



VEGEEdge

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Herbicide Storage

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Cold Temperatures and Herbicide Storage

Lynn Sosnoskie, Cornell University

Cold temperatures can affect herbicide performance; applications of postemergence products under cool conditions may result in delays in symptom development and some treatments may fail altogether. Cold temperatures are also a concern for stored herbicides, particularly liquid products. Freezing (which may occur at temperatures below 32 F for some formulated products) can result in the active ingredient settling out of solution. Some, but not all, labels will provide advice regarding resuspension. If in doubt, call your pesticide dealer or the product manufacturer to determine if the herbicide contents can be re-dissolved and used, safely and effectively. While degradation of the herbicide, itself, is an important concern, don't overlook potential damage to pesticide storage containers under cold conditions. For example, freeze-thaw cycles can cause liquids to expand and contract, which may result in cracks in bottles. Cold weather conditions may make some plastics more brittle and prone to leaking. While dry formulations are less affected by low temperatures, they are sensitive to moisture; keep these products dry to prevent them from degrading or solidifying.

Always review herbicide labels for information regarding minimum temperature storage restrictions, which can vary greatly among products. For example, while many dry-formulated products have no limitations, Prowl H2O and Nortron should not be stored below 40 F and Reflex and Stinger should not be stored below 32 F. Other products have lower limits of 10 F or even less. Some labels may not report a specific temperature requirement but may have other handling recommendations such as "protect from freezing". Don't forget to review the storage requirements for your adjuvants, as well.

GENERAL NOTES ABOUT HERBICIDE STORAGE

- Always store products in original containers and make sure that the containers are sealed tightly. Store dry formulated products above liquid products to minimize the potential for contamination due to leaking.
- Keep containers away from children, pets, and livestock; also, human and animal food/feed. Store products away from houses, gardens, wells, irrigation canals, creeks and/or other waterways.
- Store pesticides in a locked and well-ventilated space that is both fire- and flood-resistant. Make sure that the space is properly identified as being a pesticide storage facility (to alert first responders or other personnel in case of an emergency).

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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:
CCE Cornell Vegetable Program
480 North Main Street, Canandaigua, NY 14224
Email: cce-cvp@cornell.edu
Web address: cvp.cce.cornell.edu

Contributing Writers

Elizabeth Buck
Robert Hadad
Christy Hoepting
Margie Lund
Julie Kikkert
Judson Reid

Publishing Specialist/Distribution/Sponsors

Angela Ochterski

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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.

This publication contains pesticide recommendations. Changes in pesticide regulations occur constantly and human errors are possible. Some materials may no longer be available and some uses may no longer be legal. All pesticides distributed, sold or applied in NYS must be registered with the NYS Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide usage in NYS should be directed to the appropriate Cornell Cooperative Extension (CCE) specialist or your regional DEC office.

CCE and its employees assume no liability for the effectiveness or results of any chemicals for pesticide usage. No endorsement of products or companies is made or implied. READ THE LABEL BEFORE APPLYING ANY PESTICIDE.

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Help us serve you better by telling us what you think. Email us at cce-cvp@cornell.edu or write to us at Cornell Vegetable Program, 480 North Main Street, Canandaigua, NY 14424.



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The next issue of VegEdge newsletter will be produced on February 1, 2022.

2022 Empire State Producers Expo Canceled

New York State Vegetable Growers Association, 12/22/2021

Due to the ever changing COVID-19 pandemic, the Empire State Producers Expo and Becker Forum is going virtual. Right now we are working out the details to pivot our event.

Empire State Producers



The **Becker Forum: Addressing 2022 Ag Workforce Challenges** will stay the same date and time, in a virtual format on **January 10, 2022**. [Register for the Becker Forum](http://nysvga.org/expo/information/) at <http://nysvga.org/expo/information/>

The vegetable workshops and DEC credits will be virtual, likely starting in later February. Further information will be going out to people who have registered and others who plan to attend in the next few days. Please check back for more information on the [New York State Vegetable Growers Association website](http://nysvga.org).

There will be no Trade Show until 2023. ●

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Keep current and detailed records of which products are at a site.

- To prevent cross contamination, do not intermix insecticides and fungicides with herbicides.

