Cornell Cooperative Extension
Cornell Vegetable Program

Q2 2024

Quarterly Highlights

The Cornell Vegetable Program (CVP) is a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties: Allegany, Cattaraugus, Chautauqua, Erie, Genesee, Monroe, Niagara, Ontario, Orleans, Oswego, Seneca, Steuben, Wayne and Yates.

The team of Vegetable Specialists provides educational programs and information to growers, processors and agri-business professionals, arming them with the knowledge to profitably produce and market safe and healthful vegetable crops.

What a meeting! Sixty-nine New York onion industry folks joined us on-farm at the Annual Muck Onion Twilight Meeting in Oswego in June. See page 5 for details.

1,814
farm visits and direct contacts

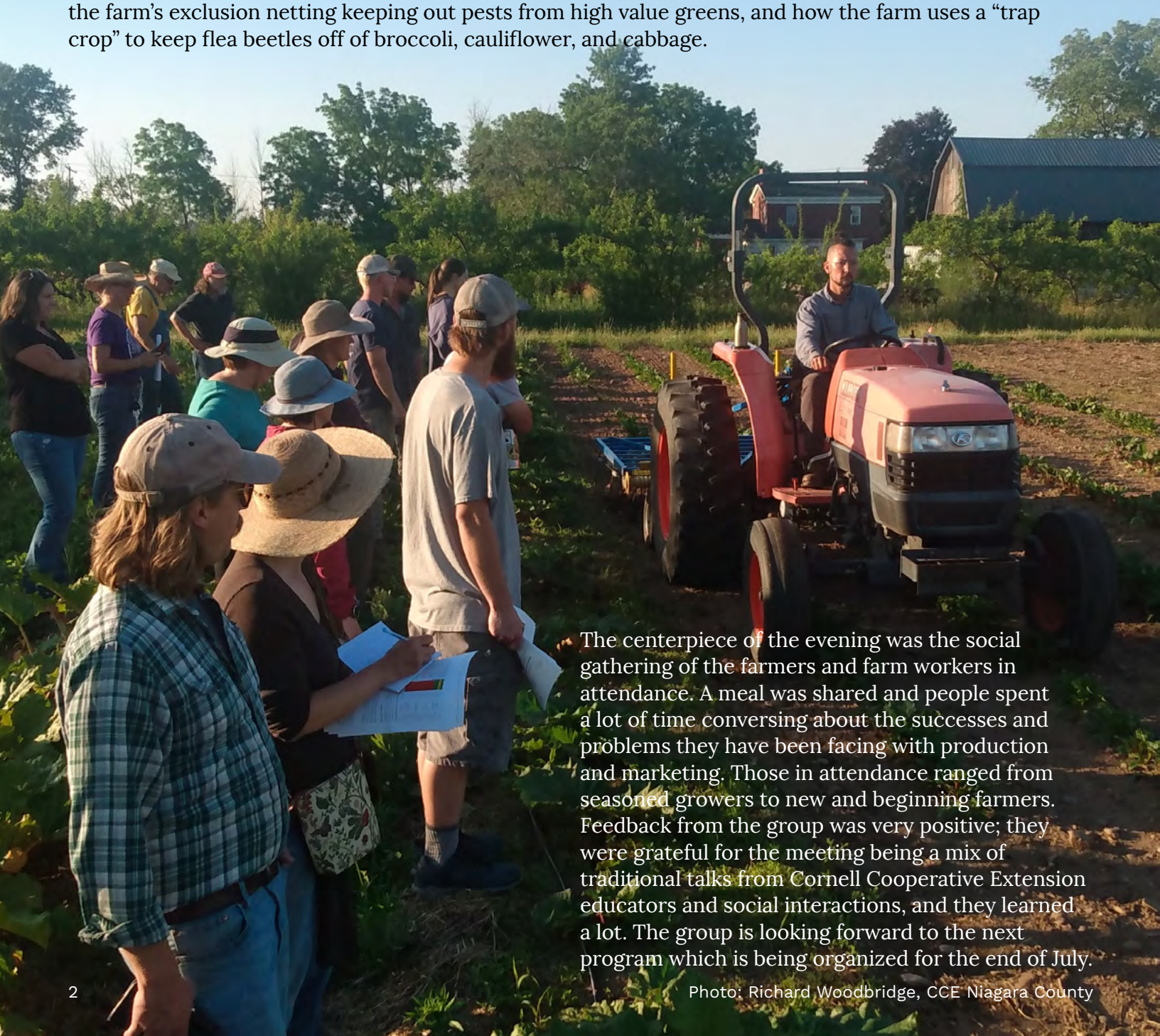
31
events & presentations featuring CVP Specialists

