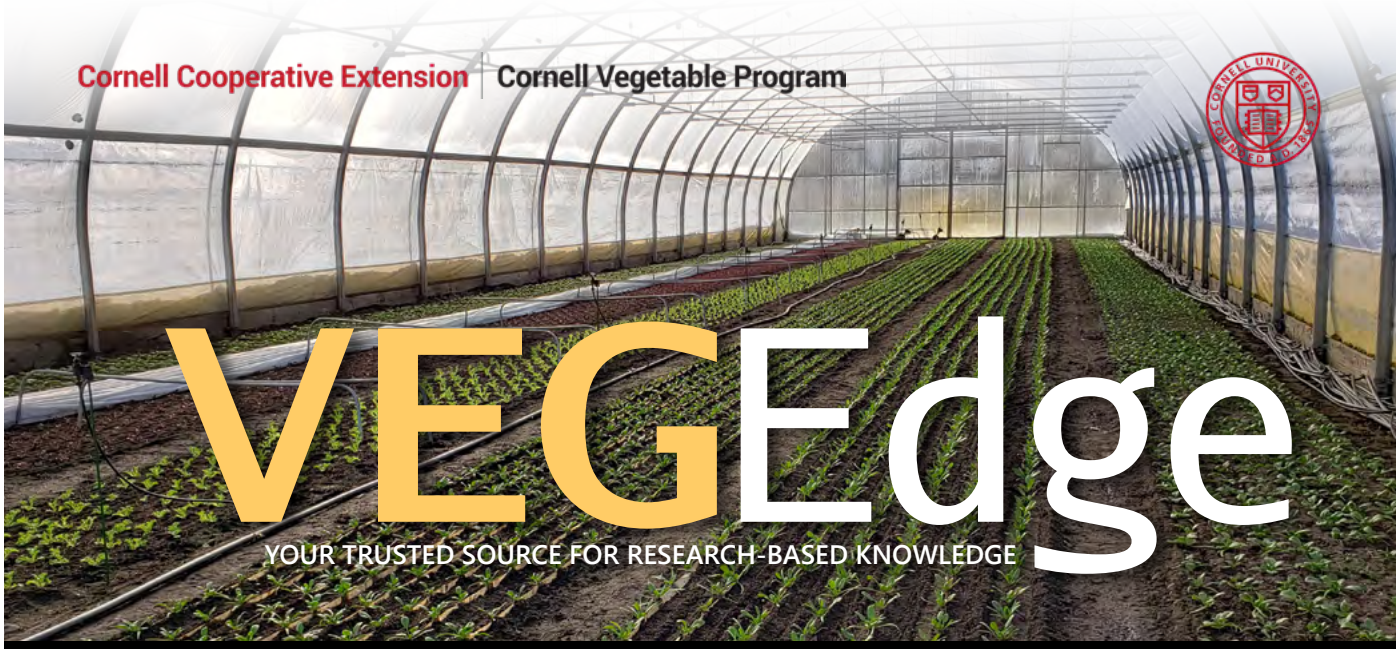
Cornell Cooperative Extension | Cornell Vegetable Program



VEGEdge

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Volume 20 • Issue 24 • November 6, 2024

Healthy High Tunnel Soils: Compaction and Depth

Lori Koenick and Judson Reid, Cornell Cooperative Extension, Cornell Vegetable Program

The Cornell Vegetable Program has a long-standing research effort focused on soil nutrition and microbiology. Using tools such as soil and foliar testing, we encourage growers to make more precise nutrient applications to avoid imbalances and ensure crop health. We've also studied how cover crops in high tunnels can contribute to microbial diversity and function in the soil. The third dimension of soil health is physical: Does the structure, tilth and drainage permit productive roots to support healthy crops?

The physical dimension of the soil consists of solid and pore space. Both are critical to the healthy functioning of soil supporting plant growth. The solids are made of mineral and organic components. Pore spaces are filled by water and air. When pore space is reduced, plant root growth and soil microbial movement is limited. We refer to this as compaction.

Sometimes overlooked, compaction can affect soil health and overall crop quality. According to the Cornell Soil Health Lab's Comprehensive Assessment of Soil Health (CASH) manual, compacted soils can lead to increased runoff and erosion, poor water infiltration and storage, decreased biological activity, and more.

It is relatively straightforward to assess a soil's compaction using a penetrometer which measures field penetration resistance in pounds per square inch (psi). The CASH manual defines surface and subsurface hardness as a measure of the maximum soil surface penetration resistance (psi) at 0 to 6 inches depth and 6-18 inches depth respectively. It is important to note that soil moisture level can affect results. We recommend taking penetrometer readings when soils are moist, but not saturated.

Compaction can be a challenge for rural and urban growers alike. Another factor to consider, which may be more relevant to urban growers, is soil depth. It is common for urban farms to be built on previously vacant lots growing in constructed soils on top of unidentifiable fill. Urban growers work continuously to build up their soils, and for good reason. Soil depth determines how much space roots have to grow through to access water and nutrients. Shallower soils can make crops more susceptible to water and nutrient stress.