MORE INFORMATION

For more information about temperature extremes as pesticide storage, please see:

[Storage Limitation Statements: Temperature—Herbicides \(ufl.edu\)](#)

[Temperature Effects on Storage of Agricultural Pesticides | MU Extension \(missouri.edu\)](#)

[Watch winter storage temperatures of herbicide \(montana.edu\)](#) ●

First Year Experience with Laser Scarecrows

Julie Kikkert, Cornell Cooperative Extension, Cornell Vegetable Program

In the [July 14, 2021 issue of VegEdge \(Volume 17, Issue 14\)](#), I reviewed several of the options available to deter birds from sweet corn fields. During the summer of 2021, I worked with a couple of farms in our program region to test research laser scarecrow units in local fields. The research funded by the New York Farm Viability Institute and a subcontract with the University of Rhode Island, through a multi-state USDA NIFA Specialty Crops Grant will continue for the next couple of years. While the other researchers are still compiling their data, I wanted to share my initial experience and impressions. If you are interested in testing some of these units on your farm next year, please let me know. I will also be putting out a call for cooperators later this spring when our research plans are clearer.

UNIVERSITY OF RHODE ISLAND (URI) LASER SCARECROW

The URI laser was designed for small acreage sweet corn fields and has been field tested for a few years, with design improvements each year. The design is accessible to the public with general information available on the website <http://la-serscarecrow.info>. In 2021, the research device was offered as a kit to purchase for \$600 for growers who wished to partner with the URI in research and feedback to help inform future designs. Several improvements are already planned for the 2022 device and I am awaiting information on the cost and availability of the kits.

I put together two of the 2021 kits (Fig. 1) which took 4 to 6 hours each. The overall unit is enclosed in a 5-gallon bucket to protect the electronic components from the weather. The laser hangs below the bucket and the beam shines out just below the bucket so that the overall laser is somewhat protected (Fig. 2). The unit is mounted on a pole and situated so that the beam shines through or just above the tassels of the sweet corn. The unit uses a constantly moving beam of green light to deter birds from feeding on crops. The light is generated by a 50mW wide-beam laser operating a 532 nm wavelength. Rotation is controlled by a stepper motor which allows for 360-degree rotation. A Servo motor with spiral arm allows for vertical angle adjustment and variable movement. An Arduino microcomputer controls the speed, direction, and range of vertical motion. The unit also turns on at dawn and off at dusk to preserve battery function.

Users need to provide a 12V DC power source, such as a deep cycle/deep discharge battery and a mounting pole. The mounting hardware provided allows for attachment to a ½

inch steel pipe. I found that an extension pole used in the swimming pool industry was handy for transportation in my car and in-field height adjustment but required alteration of the mounting hardware. A solar panel is useful to keep the battery charged but is not required.



Figure 1. Overall components of the URI laser kit. Photo by Julie Kikkert, CCE Cornell Vegetable Program

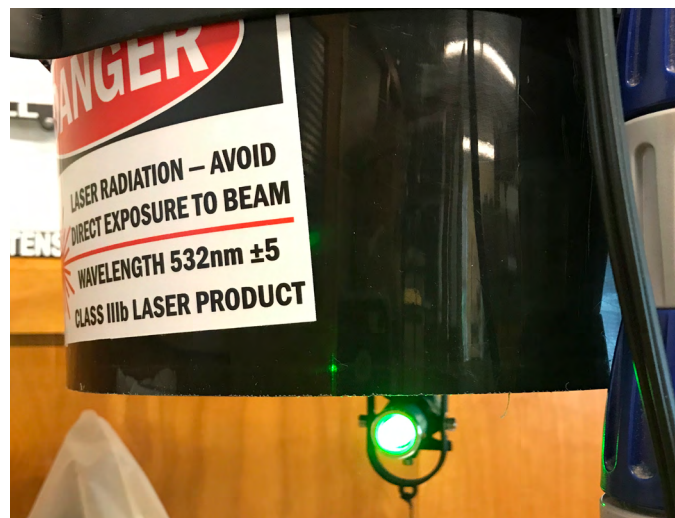


Figure 2. Laser hangs below bucket of URI laser scarecrow. Photo by Julie Kikkert, CCE Cornell Vegetable Program

I worked with one fresh market farm to deploy one of the URI units starting in mid-July when the first planting of sweet corn was just ready for harvest. The grower also deployed scare-eye balloons. We had a series of equipment problems

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to troubleshoot, the first being the unit would not turn on because of a defective light sensor cable. A second problem was loosening of the screws around the motor shaft prevented rotation. I was regularly in contact with the URI researchers who quickly helped me fix the problems and between the two units we had one working in the field for most of the time. The grower was happy with the unit overall, reporting that bird pressure on the farm was much less than previous years.



