



# VEGE

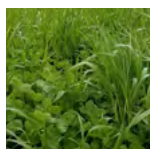
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## Choosing the Right Tomato Variety to Reduce Disease

Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

Snow floats past the window as a farmer contemplates seed catalogs scattered across a kitchen table. A hot cup of coffee further fuels the ambition and optimism of seed selection, while a pencil carves a star next to a new variety. The farmer looks forward, an essential hope that keeps the endeavor moving. Choosing seeds is part of the winter ritual of farm renewal.

Looking forward is a must, but when choosing seeds, vegetable farmers also need to look back. They must ask:

*What challenges did we face in the previous season?*

*Is now the opportunity to prepare and prevent those problems for the coming season?*

These perspectives are particularly important for managing crop disease. Making the right choice at the kitchen table in January can mean less disease in August.

Reputable commercial seed catalogs will list disease resistance codes for tomatoes and many other vegetable crops. Tomatoes are host to a higher number of diseases than many crops, and thus have many resistance codes. To add to these confusing choices the tomato varieties are also very diverse with options including determinate, indeterminate, high tunnel, greenhouse, heirloom, cherry, grape, slicers...



Choosing the right tomato seed now can mean less disease in the summer. Photo: CCE Cornell Vegetable Program

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## About VegEdge

VegEdge newsletter is exclusively for enrollees in the Cornell Vegetable Program, a Cornell Cooperative Extension partnership between Cornell University and CCE Associations in 14 counties.



The newsletter is a service to our enrollees and is intended for educational purposes, strengthening the relationship between our enrollees, the Cornell Vegetable Program team, and Cornell University.

We're interested in your comments. Contact us at:  
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Information provided is general and educational in nature. Employees and staff of the Cornell Vegetable Program, Cornell Cooperative Extension, and Cornell University do not endorse or recommend any specific product or service.

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**The next issue of VegEdge newsletter will be produced on February 1, 2023.**

## Farmer Ingenuity – Combining Plastic and Living Mulch

### CCE Cornell Vegetable Program

Curious about the cover photo we used in this issue of VegEdge? Check out the short video we produced showing how farmers can combine plastic and living mulch to reduce weed pressure, improve soil health, and harvest cleaner vegetables. Now that's a win-win-win!



Find the video on the Cornell Vegetable Program's YouTube channel: [https://youtu.be/7a0\\_wS-C2yl](https://youtu.be/7a0_wS-C2yl)



### Consider Your Production System and Market

To begin to narrow down these choices, first look for a variety that fits the production system and market channel of your farm. For example, don't waste time looking at determinate slicers, if your customer base demands pints of colorful cherry tomatoes! Are hybrid greenhouse tomatoes the best fit for your labor and infrastructure? Many vegetable farms, particularly retail, will grow multiple categories of tomato, but choosing disease resistance starts by narrowing tomato by type.

What if your market demands varieties that don't have these resistance traits (such as heirlooms)? Grafting susceptible varieties onto resistant rootstock can confer resistance to soil based challenges such as Verticillium, Fusarium and Nematodes, but won't help with foliar diseases such as Powdery Mildew, Leaf Mold or Blights.

### Disease Resistance Codes

Next, we look at the disease resistance codes. There are a lot of them! The good news is that many do not apply to New York tomato growers. In my experience, the most important available disease resistance traits (and their codes) for New York are Early Blight (EB), Late Blight (LB), Tomato Spotted Wilt Virus (TSWV), Septoria Leaf Spot (SLS) and Verticillium Wilt (VW). Greenhouse/high tunnel growers should add Powdery Mildew (PM) and Leaf Mold (LM) to their criteria as these two diseases are pronounced indoors. Conversely, Early Blight and Septoria are very rare indoors and not requisite resistance traits. Fusarium Wilt (F) and Nematode (N) resistance can also be of benefit in high tunnels/soil-based greenhouses.



The white lesions of Powdery Mildew on a high tunnel tomato. This disease can be controlled today by picking the right resistance code.  
*Photo: Judson Reid, CCE Cornell Vegetable Program*



Tomato Spotted Wilt Virus cannot be successfully treated once an infection begins. This means it is essential to choose the right variety in winter. *Photo: Judson Reid, CCE Cornell Vegetable Program*

### Cornell Cooperative Extension is Here to Help

At this point we've sharpened our pencil on variety and disease resistance codes, but how do we know which diseases are present on our farm? This is where a working relationship with Cornell Cooperative Extension is of benefit. Your local Vegetable Specialist can provide positive identification of tomato diseases in your field and suggest varieties that fit into the funnels of desired fruit type and resistance. These educators are only a phone call away.

