

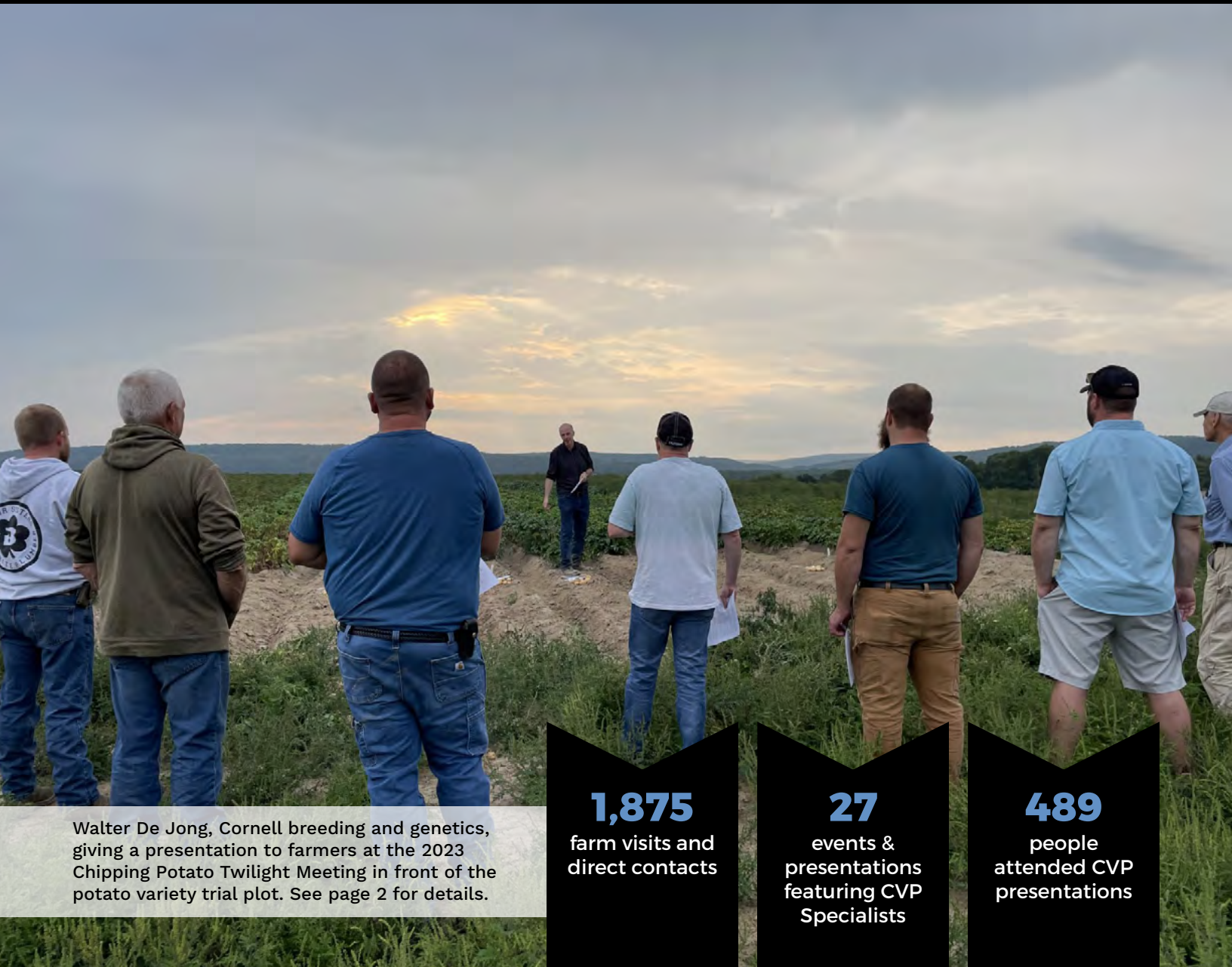


Q3 2023

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.