Figure 3. URI laser set up in a field. *Photo by J. Kikkert, CCE*

The second farm I worked with was a large-scale processing sweet corn grower. The first unit was deployed from July 29th to August 6th. Red-wing blackbirds had already found the field and were roosting in the nearby trees and swooping down into the field. In the east transect that I walked there was no initial bird peck, while in the south transect there was a very low percent of damage to the ears. Unfortunately, the laser did not turn on at dawn on several days and there was not good protection. I counted ears with bird damage every 10 feet for a total of 600 feet in each transect. In the east transect, 0 to 20% of the ears had bird peck within the first 400 feet of the laser, while the distance between 400 to 600 feet had 20 to 55% of the total ears with bird peck. In the south transect, there was 20% bird peck within the first 100 ft from the laser, while bird peck ranged from 50 to 75% from 100 to 600 feet away from the laser. Another set up in a late planted processing field from September 7th to 27th had much less bird peck (15%) with little damage within the first 400 feet of the laser. The equipment was working very well by this time of the season.

While results appear promising and are backed up with controlled research plots at the University of Rhode Island, not all the participating growers had success as reported at a No-

vember 2021 Zoom conference organized by the University of Rhode Island. The units need daily checks to make sure they are functioning properly and that the batteries are charged. The units need to be moved to new locations as plantings are harvested and others are nearing harvest. Everyone agrees that units must be in the field before the birds move in. The devices are best used in combination with other scare tactics.

CORNELL COOPERATIVE EXTENSION LASER SCARECROW

This unit (Fig. 4) was designed by Ali Nafchi, the former Precision Agriculture Specialist on our team (currently at South Dakota State University). 2021 was the first test of the unit in the field. The design is more compact with the electronic components housed in a metal box. The laser is outside the box at the top of the unit and rotates 360 degrees in a random pattern. The laser used is a double laser pointer flashlight with a red and green beam in a starburst pattern. There is no control for speed or vertical motion, with the laser being horizontal. One of the units had two lasers with one pointed slightly downwards towards the crop. The unit is designed to be positioned on a pole in the field with the laser pointed just above the tassels. Equipment malfunctions plagued the operation of the units in western, NY and birds were not deterred from the fields. Our eastern NY cooperators had better success in combination with other scare tactics.



Figure 4. Cornell Cooperative Extension laser scarecrow unit set up in a field. *Photo by J. Kikkert, CCE*

OTHER DEVICES AND RESOURCES

Growers in Eastern NY and elsewhere have been able to build their own test devices. Commercially, the Bird Control Group sells a device as a try before you buy, with the total purchase price around \$10,000. Their device is designed for 20+ acre fields. Other devices may be available commercially as well, but we do not have any experience with them. I'd be happy to discuss this project with anyone individually. Keep watching VegEdge for additional updates.

Learn more by watching the recorded laser scarecrow session from the 2021 Empire State Producers Expo at <https://tinyurl.com/CornellVODLaserScarecrows> ●

Upcoming Events

Technical Assistance and Workshops on Pricing and Fair Labor Practices

Want your farm to be a better employer and have more confidence in your pricing? Would you like free help developing fair employment policies for your farm?

The Cornell Vegetable Program through CCE, NOFA-NY and the Agricultural Justice Project (AJP) now have funding to provide farmers in New York with **free technical assistance with employment practices!** We can help you with **employment policies**, integrating **social justice values** into employment practices, **communication and conflict resolution** processes, **health and safety** plans, and **pricing your products** to cover fair wages and production costs. If you'd like to participate, simply take a 30-minute self-assessment survey, share existing employment policy documents, and we will provide individualized suggestions and resources tailored to your needs. We'll also invite you to workshops and field days to continue learning and sharing knowledge with others. Participation is confidential.

See our [short video](#) with current farmers – Leah Penniman of Soul Fire Farm, Nancy Vail of Pie Ranch, and Steve Munno of Massaro Community Farm – and sign up and see [full details of the program](#) on the AJP website: <https://www.agriculturaljusticeproject.org/>

For more information, contact Robert Hadad, rgh26@cornell.edu, 585-739-4065.

Workshops on Pricing and Fair Labor Policies at the Northeast Organic Farming Association of New York (NOFA-NY) On-Line Winter Conference, <https://nofany.org/wp-content/uploads/2021/11/2022-Winter-Conference-Workshop-Schedule.pdf>

January 22, 2022 (Saturday) from 10:00 - 11:15am

How do you Know your Pricing is Right?

