

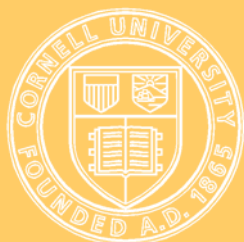
CORNELL VEGETABLE PROGRAM TRUSTED SOURCE FOR RESEARCH-BASED KNOWLEDGE

QUARTERLY HIGHLIGHTS OCTOBER - DECEMBER 2016

CORNELL VEGETABLE PROGRAM

A premier regional agricultural Cornell Cooperative Extension team that 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.

- Together, the Cornell Vegetable Program made more than 400 farm visits and phone/email consultations
- 13 educational events were organized by the Cornell Vegetable Program this quarter
- Cornell Vegetable Program Specialists gave presentations at 25 events hosted by Cornell Cooperative Extension Associations and other collaborative organizations
- 2,319 people attended meetings where presentations were made by Cornell Vegetable Program Specialists



ONTARIO PRODUCE AUCTION FORMED

The Cornell Vegetable Program was privileged to participate in the November 15 formational meeting of a new produce auction in the Town of Gorham.

This new auction will mean less transportation for existing nearby growers, but more importantly the recruitment of many new vegetable farmers in Ontario and surrounding counties. Based on Cornell Vegetable Program/Harvest NY research this will be an economic benefit to the county. In other areas of New York State, produce auctions have led to 88% additional acreage of land being planted specifically for the auction and 66% of buyers expanded their operations because they were able to carry a larger variety of products.

In 2016, 5 of the 6 NYS produce auctions were located in WNY in Chautauqua, Orleans, Allegany, Seneca, and Yates Counties.

The Cornell Vegetable Program has repeatedly been cited by growers as key to auction growth. "[CVP] is recognized as a resource...through work getting the State's produce auctions going."



Development of a new produce auction in the Town of Gorham will increase vegetable acreage.
Photos: CCE Cornell Vegetable Program

CVP'S UNDERGRADUATE EDUCATION BENEFITS NEXT GENERATION OF AG LEADERS AND TUNNEL RESEARCH OBJECTIVES

In the fourth quarter, the CCE Cornell Vegetable Program (CVP) strengthened its participation in undergraduate education by collaborating with the student run Dilmun Hill organic farm.

As collaborators on a \$10,000 Toward Sustainability Foundation grant, CVP and Dilmun Hill organized 2 workshops for undergraduate students on season extension and vegetable production. The Cornell Vegetable Program collected data on soil and crop nutrient levels, assisting the managers with long-term farm planning. This data contributes to a state-wide observational study on high tunnel soil. The Cornell Vegetable Program and Dilmun Hill also collaborated on a grant proposal for 2017 which furthers the development of the next generation of agricultural leaders. Anticipated project outcomes include increased economic performance of tunnels by 25% by optimizing fertilizer inputs, balancing macro-nutrients, decreasing compaction, increasing organic matter levels.

For outreach, the partners have engaged in a 3-part video series explaining the techniques and benefits of season extension to be featured on the CVP YouTube channel and CU High Tunnel webpage.



Cornell students attend a CVP workshop on high tunnel soil health and season extension at Dilmun Hill organic farm on November 4, 2016.
Photo: Cordelia Hall, CCE Cornell Vegetable Program

TABLE BEET AND PROCESSING VEGETABLE ADVISORY MEETINGS FACILITATE INFORMATION EXCHANGE

Each year, the Cornell Vegetable Program organizes a series of crop-focused advisory meetings to facilitate the exchange of information between the industry and researchers. The groups set research priorities which are used by funding agencies when allocating research and extension dollars. On December 6, 2016 in Geneva, NY, a group of 30 growers, processors, crop consultants, and Cornell University Researchers and Extension Educators met to discuss processing snap beans, the largest acreage processing vegetable in New York (approx. 20,000 acres planted annually). Similarly, on December 8 in Batavia, NY the largest group of attendees (42) at the table beet advisory meeting in recent memory came together to hear of progress on current and future projects involving weed and disease management, to share industry needs, and to learn of resources available at Cornell. After lively informal discussions over lunchtime, 47 attendees met to discuss the growing season and to learn research results for processing carrots, sweet corn, peas and lima beans.

