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THE PRODUCE PAGES

Serving the fruit and
vegetable growers of
Eastern New York

Feature Story

Cornell Willsboro Research Farm

Elisabeth Hodgdon, CCE ENYCHP

Tucked away in the Champlain Valley within the Adirondack Park blue line lies a hidden gem amongst Cornell University's properties: The Cornell Willsboro Research Farm in Willsboro, Essex County. The farm, a 352-acre property, has served as the site of several Eastern NY Commercial Horticulture Program research projects over the years. While not our typical "feature farm" story, I wanted to highlight the Willsboro Farm to let our readers know about this resource and opportunities to interact with our work and staff there. As part of the Cornell University Agricultural Experiment Station network, the Willsboro Farm hosts projects and outreach events to support crop production in Northern New York and beyond.

Willsboro Farm History

Farmers and agricultural service providers gathered at the Willsboro Farm last fall, with juneberry planting under netting to the left and high tunnels in background. Photo: E. Hodgdon

Cornell Cooperative Extension
Eastern NY Commercial Horticulture Program



The Willsboro Farm property as it is today originated as multiple properties owned by Mr. E. Vreeland Baker. E.V. Baker, a Cornell graduate, was a staunch supporter of agriculture in Northern New York and donated several properties and an accompanying endowment to Cornell University in 1982 for the purposes of agricultural research and extension. Over the years, Cornell consolidated the properties to form a contiguous research farm that includes a farmhouse and several barns and outbuildings. The property offers a scenic view of Lake Champlain and Vermont to the east and the Adirondacks to the west. Soil types on the farm include both sandy and clayey soils, making the farm a great site for research testing crop varieties and production practices in both soil types. A small portion of the farm is

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The Produce Pages

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The *Produce Pages* is a monthly publication of the Eastern New York Commercial Horticulture Program. For more information about the program, please visit our website at <http://enych.cce.cornell.edu/>.

Serving the Educational and Research Needs of the Commercial Small Fruit, Vegetable and Tree Fruit Industries in Albany, Clinton, Columbia, Dutchess, Essex, Fulton, Greene, Montgomery, Orange, Putnam, Rensselaer, Saratoga, Schoharie, Schenectady, Ulster, Warren and Washington Counties.

(Continued from cover)

also certified organic. Over the years, trials at the farm have focused mainly on agronomic crops, including grains and forages to support the North Country's dairy industry. In more recent years, a larger proportion of the farm has been dedicated to horticultural crops.

Research projects

Many of the research projects at the Willsboro Farm have focused on production practices for grain and forage crops to prevent adverse environmental impacts, improve yield, and increase profitability of farm enterprises. The Willsboro Farm staff conduct agronomic research both at the Willsboro location and at the [Miner Institute](#) in Chazy, NY, located near the Canadian border in Clinton County.

Perhaps the longest running projects in Willsboro have been conducted using the lysimeter plots, which were installed in 1987 and 1992 on both the sandy and clayey soils to measure leaching of nutrients and agricultural chemicals through the soil in corn production systems. In the past three decades, work from these plots under researcher Harold van Es has resulted in the development of pesticide use restrictions to limit movement of herbicides in soil and water and a better understanding of pesticide and nutrient movement through tile drainage systems. This information has been particularly important for the Lake Champlain Valley, where lake pollution from agriculture has been an important issue.

Horticultural research over the years have spanned across many different crop groups, including grapes, specialty berries, high tunnel vegetables, cut flowers, and more. In 2013, farm manager Mike Davis established a large planting of juneberries. Juneberries, a native *Amelanchier* spp., produce a blueberry-like dark purple berry that is high in antioxidants. The planting in Willsboro includes commercially-available varieties and collections from wild plants from across the U.S. and Eastern Canada for comparison of yields and eating quality. In more recent years, honeyberries and elderberries have been added to this specialty berry planting.

In 2021, ENYCHP specialists Laura McDermott and Elisabeth Hodgdon established a plasticulture June-bearing strawberry planting in Willsboro. The experiment, which runs from 2021-2023, tests the efficacy of different row cover materials in comparison to straw for overwintering. The planting includes plants established from bare root and plug plants with varying frequencies of runner removal, allowing the researchers to learn more about other aspects of strawberry production while testing the overwintering treatments.

Most of the vegetable research conducted in recent years at the Willsboro Farm has taken place inside of the farm's two high tunnels. Amy Ivy, retired ENYCHP specialist, conducted many high tunnel vegetable trials during her tenure with the team. This season, vegetable trials in the tunnel include an early spring miniature cabbage and sprouting broccoli

variety and spacing trial and a late fall/winter mustard mesclun mix variety trial.

Grower involvement

Since its inception in 1982, the Willsboro Farm's activities have been strongly driven by stakeholder needs in Northern New York. Many of the projects on the farm have been

funded through the small grants program of the [Northern New York Agricultural Development Program](#), founded by Cornell's Dr. Robert Lucey. The grants program is farmer-driven, selecting projects that have the potential to directly benefit the agricultural industry in the six Northern New York Counties: Lewis, St Lawrence, Franklin, Clinton, and Essex. While focused on Northern New York, most of the project outcomes have contributed to agricultural knowledge of statewide and regional applicability.

The ENYCHP invites growers to join us for upcoming events at the Willsboro Farm. Each July, the farm hosts an open house. The open house features a tour of the farm and overview of current research projects. This season, ENYCHP has plans to hold a berry field day at the farm, where participants can view the juneberry, honeyberry, elderberry, and strawberry plantings and learn about production practice updates. Suggestions for future research projects and outreach events are always welcome!

For more information on the Willsboro Farm, contact:

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Cover crop research trials at the Willsboro Farm looking west to Adirondacks. Photo: E. Hodgdon



Willsboro Farm fields looking east to Lake Champlain and Green Mountains. Photo: A. Galimberti

Tips for Beautiful Vegetable Transplants

Teresa Rusinek, CCE ENYCHP

Attention to detail during transplant production will reward you with quality transplants and optimal results in the field.