#### Learn More Techniques to Grow the Healthiest Tomatoes in 2023

February 2-5, NOFA-NY is partnering with the Northeast Community Seed Conference to host over 70 educational workshops including business, marketing, urban farming and vegetables. There will be two Tomato Intensive Sessions with Erin Grimley of Root Down Farm in Erie County, Judson Reid of Cornell Vegetable Program, and Crystal Stewart Courtens of Eastern New York Commercial Horticulture Program. This two-part session will include the **best varieties for indoor and outdoor production, fertility and water management, and grower perspectives on indoor and outdoor growing**. This conference is virtual only and registration information is available at <https://nofany.org/conference/workshops/> ●



# Greenhouse Gases and Soil Organic Carbon in Vegetable Production and the Role of Cover Crops

*Zach Spangler, Ag Climate Resiliency Specialist, Cornell Cooperative Extension, Harvest New York, and Elizabeth Buck, CCE Cornell Vegetable Program*

The intersection of agricultural production and greenhouse gases is gathering increasing attention. This is an opportune time to consider how vegetable production interacts with carbon sequestration and greenhouse gas emissions, and how using cover crops may alter this picture. Some aspects to consider include:

- Sequestration of atmospheric carbon in agricultural soils as soil organic carbon (SOC).
- Emissions of greenhouse gases such as carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and methane (CH<sub>4</sub>) from the soil.
- Greenhouse gas emissions associated with agricultural inputs.

Attempts to combat climate change in vegetable production can target any of these areas, however they should not come at the expense of yield. In fact, the surest ways to reduce greenhouse gas emissions overall are to increase yield while keeping inputs constant or reduced, or to maintain yield while decreasing inputs.

## Soil Organic Carbon Impacts

### *What is soil organic carbon?*

Soil organic carbon (SOC) refers specifically to the carbon content of soils, not including large materials (> 1/16"). SOC is a portion of soil organic matter (SOM) and is easier to measure. Often, SOC is thought to be ~58% of SOM, though this is not an exact number and can vary with soil type and other factors. SOM (and by extension SOC) is critical in water infiltration, water holding capacity, moderating soil temperature, supporting soil microbes, and more. Increasing SOC is also a way to fight climate change by sequestering carbon in the soil; even small changes in SOC spread over large areas make a big difference.

### *Current research's view of SOC and vegetable production*

Various studies have reached differing conclusion on the overall impact of vegetable production on SOC. One model-based study of ten years of organic vegetable production showed that carbon is lost from the soil at a rate of 660 lb C/ac/yr. On the other hand, a study of 11 years of high tunnel vegetable production in China found that conventional methods increased SOC by 450 lb/ac/yr and organic methods increased SOC by 3500 lb/ac/yr in the top 8" of soil. A broad analysis of exiting research confirmed a difference between conventional and organic methods. The higher sequestration rates in organic contexts may partially be because these farms import carbon in the form of compost and other organic fertilizers.

## Net Greenhouse Gas Emissions

### *How does net greenhouse gas (GHG) accounting work?*

It is important to consider GHGs besides CO<sub>2</sub> to get a full understanding. In agriculture, this includes nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>). This is especially true since N<sub>2</sub>O is about 300 times as bad as CO<sub>2</sub> and CH<sub>4</sub> is about 30 times as bad. When multiple GHGs are emitted, the overall impact can be expressed as an equivalent amount of CO<sub>2</sub> or CO<sub>2</sub>-eq. In vegetable production, direct emissions of CH<sub>4</sub> are usually minor, so the focus here is on CO<sub>2</sub> and N<sub>2</sub>O.

### *Sources and estimates of emissions for vegetable crops*

There is no definitive answer to what the net GHG emissions are for raising produce or whether/how much vegetable crops are contributing to building SOC. This variation is driven by what crop is being grown, what methods (e.g., fertilizer type, tillage intensity, cover cropping) are used, how long those methods have been used, soil type, climate, and more. One study modelling all the GHG emissions associated with organic vegetable production in Western Washington found that between 0.045 and 0.623 lb CO<sub>2</sub>-eq were emitted per lb of produce for crops like onions, squash, dry bush beans, potatoes, and chard.

Frequent tillage associated with intensive vegetable production exposes soil organic matter and enables the release of CO<sub>2</sub> through soil mineralization. Essentially, the frequent exposure to oxygen burns off the organic matter and turns it into CO<sub>2</sub> which reduces SOC levels. Compost application offers an attractive way to sequester carbon and increase SOC, in part because the carbon in compost is relatively stable and less likely to turn back into CO<sub>2</sub>. This is because as the compost was produced, the portion of the organic matter that would easily decompose did so, releasing some CO<sub>2</sub> in the process. The CO<sub>2</sub> emissions associated with compost production usually occur at off-farm facilities and don't count in the farm's carbon footprint.