Walter De Jong, Cornell breeding and genetics, giving a presentation to farmers at the 2023 Chipping Potato Twilight Meeting in front of the potato variety trial plot. See page 2 for details.

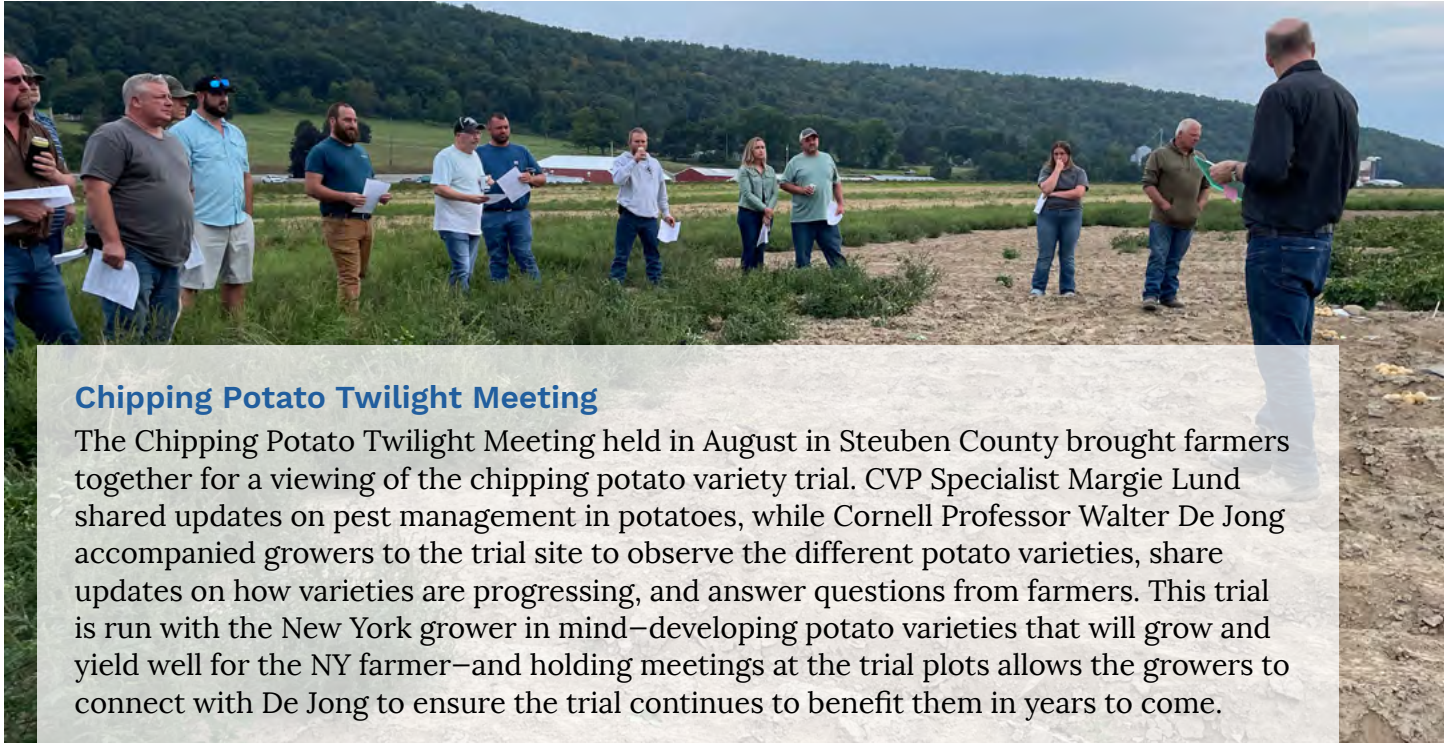
1,875
farm visits and
direct contacts

27
events &
presentations
featuring CVP
Specialists

489
people
attended CVP
presentations

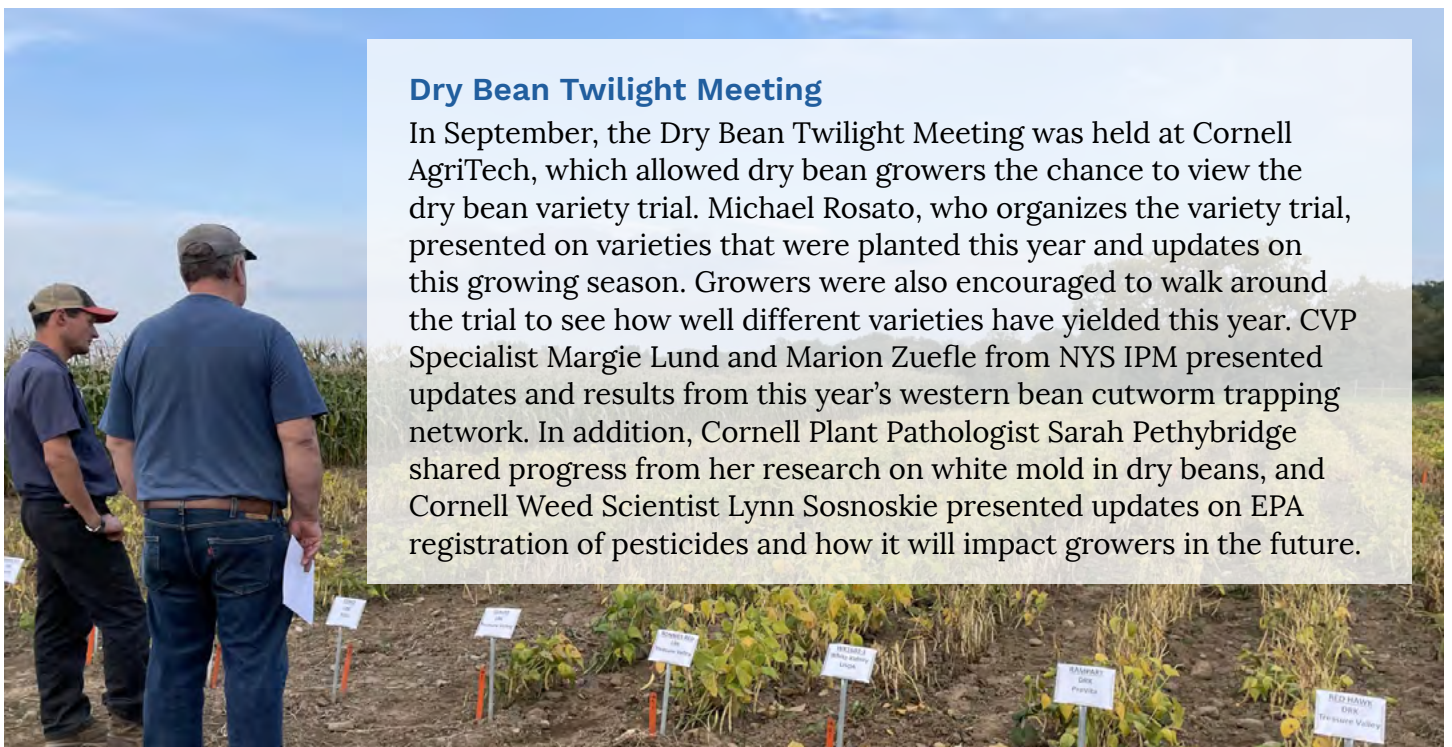
Field Meetings with the New York Grower in Mind

Summer grower meetings are an important part of the Cornell Vegetable Program's (CVP) programming as they allow us to connect with growers in the field during the growing season and provide updates about pest management and horticultural topics. Two meetings this summer, the Chipping Potato Twilight Meeting and the Dry Bean Twilight Meeting, allowed growers to come together and share on such topics with CVP Specialists and Cornell faculty members.