Seeds

Pathogens -There are numerous diseases that can impact your crop, and a good number of these can be seedborne. A first line of defense is to ensure you are planting clean seed. Buy disease indexed seeds when available. To reduce bacterial seedborne diseases in crops such as tomatoes, peppers, and brassicas, seeds can be hot water treated. Chlorine treatment can also be useful on some seeds as a surface treatment but will not kill pathogens inside the seed.

Go to this factsheet for more details: <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/HotWaterSeedTreatment.html>

Storage – The optimal temperature for seed storage is 34-40 °F with a relative humidity of less than 40%. A refrigerator can be a good storage place. Viability of seed will decrease over time; and after 1 year germination may not be as uniform. Pelleted seed may be primed for quick, uniform germination, but shortens storage life.

Leftover seeds—Do a germination test if using seed from last year. You can do this yourself by placing a specific number of seeds on a moistened paper towel, folding the towel over the seeds and placing it in a plastic bag in a warm place. Inspect seeds twice a day and spray with water as needed to maintain moisture. Count how many seeds have germinated after the usual days to germination for that variety.

There are commercial labs offering germination and other seed tests, including:

New York State Seed Testing Laboratory
6 Harriman Campus Road
Albany, NY 12206

<https://agriculture.ny.gov/seed-testing-laboratory>

Greenhouse Clean Up

The greenhouse can be another point source of disease in transplant production. Bacterial spot, bacterial speck, bacterial canker, gummy stem blight, and tomato spotted wilt virus, are just a few that can start in the greenhouse and be carried to the field. Bacteria, fungal spores and viruses from previous crops can persist on bench surfaces, pots, trays, and equipment. Plant residues from previous crops and weeds in the greenhouse can also carry over disease. Overwintering insects such as thrips can spread virus to transplants. Pull weeds and remove from greenhouse; weeds harbor disease and insects. Sweep and vacuum debris from greenhouse surfaces and containers before sanitizing. Organic matter will decrease the sanitizing power of products such as sodium hypochlorite (bleach).

Sanitize benches, floors, and tools. If you reuse any plant containers (not recommended) they should be disinfected. Repeated use of

chlorine solutions may be harmful to plastics or metals.

There are several different types of disinfectants that are currently used in the greenhouse for plant pathogen and algae control. They are quaternary ammonium compounds (Green-Shield®, Phisan 20®, and KleenGrow™), hydrogen dioxide (ZeroTol® 2.0, Oxidate® 2.0), hydrogen peroxide & peroxyacetic acid (Sanidate®), hydrogen peroxide, peroxyacetic acid and octanoic acid (X™-3), sodium carbonate peroxyhydrate (GreenClean Pro Granular Algicide) and chlorine bleach. Bleach contains sodium and chloride. Excess chlorine can be toxic to some plants. Objects to be sanitized with chlorine require 30 minutes of soaking and then should be rinsed with water.

For more detailed information on greenhouse clean up and disinfectants see:

<http://ag.umass.edu/greenhouse-floriculture/fact-sheets/cleaning-disinfecting-greenhouse>

Media

Start with clean fresh media free of insects, pathogens, nematodes and weed seeds. Old media, 8 months or older, can be difficult to wet. Keep growing media in a clean area and covered. Select media that is appropriate for germination. It should have finer shredded peat particles, as well as smaller grade vermiculite and perlite. Media should drain well and provide good aeration but still have moderate water-holding capacity, and an appropriate nutrient starter charge for seedlings. The electro-conductivity (EC) reading measuring nutrient salts should be between 0.26 to 0.75 mS/cm using the 1:2 extraction method.



The root tips of these pepper plants are damaged due to fertilizer salts accumulating in media at the bottom of the flat cells. Fertilizer levels in media can be monitored with an EC meter using a simple extraction method. Leaching salts through the media and out the bottom of the container during irrigations will help avoid this problem. Photos: T. Rusinek

Fertilizer

Nutrient starter charge in media (if there is any) can be depleted anywhere between 2- 6 weeks after seeding. Monitor soil EC and

initiate a fertility program before plants show signs of deficiency.

As a guideline, a dilute fertilizer program ~25 ppm nitrogen (N) is normally started at the opening of the cotyledons and the rate of application is gradually increased as the seedlings grow larger and approach transplanting. For seedlings with two true leaves, provide constant fertilization at 50 ppm N or 100 ppm N 2-3 times per week. Adjust your fertility program to the nutrient starter charge in media and crop demands. Tomato, pepper and cole crops tend to be heavier feeders, cucurbits crops and basil are lighter feeders.

Cool, wet conditions typical in early spring can lead to ammonium toxicity. Use fertilizers with low or no ammonium nitrogen. Media should not be waterlogged. Media with compost tends to be heavier and hold more water.

Avoid high phosphorus fertilizers during transplant production. Phosphorus promotes stretch as do ammonium forms of N. Do not over fertilize and check that your proportioner /injector is properly functioning.

Water Quality

Test irrigation water. Highly alkaline water sources (greater than 200 ppm CaCO₃) will raise media pH and result in iron deficiencies, especially in peppers. If you have highly alkaline water you should consider treating water with sulfuric acid or citric acid for organic production. If your alkalinity is moderate (between 120 - 200 ppm CaCO₃), use an acidifying fertilizer. Fertilizers with a higher proportion of ammonium and urea N cause an acidifying reaction while fertilizers with high nitrate forms of nitrogen cause a basic reaction. Purchase pH and EC meters to monitor media.

Temperature

Reducing the day-night temperature difference, or reversing it, can greatly reduce stem elongation. In most heating programs, a greenhouse will be much warmer in the daytime than nighttime. The greater this difference, the more potential for stretch.

Light

Most vegetable seeds germinate in light or dark conditions (although lettuce needs light). To avoid stretching of seedlings and “leggy” transplants, provide higher intensity light right after germination. After germination, stretching can occur if seeds are left in dark or low intensity light. Be careful if moving seedlings from germination chambers to high intensity light situations. You may need to provide some shading for a few days while seedlings adjust.



