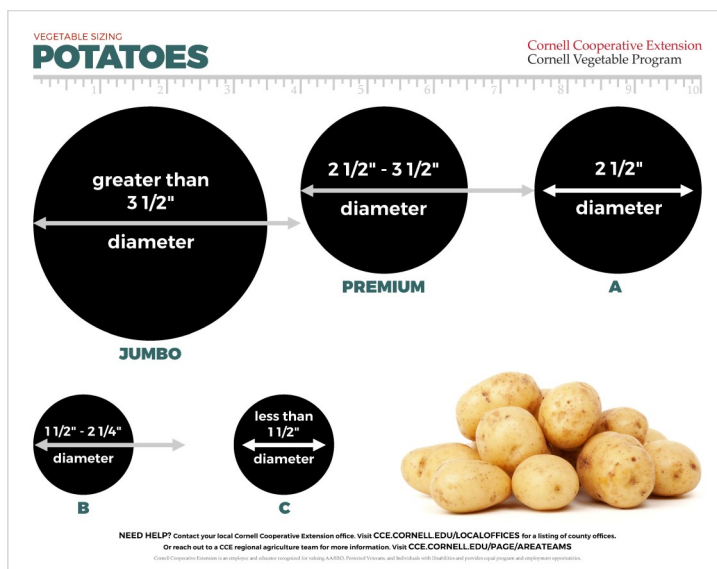
In September 2017, [grading and packing guidelines](#) were made available for 16 commonly grown specialty crops in NYS: broccoli crowns, Brussels sprouts, corn, green peppers, cucumbers, green cabbage, red cabbage, savory cabbage, cauliflower, eggplant, green beans, jalapenos, poblanos, Hungarian hot peppers, summer squash, and zucchini.

Acceptable quality standards and common defects that should be sorted out on the grading line are depicted in these resources, both visually and in outline form.

The full-color guidelines were developed through the support of Cheryl Thayer of CCE Harvest NY, Dave Walczak of Eden Valley Growers, Angela Parr and Robert Hadad of the CCE Cornell Vegetable Program, and Jim Monahan of Cornell Cooperative Extension.

To further assist farmers looking to sell into wholesale markets, the Cornell Vegetable Program created [vegetable grading templates](#) to aid in the visualization of the grading sizes. The crop grading templates are scaled to size (8.5 x 11 paper). They can be printed and used to create sizing templates to be used by workers on the wash and pack lines.

Additional wholesale resources are also available on the Cornell Vegetable Program website [cvp.cce.cornell.edu](http://cvp.cce.cornell.edu)



Vegetable sizing templates, scaled to size, are now available and ready to be printed on 8.5x11 paper. The templates can be used by workers on the wash and pack lines.

## NEW HERBICIDE SET TO REVOLUTIONIZE WEED CONTROL IN MUCK-GROWN ONIONS

The first time that CVP Onion Specialist, Christy Hoepting evaluated active ingredient bicyclopyrone for weed control in muck-grown onion in 2015, it pretty much failed except that it had some activity on ragweed, one of most challenging annual broadleaf weeds that New York muck onion growers face. The following year, in an attempt to maximize control of ragweed, Hoepting skillfully combined bicyclopyrone with another herbicide that has some activity on ragweed, bromoxynil (Buctril), and the results were stunning! Compared to the other treatments in the trial, this combination was able to kill the largest ragweed (4-6 inch tall) with the greatest crop safety. Bicyclopyrone combined with flumioxazin (Chateau) also offered both excellent ragweed control and crop safety. In 2017 field trials, these combinations also proved highly effective on smartweed and marsh yellowcress with continued crop safety. Bicyclopyrone has a mode of action completely different than any other onion herbicide, which is very important for resistance management.