In an urban high tunnel this season, a grower was concerned about part of their pepper planting showing quick decline. Upon looking at aboveground visual symptoms, we speculate this was due to multiple abiotic factors, including nutrient deficiencies

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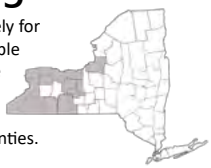
About VegEdge



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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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 will be produced on December 4, 2024.

Beginning Farmer Grant Program Open

Administered by the New York Farm Viability Institute, the Beginning Farmer Grant Program's goal is to assist beginning farmers with the financial costs associated with the creation or expansion of a new farm operation. The program will award grants to **for-profit farm businesses** operating within New York State that are start-ups or have **been in business for less than ten years**.

A total of $850,000 is available through this program, with **awards ranging from $5,000 - $25,000 and $50,000 - $250,000**, based on project complexity. Applications will open October 25, 2024 and will be available through **(program deadline) January 24, 2025**. Questions regarding the Beginning Farmer Grant Program (see grant details) can be sent to New York Farm Viability Institute at arandolph@nyfvi.org or 315-453-3823 (leave message). The program requires a 5% match.

Grants may be awarded for purposes including, but not limited to:

- the start-up, improvement, or expansion of a farm operation
- worker or apprenticeship training
- marketing activities
- **the purchase of agricultural land and physical structures thereon**
- **the purchase of machinery, equipment, or livestock**
- **the construction or improvement of physical structures, including semi-permanent structures**
- other business needs as justified by the applicant's proposal

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and salt stress, that weakened the plant and then a secondary opportunistic fungal infection came in. Taking a look below ground, digging up a few plants showed short dark brown roots lacking fibrous root hairs (Fig. 1).

Unable to point to a single reason to crop decline, we decided to take penetrometer readings (Fig. 2). These revealed shallow soils and high surface hardness in areas of the tunnel showing crop stress. In these areas, soil depth averaged 6 inches and penetrometer readings were consistently over 300 psi (Fig. 3). Most plant roots cannot easily move through soil with penetrometer readings above 300 psi.

Managing compaction can take a multipronged approach. Most importantly, avoid working soils when wet. Compaction can result from tillage events when the soil is wet, that may last for years. Next, evaluate tillage strategies. Is the tillage equipment increasing compaction? Heavy machinery, mold board plows and rototillers, all contribute to compaction or the development of hard pans. Are there lighter equipment available to perform the same task or is tarping a possibility?

Finally, we note that cover cropping is an effective compaction management strategy. In particular we are interested in deep rooted crops, including legumes to improve pore space. We are continuing to explore best management practices for urban and high tunnel soils, stay tuned for updates.

This work is funded by a USDA NRCS Conservation Innovation Grant, 'Best Management Strategies for High Organic Matter Soils in Urban and Rural Vegetable Production.'

Figure 1. Pepper roots in compacted tunnel. *Photo: J. Reid, Cornell Vegetable Program*

Figure 2. A sample penetrometer reading showing compaction layers in PSI. *Photo: J. Reid, Cornell Vegetable Program*

Figure 3. In addition to crop variety, compaction and soil depth on the right side of this high tunnel are contributing to stunted crop growth. *Photo: L. Koenick, CVP*

Depth and average surface compaction as measured in pounds per square inch. Importantly, the center/right portion in this tunnel had roughly half the depth and over twice the resistance.

Location	Average Depth	Average Surface PSI
left side	10.8	125
center/right	5.5	>300
tunnel overall	8.4	202.8

Corn Stunt: A New Disease and a New Insect Vector for New York State

Gary C. Bergstrom, Cornell University; from Cornell Field Crops 'What's Cropping Up?' blog, 11/4/24

The presence of the corn stunt spiroplasma was confirmed in corn fields in four non-contiguous New York Counties (Erie, Jefferson, Monroe, and Yates) in October 2024. The causal agent of corn stunt, *Spiroplasma kunkelii*, belongs to a specialized class of bacteria known as mollicutes which also includes phytoplasmas. Spiroplasma cells lack walls, and they have a short, spiral shape. They live an obligate lifestyle, i.e., they survive and reproduce only in living leafhopper hosts and in the phloem sieve elements of specific plant hosts. The pathogen that causes corn stunt is transmitted by the corn leafhopper, *Dalbulus maidis*, also not documented previously in New York (Figure 1). That status changed this October as individuals of *D. maidis* were caught on a yellow sticky trap in Jefferson County. One captured leafhopper was confirmed by molecular tests to be infected by *S. kunkelii*. This is the first documentation of the corn leafhopper and of *S. kunkelii* in both corn leaves and corn leafhoppers in New York.

Figure 1. Corn leafhopper, *Dalbulus maidis*, the insect vector of corn stunt spiroplasma, is characterized by two prominent dark dots between its eyes and a deeply imbedded V-pattern on its upper thorax. *Photo courtesy of Dr. Ashleigh Faris, Oklahoma State University*

How is spiroplasma transmitted and spread?