Checking the EC of the water coming out of the hose after the proportioner is a simple way to determine if you are mixing fertilizer correctly and that your proportioner is functioning as it should. Check the fertilizer bag or container for a table of EC readings for target ppm of N at various proportioner settings. The meter in the photo on the right can be used to monitor pH and EC of water and media. Photos: T. Rusinek



The yellowing of the new growth in the tomato transplants is due to iron deficiency induced by the high pH of the soilless media it is growing in. This one measured around 7.2. Photos: T. Rusinek

Other resources on transplant production

There are excellent detailed fact sheets on many of the topics covered in this article on the [Cornell Greenhouse Horticulture website](https://www.cornellgreenhousehorticulture.com/).

The UGA extension publication “[Commercial Production of Vegetable Transplants \(B 1144\)](https://www.uga.edu/extension/publication/commercial-production-of-vegetable-transplants-b-1144/)” contains lots of useful information especially for those who are relatively new to transplant production.

The High Cost of Fertilizer and Best Practices for Management

Sandra Menasha, Vegetable/Potato Specialist, Cornell Cooperative Extension Suffolk County

(Source: Agricultural News, Volume 106, Number 3, March 2022)

Growers saw fertilizer prices spike in 2021 but are now seeing them hit even harder in 2022, resulting in sky high prices or an estimated increase around 80% since last year. Supply chain disruptions continue to wreak havoc and a fire at a U.S. fertilizer plant at the end of January are only just some of the factors fueling the dramatic increase. With all that being said, countless studies have proven a strong correlation between nitrogen (N) and crop yield; as nitrogen rates increase so does crop yield. So, how can growers maintain yield goals while balancing the high cost of fertilizer? Growers can achieve profitable application of nitrogen fertilizers through the implementation of best management practices (BMPs). A few BMPs are discussed below in more detail.

The first BMP has been preached many times and will continue to be preached. Soil test! It is the most important practice growers should be doing and it should be done at least once every three years. A soil test will provide an overview the nutrient status of the soil and current pH allowing for more precise nutrient applications; not applying a nutrient where there is excess and ensuring enough is applied where there are deficiencies. For example, many LI soils are very high in phosphorus (P). This allows for an opportunity to adjust rates when a soil test comes back very high for P. So, instead of applying 100 lbs P/acre (A), the rate can be reduced to 40 lbs P/A, reducing the cost of the fertilizer blend or overall program. Additionally, a soil test will provide the pH of the soil. For most vegetable crops, a soil pH between 6.0-7.0 is desirable. Adjusting soil pH to a recommended value can increase the availability of important nutrients making better use of your fertilizer dollar.

Another recommended BMP is to consider split applications of nitrogen instead of applying all the N at once. Nitrogen-use efficiency can be improved if N is made available when crop demand is greatest. Early in crop growth when plants and roots are small, demand for N is low, especially under cool, spring conditions. As temperatures warm, crop growth increases and demand for N also increases. Multiple, smaller applications will ensure N is available when the crop needs it most compared to a single application of N at planting where the potential for N leaching and/or denitrification is increased. One approach would be to apply 40% of the total N needs of the crop at plantings and apply a side dress application of the remaining 60% 3-4 weeks after seeding/transplanting.

Controlled release nitrogen fertilizer (CRNF) is another BMP growers can use to increase crop nitrogen use efficiency. The basic concept behind CRNF is like the one described above for using split applications where it is more beneficial (economically and agronomically) to make multiple, smaller applications of N compared to applying all the N at once. CRNF technology is designed to match N release with crop N demand which increases overall use efficiency. N is available when the crop needs it most and not as readily available early in the crop growth cycle when demand is low and leaching and/or denitrification potential is high. Multiple studies

conducted at the Long Island Horticulture Research and Extension Center over the past 15 years have demonstrated that CRNF is a reliable alternative to conventional soluble N fertilizer as crop yields were either maintained or increased at reduced N rates (a reduction of up to 20% is recommended). When using CRNF it is important to match the release duration of the product with the crop. A 90-day CRNF is more commonly available commercially and has shown, through our trials, to be a good fit for crops like potatoes, sweet corn, tomatoes, and pumpkins (to name just a few) who reach maturity between 70-100 days.

The last BMP we will discuss involves fertilizer placement. To make the best use of your fertilizer dollar, fertilizer should be placed where it is most accessible to the growing crop. Banded fertilizer applications place the fertilizer in the root zone of the growing crop while broadcast applications may place some fertilizer outside the crop root zone where it can be leached or used by weeds. Overall, banded applications provide higher concentrations and better efficiency of the fertilizer applied than broadcasting. Phosphorus is not very mobile and is primarily supplied to the roots by diffusion and root interception. This fact is important as P is not supplied to the plant roots by mass flow. Mass flow is the movement of nutrients to root surfaces through soil water movement. Because it is not supplied by mass flow and instead primarily supplied by root interception and diffusion, roots need to contact P in the soil for them to take it up. Broadcast applications of P limit the amount of P the roots will encounter by placing it outside the root zone. P applications will be much more efficient and have a higher cost benefit if band applied. When banding fertilizer, remember to place the fertilizer at least 2" the side and 2" below the seed to minimize injury. Additionally, to prevent salt burn when banding fertilizer, avoid using more than 80-100 lbs of N+K₂O per acre in the band at planting or move the band so it is 3" away from the seed.

With fertilizer prices estimated to be 80% higher this season than in 2021, no one wants to risk lower crop yields or quality because of nutrient deficiencies. The only option is to increase fertilizer use efficiency and make better use of your fertilizer dollar by implementing one or all the above mentioned BMPs. (*Note: this article only discusses a few BMPs and is not inclusive of all fertilizer BMPs a grower can implement*). Your local Extension Office can help interpret soil test results and make fertilizer recommendations based on those result incorporating many of the above mentioned BMPs.