812
people attended CVP presentations

Vegetable Twilight Meeting Series Encourages Farmer-to-Farmer Connections

This is a revival—so to speak—of a program series the Cornell Vegetable Program ran for two seasons prior to the pandemic. Each month from May to September, a twilight production meeting was held at different farms in the region. This became as much of a farmer experience sharing event as a formal crop walk. The growers enjoyed coming together to see other farms in action and talk with other growers like themselves. This season, we are reintroducing this type of program to our region.

The first twilight meeting was held in Monroe County at Kirby Farm Market in Brockport in June. Titled 'Tour, Tarps & Talk!', the meeting focused on a tarping trial investigating the effect of overwinter tarping on nitrogen availability and best practices for terminating large cover crops. The farm is in search of a low-tech, no-till method of controlling weeds as the farm moves to creating more permanent growing beds for greens, brassicas and other vegetable crops. In their larger fields, a demonstration of weed management in beets was shown using a special cultivating implement (see photo). Attendees also viewed the farm's exclusion netting keeping out pests from high value greens, and how the farm uses a "trap crop" to keep flea beetles off of broccoli, cauliflower, and cabbage.



The centerpiece of the evening was the social gathering of the farmers and farm workers in attendance. A meal was shared and people spent a lot of time conversing about the successes and problems they have been facing with production and marketing. Those in attendance ranged from seasoned growers to new and beginning farmers. Feedback from the group was very positive; they were grateful for the meeting being a mix of traditional talks from Cornell Cooperative Extension educators and social interactions, and they learned a lot. The group is looking forward to the next program which is being organized for the end of July.

Photo: Richard Woodbridge, CCE Niagara County

Laser Scarecrow Research Benefits New York Sweet Corn Growers

A 3-year multistate research project to develop and test a laser scarecrow in sweet corn fields was completed this quarter. Bird control is a high priority for sweet corn growers. Birds peck at the ears when they reach the milk stage, making the corn unmarketable. Bird droppings on the ear also create a food safety risk. A research laser scarecrow that uses a rapidly rotating 50-milliwatt green laser to frighten birds was developed by the University of Rhode Island (URI) to meet the needs of fresh market sweet corn growers. Eighteen NY farms were test sites for research conducted from 2021 to 2023 by the CCE Cornell Vegetable Program, the ENY Commercial Horticulture Program and NYS Integrated Pest Management Program. In addition, 50 URI laser scarecrows were purchased by 35 New York vegetable and/or fruit producers ($34,000 total capital investment). Feedback led to design modifications that improved durability in the field and user friendliness. Our on-farm research demonstrated effective bird control, which was enhanced when an auditory scare device (BirdGard squawker) was also used. Most growers utilized the lasers in combination with other bird deterrents (scare-eye balloons, noise makers, etc.) and consider the lasers as another tool in the toolbox for bird control. Bird pressure, habitat and other food sources determined success in moving birds away from sweet corn fields.

Sixty-four percent of NY growers who used a laser scarecrow in their sweet corn plan to continue use as part of an overall bird management program, according to a 2024 survey. Eighteen percent were undecided, presumably because they wanted additional testing on their farm or are still in the learning curve of how to best use the laser scarecrows. Another 18% did not plan to continue to use a laser scarecrow because it was not effective on their farm or was not worth their time and money. Ten NY sweet corn growers reported increased profits due to less bird damage, increased sales, increased yields, and more acres harvestable. We estimated an average increased revenue of $5,000 per farm, for a total of $50,000 increase in gross revenue. Labor input was reduced on three farms who reported increased picking time, reduced sorting, and reduced labor chasing birds. One farm noted the reduced need to purchase corn to fill in gaps for sales at their stand. We estimate one retained full-time job for each farm that reported a benefit of the laser scarecrows to their operation. This job could be potentially lost if the farm is no longer able to produce sweet corn (total of 10 jobs retained).