Presenter: Robert Hadad of Cornell Cooperative Extension in partnership with the Agricultural Justice Project

Growers contact us frequently asking about pricing for vegetable crops. This usually occurs just as the marketing season takes off. Answering this question is difficult for many reasons. There are no set rules for determining the appropriate prices for any crop and many factors come into play. What is needed is for growers to know what it cost them to grow it.

To understand what it costs to grow a crop, one needs to be able to identify all of the inputs that go into farming. It isn't just about seeds and equipment, inputs also include fixed overhead costs to labor. Efficiency is another attribute to be considered. How long does it take to do certain jobs and how long should it really take? How do you measure this?

Sound challenging? It is. Understanding how all this works is a win-win situation for farms. Not only will you be able to figure out how to set a price that makes a profit, but all the data you collect to make this calculation will also provide usable financial information that is critical for making informed business decisions.

This session will go over what goes into a vegetable business operation, identifying associated costs, working these into the cost of production, and building out your price base – providing more accurate measures for profitability.

January 22, 2022 (Saturday) from 2:00 - 3:15pm

Taking Our Labor Policies from Legal to Fair

Presenters: Jody Bolluyt of Roxbury Farm and Elizabeth Henderson of Peacework CSA

With a google search, you can find an employee handbook that lays out your legal responsibilities as an employer grounded in "at-will" law guaranteeing your power as employer. But if you want to create a resilient, stable team for your farm, and contribute to transforming farmwork into a respected career with livable compensation, you have to go beyond legal to policies and practices grounded in fairness. This workshop will help you think this through and provide attendees with a handbook modeled on the standards of the Agricultural Justice Project that meet the Good Food Purchasing Center requirements for ensuring "valued workforce."

This is material is based upon work supported by USDA/NIFA under Award Number 2018-70027-28588.

Cornell Cooperative Extension
Cornell Vegetable Program



**NORTHEAST
EXTENSION
RISK
MANAGEMENT
EDUCATION**



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE



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Upcoming Events

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Farmer Tax School

An educational series from Cornell Cooperative Extension Farm Business Management Specialists offering courses designed to inform and empower farm managers to better understand their tax obligations, management strategies, and improve farm profitability.

Tax Management for Beginning and Small Farm Businesses

January 18, 2022 (Tuesday) | 7:00pm - 9:00pm

A one-night virtual meeting for beginning and part-time farmers that provides useful tax information enabling participants to make better tax decisions for their business. Federal and state income taxes will be covered. Tax regulations specific to NYS will be covered as well. Cost: \$10/farm.

Farm Specific Tax Code Benefits

January 25, 2022 (Tuesday) | 7:00pm - 9:00pm

For farm businesses of all shapes and sizes, tune in to learn more about the tax advantages available for farms. This workshop will include information for the current tax season. Cost: \$10/farm.

Learn more about these courses at tinyurl.com/ccetaxschool or call Katelyn Walley-Stoll at 716-640-0522.

Produce Auction Growers Meetings

This winter, the Cornell Vegetable Program is working with the education committees of local produce auctions to develop relevant workshops to advance the farming knowledge to be successful in this market place. Topics such as disease resistant varieties, pest/disease, cultural management, biological controls and appropriate spray options will be covered. Winter meetings will include grower and buyer panels and auction updates. For meeting agendas, go to CVP.CCE.CORNELL.EDU or contact Judson Reid at 585-313-8912 for more information.

Ontario Produce Auction Meeting, 4860 Yautzy Rd, Stanley, NY 14561

January 19, 2022 (Wednesday) | 9:00 coffee and registration; 9:30am - 3:00pm meeting

1.5 DEC credits in categories 10, 1a, 23

Dyson Agricultural and Food Business Outlook Virtual Conference

January 24, 2022 (Monday)

This year the conference is virtual and there is no requirement to register.