Chipping Potato Twilight Meeting

The Chipping Potato Twilight Meeting held in August in Steuben County brought farmers together for a viewing of the chipping potato variety trial. CVP Specialist Margie Lund shared updates on pest management in potatoes, while Cornell Professor Walter De Jong accompanied growers to the trial site to observe the different potato varieties, share updates on how varieties are progressing, and answer questions from farmers. This trial is run with the New York grower in mind—developing potato varieties that will grow and yield well for the NY farmer—and holding meetings at the trial plots allows the growers to connect with De Jong to ensure the trial continues to benefit them in years to come.



Dry Bean Twilight Meeting

In September, the Dry Bean Twilight Meeting was held at Cornell AgriTech, which allowed dry bean growers the chance to view the dry bean variety trial. Michael Rosato, who organizes the variety trial, presented on varieties that were planted this year and updates on this growing season. Growers were also encouraged to walk around the trial to see how well different varieties have yielded this year. CVP Specialist Margie Lund and Marion Zuefle from NYS IPM presented updates and results from this year's western bean cutworm trapping network. In addition, Cornell Plant Pathologist Sarah Pethybridge shared progress from her research on white mold in dry beans, and Cornell Weed Scientist Lynn Sosnoskie presented updates on EPA registration of pesticides and how it will impact growers in the future.

Both meetings allowed us to connect with the grower groups to ensure we continue providing relevant and high-quality educational opportunities for New York farms. Between the two meetings we had over 30 growers and industry members attend.



White spores on the underside of a tomato leaf are diagnostic for late blight, a disease that can cost farmers thousands of dollars. Photo: Judson Reid, CCE Cornell Vegetable Program

Cornell Vegetable Program Responds to Late Blight in 2023

Late blight is a devastating disease of tomatoes and potatoes caused by the water mold *Phytophthora infestans*. Once an outbreak begins, damage spreads rapidly throughout the canopy, with fruit becoming unmarketable due to large, rotting lesions. The disease spreads rapidly and will completely destroy a field if left untreated.

Late blight does not overwinter outdoors in New York State, so its arrival each year differs depending on neighboring regions and weather conditions. Also variable is the strain or 'genotype'. Different genotypes vary in their relative severity to tomatoes and potatoes, as well as response to fungicides. Therefore, it is important early in an outbreak to identify genotype.

The Cornell Vegetable Program (CVP) works with colleagues throughout North America to help our local tomato and potato industry be prepared and avoid catastrophic losses. With an international cooperative effort in the USAblight network, we were able to track an early season outbreak in Ontario, Canada (July 18). In our weekly newsletter VegEdge, we project late blight risk using NEWA weather data to create Blight Units (BUs) for 25 sites across western and central NYS. Thus, we were prepared when late blight did arrive in our region.

Samples were collected August 1 from symptomatic tomato plants in Yates County. Under microscopy, Cornell AgriTech Plant Pathologist Chris Smart confirmed diagnostic sporangia on the same day. Hundreds of tomato and potato growers in the region were made aware of the outbreak via text, phone call, farm visits and the many on-farm twilight meetings from CVP educators. Advice includes use of resistant varieties, high tunnels and effective fungicides.

Interviewed this fall, **a farmer affected by the August outbreak reported that, with Cornell Vegetable Program recommendations, he was able to save approximately \$60,000 revenue per acre!** Isolates from our region are currently undergoing genetic study by the USDA to improve our understanding of this devastating disease.

To achieve this level of support to our local industry, we take a team approach. The late blight heroes here include CCE Yates ag educator Caroline Boutard-Hunt, CU Plant Pathologist Chris Smart (and lab staff), USDA-ARS researchers Jason Ingram and Zacariah Hansen, CVP Specialists Reid, Buck, Hadad and Lund, CVP Program Aide Lori Koenick, and most importantly the tomato and potato farmers of the Cornell Vegetable Program region!