## The Impact of Cover Crops...

### *On soil organic carbon*

There is a little more clarity when considering the impact of a specific management practice such as cover cropping. One study of cover cropping over eight years of intensive organic vegetable production showed that increasing cover cropping frequency from 1 in 4 years to every year increased the SOC in the top 12". This study showed that planting a legume-rye, mustard, or rye

*continued on page 5*

cover crop all increase SOC levels by similar amounts. It also demonstrated that, regardless of how often cover crops are grown, compost application increased SOC levels.

A 9-year study of cover crop introduction to vegetable production in southern Ontario, Canada showed that cover cropping increased SOC in the top 6" of soil. At one site, oilseed radish used as cover crop increased SOC from 28 to 36 tons C/ac.

It's also important to consider the full soil profile when thinking about carbon sequestration. One study measured SOC over a 20-year period in a corn-tomato rotation system with and without cover crops. Addition of cover crops increased SOC in the top foot of soil, however SOC decreased in the top 6 feet. In this case, the cover crops may have been successful if the goal was to improve soil health. However, if the goal was to sequester carbon, then the cover crops were not successful.

### On nitrous oxide emissions

A well-established benefit of cover crops is their ability to reduce nitrate in run-off leaving the farm. Because this nitrate could result in  $N_2O$  emissions later on, reducing nitrate loads in run-off may also reduce GHG emissions.

Nonlegume cover crops had little to no net impact on  $N_2O$  emissions measured over a full year in several research studies.

A lab research study (see Table 1) measured soil emissions of  $N_2O$  for 47 days after the incorporation of various cover crops. Overall, incorporating residue from legume cover crops led to much higher  $N_2O$  emissions than non-legume cover crops. Wet soil caused higher emissions regardless of cover crop. In wet conditions with this soil, non-legume cover crop residue led to lower emissions than no residue, possibly because the oat straw tied up nitrogen, making it unavailable for  $N_2O$  production.

A field trial confirms the idea that wet soils with legume cover crops incorporated led to increased  $N_2O$  emissions. Over 4 months, plots where hairy vetch residue had been tilled in showed high  $N_2O$  emissions of up to 7 lb  $N_2O$ /ac/day compared to virtually no emissions from 50 lb-N/ac synthetic N fertilizer or no fertilizer.

Taken together these studies indicate that  $N_2O$  emissions can be limited by maintaining drier soils, particularly when incorporating legume cover crops. In general, not incorporating cover crop residues (i.e., leaving them as mulch) and using nonlegume species minimizes  $N_2O$  emissions.

### On other GHG emissions

Cover crops can reduce net GHG emissions in other ways too. For example, in a study of tomato production in Maryland, cover crops (hairy vetch or crimson clover) were terminated by flail mowing and the residue was left in place as a mulch replacing black plastic. The use of the cover crop residues as mulch increased marketable yield of tomatoes and allowed nitrogen fertilizer application to be halved. This is a great example of reducing GHG emissions by maintaining or, in this case, increasing yield while reducing inputs.

### Final Message

The overall impact of vegetable production on soil carbon and greenhouse gases is very complex and depends on many specific factors. The role of cover crops was explored here, however fertilizer and tillage also impact net GHG emissions.

- Over years, cover cropping can help build SOC, at least at the surface.
- Non-legume cover crops, and all cover crops in dry soil, have minimal  $N_2O$  emissions.
- Cover cropping can improve yield and reduce input requirements thus reducing emissions per unit of production.

Additional information on the benefits of cover crops and guides to help select cover crop species can be found at: <https://covercrop.org>.

Nitrogen cycling is an intricate process. Different microbe types produce different forms of nitrogen-based compounds, and each kind thrives in certain soil conditions. Microbes that are active in wet soils tend to produce  $N_2O$ . They can experience a population boom when a lot of high-N content food is available in wet soils.

**Table 1. Nitrous oxide ( $N_2O$ ) emissions over 47 days (relative units)\***

Cover Crop Treatment	Dry Soil	Wet Soil
No residue	0	6,000
Legume (pigeon pea)	100	10,000
Non-legume (black oat)	5	2,000

\* Adapted from "Soil  $N_2O$  Emissions Following Cover-Crop Residues Application under Two Soil Moisture Conditions"

The full version of this article, including source references, can be found at [https://rvpadmin.cce.cornell.edu/uploads/doc\\_1096.pdf](https://rvpadmin.cce.cornell.edu/uploads/doc_1096.pdf) ●





# Manipulating Table Beet and Carrot Production with Plant Growth Regulators

Sarah Pethybridge and Sean Murphy, Cornell University, and Julie Kikkert, CCE Cornell Vegetable Program

Plant growth regulators (PGRs) are compounds that have potential to manipulate crop growth for desirable agronomic outcomes. The response of individual plant species to different PGRs (Table 1) can vary and depend upon dose, growth stage, and environmental conditions. For the past three years, our team has evaluated the response of table beet and carrots, to a type of PGR, gibberellic acid (GA). There are several types of GAs and plants may respond in different ways to specific GA types. We have been concentrating our research on gibberellic acid 3 (GA3). A common trade name for GA3 is FalGro, which is labeled in New York for carrots, but not table beets at this time. The objectives of our studies on both crops were to promote stem and leaf elongation and growth at the expense of root growth. For table beet, the goal was to have more roots in the size ranges suitable for processing into cans and jars (0.75-1.75-inch width). For slicing carrots, root diameters should be no wider than 1 5/8 inches. Roots of both crops outside these specifications represent a loss to the grower.