Morning Session – [Zoom link](#) - Passcode: 218630

- 9-10am Situation and Outlook for the New York Farm Workforce, Richard Stup, Cornell University
- 10-11am 2022 US Economic Outlook, Steve Kyle, Cornell University
- 11am-12pm Farmer Opportunities and Challenges in the Carbon Markets, Carson Reeling, Purdue University

Afternoon Session Fruit and Veg – [Zoom link](#) - Passcode: 430730

- 1-2pm Situation and Outlook Report for Fruits & Vegetables, Brad Rickard, Cornell University
- 2-3pm Grape, Wine, & Ornamental Situation and Outlook 2022, Miguel Gomez, Cornell University

Afternoon Session Dairy – [Zoom link](#) - Passcode: 876042

- 1-2pm 2022 Dairy Market Outlook, Mark Stephenson, University of Wisconsin
- 2-3pm New York Dairy Industry Situation and Outlook, Chris Wolf, Cornell University

Zoom Sessions:

1. Connect to Zoom by clicking on the links above. Zoom may ask you if it can install a module on your computer. Please let it do so.
2. Make sure your video is on and your microphone is off.
3. Make sure you can see the chat room.
4. Make sure you understand the raise hand function to ask questions.

Organizing Work for High Quality Results

Cornell Agricultural Workforce Development has opened registration for Organizing Work for High Quality Results, a six-week course in the [Agriculture Supervisory Leadership certificate program](#). Organizing Work for High Quality Results materials will release January 21, 2022 and live weekly Zoom discussions will be held from 1 to 2 PM EST each Thursday from January 27, 2022 through March 3, 2022. Participation in the live sessions is highly encouraged and provides a valued opportunity for

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Upcoming Events

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peer to peer learning and networking. Registration is \$275 and closes January 21.

Course topics will include:

- Develop clear expectations and standard operating procedures.
- Delegate effectively.
- Diagnose and correct performance problems.

[Register for Organizing Work for High Quality Results Agricultural Supervisory Leadership courses](#)

Who should attend?

This course, and the whole certificate series, is appropriate for both new and experienced farm supervisors and managers, and those preparing to become supervisors. All participants will learn leadership concepts and practice skills that will improve their ability to build a positive workplace and get results through leading others.

From the comfort of your home or office, watch prerecorded presentations on your own schedule, and engage with classmates and instructors during weekly, live discussion sessions. Corresponding assignments are due each week. To get the most out of the experience, expect to spend approximately two hours per week on lessons and assignments.

Course instructors include:

- Richard Stup, Cornell Agricultural Workforce Development Specialist
- Elizabeth Higgins, Ag Business Management/Production Economics Extension Specialist with the Eastern New York Commercial Horticulture team
- Libby Eiholzer, Dairy Technical Specialist, Cargill
- Bob Milligan, Cornell University Professor Emeritus
- Kaitlyn Lutz, Bilingual Dairy Management Specialist, NWN Dairy, Livestock & Field Crops team

Direct questions to Rachel McCarthy, Agricultural Supervisory Leadership Coordinator, at rachel.mccarthy@cornell.edu.

2022 Pesticide Training and Recertification Series

February 2, 9, 16, 23, 2022 (Wednesdays) | 7:00 - 9:30pm

Exam: March 2, 2022 | 6:00 - 10:00pm

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: \$225 for certification which includes the training manuals and all 4 classes. Does not include the \$100 exam fee. Recertification is \$40/person/class. To register, contact Cornell Cooperative Extension-Ontario County, 585-394-3977 x427 or x436 or email nea8@cornell.edu or rw43@cornell.edu Registration form is available on the website: www.cceontario.org

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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.

Contact Us

VEGETABLE SPECIALISTS

Elizabeth Buck | 585-406-3419 cell | emb273@cornell.edu
fresh market vegetables, weed management, soil health

Robert Hadad | 585-739-4065 cell | rgh26@cornell.edu
farm food safety, organic, business & marketing, fresh market vegetables

Christy Hoepting | 585-721-6953 cell | cah59@cornell.edu
onions, cabbage, broccoli, garlic, pesticide management

Julie Kikkert, Team Leader | 585-313-8160 cell | jrk2@cornell.edu
processing crops (table beets, carrots, peas, snap beans, sweet corn)

Margie Lund | 607-377-9109 cell | mel296@cornell.edu
potatoes, dry beans, and post-harvest handling and storage

Judson Reid | 585-313-8912 cell | jer11@cornell.edu
greenhouses/high tunnels, small farming operations, fresh market vegs

PROGRAM ASSISTANTS

Sarah Caldwell | sv483@cornell.edu

Angela Ochterski | aep63@cornell.edu

Emma van der Heide | ev247@cornell.edu

ADMINISTRATION

Peter Landre | ptl2@cornell.edu

Steve Reiners | sr43@cornell.edu

**Cornell Cooperative Extension
Cornell Vegetable Program**

For more information about our program, email cce-cvp@cornell.edu or visit CVP.CCE.CORNELL.EDU



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