The next step was to ensure that the manufacturer of bicyclopyrone, Syngenta Crop Protection, would include onion on the bicyclopyrone label. Apparently, on mineral soil bicyclopyrone had been burning up all kinds of vegetable crops, including onion. The high organic matter of muck soil acts as a buffer to protect onion plants from the phytotoxic effects of bicyclopyrone. Hoepting worked with local representatives from Syngenta sharing her results and excitement for bicyclopyrone in muck-grown onions. In 2017, Syngenta's National Product Manager for bicyclopyrone came to Elba to view Hoepting's trials. In March of 2018, Syngenta announced that they were going to continue to develop bicyclopyrone for onion: it will be labeled for both pre- and post-emergent weed control and pre- and post-emergent to onion until 45 days prior to harvest. Bicyclopyrone is expected to be labeled in 2021 (2022 in New York). Until then, Hoepting plans to optimize its use in onion to ensure that when it becomes available onion growers will readily adopt it and immediately reap its benefits.



This is how excited Christy Hoepting is about new herbicide with active ingredient, bicyclopyrone, set to revolutionize weed control in onion.  
Photo: R. J. Anderson, CCE

## 2018 NEW YORK PRODUCE AUCTION LOCATIONS AND CONTACT INFO

Produce auctions in New York State have been formed so that produce growers have a way of marketing their product to quality minded buyers through open competitive bidding. Six of the eight produce auctions in NYS are in WNY! A [map of produce auction locations](#) across the state is provided along with auction days, times, and contact information.

Do you have community members contacting you that are unsure how to purchase at a produce auction? The updated [How To guide](#) will give you some quick pointers on the auction terminology and how to make purchases at an auction.



## 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:

- **Quantifying benefits of biofungicides in vegetable disease management using novel disease detection methods**, New York Farm Viability Institute (NYFVI), 5/1/18 - 4/30/2020, \$84,641 (Dunn, McGrath, Stewart, Telenko, Kikkert)
- **Evaluation of Vegetable Varieties for Organic Vegetable Production for Both Urban and Rural Farms**, Towards Sustainability Foundation, 4/1/18 - 3/31/19, \$10,000 (Telenko, Burley)
- **Towards a Durable Management Strategy for White Mold in Dry Beans in New York, Part II**, NYS Dry Bean Endowment, 4/1/18 - 3/31/19, \$8,000 (Pethybridge, Kikkert)
- **Refining weed control tactics in New York processing vegetables**, New York State Vegetable Research Association/Council, 4/1/18 - 3/31/19, \$35,000 (Wallace, Kikkert, Telenko)
- **Enabling the registration of Miravis Top for Cercospora leaf spot control in table beet**, New York State Vegetable Research Association/Council, 4/1/18 - 3/31/19, \$18,000 (Pethybridge, Kikkert)
- **Engaging the enemy! Root decay in table beets. Part II**, New York State Vegetable Research Association/Council, 4/1/18 - 3/31/19, \$18,000 (Pethybridge, Kikkert)
- **Towards a site-specific risk model for white mold in processing snap bean in New York**, New York State Vegetable Research Association/Council, 4/1/18 - 3/31/19, \$18,000 (Pethybridge, Kikkert)
- **Screening Table Beet Cultivars for Susceptibility to Phoma Leaf Spot and Horticultural Characteristics Under New York Growing Conditions**, Towards Sustainability Foundation (TSF), 2/1/18 - 12/31/18, \$7,624 (Kikkert, Pethybridge)
- **Testing ground barriers for swede midge IPM on at-risk small-scale brassica farms**, Northeast Integrated Pest Management (NE-IPM) Partnership Grant, 4/1/2018 - 3/1/2018, \$50,000 (Chen (University of Vermont) and Hoepting)
- **Weed management in muck-grown onions**, New York State Onion Research and Development Program (ORDP), 4/1/2018 - 3/31/2019, \$16,000 (Hoepting)
- **Improving the Durability of Disease Management of Onion in New York Through Monitoring of Fungicide Resistance**, New York Farm Viability Institute – Specialty Crops Block Grant (NYFVI-SCBG), 12/1/2018 - 11/30/2020, \$97,567 (Hay, Grundberg, Hoepting)