**Table 1. Generalized groups of plant growth regulators and their responses.**

Type	Typical Response
Auxins	Increased growth rate; cell elongation; maturity manipulation.
Cytokinins	Enhanced cell division and growth.
Gibberellins	Stem and leaf elongation; manipulation of flowering.
Anti-Gibberellins	Prevention of cell elongation leading to stunting and compact canopies (i.e., prevent lodging)
Ethylene	Inhibit root and shoot production and promotes development and ripening in fruit crops.

## Table Beet

The results of our small plot replicated trials have been consistent and here we highlight some of the findings from 2022. We applied FalGro 2X LV (67.6 ppm; Fine Americas Inc.) at 42, 62, or 80 days after planting (DAP). Table beet root diameter was significantly decreased compared to the nontreated control when FalGro was applied at either 42 or 62 DAP. In addition, the percent of tiny (waste) and small (acceptable) roots was significantly lower and higher, respectively, in FalGro-treated plots (irrespective of timing) than the nontreated control (Table 2). The percentage of roots with diameters between 1.75-inch and 3-inch and not suitable for processing was not significantly affected by FalGro. However, giant roots with diameters greater than 3 inches (also not suitable for processing) were significantly reduced by FalGro. There was no effect of FalGro on root color or sugar content.

**Table 2. Effect of FalGro 2X LV on the dry weight of foliage, root weight, average root diameter on root number, and the percent of roots in the tiny (<0.75 inch) and small (0.75-1.75 inch) size categories in table beet cv. Ruby Queen.** Roots in the tiny size category are unacceptable, while small roots are acceptable for processing.

Treatment (DAP)	Dry weight of foliage (g)	Root weight (kg/m)	Average root diameter (mm)	Tiny roots (%)	Small roots (%)
FalGro (42)	264.4 a <sup>1</sup>	3.23 bc <sup>1</sup>	36.5 b <sup>1</sup>	14.2 bc <sup>1</sup>	56.0 a <sup>1</sup>
FalGro (62)	212.7 ab	3.71 ab	34.9 b	14.9 b	48.1 a
FalGro (80)	163.4 b	4.11 a	56.4 a	11.4 b	44.9 a
Nontreated	162.8 b	2.96 c	53.9 a	39.3 a	12.0 c
P =	0.003	0.049	<0.001	0.018	<0.001

1 Numbers in each column that are followed by the same letter are not significantly different than each other

## Table Beet Takeaways

Take-home messages from the table beet research were:

- Optimal timing for FalGro was 42 or 62 DAP.
- FalGro at 42 DAP reduced root diameter (by 32.3%) and the percent of tiny roots (63.9%); but increased the percent of small roots (366.7%).
- FalGro at 62 DAP reduced root diameter (by 35.3%) and the percent of tiny roots (62.1%) but increased the percent of small roots (300.8%).
- The effect of FalGro when applied later (80 DAP) was lessened.
- FalGro also increased the amount of foliage. This is likely to be beneficial for mechanical, top-pulling harvesting.
- Based on these results and our conversations with industry and growers, we will be seeking registration on table beets in New York this winter.

## Carrots

Research over the last three years has also highlighted the benefits of FalGro to improve the percent of carrot roots suitable for slicing. Here we also discuss the results from our 2022 trial in which we evaluated applications at either 74, 92 or 129 DAP, or multiple applications (74 + 92; 92 + 129; or 74 + 92 + 129 DAP).



To evaluate the effect of plant growth regulators on slicing carrot production, roots are counted, weighed, measured (length and width) and evaluated for straightness and color. Photo: S. Pethybridge, Cornell

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The dry weight of foliage was significantly increased by FalGro compared to the nontreated control plots in all treatments except for plots receiving FalGro at 129 DAP only, and those receiving two applications (92 + 129 DAP) (Table 3). Plots receiving FalGro at 74 + 92 DAP, and 74 + 92 + 129 DAP resulted in increases in dry weight of foliage that were 134.2% and 136.6% higher than the nontreated control plots; and not different between each other. In general, the greater the dry weight of foliage, the smaller the average root diameter (Table 3). FalGro at 74 DAP, 74 + 92 DAP, and 74 + 92 + 129 DAP significantly reduced root diameter by 17%, 10.7%, and 20.3%, respectively. The percentage of roots in the small (acceptable for slicing) category was significantly increased by all treatments compared to the nontreated control plots, except for application at 129 DAP (Table 3). FalGro also had no effect on root length or straightness.