The corn leafhopper, *D. maidis*, can acquire spiroplasma through its probing mouthparts in less than an hour of feeding in phloem tissues of infected corn plants, but it can take up to two weeks of spiroplasma replication in the leafhopper's body before the insect can then transmit the spiroplasma into the phloem of healthy corn plants. Symptoms don't generally appear until about a month after plants have been infected. The most severe symptoms are the result of infection at early corn growth stages (from VE to V8). An infected leafhopper can transmit spiroplasma to many nearby plants and can also be blown by air currents and deposited into distant corn fields.

Where did the leafhopper and spiroplasma in New York come from?

Corn stunt is a disease complex first described nearly 80 years ago in the Rio Grande Valley of Texas. *Spiroplasma kunkelii* is the principal pathogen causing corn stunt. However, other pathogens, either alone or in combination, also can cause corn stunt; these pathogens include the maize bushy stunt phytoplasma, the maize rayado fino virus, and the maize striate mosaic virus. Leaf samples from New York have been archived for later testing for these additional pathogens.

Over past decades, there have been observations of corn stunt symptoms in several southern and eastern states but epidemics of corn stunt with well documented isolation of *S. kunkelii* have been primarily in Texas, Florida, and California. In recent years, corn stunt has occurred as a yield-reducing disease primarily in Mexico, Central and South America, particularly in Argentina and Brazil. The principal vector, the corn leafhopper, can be transported long distances by air currents and carries the pathogen within it. While there is no direct proof, it is very likely that long-distance atmospheric transport of the corn leafhopper into the Midwest and Northeast in 2024 was aided by storm systems that moved north from southern states.

What are the symptoms of corn stunt?

Corn stunt symptoms present similarly to other stresses in corn, including drought, soil compaction, and phosphorous deficiency. Leaf blades and sheathes can show white or yellow stripes (loss of chlorophyl) or red or purple streaks (anthocyanin pigments) and plants may show premature senescence (but without stalk rot) (Figure 2). Corn stunt varies from several common stressors in that plants can show significant stunting and ear abnormalities such as poorly filled ears, no ears or multiple ears at the same node. Symptoms may appear in patches within a field or across larger portions of a field.

Figure 2. Corn plants testing positive for corn stunt spiroplasma showed stunting, leaf reddening, and abnormal ears in (A) Erie County and (B) Jefferson County, New York near the end of the 2024 growing season. *Photos: G. Bergstrom, Cornell, and M. Hunter, NYSIPM Program*

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How was corn stunt detected in New York?

From conference calls with my field crop pathology counterparts in southern and corn belt states this summer, I became aware that, in association with stunted and discolored corn plants, corn stunt and corn leafhopper were being observed further north of their usual ranges in 2024. Yet, I thought that New York was at a sufficiently northern latitude to avoid these problems. I credit a very observant agronomy specialist, Rafaela Aguiar with Kreher Family Farms, for noticing unusual symptoms in field corn in Erie County in late summer. Rafaela, a native of Brazil and with previous agronomic experience in South America, thought the symptoms resembled corn stunt which she had seen in South America. Though I was skeptical, it turned out that Rafaela was correct. We initially collected samples of symptomatic plants (Figure 2A) from three Erie County fields and sent them to the Diagnostic Lab at Oklahoma State University. Two of the three fields came back as strongly positive for the corn stunt spiroplasma. In a race against corn harvest and frost, samples were then collected from corn in other counties where similar symptoms had been reported. Samples from Jefferson, Monroe, and Yates Counties were also positive (Figure 2B). I suggest that, given more time for scouting in October, corn stunt may have been diagnosed in many more corn fields in New York this year.

What does this mean for future corn production in New York?

Documentation of the pathogen and its insect vector in New York in 2024 demonstrated that corn stunt could occur in New York in future growing seasons. And if spiroplasma-infected corn leafhoppers arrive at earlier corn growth stages, significant yield losses could result. Then again, the atmospheric pathways that carried corn leafhoppers to New York in 2024 might not be repeated for several years. Many presume that the corn leafhopper will not overwinter as far north as New York, but, with climate change, that may be proven incorrect. There is much that we don't know. Cornell University, Cornell Cooperative Extension, and the New York State Integrated Pest Management Program have committed to participate in a Corn Stunt Working Group of plant pathologists and entomologists in states affected by corn stunt and corn leafhopper. One aim of the group is to deploy a common protocol to monitor the corn leafhopper during the 2025 growing season. Also, the Cornell Plant Disease Diagnostic Clinic is gearing up to offer a molecular test for corn stunt spiroplasma in 2025.

How will the corn stunt disease complex be managed?