2021 Storage Onion Variety Trial Highlights

Crystal Stewart Courtens and Natasha Field, CCE ENYCHP

This article contains highlights of the 2021 storage onion variety trial. The full research report, with photos and descriptions of each variety grown, can be found here: https://rvpadmin.cce.cornell.edu/uploads/doc_1031.pdf

Trial Objectives

The objective of this trial was to evaluate storage onion varieties for their yield and other characteristics. The varieties chosen were a mix of standards, newer hybrids and open pollinated varieties. Due to higher disease pressures, the onions weren't evaluated for long term storage quality.

Trial Information

Onions were seeded on March 16th with 4 seeds per cell in 72 cell trays. They were transplanted into raised beds with black plastic mulch at 9 inch in-row spacing, 3 rows to a bed about 6 inches apart. Onions were harvested as they were ready from July to August. They were cured in a high tunnel covered with shade cloth for 3 weeks prior to data collection.

Notable Varieties

- 'Sedona' (yellow) was the highest yielding onion overall with 58,312 lbs per acre extrapolated yield. It also had the largest bulbs with an average of 8.4 ounces per bulb. Our sample size for this variety was low, but in our limited sample the cull rate

was nearly zero. 'Sedona' will be grown again in the replicated trial in 2022.

- 'Powell' (yellow) was the second highest yielding with 50,065 lbs per acre. It was harder to clean than 'Sedona', but did have a good size and shape.
- 'Red Mountain' (red) was the highest yielding red onion and had overall excellent quality. It yielded 48,903 lbs per acre and had a consistent nice round shape. Average bulb size was 7.4 ounces per bulb.
- 'Cortland' (yellow) performed well on yield but had the highest germination rate of the varieties.
- Most of the varieties were hybrids but we did include some open pollinated varieties such as 'Rossa di Milano', 'Trapps Downing Yellow Globe', 'New York Early' and 'Yellow of Parma'. Highest yielding OP was 'Rossa di Milano' maintained by High Mowing Seeds and the highest yielding yellow was 'Yellow of Parma'. If you are focusing on open pollinated varieties, try seed from several different sources as the quality, shape and size may vary.

Thank you to High Mowing Seeds, Seed Savers Exchange, Bejo Seeds, Fedco Seeds, and Johnny's Selected Seeds for providing seed for the trial.

Use of Lime in Orchards

Updated from the Cornell Orchard Nutrition Management Information Bulletin #219 by W. Stiles and W. Shaw Reid

Thorough incorporation of adequate amounts of lime prior to planting a new orchard is essential. The topsoil (0-8 inch depth) should be adjusted to pH 7 and subsoil (8-16 inch depth) to pH 6.5. An adequate liming program based on soil tests should be the first consideration in developing orchard fertilization plans. Lime is the most economical source of calcium and magnesium. Regulation of soil pH through liming is also necessary to achieve optimal response to other nutrient elements. Fruit from Honeycrisp plantings can suffer from a physiological disorder called bitter pit (BP). The mitigation of BP requires the implementation of multiple tactics, of which the maintenance of soil pH around 7.0 helps.

Type and fineness of lime. Solubility of lime, and therefore, the rate at which it is effective in neutralizing soil acidity, is influenced by the fineness to which it is ground as well as its chemical composition. In general, hydrated (slaked) lime and burnt lime (oxides) are more reactive than ground limestone. Ground limestone is usually suggested for most orchard situations.

Placement of lime. Time required for lime to act is influenced by method of placement (i.e. soil contact) and by fineness of the material. In preparing soil before planting a new orchard, maximum benefit is obtained by thoroughly harrowing or rototilling the lime into the surface soil, and then plowing to work it as deeply as possible into the soil. If large quantities of lime are required it should

be applied in split applications. Working one-half to two-thirds of the total amount of lime into the soil as indicated above, plus thoroughly harrowing the remainder into the topsoil after plowing, is often suggested as an appropriate method for liming during preplant soil preparation. With some fine-textured soils that require large quantities of lime, application of about two-thirds of the total lime required in such a manner, followed by biennial surface applications of additional lime may be necessary to achieve the desired goal.

Surface applications of lime in established orchards move slowly into the soil and must be considered as long term corrective or maintenance programs. Regularly scheduled applications of lime of 2 tons per acre every two years, as predicted by soil and leaf analysis, represent the best available means of maintaining pH values of 6-6.5 and calcium and magnesium supplies in the soil. For the *Honeycrisp* variety, maintain soil pH around 7.0.

The type of lime (i.e., calcitic or dolomitic) should be determined by the need for magnesium. In most cases, even if soil magnesium is fairly high, dolomitic lime is suggested for orchards. Dolomitic lime generally has a greater neutralizing value than calcitic lime.

The text of the full extension bulletin which covers all aspects of fruit tree nutrition can be found by [following the link here](#).

Putting Your Best Foot Forward in Retail Marketing— 5 Tips to Improve Sales at Your Roadside Market

Elizabeth Higgins, CCE ENYCHP

No matter how good your products are, retail success is driven by how well you market them. Here are 5 marketing tips to help increase traffic and sales at your farm market this season:

Tip #1 – Check Your Signage

No matter how nice your market looks, people must be able to find it. Signs directing the customer to the market should be attractive, eye-catching, and easy to read from a distance. Signs should be visible far enough in advance to give the customer adequate time to decide to stop at the market and to safely enter the parking area. Guidelines for size of signs is available from the [International Sign Association](#). For example, if the speed of traffic in front of the site is 30 mph, and the street has one lane in each direction, your customers will need to be able to see and read your sign from 155 feet away. If a sign is mounted on the front of the building parallel to the roadway, research shows it needs to be at least 70% larger than the sign mounted perpendicular to the roadway, or it cannot be read in time.

In the store, signs should also be used to indicate the names and prices of every product. Products without posted prices will not sell as well as products that are priced. Customers do not want to ask the price of the product and often will not – many will do without the product rather than ask.