According to the 2022 Census of Agriculture, there are 921 New York farms that produce 10,797 acres of fresh market sweet corn. In 2023, the total farm gate value was $31.9 million for fresh market sales (2023 State Agriculture Overview). If we estimate a 30% adoption rate of laser scarecrows in fresh market sweet corn, and $5,000 economic impact per farm, the potential industry impact in New York is $1.4 million.

The New York Farm Viability Institute and a USDA NIFA multistate Specialty Crop Block Grant supported this research.

Potato Variety Trials Aim to Benefit the NY Grower

Western New York is home to many of the highest potato producing counties in the state, including Steuben and Wayne Counties in the Cornell Vegetable Program region, with their production of chipping potatoes and fresh market potatoes, respectively. Growers and processors are always in search of the best varieties to grow for their farms to produce high quality potatoes. Cornell University plants multiple on-farm potato variety trials each year, focused on both fresh market and chipping potato varieties. The potatoes tested in these trials are a combination of industry standards and new varieties that are bred for a range of desired qualities including tuber appearance and quality, shape, size, as well as a focus on overall yield.

This year, the Cornell Vegetable Program has continued its small-scale fresh market potato variety trial focused on smaller-scale and mixed vegetable growers who include specialty variety potatoes on their farms. This trial includes potato varieties that are already commercially available across a variety of colors and shapes, with the goal of testing varieties in NY to determine how well different varieties might perform for growers interested in including new varieties into their rotations. There are many potato varieties on the market, and it can be hard to determine what varieties will work best for New York farmers. This trial can help growers see local results and aid in decision making.

Baltic Rose was the highest yielding variety in the 2023 Small-Scale Potato Variety Trial.

Potatoes harvested from the 2023 Small-Scale Potato Variety Trial Variety Trial.

Annual Muck Onion Twilight Meeting a Very Popular Event for the Statewide Onion Industry

In New York State, large-scale onion production occurs predominantly in organically rich "muck" soils, where production is unique and intensive. The CCE Cornell Vegetable Program (CVP) territory includes 4 of the 6 major muck onion growing regions in the state and influences 56% of the $80.2 million dollar industry. **The annual muck onion twilight meeting is organized by CVP Onion Specialist, Christy Hoepting and has become the most popular and important onion meeting in New York.** It is known for its richness in new research-based information and delivery of concepts and strategies that can be implemented immediately or within the year that will improve pest management and economic returns. This year, 92% of the survey respondents rated the meeting as excellent.

On June 20, Joe Burghart of Dunsmoor Farms hosted the annual muck onion twilight meeting in Oswego. The 69 participants included:

- 37 muck onion growers from all NY muck regions–including Oswego Co., Elba in Orleans/Genesee Cos., Wayne Co., and Potter in Yates Co.– with a couple of farms traveling 3 hours to attend the meeting.
- 22 representatives from allied private industries including from pesticide, fertilizer, seed and distribution (of seed, fertilizer and pesticides).
- 16 private businesses sponsored the meeting generating $5,500.
- 10 Cornell researchers and Extension personnel.

Program content was rich with Hoepting sharing highlights from 2023 research on Botrytis leaf blight necrotic spots and Stemphylium leaf blight including efficacy results from on-farm fungicide trials, fungicide sensitivity testing and observations from the onion scouting program. Finally, new fungicide recommendations and the popular Cornell Onion Fungicide "Cheat Sheet" were rolled out for 2024. **Onion growers are now equipped with everything that they need to make informed fungicide decisions for the 2024 onion growing season to ensure effective and sustainable fungicide use for managing these challenging leaf diseases.**

Cornell onion entomologist, Brian Nault and his Ph.D. candidate Leo Salgado shared "fresh-out-of-the field" research results from their onion maggot seed treatment trial. For the second year in a row, Sepresto was one of the best performing treatments. **As this insecticide has a different mode of action than the two commonly used seed treatments for onion maggot, this finding provides a valuable opportunity for sustainable resistance management of onion maggot.** Plans are in place to meet with muck onion growers in September ahead of making seed treatment orders to devise a treatment strategy for 2025 growing season.