Awareness and accurate diagnosis of corn stunt and regional monitoring for corn leafhopper are necessary first steps in managing this complex. Based on limited observations in 2024, it appears that corn stunt could cause significant yield reductions under New York corn growing conditions. Plant breeding is the long-term solution to prevent corn yield losses. Hybrids with moderate resistance to the spiroplasma and/or the leafhopper have been deployed in Latin American countries to manage the corn stunt complex. International companies that sell seed in the U.S. as well as Latin America are aware of which germplasms are most promising for incorporation into hybrids for northern temperate areas such as ours. I do not expect much choice of resistance in northern hybrids in 2025. Management of corn leafhopper populations with insecticides at corn vegetative stages to reduce corn stunt deserves further investigation. My principal advice to New York growers in 2025 is to plant corn at the earliest recommended date to avoid arrival of leafhoppers at the most vulnerable plant stages for infection by spiroplasma.

Acknowledgements

I gratefully acknowledge agronomist Rafaela Aguiar of Kreher Family Farms for her keen observation of corn stunt symptoms and her continuing cooperation. Colleagues Michael Stanyard (Cornell Cooperative Extension Northwest New York Dairy, Livestock, and Field Crops Program) and Michael Hunter (New York State Integrated Pest Management Program) were instrumental in collecting corn leaf samples and leafhoppers from additional sites in New York. Identification of corn leafhopper and corn stunt spiroplasma would not have been possible without the expert help of colleagues at Oklahoma State University including professors Maira Duffeck and Ashleigh Faris, and diagnostician Jennifer Olson.

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A New Requirement for Small Businesses (Including Most Farms): Filing a Beneficial Ownership Report with the Department of the Treasury. Deadline is January 1, 2025

Elizabeth Higgins, Cornell Cooperative Extension, Eastern NY Commercial Horticulture Program

Beginning January 1, 2024, most small entities—including single member LLCs—must file online reports with the Financial Crimes Enforcement Network (FinCEN), a bureau of the U.S. Department of the Treasury, disclosing information about the beneficial owners of the entities.

This new reporting requirement—estimated to impact at least 32.6 million entities in 2024—was created by the Corporate Transparency Act (CTA). Existing entities have until **January 1, 2025**, to make their first beneficial ownership information (BOI) report.

Do I have to File?

If you are an LLC, Corporation, LLP or Limited Partnership in New York, yes you do!

Any entity created by the filing of a document with a secretary of state or any similar office under the law of a state or Indian tribe, unless excepted from the reporting requirement, must file. Examples of exempt entities include tax-exempt and government. (The list of exempt entities is in this FAQ.)

For-profit farms are not on the exempt list. Single-member LLCs **are subject to** BOI reporting requirements. Sole proprietorship farms are exempt since they do not file with the secretary of state in New York.

Why on Earth do I have to do this?

In 2021, Congress passed the Corporate Transparency Act on a bipartisan basis. This law creates a new reporting requirement as part of U.S. government efforts to make it harder for bad actors to use shell companies or opaque ownership structures to hide or benefit from ill-gotten gains.

What happens if I don't File?

You should file because the penalties are large, and it is straightforward to file.

Failure to file a BOI report can result in severe civil and criminal penalties! If you don't file a BOI report, you could face a $500-per-day fine, up to $10,000, and up to two years in prison.

==> **Where to File: https://boiefiling.fincen.gov/fileboir.**

How will this information be used and who can see it?

Beneficial ownership information reported to FinCEN is exempt from disclosure under the Freedom of Information Act (FOIA). FinCEN published the rule that will govern access to and protection of beneficial ownership information on December 22, 2023. According to the website, beneficial ownership information reported to FinCEN is stored in a secure, non-public database using rigorous information security methods and controls typically used in the Federal government to protect non-classified yet sensitive information systems at the highest security level.

In accordance with the Corporate Transparency Act, FinCEN may permit access of beneficial ownership information to:

- Federal agencies engaged in national security, intelligence, or law enforcement activity.
- State, local, and Tribal law enforcement agencies with court authorization.
- Officials at the Department of the Treasury.
- Foreign law enforcement agencies, judges, prosecutors, and other authorities that submit a request through a U.S. Federal agency to obtain beneficial ownership information for authorized activities related to national security, intelligence, and law enforcement.
- Financial institutions with customer due diligence requirements under applicable law (to facilitate compliance with those requirements).
- Federal functional regulators or other appropriate regulatory agencies that supervise or assess financial institutions with access to beneficial ownership information (to supervise such financial institutions' compliance with customer due diligence requirements).

What information will I have to provide?

For the company:

- Full legal name
- Any trade name or "doing business as" name
- Complete current U.S. address
- Jurisdiction of formation (including State or Tribal jurisdiction for a domestic reporting company)

For each beneficial owner and each company applicant required to be reported:

- Full legal name
- Date of birth
- Complete current address
- Unique identifying number and issuing jurisdiction from one of the following non-expired documents:
  - U.S. passport
  - Identification document issued by a State, local government, or Indian Tribe
  - State-issued driver's license
  - If none of the above are available, a foreign passport, and an image of the document from which the unique identifying number was obtained.

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What is a "Beneficial Owner"?
In general, beneficial owners are individuals who:

1. Directly or indirectly exercise "substantial control" over the reporting company, or
2. Directly or indirectly own or control 25% or more of the "ownership interests" of the reporting company.