Biodegradable Mulch Project Yields Data and Donations

Plastic mulch is a very thin sheet of black plastic that gets stretched tight over crop beds before planting. It is a very useful tool in vegetable production because it warms the soil. Growers can plant sooner by poking holes through the plastic and placing seedlings into the warm soil. After planting, the black plastic mulch keeps the soil surface dark and prevents weeds from germinating near the crop. That can cut the need for chemical weed killers by as much as half and lead to drastic savings by eliminating hand-weeding! The downside to plastic mulch is that it needs to be removed from the field each fall. While there are a few biodegradable options on the market, they break down very slowly in our cold winter soils and can leave unsightly, incompletely degraded plastic shreds the following spring and summer.

The Cornell Vegetable Program, CCE Monroe, and Rochester Institute of Technology have been working together to develop and field test new biodegradable mulch technologies. The goal of this multiyear project is to solve the problem of slow biodegradable mulch breakdown in colder climates.

What We Did This Year

This year, in addition to proof-of-concept testing in Monroe County, we completed three separate trials at Cornell Lake Erie Research and Education Laboratory in Portland, NY (Chautauqua County). The first two trials tested the horticultural performance of a novel biodegradable plastic mulch prototype created by RIT graduate student Yvan Hernandez against commercially available biodegradable plastic and standard, non-biodegradable plastic. We grew onions in trial one and watermelons in trial two. The third trial involved extensive soil sampling to determine the degree of breakdown achieved by various degradation priming treatments applied to commercially available mulches.

We hired summer student Sofia Russo to take care of the onion and watermelon trials and assist with data collection. Important horticultural information like soil temperature, rate of crop growth, insect and disease pressure, and crop size were collected. We needed to make sure that none of the mulches had negative impacts on crop growth and document any ways that one mulch might outperform the others.

Preliminary Results

While the data isn't summarized yet, we do have some observations and early indications that we can share! Soil temperatures do differ between the three mulch types. The surface of the RIT film was quicker to warm up in the sun than the commercially available plastic mulches. We also saw that the RIT film had a noticeably different breakdown pattern than the biodegradable mulch comparison. All three films did a good job suppressing annual weeds. Observations suggest that there could be some differences in crop growth and yield between the treatments. We'll have to wait for the data to be fully analyzed before making any conclusions.



Summer student Sofia Russo pauses while weeding between plots in the onion trial. Photo: Elizabeth Buck, CCE Cornell Vegetable Program



RIT PhD students Harshal Kansara (back) and Yvan Hernandez (front) grade onions after harvest. Photo: Elizabeth Buck, Cornell Vegetable Program

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Unexpected Benefits

Our watermelon field trial produced more melons than we knew what to do with. We were able to donate several bins of watermelons to local food pantries. With an average weight of 15 pounds, that adds up to about 2,000 pounds of food! Some of the fruit that were too small to be donated were taken home by staff and used as animal feed. We made sure to use as much of the trial's bounty as possible.



RIT graduate student Yvan Hernandez with two bins of watermelons harvested from the field trial. These watermelons were donated to the local food pantry. Photo: Harshal Kansara



This undersized watermelon fruit couldn't be donated, but that didn't stop it from being put to good use. A chicken farmer made some cuts in the shape of a smile and the birds carved the rest! A tasty treat for sure! Photo: Kim Knappenberger

Working Groups Help to Improve the WNY Food System

The WNY Regional Food Systems Initiative, known now as [Food Future WNY](#), aims to develop a functional food system in WNY based on the diversity of locally grown food from a wide range of agricultural sectors. From produce to dairy, fresh market to processed and value-added foods, a regional food system provides healthy food for all, builds sustainability and resilience in production and processing sectors, and grows businesses in the region.