Hoepting led the audience through an herbicide demonstration that included 12 pre-emergent and 19 post-emergent herbicide treatments. **The trial showcased the newly registered muck onion herbicide, Optogen which Hoepting was instrumental in working with Syngenta Crop Protection to get this use labeled in onion in New York (10 years in the making!).** The herbicide demonstration was especially interactive with good questions and discussions: 82% of the survey respondents stated that they learned something new about onion herbicide use in onion and will implement a new strategy in 2025.

High Tunnel Research Supports Use of Multi-Species Cover Crop Mixtures vs Single Species Winter Grain for Improved Soils and the Opportunity to Reduce Fertilizer Inputs

The last published USDA Census of Agriculture reports a 24% increase in the number of vegetable farms growing under protected settings (greenhouse and high tunnels) and in New York State census data documents a 38% increase with total sales exceeding $38,000,000. The Cornell Vegetable Program (CVP) region leads the state in this production technique.

For the CVP, Lori Koenick and Judson Reid continue to research high tunnel best management practices by evaluating multi-species cover crop mixtures compared to a grower-standard single species winter grain. Over this past winter, our Yates County collaborators planted half of a high tunnel with Jonny's Selected Seeds 'Fall Green Manure Mix' (winter rye, field peas, ryegrass, crimson clover, and hairy vetch) and the other half with a grower standard of triticale. Biomass from these plots was collected throughout the winter and spring for fresh weight and dry weight data. Foliar samples were submitted for analysis at a cooperating lab to assess potential nutrient contribution to the soil in the future. Next, soil samples from each half of the tunnel were taken after the cover crop was incorporated and submitted to the Cornell Soil Health Lab for Comprehensive Assessment of Soil Health and soluble salt tests. Tomato foliar samples were collected during this quarter (May 2024) and submitted for foliar analysis.

Our cooperating grower detected differences in tomatoes grown in area with cover crop mixture versus with triticale. Tomatoes in cover crop mixture appeared taller, with more lush growth and darker green foliage (Fig. 1). Initial data supports these observations with the multiple species mix providing more biomass and nitrogen than the grower standard. Specifically, a comparison of macronutrients in tomato crop following a single species vs. multi-species cover crop mix revealed all nutrients are higher in the tomatoes grown in multi-species cover crop plots. In the case of nitrogen, the difference has the crop within sufficiency for multi-species treatment, and deficient under the grower standard, single species (triticale) (Fig. 2).

This research supports our educational efforts to help farmers adopt sustainable management of high tunnel soils and the opportunity to reduce fertilizer inputs.

Figure 1. Tomatoes on the righthand side of the glove are darker green and taller than those on the left. This corresponds to our cover crops plots of mix species vs. single species.

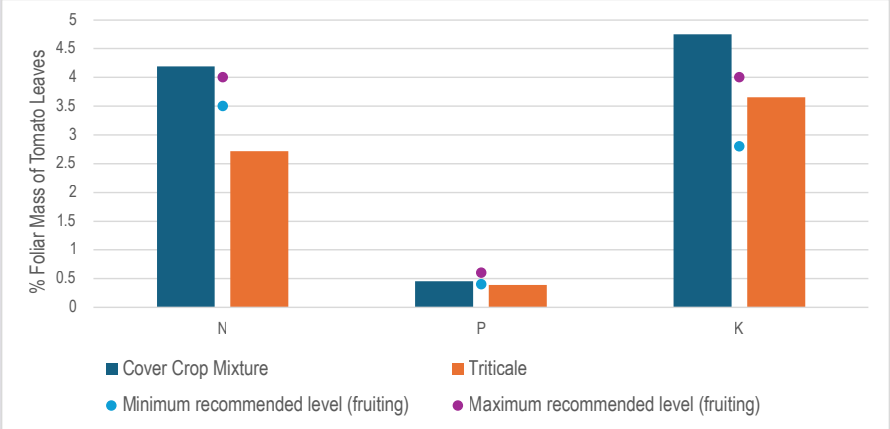


Figure 2. A comparison of macronutrients in tomato crop following a single species vs. Multi-species cover crop mix. In the case of nitrogen, phosphorus and potasssium, all nutrients are higher in the tomatoes grown in multi-species cover crop plots.