The rules for the program provide that beneficial owners **do not include**:

- A minor child, provided the reporting company reports the required information of a parent or legal guardian of the minor child and states that the individual is the parent or legal guardian of a minor (once the minor child reaches the age of majority, the report must be updated).
- An individual acting as a nominee, intermediary, custodian, or agent on behalf of another individual.
- An employee of a reporting company, acting solely as an employee, provided that such person is not a senior officer.
- An individual whose only interest in a reporting company is a future interest through a right of inheritance.
- A creditor of a reporting company.

What are "Company Applicants"?
Companies created or registered before January 1, 2024, are required to report only beneficial owners. Companies created or registered on or after January 1, 2024, must report the company applicants, in addition to beneficial owners. Company applicants include:

- The individual who directly files the document that creates, or first registers, the reporting company; and
- The individual that is primarily responsible for directing or controlling the filing of the relevant document.

What is the "FinCen Identifier"?
An individual or reporting company may obtain a FinCEN identifier by submitting an application at or after the time that the reporting company submits its initial report. Each identifier is specific to the individual or reporting company. If an individual has obtained a FinCEN identifier, the reporting company may use that identifier in its report instead of reporting all of the required information for the individual.

Where can I get more information?

- Department of the Treasury, Financial Crimes Enforcement Network (FinCen) Beneficial Ownership website: https://www.fincen.gov/boi
- Department of the Treasury, Financial Crimes Enforcement Network BOI E-Filing website: https://boiefiling.fincen.gov/

Cornell Vegetable Program Welcomes Camila Ichazo!

"My name is Laura Camila Ichazo Ribera, but I go by Camila. I'm from Santa Cruz, Bolivia (the heart of South America). I have a B.Sc. in Agribusiness Management from Zamorano University, an agricultural institution located in Honduras, and an M.Sc. in Agronomy from the University of Florida, with a focus on plant breeding. For my thesis, I worked on *Aspergillus* spp. resistance in peanuts. During this time, I also had the opportunity to work as a research assistant for the peanut breeding program. This experience sparked my interest in crop management, particularly weed control. As a result, I decided to work with the Cornell Vegetable Program to expand my knowledge in weed management, with the goal of eventually continuing my graduate studies in this field."

Camila is working as a Field Technician for our team in WNY!

Urban Farm Pest Management Fact Sheets Available in New Languages

Lori Koenick, Cornell Cooperative Extension, Cornell Vegetable Program

The urban farms sustainable pest management fact sheets are **now available in English, Spanish, Arabic, and Chinese**. These fact sheets have been developed as part of a multi-year project exploring non-spray pest management options that are economically and environmentally sustainable for urban farms. Techniques featured include row covers, disease resistant crop varieties, biocontrols and taking a brassica break. You can find full text at our website: https://cvp.cce.cornell.edu/

Interested in Learning More?
Contact project team members Sam Anderson (swa39@cornell.edu) of CCE Harvest NY, Lori Koenick (lbk75@cornell.edu) or Judson Reid (jer11@cornell.edu) of the CCE Cornell Vegetable Program.

This material is based upon work supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, through the Northeast Sustainable Agriculture Research and Education program under subaward number [LNE21-421 "Sustainable Pest Management for New York Urban Farmers"]. Fall 2024.

A First Evaluation of Carbon Robotics Laser Weeder in NY Vegetables

Lynn M. Sosnoskie, Cornell AgriTech

Controlling weeds can be a significant challenge for New York vegetable growers. Many specialty crops have limited tolerance to registered herbicides. Consequently, crop injury concerns from in-crop use, drift, and carryover cannot be ignored. Changes to the pesticide regulatory environment may affect future herbicide availability and use as well.

According to Melander et al., who published in the journal Crop Protection (Volume 72, pages 1-8) in 2015, *"Non-chemical methods will be necessary to fill the gaps where herbicides are no longer available or where those approved do not cover the spectrum of weed species causing problems."* Some currently used alternatives, such as hand-weeding, cultivation, and plastic mulches are plagued by their own concerns such as cost, impacts on soil structure and health, and disposability.

Many of the novel technologies (e.g., artificial intelligence (AI) guided weeders) that are currently available have only been evaluated in vegetable cropping systems on the West Coast. These production environments do not accurately reflect the soil, climatic, and weed pressure conditions typically encountered in Northeastern states. Therefore, it is essential to research the effectiveness of innovative weeding machinery in New York State.