Tip # 2 – Look at your Layout

There are several issues to consider when designing the layout of the retail space and building the floor plan. You should lay out the store to encourage customers to walk throughout as much of the store as possible. When deciding how much of the floor should be allocated to merchandise display, a good rule to follow is that 40 percent of the floor space should be used for displaying goods while the remainder should be used for aisle ways and to encourage browsing.

Aisles should be at least nine feet wide if you use shopping carts and at least 5 feet wide without so two customers can go past each other without bumping. Lay out aisles to promote the counterclockwise walking pattern consumers are comfortable with when moving throughout a store.

Make sure that display cases and tables in the front of the store do not block the consumer's view of the back of the store. Displays should gradually increase in height as the consumer moves towards the back of the store.

Tip #3 - Improve Your Displays

Shoppers are more likely to form a positive impression of your market if products are high quality, clean, and nicely displayed. Well-stocked displays make customers want to "come and get it." No one likes taking the last of something from a bare, picked-over display. Moving products to smaller containers as they sell can help create the appearance of abundance. Make displays attractive, while at the

same time trying not to create "picture perfect" displays that a customer will hesitate to disrupt by removing produce. In some cases, removing a few items from a display may encourage shoppers to start buying.

Make it easy for the customers to reach the produce. Your display should be no more than an arm's reach in depth, about 2 feet wide, and between knee and eye level in height (36-40 inches). Avoid placing merchandise on the floor or ground, as customers will associate it with being dirty. Instead of placing boxes flat on tables, try slanting them to make a more visually appealing display, and give easier access. The industry standard slope is 15 degrees.

Organize products in related groupings. Displaying compatible products together serves to suggest additional purchases and uses of these products. Place high demand items in strategic, high-traffic locations throughout the market. Large displays attract attention, so use bulk displays to generate sales, especially for high-volume seasonal crops such as apples or corn.

Tip #4 – Don't forget about Color

Color is very important in food marketing. You will notice that many food packages and labels are blue, which has been found to be the most attractive color to most American consumers. The colors used in displays should accentuate and enhance the products rather than dominate the display. One trick is to use complementary colors to set off your produce and products: Blue—Orange, Green—Red, Yellow—Purple.

For example, mix a row of radishes between the mustard and kale, tomatoes between the lettuce and cucumbers, or intersperse peaches with blueberries to create attractive color displays.

Tip #5 – Customer Service

Lastly, consider customer service. There is nothing more frustrating than going into a retail space where you feel unwelcome or unwanted. Potential customers should be immediately welcomed with a smile and friendly greeting and served quickly and efficiently. Attentiveness to customers is vital. Appearing indifferent, avoiding contact with customers, eating, taking personal phone calls, or sitting down will be unattractive to customers and will be detrimental to sales. Personnel should appear busy by moving product around, cleaning or some other appropriate activity.

Other things you do for customer service can also bolster sales. For example, providing bags or baskets for customers to fill as they shop can also encourage them to buy more. Keeping a guest book on hand for customers to provide their names and email addresses, or a place for them to leave business cards may be a good way to gather information to stay in contact with customers and help tell the farm's story. Implementing these 5 tips this season will hopefully increase customer satisfaction and sales in your market!

DEC Announces Actions to Protect New York’s Pollinators by Restricting Use of ‘Neonic’ Pesticides

New York State Department of Environmental Conservation (DEC) Commissioner Basil Seggos announced actions to limit the unrestricted use of pesticides that can harm bee and other pollinator populations. DEC is reclassifying certain products containing the neonicotinoid (neonic) insecticides imidacloprid, thiamethoxam, and acetamiprid as “restricted use” to ensure applications are limited to trained pesticide applicators in specific situations. Restricting the use of these pesticides enables DEC to collect new data to determine where, when, and how they are used, as well as their potential impacts.

“Protecting pollinators is a top priority, and today’s action to restrict the use of these neonicotinoid pesticides is another important step in our ongoing efforts to safeguard these species that are crucial to New York’s environment, agricultural economy, and biodiversity,” Commissioner Seggos said. “Reclassifying these pesticides will ensure they are only used in targeted instances by qualified professional applicators, and only available for sale to certified applicators which will further protect public health and the environment.”

New York is committed to promoting the health and recovery of pollinator populations, as highlighted in the State’s Pollinator Protection Plan (<https://agriculture.ny.gov/system/files/documents/2021/02/pollinatorreport.pdf>). Pollinators contribute substantially to New York’s environment and economy. According to the U.S. Department of Agriculture, pollinators provide approximately \$344 million worth of pollination services to New York and add \$29 billion in value to crop production nationally each year. The state’s ability to produce crops such as apples, grapes, cherries, onions, pumpkins, and cauliflower relies heavily on the presence of pollinators.

Pesticides represent one of many factors that stress pollinators, and neonicotinoids in particular have been identified as a group of pesticides that, in general, are highly toxic to pollinators. While commercial application of all pesticides is reported to DEC as part of the State’s stringent regulatory oversight, residential applications and sales of general use products to consumers are not. The reclassification ensures proper use by trained applicators and enables DEC to collect sales and use data to estimate and monitor the quantities and locations where these products are used.

The reclassification will take effect on Jan. 1, 2023, allowing time for registrants, distributors, and retailers to prepare for the change in classification. Neonics will be reclassified under DEC’s pesticide regulation authority and pesticide registrants have been notified of the intent to reclassify the applicable products. Products labeled for “limited directed application” to tree trunks and the ground at the base of trees, shrubs, and plants are not included in the reclassification. These products provide cost-effective and unique pest control for residential applications, particularly for invasive species, and limit potential exposure to pollinators.

“Getting ‘over-the-counter’ neonic products off store shelves marks an important first step in reining in widespread neonic contamination, which we see in New York State’s water and in record yearly losses of bees,” said Dan Raichel, Acting Director of Natural Resources Defense Council’s Pollinator Initiative. “We look forward to continued work with the DEC on even more protections for people and pollinators from these neurotoxic pesticides.”