Several working groups will guide the initiative. The Farmers and Producers Working Group will identify obstacles and challenges farmers face and come up with solutions to these problems. Some of the identified hurdles include access to processing and other infrastructure, finding realistic financing, developing a network of peer support and networks, and work with buyers to remove barriers that have impeded more lucrative sales opportunities. The Cornell Vegetable Program is lending its expertise in vegetable production, processing, and marketing to this group and the recognized challenges. Priority areas identified by the working group include:

- Expanding and improving markets for local foods.
- Strengthening and expanding infrastructure with produce processing and value-added facilities.
- Reducing hurdles to access more affordable land for farming by finding investment for new and up-to-date meat processing facilities. This includes expanding access for dairy processing on a local scale as well as livestock meat processing.
- Working closely with entrepreneurial buyers, food hubs, and sub-hubs will build a closer working relationship between the farmers and the buyers that will be mutually profitable.

Working groups will draw upon findings documented in a [report](#) written by a hired consulting firm that spent 15 months analyzing the greater WNY food system and interviewed dozens of buyers, hundreds of farmers, ag professionals, and financial institutions. The report lays the groundwork to get the food system in WNY into a cohesive form and start moving forward.

Cheap, Easy and Effective Tactic to Reduce Bacterial Bulb Rot is Readily Adopted by Growers in the Region

Rolling Onions That are “Dying Standing Up” Saves Millions of Pounds of Onions

Normally, as onion plants mature the neck tissue becomes soft, which allows the onion foliage to fall over. This is called lodging. When onion foliage is ravaged by disease or insect feeding, it often does not have enough weight to lodge. Instead, the onion plants “die standing up”. A previous survey conducted by Cornell Vegetable Program (CVP) Onion Specialist, Christy Hoepting demonstrated that plants that died standing up had twice as much bacterial bulb rot as those that lodged properly. Rot deems an onion bulb unmarketable and is one of the most important diseases of onion in New York. Theoretically, onions that die standing up are more prone to infection from bacterial disease than properly lodged plants, because bacterial pathogens living in the soil could be introduced by splashing rain into the exposed neck area and allow the bacterial infection to take place. Hoepting wondered whether the pre-harvest cultural practice of rolling onion plants that are dying standing up would reduce bacterial bulb rot. The act of gently rolling the foliage of onions that are dying standing up essentially lodges the foliage so that theoretically the necks are not exposed to new bacterial infections.

As part of a national multi-million dollar project to “Stop the Rot” in onions, Hoepting conducted three on-farm small-plot research trials from 2019 to 2022 to investigate whether rolling onions that are dying standing up could reduce bacterial bulb rot. Her results demonstrated that rolling onions that were dying standing up reduced bacterial bulb rot by 35-57% compared to those that were left standing. In 2023, Hoepting presented these results in a [newsletter article in VegEdge](#) to all muck onion growers in the CVP region, as well as in-person to the Elba muck onion growers (at Donut Hour) with the recommendation to roll onions that were dying standing up that still had 50-70% green foliage and were within 2-3 weeks of pulling.

In 2023, all 4 of the Elba muck onion growers and 2 out of the 5 of the Wayne County muck onion growers decided to roll a portion of their onions. A total of 716 acres and 46 acres of onions were rolled in Elba and Wayne Co., respectively, which represented 28.2% and 11.5% of the total acreage in these regions. Individual growers rolled 7% to 86% of their onion acreage. In the research trials, incidence of bacterial bulb rot in onions that died standing up ranged from 6.5% to 16.4%. Assuming these levels of bulb rot, a 35-57% reduction in bacterial bulb rot from rolling would have resulted in bulb rot levels down to 2.8% to 10.7%. On the 762 acres of onions that were rolled in the CVP region in 2023, this translates into **1.5 to 2.6 million pounds of onions, worth \$185,000 - \$748,000, that were not lost to bulb rot.**

The onion growers estimated that it only costs approximately \$1,000 to build an onion roller and \$10 per acre to roll onions. Thus, for every \$1 invested in rolling onions, the return on investment would be \$12 to \$105. Finally, a cheap, easy and effective tactic to Stop the Rot!