#### Carrot Takeaways

The take-home messages from the carrot research were that FalGro applications at:

- If applying FalGro once, the preferred timing is 74 or 92 DAP.
- Three applications are not recommended compared to 74 + 92 DAP.
- Application at 74 + 92 DAP was preferred over single applications.

**Table 3. Effect of FalGro timing and application at harvest (137 days after planting) in carrot cv. Bergen.**

Treatment (DAP)	Dry weight of foliage (g)	Root weight (g)	Root diameter (mm)	% small roots (<1-5/8 in)
74	344.1 b <sup>1</sup>	3,937 a <sup>1</sup>	22.5 cd <sup>1</sup>	100 a <sup>1</sup>
92	353.3 b	2,963 bc	24.7 abc	98.7 a
129	228.8 c	4,005 a	24.6 abc	85.7 b
74 + 92	441.7 a	2,658 c	24.2 bc	99.7 a
92 + 129	225.8 c	3,816 a	25.9 ab	99.4 a
74 + 92 + 129	446.3 a	2,367 c	21.6 d	98.7 a
Nontreated control	188.6 c	3,701 ab	27.1 a	82.1 b
P =	<0.001	<0.001	0.006	<0.001

<sup>1</sup> Numbers in each column that are followed by the same letter are not significantly different than each other.

#### Acknowledgements

We are grateful to the New York Vegetable Research Association and Council for funding, and Mr. Paul Tomion for collaboration and access to field locations for both the table beet and carrot research.

For further information, please contact: Dr. Sarah Pethybridge (sjp277@cornell.edu). ●

## Apply for a 2022-2023 Farmworker /Housing Grant

### PathStone Corporation

PathStone Corporation is currently accepting applications for their 2022-2023 Farmworker /Housing Grant. This program is a matching grant of up to \$3,000 to repair and upgrade existing farm labor housing. Examples of eligible repairs include, but are not limited to: roofing, bathrooms, plumbing, upgrading kitchens and appliances, heating, windows, ceilings, doors and other major structural components. Farm Owners must agree to provide \$1 for every \$1 provided by PathStone Corporation. This grant is **available in Monroe, Wayne, Ontario, Seneca, Orleans, Wyoming, Livingston, and Genesee counties**. If interested, or if you have questions, please contact Susan Kwik at 585-261-1779 or [skwik@pathstone.org](mailto:skwik@pathstone.org) for an application. **Applications will be due March 3, 2023 and the work will need to be completed by the end of June 2023.** Please help us spread the word as we want to assist as many farms as possible! ●

## Welcoming Bess Lewis to Cornell Ag Workforce Development

### Cornell Cooperative Extension



Cornell Cooperative Extension is pleased to announce the appointment of Mary "Bess" Lewis to the Cornell Agricultural Workforce Development Team. Bess is a bilingual educator who focuses on developing Spanish-speaking and ESL agricultural supervisors and managers. Bess's role is to focus on teaching supervisory and leadership skills to the many Spanish-speaking team leaders, supervisors, and managers in New York agriculture. She will strengthen the leadership abilities of this key part of the farm workforce and help farms enjoy a more stable and successful workforce. Bess can be reached at [ml2656@cornell.edu](mailto:ml2656@cornell.edu). ●

## Upcoming Events

### High Tunnel Winter Greens Workshop

January 9, 2023 (Monday) | 9:00 am - 12:00 pm

Zoom webinar

Winter greens production has greatly expanded in the Northeast with increased construction of high tunnels on farms and demand for year-round local food from consumers. In this workshop, we will address common pest and disease problems that arise with winter growing, how to reduce food safety risk in your leafy greens, and tips for marketing and packaging greens to increase sales in the winter months. 1.5 DEC credits in categories 1A, 10, and 23.

Cost: \$20 per person—Pre-registration is required. [For more information and to register](https://enych.cce.cornell.edu/event.php?id=1714), visit <https://enych.cce.cornell.edu/event.php?id=1714>. This event is hosted by CCE ENY Commercial Horticulture Program.

### Farm Accounting with QuickBooks Online Course

January 11 - February 8, 2023 (Wednesdays) | 12:00 pm - 1:30 pm

Five live webinars

The CCE South Central NY Dairy and Field Crops Team is pleased to offer Farm Accounting with QuickBooks Online in 2023. By combining the theory and practice of farm business accounting into a single class, this class empowers students to set up and maintain a record keeping system that is accurate, efficient, and useful. The course is delivered in an online format, providing self-paced learning from the comfort of home.