“Reclassifying the neonic insecticides imidacloprid, thiamethoxam, and acetamiprid as ‘restricted use’ takes these dangerous pollinator-killers out of circulation for the everyday consumer and helps to curb their misuse and overuse,” said Caitlin Ferrante, Conservation Program Manager, Sierra Club Atlantic Chapter. “The Sierra Club Atlantic Chapter commends Governor Hochul and DEC for this important action to help reverse the pollinator crisis and we hope today’s announcement will lead to further restrictions of this dangerous insecticide, and recovery of plummeting bird and insect populations.”

“Over the last decade, neonics have come under increasing scrutiny because of their impacts on pollinators—but new evidence demonstrates that these chemicals are harming an even wider range of wildlife,” said Erin McGrath, Policy Manager for Audubon New York. “Exposure to neonics can prevent songbirds from orienting themselves for their migration, cause significant weight loss, and interfere with their reproductive success. We thank Governor Hochul and DEC for taking action to curtail the unrestricted use of neonic pesticides in consumer products, which will help protect birds and the places they need.”

For more information about DEC’s pesticides program visit: <https://www.dec.ny.gov/chemical/298.html>

New York State Announces Two Grant Opportunities to Help New York Farmers Protect Soil And Water Quality

New York State Department of Agriculture and Markets Commissioner Richard A. Ball today announced two grant opportunities totaling \$21 million for projects that will help New York’s farmers reduce greenhouse gas emissions, promote energy savings, mitigate water and soil quality concerns, and increase on-farm resiliency to climate change.

Climate Resilient Farming:

The Climate Resilient Farming Grant Program helps farms reduce their operational impact on the environment and address the impacts of extreme weather events resulting from climate change.

(Continued on page 10)

(Continued from page 9)

Through five rounds of funding to date, awarded projects are estimated to deliver the equivalent of 320,000 metric tons of CO₂e per year emissions reductions, equivalent to removing 69,500 cars from the road for one year. The 2020-2021 and 2021-2022 State Budget, through the New York State Environmental Protection Fund, provided for a combined \$8 million in funding for this sixth round.

The Department is now accepting applications for the program, with funding available to support agricultural projects and related equipment purchases that aim to reduce greenhouse gas emissions and help agricultural producers prepare for and better manage impacts of climate change, including increased heavy storm events, overall rainfall, and periods of drought.

Applications must be for one of the following project categories:

Track 1 - agricultural waste storage cover and flare systems; Track 2 - water management systems; and Track 3 - Healthy Soils NY, soil health management practice systems.

Track 1 – Agricultural waste storage cover and flare systems, \$4 million: projects will reduce methane emissions from the farm and increase the farm’s resiliency to major precipitation events.

Track 2 – Water management systems, \$2 million: projects will help prepare agricultural producers for flood events and drought. The “water management” umbrella includes best management practices, which stabilize or reinforce conveyances, reduce flows, and/or store water.

Track 3 – Healthy Soils NY, \$2 million: projects will improve soil health on farms and enhance a farm’s resiliency to the impacts of climate change, including benefits during times of drought, wet weather, as well as optimal growing conditions. Soil health practices can also create carbon sinks, increase water holding capacity, and

improve recycling of nitrogen by crops, thereby mitigating greenhouse gas emissions.

The State’s County Soil and Water Conservation Districts can apply on behalf of farmers for this competitive grant program. The application and additional information are available on the Department’s website at <https://agriculture.ny.gov/funding-opportunities> Project proposals are due at 4:30 p m on March 28, 2022.

Agricultural Non-Point Source Pollution Abatement and Control Program:

In addition to the Climate Resilient Farming Grant Program funding, an additional \$13 million is available to support agricultural water quality conservation projects across the State through Round 28 of the Agricultural Nonpoint Source Abatement and Control Program.

The Agricultural Nonpoint program awards projects that focus on either environmental planning or the implementation of best management practice systems to protect New York’s watersheds. Projects include conservation measures, such as nutrient management through manure storage, vegetative buffers along streams, and conservation cover crops.

The State’s County Soil and Water Conservation Districts can apply on behalf of farmers for this competitive grant program, which is also funded through the New York State Environmental Protection Fund. The application and additional information are available on the Department’s website at

<https://agriculture.ny.gov/funding-opportunities> **Project proposals are due at 4:30 p m on May 2, 2022.**

Spray Safe, Spray Well: Lessons Learned from the Eight-Part Series on Pesticide Safety and Efficacy

Ethan Grundberg, CCE ENYCHP

Thanks to support from a Northeast Extension Risk Management Education (NERME) award, ENYCHP vegetable specialists were able to offer a free bilingual workshop series this winter focused on the fundamentals of pesticide safety and efficacy for beginning and organic farmers. For those of you who missed the live series, but would like to access the information that was shared from the guest presenters, all of the “Spray Safe, Spray Well” workshops are available on the ENYCHP YouTube channel. English language recordings are available at <https://www.youtube.com/playlist?list=PLk2Q-bw9Aiu51QWFPEgureC7d8CZDWyyX> and the Spanish language recordings can be accessed at <https://www.youtube.com/playlist?list=PLk2Q-bw9Aiu5jdWmFidvn-L5ZDmtgwlpS>. While it is impossible to distill all of the lessons learned from the series into a single article, some of the most impactful points for many growers will be presented as bullet points below.

- Alejandro Calixto, Director of the NYS Integrated Pest Management Program, gave some excellent examples of IPM programs for organic winter squash growers trying to manage powdery mildew, cucumber beetles, and other common pests. Early detection, proper identification, and early intervention are critical for OMRI-listed pesticides to be effective on these pests.
- Ana Maria Arce from TeeJet Mexico reinforced the importance of regular nozzle maintenance. A single worn nozzle orifice or plugged nozzle tip can result in a sizable impact on spray output that can result in poor coverage and off-label application rates.
- Jason Deveau, the Application Technology Specialist with the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) and co-manager of the Sprayers 101 website (<https://sprayers101.com/>), provided clear examples of how droplet size, pressure, and sprayer type can all combine to impact spray

coverage. Using water sensitive paper cards in the target crop is the most effective way to assess your spray coverage, especially for contact pesticides like pyrethroid insecticides and protectant fungicides (chlorothalonil, copper, sulfur, etc).