Disease Monitoring Helps to Retain the Vigor of Processing Vegetable Crops

Large acreage vegetables that are destined for the canning and freezing industry require optimal plant health to maintain profitability for the industry. CCE Cornell Vegetable Program Processing Vegetable Specialist Julie Kikkert engaged in two projects funded by the industry in 2023.

Tar spot of corn is a relatively new disease in the US with the potential to severely reduce yields of susceptible corn varieties. It was first detected in Indiana and Illinois in 2015 and has become widespread throughout the Midwest. The first report in NY was in field corn in 2021. The CCE Cornell Vegetable Program led an educational and scouting program for sweet corn growers in 2023 to prepare for this disease. Kikkert visited infected field corn sites in SWNY to learn detection methods and within a week detected tar spot at a low level in a processing sweet corn field in Genesee County. Luckily, the disease occurred just prior to harvest and did not affect the crop. The Cornell Vegetable Program is engaged with vegetable and field crops plant pathologists and educators nationwide to monitor tar spot and report positive counties to the national Tar Spot Reporting System/Map [Tar Spot - Corn ipmPIPE](#). As of October 16, 2023, tar spot has been detected in 9 western NY counties. Grower recommendations for management will be provided this winter.



Tar spot of corn. Photo: Julie Kikkert, CCE Cornell Vegetable Program

Carrots are harvested by top-pulling harvesters and require healthy foliage, otherwise the crop is left in the ground. Several foliar diseases can weaken carrot tops. At the processing carrot advisory meeting, growers ranked maintaining foliar health as a top priority and the group funded a field survey and fungicide trials. Kikkert engaged with Cornell Plant Pathologist Sarah Pethybridge to survey processing carrot fields throughout the CVP region where the crop is grown (Genesee, Monroe, Orleans, Wayne, Yates Counties) both mid- and late-season. Initial fungicide trials were conducted at Cornell AgriTech. This is the first of a multi-year project with research and grower education.



Healthy carrot foliage is required for harvesters to properly pull the crop from the ground. Photo: Screenshot from [Dewulf 3-row trailed carrot harvester YouTube video](#)

These projects were funded by grants from the New York Vegetable Research Association and Council which comes from growers and processors (Nortera Foods and Seneca Foods Corporation).

Newly Funded Grants & Projects

Your Trusted Source for Research-Based Knowledge

Field Testing of Pheromone Mating Disruption for Swede Midge in Brassica Crops

United States Department of Agriculture – National Institute of Food and Agriculture – Crop Protection and Pest Management (USDA-NIFA-CPPM), 1/1/2024 – 12/31/2026, \$324,986 total (Chen, Hodgdon, Hoepting – \$6,736).

Seed Treatment Packages that Protect Bulb Onions for Early Season Pests and Disease

Specialty Crop Block Grants Program (SCBGP), 1/1/2024 – 12/31/2025, \$99,993 total (Nault, Grundberg, Hoepting – \$28,535).

Limiting Fusarium Basal Rot Losses in Allium Crops: A Planning Grant to Establish National Needs and Priorities for Improving Management

United States Department of Agriculture – National Institute of Food and Agriculture – Specialty Crops Research Initiative (USDA-NIFA-SCRI) – Planning Grant, 9/1/2023 – 8/31/2024, \$50,000 total (Swett, and 20 collaborators including Hoepting, Hay and Stewart-Courtens from New York).



CCE Cornell Vegetable Program Summer Technician Sarah Mertson (right) is assisting onion scout-in-training Lorelei Gailie in leaf disease identification in July 2023. Lorelei is a 14-year old working with her father at Triple G Farms in Elba muck. Elba muck onion growers believe whole-heartedly in relying on crop scouting data to make informed spray decisions. Lorelei trained with Vegetable Specialist Christy Hoepting as part of the Cornell Vegetable Program onion scouting program for the summer. Ideally, she will scout onions for Triple G for the next 5 years!

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