The training covers basic farm accounting principles, which students will apply to create and manage a financial record keeping system for their farm. We use QuickBooks Online to conduct this training, so students will gain in-depth technical experience with that software platform. The skills we teach are highly transferable to other versions of QuickBooks and other accounting systems.

This training is appropriate for beginner and intermediate QuickBooks users who are looking to implement a new record keeping system or enhance the efficiency and functionality of their current system. It is also a great fit for QuickBooks Desktop users who are curious about QuickBooks Online.

Course fee is \$195 with a discounted rate available for farms located in Broome, Cayuga, Chemung, Cortland, Tioga or Tompkins County. If your farm is in that region, contact Mary Kate MacKenzie at [mkw87@cornell.edu](mailto:mkw87@cornell.edu) to request a discount code. For more information and to register, visit <https://scnydfc.cce.cornell.edu/event.php?id=2014>

### Genesee Valley Winter Ag Producer Meetings

January 18, 2023 (Wednesday)

Session 1: Field Crops & Livestock | 9:45 am - 12:05 pm

Session 2: Produce, Berries, and Flowers | 12:45 pm - 4:00 pm

Centerville Town Meeting Space, 8902 County Rd 3, Centerville, NY 14029

Hosted by Cornell Cooperative Extension and the Genesee Valley Produce Auction. This event is open to all local farmers, growers, and ag industry folks. There will be 2 sessions, offering DEC credits and a full line-up of great speakers from Cornell Cooperative Extension regional agriculture teams, NRCS, local CCE educators, NYS IPM, and a local flower and vegetable grower:

**Session 1: Field Crops & Livestock** – DEC credits requested in 0.5 in 1a and 21 (commercial app. ag plant & field crops, private); 0.5 in 1b and 31 (ag animal commercial & ag animal private).

**Session 2: Produce, Berries, and Flowers** – DEC credits requested in 1.25 in 23 (veg), 1.5 in 1a (comm. ag) and 22 (fruit); 0.5 in CORE (can be used all license categories, incl. non-ag settings).

Come to one or BOTH of these FREE sessions! Industry and agency informational booths will be available. The [full agenda](#) is available [CVP.CCE.CORNELL.EDU](http://CVP.CCE.CORNELL.EDU)

**Pre-registration requested by 5:00 pm on Monday, January 16.** Contact Ben Girod or Lynn Bliven at 716-244-0290 to pre-register. Walk-ins accepted but are kindly requested to go last in the lunch line and may not receive educational handouts.

Industry booth sponsorships and agency info tables available. Contact Elizabeth Buck at 585-406-3419 for options.

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## Upcoming Events *continued*

### 2023 Produce Auction Growers Meeting

January 18, 2023 (Wednesday) | 9:00 am registration and DEC sign-up; 9:30 - 2:45 pm meeting  
Ontario Produce Auction, 4860 Yautzy Rd, Stanley, NY 14561

This course will educate growers on disease and pest management, varieties and marketing issues in field grown vegetables and greenhouse flowers. Topics such as disease resistant varieties, pest/disease, cultural management, biological controls and appropriate spray options. 2.0 re-certification credits have been requested in categories 10, 1a, 23, and 24.

### NYS Winter Educational Schools for Garden Centers, Greenhouses, and Growers

January 18, 2023 (Wednesday)

VIRTUAL 9:00 am - 12:15 pm at your location, or view at The Roycroft Powerhouse, East Aurora  
IN-PERSON 1:15 pm - 4:30 pm at The Roycroft Powerhouse, 39 S. Grove Street, East Aurora, NY

The 2023 NYS Educational Schools for Garden Centers, Greenhouses & Growers is the collaborative effort of educators from CCE Suffolk, CCE Orange, CCE Broome, CCE Erie, CCE Steuben, CCE Capital Area Ag & Horticulture Program, NYS IPM, and our sponsor NYS Flower Industries. Register for one or both sessions. DEC recertification credits available. See the [full agenda and more information](#) at [ERIE.CCE.CORNELL.EDU/EVENTS](http://ERIE.CCE.CORNELL.EDU/EVENTS) or call 716-652-5400 x176.