All agreed that the 2016 growing season was a tough one due to the long lasting drought and heat. Other concerns included troublesome weeds, diseases and insects. Priorities were set for upcoming research proposals, which are funded by the growers and processors through the New York State Vegetable Research Association, which annually allocates roughly \$130,000 per year, based on tonnage of vegetables delivered to the plants the previous year. Furthermore, attendees could earn DEC pesticide applicator recertification credits or Certified Crop Advisor continuing education credits. Processing vegetables are grown on roughly 40,000 acres in New York each year, with a value of \$53.5 million (USDA Ag Statistics, 2014). Research is supported by the industry, and various state and federal grants.



Effect of different weed management treatments on carrot root growth.
Photo: Julie Kikkert, CCE Cornell Vegetable Program

CORNELL VEGETABLE PROGRAM PREVENTS ECONOMIC LOSSES CAUSED BY SWEDE MIDGE ON AT-RISK SMALL-SCALE ORGANIC BRASSICA FARMS

Swede midge (SM) is an invasive insect pest that is threatening the viability of organic production of *Brassica* crops within the Cornell Vegetable Program region and throughout the Northeastern US. In New York State alone, these crops are grown on more than 300 farms and have a combined value of greater than \$60 million. SM attacks all *Brassica* crops including broccoli, cauliflower, cabbage, Brussels sprouts, kale, kohlrabi and turnip. SM lays eggs in the growing meristems of these crops, and secretions of the feeding larva cause swelling, scarring and distortion of plant tissues, including lack of head formation, resulting in unmarketable crops.

Small-scale organic growers are especially at-risk for economic loss from SM, because organic insecticides analogous to the systemic products that have proved vital to conventional management of SM do not exist. Their small land base and high proportion of acreage cropped to *Brassica* crops in multiple plantings makes long and widely spaced crop rotations challenging and often ineffective. Thus, SM can build to devastating populations quickly.

In 2015, Cornell Vegetable Program Extension Specialist, Christy Hoepting and her team began work with seven small-scale organic farms across the CVP region that were suffering economic losses from SM. All of them reported losses of marketable yield from 60 to 100% in certain plantings, especially in broccoli, worth more than \$4,000 per planting. The project involved using pheromone traps to monitor SM population dynamics in order to identify effective management strategies, as well as several on-farm trials/demonstrations of insect exclusion netting in combination with various mulches. At the end of the 2016 growing season, 5 out of the 7 farms (= 71%) no longer suffered economic losses from SM. Monitoring allowed these growers to understand how to effectively crash the SM population on their farm, whether it be via far and wide crop rotation, adoption of insect exclusion netting, or by planting quick growing brassicas under row cover.

Funding has been requested to continue the project on the remaining two farms that still suffered from SM losses in 2016; one farm transitioned to new owners who will need assistance, while on the other farm, the SM population dynamics proved to be more difficult to understand and predict. Project plans also include adding an organic management section to the Cornell Swede Midge Information website and production of a new fact sheet, both of which will include a compilation of management practices developed through this project. An SM diagnosis training video is also in the works. Ideally, small-scale at-risk organic growers will no longer suffer economic losses from SM as a result of this project and the Cornell Vegetable Program's dedication to educating at-risk growers.



Several on-farm trials and demonstrations showed that using insect exclusion netting could be highly effective for managing swede midge, especially in high value brassicas.

Photo: CCE Cornell Vegetable Program



Christy Hoepting talks about swede midge diagnosis and management strategies at the Organic Vegetables Field Day at Cornell's organic farm in Freeville, NY. Photo from [Cornell Horticulture](#).