Minor Crops, Major Impact: Celebrating a Very Successful Climate Adaptation Grant

Climate adaptation in agriculture isn't always about managing too much or too little rain, heat, snow and wind. We also need to **learn which horticultural techniques provide resilience and examine how crop selection choices can capitalize on emerging opportunities**.

Cornell Vegetable Program (CVP) Specialist Elizabeth Buck recently completed a 15-month, $21,470 NESARE Partnership grant focusing on three crops that present distinct challenges and attractive potential under our shifting climatic conditions: asparagus, okra, and sweet potatoes. **Growers Wil Moss of Albion, Paul Fenton of Batavia, and Matt Agle of Eden worked alongside the CVP to design and conduct this research, care for the fields, and share the study results.**

We reached 151 farmers and 14 ag service providers, completed at least 15 consultations, held 1 open house, and delivered 6 presentations. Through the course of this work, the partner growers became experts and peer-to-peer educators, delivering project presentations and sharing their experiences with other farmers.

OKRA is a culturally important crop that enjoys hotter summers but currently struggles with our late spring conditions. We tested using an early variety in combination with simple, low-cost season extension techniques of row cover, black plastic mulch, or a row cover + black plastic to see the effect on yield and economics of okra. **The season extension techniques caused a 49-66% yield bump over bare ground production!**

Grower collaborator, Wil Moss, presents the okra results to over 50 growers on 4/5/24.

The early-day variety began fruiting 9 days before typical varieties. Adding a season extension technique achieved harvest nearly 2 weeks sooner than most okra. All told, we found that **adopting an early variety + season extension produced a 33-50% increase in income**, even after deducting the associated costs of adoption.

ASPARAGUS is very sensitive to temperature. Erratically warm April weather forces the spears up too soon only to be ruined by seasonal frosts. This kicks off a cascade of compounding economic injury. Too much heat in May increases losses due to over maturity and shortens the harvest window. Asparagus that avoids these problems and can provide farms with much needed income during a time when there is little else ready to sell.

We screened 10 varieties for their frost avoidance, resistance to over maturity, yield potential, and length of harvest window. **The varieties 'Eclipse', 'Walker Deluxe', 'Millennium', 'Grande' and 'Equinox' balanced these needs and will provide resiliency as we experience more variable and hotter climatic conditions.**

SWEET POTATO needs about 120-125 days to finish in WNY but we tend to only have ~105-115 days with suitable temperatures. We trialed 6 short-day varieties including two Canadian varieties and one advanced selection from Louisiana State University's breeding program. We found that 'Bellevue', pre-release breeding line '18-100', and 'Bonita' yielded well for NY. The Canadian varieties were bred for sandy soil and did not perform well in the loamy trial soil, which is a typical WNY vegetable farm soil. Importantly, we took the crop through curing and learned that 'Bonita' rots very easily. This means that for now, **local growers will likely have the most success with 'Bellevue'**.

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program under subaward number ONE22-409.

Newly Funded Grants & Projects

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Late-Season Applications of Pre-Emergent Herbicides for Extended Weed Control through Harvest in Muck-Grown Onions
New York Onion Research and Development Program (NY ORDP), 4/1/2024 – 3/31/2025, $14,700 (Hoepting).

Sustainable Fungicide Use for Managing Stemphylium Leaf Blight in Muck-Grown Onion
New York Onion Research and Development Program (NY ORDP), 4/1/2024 – 3/31/2025, $29,000 (Hoepting, Hay).

Identifying Effective Management Tactics for Onion Maggot, Onion Thrips and IYSV in Onion
New York Onion Research and Development Program (NY ORDP), 4/1/2024 – 3/31/2025, $30,215 (Nault, Taylor, Hoepting).

Building Foundations of Food Safety for Beginning Produce Growers
National Institute of Food and Agriculture (NIFA) - Food Safety Outreach Program (FSOP), 9/15/2024 – 9/14/2026, $150,000 (Hodgdon, Hadad, Pashow, Stewart-Courtens).

2024-25-188: Enhancing Awareness of the New Kid on the Sweet Corn Block: Tar Spot
Smith-Lever (Cornell Cooperative Extension), 10/1/2024 – 9/30/2027, $90,000 (Pethybridge, Kikkert).