Figure 1. The Carbon Robotics demonstration and research unit in trial at Cornell AgriTech in Geneva. The AI portion of the unit is powered by 12 high-resolution cameras and crop and weed deep learning models. The weeding systems consist of eight 150W CO2 lasers with 3mm accuracy that are ready to fire every 50 milliseconds. *Photo: L. Sosnoskie, Cornell*

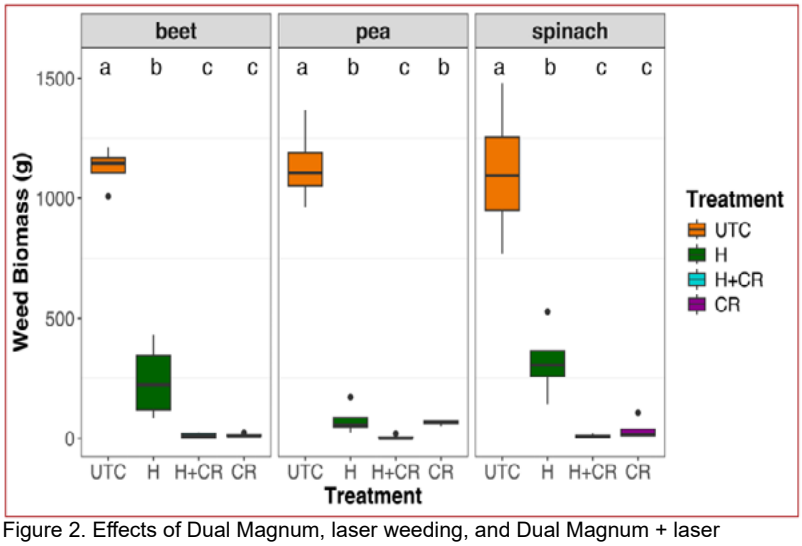

Figure 2. Effects of Dual Magnum, laser weeding, and Dual Magnum + laser weeding on weed biomass at approximately 30 days after planting. Orange and purple boxes represent the untreated check (UTC) and solo laser weeding (CR) treatments. Green and blue boxes are the Dual Magnum (H) and Dual Magnum + laser weeding (H+CR) treatments.

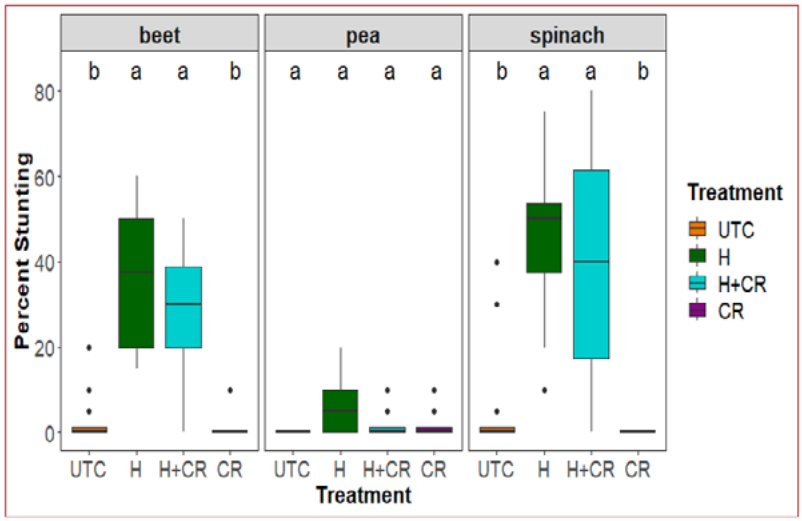

Figure 3. Effects of Dual Magnum, laser weeding, and Dual Magnum + laser weeding on crop stunting at approximately 30 days after planting. Orange and purple boxes represent the untreated check (UTC) and solo laser weeding (CR) treatments. Green and blue boxes are the Dual Magnum (H) and Dual Magnum + laser weeding (H+CR) treatments.

In 2024, Cornell AgriTech partnered with Rutgers and Carbon Robotics to evaluate the performance and safety of laser weeding in spinach, beets, and peas. Results from a trial conducted in Geneva, NY, using a research unit (Fig. 1) demonstrated that Dual Magnum, Dual Magnum + laser weeding, and solo laser weeding treatments significantly reduced fresh weed biomass ($p < 0.05$) at approximately 30 days after planting compared to the untreated check for all crops (Fig. 2). Treatments that included laser weeding had significantly lower fresh weed biomass ($p < 0.05$) than the Dual Magnum applied alone for both beets and spinach. With respect to crop injury at approximately 30 days after planting, the Dual Magnum and Dual Magnum + laser weeding treatments had significantly higher stunting in beet and spinach compared to solo laser weeding and the untreated check for beets and spinach ($p < 0.05$) (Fig. 3). Pea growth and

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development was not affected by herbicide use. The full set of results from the 2024 trial are being prepared for publication in an open access journal in 2025.

Our experience suggests that AI guided, precision weed control technology, such as laser weeding, can be effective at eliminating weeds while improving crop safety in vegetables grown in New York. However, the crop and weed detection and discrimination processes can be slow. More research is needed to understand how to better integrate novel tools into the state's commercial production conditions. The purchase, service, and operation costs of many systems can range from hundreds of thousands to over a million dollars, which puts currently available tools financially out of reach for most growers.

In 2025, proposed Cornell AgriTech research will expand into targeted spray systems, with the hope of assessing their performance across various price points. This comprehensive evaluation will also include trials to examine the effects of these technologies on soil structure, particularly regarding compaction, herbicide use patterns, crop vigor, and the ability of crops to withstand insect and disease pressures. ●

Blueberry Pruning: Comparing Renewal Pruning to Standard Practice

Anya Stansell, Small Fruit Specialist, CCE Harvest NY

Blueberry plants are long-lived—well-maintained fields can produce fruit for 80 years. While some old varieties are being ripped out and re-planted with newer selections, many old varieties are worth keeping in the ground, especially if the plants are well-established and disease free.