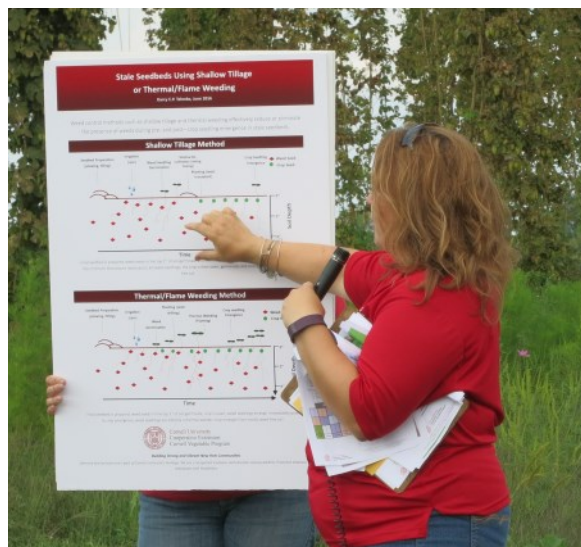
CORNELL WEED SCIENCE RESEARCH SUSTAINED BY CORNELL VEGETABLE PROGRAM SPECIALIST

Weed management continues to be a research priority for vegetable growers across the state. The sudden loss of Weed Scientist Robin Bellinder on November 13, 2015 was a shock to Cornell University and the vegetable industry. To help fill this tremendous void until a full-time faculty replacement is hired, CVP Specialist Darcy Telenko stepped in to keep the Cornell weed science research projects and program moving forward.

Darcy successfully acquired over \$67,000 of research funding from the NY Vegetable Research Council and Association, NYS Dry Bean Industry, Cabbage Research and Development Program, and Industry Sponsors to continue weed science research. Twelve weed science research plots were established at the Homer C. Thompson Vegetable Research Farm in Freeville and with on-farm collaborators working alongside Robin's great technical research team. Research trials included: herbicide evaluation trials in dry bean, snap bean, lima bean, beets, carrots, peas, and sweet corn; a NYFVI support trial in collaboration with Sarah Pethybridge and Julie Kikkert on evaluation of ethofumesate rates for beets; and an industry sponsored evaluation of a new products for potential use in carrot, rosemary, rhubarb, bell pepper and broccoli. Data collected this season is available in a [130-page research report](#) available on the CVP website or contacting Darcy dep10@cornell.edu. In addition, some of the data will be combined from 2015 trials and written up as manuscripts for publication.

In conjunction with the research program extensive outreach programming in weed management was presented across the state. The CVP hosted two field days in Batavia and Portland, a Weed Management Session at Empire State Producer's Expo, and over eight twilight and extension meetings in 2016. In addition, Darcy was relied on to make numerous weed management Extension presentations for other regional teams, at the Mid Atlantic Fruit and Vegetable Conference in Hershey, PA, WNY Farm Show, and the 2016 NRCCA Advance Training in Syracuse on topics including: Herbicide Resistance and Weed Management, Weed Management in Vegetables, Gaining the Upper Hand in Weed Control by Understanding the Enemy, and Current Status and Management Options for Herbicide Resistance. All in all, over 27 presentations were given reaching over 800 growers and industry representatives.

The Cornell Horticulture Section is in the process of interviewing candidates to fill the open faculty position left by Robin, and hopes to identify a candidate in the upcoming months and have them onboard during the summer of 2017.

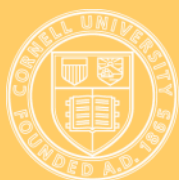


Darcy Telenko talking about weed control methods at the 2016 Fresh Market Meeting in Portland, NY.
Photo: Julie Kikkert, CCE Cornell Vegetable Program

NEWLY FUNDED GRANTS

Each year, 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:

- **Transforming White Mold Management in Snap Bean Using Remote Sensing Via Unmanned Aerial Systems**, USDA AFRI Critical Agricultural Research and Extension (CARE) Program, 2/1/17 - 8/31/18, \$299,692 (Pethybridge, van Aardt, Salvaggio, Kikkert)
- **Weed Science Program**, Cornell Horticulture section, 12/16/16, \$2,000 (Telenko)
- **Lead for Empire State Producer's Expo**, Cornell Horticulture section, 12/16/16, \$3,000 (Telenko)



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