- Sarah Whelen with the NYS Department of Environmental Conservation clarified which growers legally need to obtain a pesticide applicator license and referenced an online course for growers who are not licensed applicators to become eligible to provide annual Worker Protection Standard trainings (see <http://pesticideresources.org/wps/ttt/course/index.html> for details).
- Davis Blasini and Ricardo Orellana from the Produce Safety Alliance reviewed best practices for selecting and using sanitizers post-harvest. Sanitizers are often overlooked as pesticides on farms and are subject to the same regulatory requirements like Worker Protection Standard training as pesticides used in the field.
- Amara Dunn, Biocontrols Specialist with NYS Integrated Pest Management Program, provided an overview of the different ways that biofungicides work and shared some resources for assessing the performance of different biofungicides for controlling vegetable diseases.
- Teresa Rusinek, vegetable specialist with ENYCHP, discussed the impacts of alkalinity, pH, and other water quality characteristics on pesticide performance.
- Riley Harding, Northeast technical agronomist with ORO Agri, presented some of the basics of what adjuvants are and how they work to improve the efficacy of pesticide applications as well as how to select OMRI-listed adjuvants.
- Dr. Ana Legrand, assistant professor of entomology at UConn, discussed the modes of action of common OMRI-listed insecticides. Not only do the modes of action impact which target pests the insecticides are most effective at managing, the differences also influence the best practices for spray application. For example, *Bacillus thuringiensis* products (i.e. Dipel, Javelin, XenTari, Agree) must be consumed by caterpillar pests in order for them to be effective, while pyrethroids (i.e. PyGanic) must come into direct contact with the target pest, while systemic conventional insecticides are taken up by the plant and consumed as pests feed on the plant.
- Veronica Cervantes with Biobest USA talked about how to incorporate beneficial insect releases into an effective integrated pest management program and precautions to take when combining the use of insecticides with beneficial releases.

The Spray Safe, Spray Well team is excited to transition to the next phase of the project during which direct on-farm technical support will be provided to program participants on related subjects such as sprayer calibration, evaluating coverage, testing water quality, and more. Many thanks to Adriana Pericchi and Lala Montoya who provided translation services and simultaneous interpretation for all of the workshops and to all of the guest presenters for sharing their expertise!

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



New Resources

New Tarping Guide Available

A new University of Maine Cooperative Extension publication, "[Tarping in the Northeast: A Guide for Small Farms](#)," provides the most up-to-date information on an emerging practice of tarping — applying reusable tarps to the soil surface between crops and then removing them prior to planting — for weed and soil management. Intended for beginning and



experienced farmers, and based on research and farmer experience, the guide highlights successful tarping practices, as well as situations to avoid. University of New Hampshire researcher Natalie Lounsbury led the development of the guide.

Eastern New York Veg News Podcast: Winter Greens Research Updates

In this episode, vegetable specialists Ethan Grundberg, Elisabeth Hodgdon, Jud Reid, and grower Leon Vehaba discuss winter greens production in Eastern New York. They highlight research results from the past five years that aimed to develop nitrogen fertility and heating recommendations for winter high tunnel greens production. Leon shares his lessons learned from his experience at the Poughkeepsie Farm Project and how he made changes to his greens production as a result.

Listen to the podcast [here](#), or access it through your smartphone's podcasting app.



Fresh Market Pea Variety Trial Results from 2021

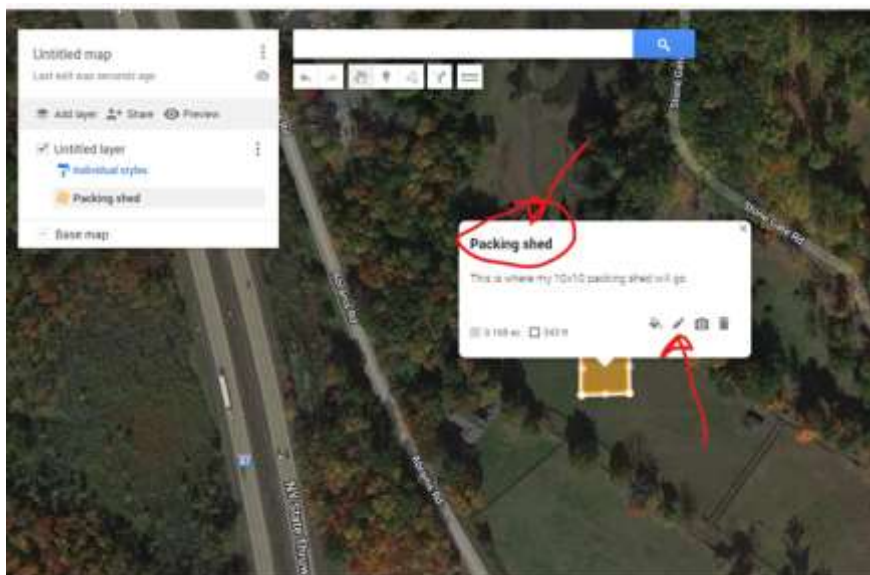
ENYCHP technician Natasha Field shares results from a replicated shell and snap pea variety trial she conducted with specialist Crystal Stewart-Courtens in spring 2021 in this [short video](#).

Creating a Custom Map Using Google Maps

Elizabeth Higgins, CCE ENYCHP

Every now and then it is handy to be able to create a map. Using Google Maps, it is easy to create a custom map of your farmstead or your fields. You can draw in locations of specific crops, future locations of buildings or other infrastructure or mark specific locations. Google Maps also makes it easy to provide additional information about the information you add, and to print maps for distribution.