Pruning is done in late winter and early spring. Pruning an entire planting each year can be challenging due to the high labor required to prune to the standard best practice. **Here we will compare renewal pruning (where entire plants are mowed down) against the standard pruning method.**

Pruning is recommended for blueberry bushes for several reasons:

1. Fruit production is highest on wood that is 3-4 years of age. Branches aged 1-8 years will produce enough fruit that they are worth keeping for most operations.
2. Removing old wood promotes vegetative vigor, reduces pest and disease buildup, and encourages new wood to grow well.
3. Opening the canopy allows for more sunlight and airflow, which improves berry quality.

The standard pruning recommendation is:

- Prune every 1 to 2 years per plant.
- Retain 2-3 strong, healthy canes from each year's growth until the 8th year. Well-established bushes will have between 10 and 20 branches of different ages.
- Customize pruning to each variety and planting age.
- On established bushes, heavy pruning stimulates vigorous vegetative growth.
- On young bushes (aged 2-3 years), taking too much off can harm establishment, but fruiting wood must be removed to promote root growth.

This pruning technique prioritizes fruit yield and quality for each individual bush, at the cost of a high labor investment.

Renewal pruning removes all branches of the blueberry bush. This can be done using a bush hog in large plantings or a chainsaw in small plantings. In the following winter, only the strongest 6-10 canes are retained.

Renewal pruning is not appropriate in many situations. Growers should **not** renewal prune if:

1. They intend to harvest the patch within 2 years of pruning.
2. The bushes are younger than 7 years old.
3. The bushes have poor vigor from incompatible soil pH or nutrient deficiencies.
4. They cannot re-plant a patch that fails to recover—for instance, due to a systemic disease in the plants.

Growers who benefit from renewal pruning have large plantings that cannot feasibly be completely harvested or pruned within one season. If a planting is large enough for roughly 3 season's worth of pruning, mowing 1/3 of the planting down every 2 or 3 years allow labor to focus on the profitable sections, while simplifying pest and weed control in the mowed section. Following renewal pruning with a large nitrogen input (100 lbs/acre split into 3 applications between April and June) will stimulate woody growth in the mowed section. Harnessing the blueberry plants' ability to regenerate from complete branch removal can help larger growers balance labor costs with planting longevity.

Resources and Further Reading:

1. Cathy Heidenreich | Cornell University, Department of Horticulture | Blueberry Pruning Brush Up, No Pun Intended!
2. Marvin P. Pritts and John F. Hancock | Northeast Regional Agricultural Engineering Service| Highbush Blueberry Production Guide
3. Bill Cline | Southern Regional Plant Consortium | Pruning Blueberries
4. Josh Vander Weide, Mike DeGrandchamo, and Bill Groenink | Michigan State University, DeGrandchamp Farms, and MBG Marketing | Best Practices for Replanting Blueberries in Michigan ●

FEMA Designates 10 New York Counties as Primary Natural Disaster Areas Due to Tropical Storm Debby

USDA, Farm Service Agency (FSA)

[Eligible counties in CVP region include **Allegany, Ontario, Steuben, and Yates (primary) and Cattaraugus, Monroe, Seneca, Oswego, and Wayne (contiguous to primary disaster counties)**. *Other counties contiguous to the primary disaster counties are also eligible, including Schuyler and Wyoming, Livingston. ed. E. Buck, CCE CVP]*

This Presidential disaster declaration allows the United States Department of Agriculture (USDA) Farm Service Agency (FSA) to extend much-needed emergency credit to producers recovering from natural disasters through emergency loans. Emergency loans can be used to meet various recovery needs including the replacement of essential items such as equipment or livestock, reorganization of a farming operation, or to refinance certain debts. FSA will review the loans based on the extent of losses, security available, and repayment ability.

Triggering Disaster: Tropical Storm Debby August 8 to August 10, 2024

Application Deadline: 5/26/2025

More Resources

On farmers.gov, the Disaster Assistance Discovery Tool, Disaster Assistance-at-a-Glance fact sheet, and Loan Assistance Tool can help you determine program or loan options. To file a Notice of Loss or to ask questions about available programs, contact your local USDA Service Center.

Federal Emergency Management Agency (FEMA) offers different assistance programs for individual citizens, public groups including government agencies and private nonprofit organizations. To find the FEMA help you need following a disaster event, visit fema.gov/assistance. ●

Socially and Economically Disadvantaged Farmer Grant Program

The Socially and Economically Disadvantaged Farmers Grant Program is administered by the Northeast Farmers of Color Land Trust (NEFOC). Funding will be offered under the program name "Landing Access: Novel Directions (LAND) Project." The LAND Project's goal is to assist farmers who face disproportionate barriers to success due to discrimination. The program will award grants to for-profit business owners who experience discrimination by virtue of their membership in a particular group and whose ability to enter into farming or the success of their farm enterprise has been impaired due to disproportionate access to capital, credit opportunities or land, among other things.