### 2023 Agribusiness & Food Business Outlook Conference

January 20, 2023 (Friday)

Stocking Hall, Cornell University

New York agricultural industry leaders, agribusiness professionals, policymakers, educators, and farm managers should attend this conference to learn about the short-and long-term outlook for agriculture and agricultural products. Breakout sessions concentrate on dairy, grains and feed, and horticultural products. By attending, you will:

- Better understand critical issues facing agriculture in New York and the Northeast
- Learn about the near-term outlook for major New York commodities
- Interact with fellow leaders of the vibrant New York agricultural industry

See the [full agenda for more information and to register](#) at [DYSON.CORNELL.EDU/OUTREACH/ECONOMIC-OUTLOOK-CONFERENCE/UPCOMING-CONFERENCE/](http://DYSON.CORNELL.EDU/OUTREACH/ECONOMIC-OUTLOOK-CONFERENCE/UPCOMING-CONFERENCE/) or contact Michelle Cranston at [mmc292@cornell.edu](mailto:mmc292@cornell.edu), 607-255-1585

### Vegetable Seed Production Course and Mentorship

February 2023

In order to increase the number of growers able to produce high quality, regionally adapted seed in the northeast, a group of educators, experienced seed producers, and regional seed companies will be working together to offer training in seed production and a guaranteed market for specific seed crops during 2023 and 2024.

This program launching this winter is for vegetable growers interested in producing seed for their own use, community use, or to sell back to seed companies. Folks will start with a kickoff at the Northeast Regional Seed Conference in February, followed by a 7-week online course and year-long farmer-to-farmer mentorship on a specific seed crop. Growers who want to sell seed will be paired with a seed company who is committed to buying back seed that meets quality standards.

**Deadline to sign up: January 26, 2023.** [For more information on the project or to sign up](#), contact Crystal Stewart-Courtens of the CCE ENY Commercial Horticulture Program at [cls263@cornell.edu](mailto:cls263@cornell.edu) or 518-775-0018.

### 2023 Pesticide Training and Recertification Series

Trainings: February 1, 8, 15, and 22, 2023 (Wednesdays) | 7:00 pm - 9:30 pm

Exam: March 1, 2023 (Wednesday) | 6:00 pm - 10:00 pm

CCE Ontario County, 480 N Main St, Canandaigua, NY 14424

Anyone interested in obtaining a pesticide certification and meets the DEC (Department of Environmental Conservation) experience / education requirements OR current applicators seeking pesticide recertification credits should attend. 2.5 recertification CORE credits will be available for each class.

**COST and REGISTRATION:** \$230.00 for certification which includes the training manuals and all 4 classes. Does not include the \$100.00 exam fee. Recertification is \$40.00/person/class. Contact CCE Ontario County, 585-394-3977 x427 or x436, or email [nea8@cornell.edu](mailto:nea8@cornell.edu) or [rw43@cornell.edu](mailto:rw43@cornell.edu). Registration form is available on the website [WWW.CCEONTARIO.ORG](http://WWW.CCEONTARIO.ORG)

## Upcoming Events *continued*

### NOFA-NY Virtual Winter Conference

February 2-5, 2023

<https://nofany.org/2023conference/>

### 2023 Empire State Producers EXPO and Becker Forum

February 6-7, 2023

Becker Forum: February 8, 2023

Oncenter Syracuse, 411 Montgomery St, Syracuse, NY 13202

This year's conference has been planned exclusively by the New York State Vegetable Growers Association. Each session has been planned to encapsulate what Farmers want to learn and hear about. The show is going back to its roots, sessions that Farmers are interested in and lots of networking opportunities. Panel discussions feature some of the top industry experts and growers in New York. Between educational sessions, attendees can visit the trade show featuring commercial vendors and non-profit exhibitors. Session topics include commodity specific programs in, sweet corn, onions, cabbage, soil health, high tunnel, disease management, tomatoes, snap beans, and cucurbits. DEC pesticide recertification credits will be offered during the appropriate educational sessions. [Expo session details and registration](#) at NYSVGA.ORG/EXPO/INFORMATION/

### Chautauqua Winter Meeting

February 10, 2023 (Friday) | 8:30 am - 12:30 pm, lunch provided following the educational event

Dutch Village Restaurant, 8729 W Main St, Clymer, NY 14724

Meeting will feature growers from Ohio sharing their production know-how and thoughts on food safety. Other topics include weed control, pesticide safety, and the impact of poor crop nutrition. 1.25 DEC credits requested in categories 1a and 23, and 0.5 in CORE. Trade show booths available. See the [full meeting agenda](#) at CVP.CCE.CORNELL.EDU

**COST and REGISTRATION:** Meeting cost is \$20/person and includes lunch and educational materials. **Registration required by 12:00 pm on Friday, February 3.** Call CCE Chautauqua at 716-664-9502 or [register online](#).

### Orleans Regional Vegetable Meeting

February 15, 2023 (Wednesday) | 12:45 pm - 4:00 pm

Dutch Village Restaurant, 8729 W Main St, Clymer, NY 14724

Offering presentations in pesticide safety, tips for managing diseases in vegetable crops, how to attract beneficial insects to your field, herbicide options for cole crops, and strawberry disease information. DEC credits available: 2.25 in 1a and 10; 2.0 in 23; 1.5 in 22; and 0.5 in CORE (used in all categories). See the [full meeting agenda](#) at CVP.CCE.CORNELL.EDU

**COST and REGISTRATION:** Meeting cost is \$10 per person, payable at the door via cash or check. **Pre-registration requested by 5:00 pm on Monday, February 13** by calling Elizabeth Buck at 585-406-3419.

### Ontario (Canada) Fruit & Veg Conference

February 22-23, 2023

Niagara Falls Convention Center, Niagara Falls, [Ontario](#)

Examples of sessions: problematic pathogens of tomatoes and peppers, maximizing your fertility dollars, innovations in weed management, berries, irrigation, brassica pests, pumpkins & sweet corn plus a large trade show.

\$55 tradeshow only, \$80 single day, \$120 two-day entry. All prices in Canadian Dollars.

[Full details available online](#) at OFVC.CA

### Processing Vegetable Industry Meeting

March 15, 2023 (Wednesday) | Time TBD

First United Methodist Church, 8221 Lewiston Rd (Route 63), Batavia, NY 14020

Current research results and topics will be presented. Industry members will have a time to discuss priorities for research, education and regulatory topics. The agenda is still being finalized. DEC and CCA credits will be available. For more information: Julie Kikkert, [jrk2@cornell.edu](mailto:jrk2@cornell.edu) or 585-313-8160.

## Cornell Small Farm Program Offers New Course: 'Funding Your Farm Plans'

Robert Hadad, CCE Cornell Vegetable Program

*Seemingly every winter I am asked by growers about access to funding for their farm operations. Most are looking for grants which always seem far and few between offerings. There are other options available to farmers though. Knowing how to prepare for applying for funding or maneuvering through the "system" is important to understand. Starting January 9, a multiweek online course offered by the Cornell Small Farms Program may be what you need to get going.*

*Below is part of the course description providing the background and information you will need:*

**Funding Your Farm Plans** - Do you have good ideas for a farm business you'd like to start, or for expanding or diversifying your existing farm business? Do you have access to all the funding you'll need to bring your ideas to fruition? If not, this course is for you. It can be very difficult to navigate the process of getting grants or loans, especially if you did not come to farming with a background in finance. If you do have a background in finance, that's a great advantage, but there are many opportunities available to food- and farm-related businesses that don't exist in other sectors.

This course will start by emphasizing the importance of a business plan to this process, including cash flow projections. Once we have created a baseline understanding of what work needs to be done before seeking funding, we will have guest speakers talk about funding from a bank's perspective, from Farm Credit East, from USDA's various grant programs, and from economic development agencies. We will also highlight funding streams that are particular to different groups such as minority- and women-owned businesses or veterans.

**Target Audience** - All levels - This course is for anyone who is seeking funding for a farm enterprise. Participants will get the most out of the course if they already have familiarity with basic business and financial concepts and terms, but the instructor will also explain these as the course progresses.

**Course Objectives** - By the end of this course, all active participants will have a better understanding of how they can prepare their business for funding, find funding that is out there and available, and then put in an application that has the potential to be approved.

**Webinars** - The bulk of the course happens on your own time, with discussions, readings, and assignments in Teachable, our virtual classroom. To add to the experience, webinars will be woven into the online interface of the course to allow you to meet on a weekly basis to learn from presenters and ask questions in real time. If you miss one, they are always recorded and posted for later viewing.

Live instruction next begins Mon Jan 9, 2023 from 6:30-8pm Eastern, with the final webinar on Mon Feb 13. While we encourage live attendance so you have the opportunity to engage with the presenters and ask questions, all webinars are recorded and posted in your online classroom for students to watch anytime. Once you have enrolled in this course, you will retain access to all materials indefinitely, and can return to participate in the live webinars in future offerings of the course if you wish.

See out the [Small Farms Program website](https://small-farmcourses.com/p/bf-104-access-to-capital) to read about the instructors, the weekly topics covered, cost and registration: <https://small-farmcourses.com/p/bf-104-access-to-capital> ●

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# Cornell Cooperative Extension Cornell Vegetable Program

480 North Main Street  
Canandaigua, NY 14424



VegEdge is the highly regarded newsletter produced by the Cornell Vegetable Program. It provides readers with information on upcoming meetings, pesticide updates, pest management strategies, cultural practices, marketing ideas, and research results from Cornell University and Cornell Cooperative Extension. VegEdge is produced every few weeks, with frequency increasing leading up to and during the growing season.

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**Cornell Cooperative Extension  
Cornell Vegetable Program**

For more information about our program, email [cce-cvp@cornell.edu](mailto:cce-cvp@cornell.edu) or visit [CVP.CCE.CORNELL.EDU](http://CVP.CCE.CORNELL.EDU)



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