Applications open on December 30, 2024 and will be available through February 14, 2025. A total of $3.4 million is available to famers through this program, with grants of up to $5,000 offered in this first round of funding. Subsequent rounds of funding will offer awards of up to $250,000. **Questions regarding the LAND Project can be sent to info@nylandproject.com.** ●

Laser Scarecrow Fact Sheet Now Available

Julie Kikkert, Cornell Cooperative Extension, Cornell Vegetable Program

Are you considering the use of a laser scarecrow to deter birds on your farm? Cornell Cooperative Extension and the University of Rhode Island teamed up to test a research laser scarecrow on farms. While most of the research was conducted in sweet corn, the fact sheet provides a general background on the use of lasers to deter birds, a section on Frequently Asked Questions, and Advantages/Limitations to laser scarecrows that are applicable to a range of agricultural crops.

A laser scarecrow is a device that has one or more laser modules connected to motors. The specifications of the lasers are optimized to the color and motion sensitivity of bird's eyes. When laser beams move across a field, birds become frightened and attempt to move away from the perceived threat. Light from the laser covers an area quickly and moves through the canopy without causing injury to the crop. Research demonstrates that birds do not readily become habituated to the laser.

A laser scarecrow used as the sole deterrent typically results in a significant reduction in crop damage. Combined with an auditory device, damage can be reduced even more. When used as part of an integrated management program for bird control that utilizes habitat management and multiple scare tactics, laser scarecrows can be useful tools for growers of multiple crops. All scare tactics must be deployed before birds find the field. The effectiveness of lasers depends on multiple factors such as bird species, bird populations, habitat and food availability. Lasers are not effective at deterring deer, racoons, coyotes or other mammals.

To learn more, access the laser scarecrow fact sheet at: https://rvpadmin.cce.cornell.edu/uploads/doc_1193.pdf

Research support for this project was provided by: The New York Farm Viability Institute Project FVI 20 048, and USDA AMS Specialty Crop Multi-State Program Award AM190200XXXXG001 ●

Upcoming Events

Steuben County Crop Symposium

November 14, 2024 (Thursday) | 1:00 pm - 4:00 pm
CCE Steuben (County Annex Building), 20 E Morris St, Bath, NY 14810

Tar spot which is new, widespread, and **affects sweet corn** and field corn is a feature presentation. Other topics include insight into **local land rental prices** and negotiating far rates, general field crop IPM, weed control in pasture and hayfields, and **strategies for repairing flood damaged land**.

DEC credits: 0.5 CORE credits (counts for all license categories); 1.0 credits in 1a, 10 and 21 (field & forage). CCA credits: 1.0 IPM, 1.0 Crop Management, and 0.5 Professional Development.

Cost: $5, payable with cash or check at the door. Pre-registration required. Register online or call Kelly Bourne, 585-268-7644 x10.

2024 Cornell Seed Conference

December 5, 2024 (Thursday) | 9:55 am - 3:15 pm
Cornell AgriTech, Jordan Hall Auditorium, 630 W North St, Geneva, NY 14456

The 86th Cornell Seed Conference will feature updates on research and regulatory issues related to the seed industry. Of special interest to vegetable growers, Dr. Greg Vogel will provide an overview of the Cornell tomato and eggplant breeding program, and Dr. Alejandro Calixto, Director of the NYS IPM program will explain the NYS Birds and Bees Act and how it will impact neonicotinoid seed treatments in NYS. DEC and CCA credits will be received for attending the entire conference.

Cost: $35 per person; pay at the door with cash or check. Lunch and refreshment provided. Pre-registration required by November 22 at: https://cornell.ca1.qualtrics.com/jfe/form/SV_79RZIiiei3cJbTw. Contact Dr. Alan Taylor at agt1@cornell.edu for the full agenda or with questions.

Ag Labor Road Show

December 13, 2024 (Friday) | 8:30 am - 4:00 pm
Cornell AgriTech, Jordan Hall Auditorium, 630 W North St, Geneva, NY 14456

Labor Roadshow VIII, sponsored by the Agricultural Workforce Development Council of New York, will cover a range of pressing topics, including: overtime and payroll compliance, union organizing updates and management strategies, leadership and language learning opportunities for English- and Spanish-speaking supervisors and managers, heat safety and compliance, benefits for farm employees, farm safety, risk management, and insurance and farm employee housing management.

Online sessions will be held via Zoom on topics that are different from, and in addition to, the in-person event:

- December 17, 2024 from noon to 2:00 PM
- December 18, 2024 from noon to 2:00 PM

Cost: $75 per person. Registration covers one in-person event, the online sessions, and a recording of an in-person session. For more information and to register: https://agworkforce.cals.cornell.edu/labor-roadshow/

Cornell Cooperative Extension
Cornell Vegetable Program

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VEGEdge
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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 or visit CVP.CCE.CORNELL.EDU