I have created a handout with step-by-step instructions for creating your own map; available at this link: <https://cornell.box.com/s/8xdm169mw1kc7kk5rpxit8789hixwna9>



Meet the New CCE Ag Climate Resiliency Specialists!



Zach Spangler

Ag Climate Resiliency Specialist with Cornell Cooperative Extension, Harvest New York

Phone: (518) 935-8062

E-mail: zhs3@cornell.edu

Zach Spangler is an Ag Climate Resiliency Specialist with Cornell Cooperative Extension's Harvest New York team. His work supports farmers efforts to contribute to climate change mitigation, improve their ability to respond to stresses, and adapt to changing climate patterns while maintaining or improving farm viability. Prior to joining the Harvest New York team, Zach earned an M.Sc. in Disaster Risk Management and Climate Change Adaptation from Lund University (Sweden) where he researched

barriers and enablers of farmers engagement in climate change adaptation. Zach also holds a B.S. in Chemistry from SUNY-ESF and has contributed to diverse farms in California, New Hampshire, and southern Sweden.



Jenna Walczak

Ag Climate Resiliency Specialist with Cornell Cooperative Extension, Harvest New York

Phone: (518) 791-1888

E-mail: jw2254@cornell.edu

Jenna Walczak is an Ag Climate Resiliency Specialist with Cornell Cooperative Extension's Harvest New York team. She works with extension staff to assist farmers in implementing practices to mitigate climate change and reduce its impact on New York State farms. Prior to joining Cornell Cooperative Extension, Jenna worked in agriculture and on environmental research projects across the U.S. She has farmed and managed grant projects on a handful of vegetable and small-scale livestock farms--including the

Journey's End Refugee Services urban farm in Buffalo, NY and Rosebird Farms in Kingman, AZ. Jenna has a B.A. in Biology and Environmental Studies from Colgate University. She is based in the Hudson Valley.

Social Media:

Instagram: https://www.instagram.com/resilientag_nys/

Facebook: <https://www.facebook.com/ResilientAg.NYS>

Twitter: https://twitter.com/ResilientAg_NYS

Marketing Support for Farms Through the Center for Agricultural Development & Entrepreneurship (CADE)

CADE is recruiting 20 **farmers to receive tailored marketing support in 2022**. Farmers are a good fit for this program if they are looking for support in the following areas:

- scaling up for wholesale and/or institutional sales
- market matchmaking
- adding value with certifications and trainings
- farm safety and labor plans
- education on topics such as e-commerce, marketing and branding
- agritourism and other emerging market opportunities

Farmers must apply to join the program on our website, but participation is completely FREE. Farmers can expect intensive 1:1

support from CADE staff, and should expect to receive services for about one year. Learn more at: <https://www.cadefarms.org/emtp-farmer>

We are also accepting **registration from institutions to receive free professional development and training for staff**. Renowned experts from [The Teaching Kitchen at Lenox Hill](#) will offer customized professional development support to participants, and coach them on how to **work within their existing budgets** to procure more local food. New York Institutions that would benefit from these services can learn more and register at: <https://www.cadefarms.org/emtp-institution>

Please reach out to Kaitlyn Sirna at kaitlyn@cadefarms.org for more information.

Join other Berry Growers and Travel to **Costa Rica** in December 2022!

Costa Rica Agritourism and Cultural Study Tour hosted by Laura McDermott, and organized by Explorations by Thor, a well-respected international travel company that specializes in agricultural tours will embark December 3 – 11, 2022. Don't miss this opportunity to travel, learn and relax with other farmers. It will be a blast!

This one-of-a-kind guided excursion is an educational and entertaining way to visit another country while networking with fellow berry production and Agri-tourism professionals. The tour allows attendees the convenience of a completed itinerary including hotels, most meals, and in-country transportation. Guests will visit a wide variety of Costa Rican agriculture and while still having time for cultural highlights.

This excursion is designed specifically for members of the berry and Agri-tourism industry. It is an opportunity to meet fellow growers, share ideas, update your understanding of what's happening in our industry, and travel with trained professionals. You are encouraged to invite friends and family from around the country to join you on this trip. While the tour was designed with farmers in mind, anyone with an interest in agriculture is welcome.

Attendees will plan to arrive at the San Jose Airport on Saturday, December 3rd, and will stay at the [San Jose Hilton](#). On the second day the group will visit a coffee plantation and a chocolate factory near San Jose, the capitol of Costa Rica and enjoy some down time in the city. The third day will require an early start to travel to Irazu Volcano. This volcano is the highest active volcano in the country. If the weather is clear, you will see the Caribbean Sea from the craters rim. While in the highlands we'll visit a berry farm that is growing blackberries, raspberries, strawberries, blueberries, and Aztec gooseberries or goldenberries. After enjoying lunch we'll visit a berry producers marketing Coop, and then continue to visit the [Center for Tropical Agronomy Research & Education \(CATIE\)](#). While there we will tour the botanical garden and enjoy a presentation about agritourism enhancement at CATIE. Ecological and agritourism are huge contributors to Costa Rica's economy. To culminate this jam-packed day, we'll end at the [Hotel Suerre](#) in Guapiles which is in the heart of the banana growing region of Costa Rica.

On the fourth day the group will visit Costa Rica's "green dam," the largest hydroelectric dam in Central America and the 2nd largest infrastructure project after the Panama Canal in Central America. Costa Rica has nearly 100% of its electricity coming from renewable sources such as wind, solar, geothermal and hydroelectric. Meet with representatives and discuss how the dam is connected to the agricultural community. Following that dam we will visit a local farmer who has developed a side business of taking foreigners on farm tours. We will also stop at a papaya farm and meet with a former Dole agritourism director.



On day five, enjoy a pineapple tour in the morning and after lunch travel to and take a guided walk through [La Paz Waterfall Gardens](#), one of the best eco-parks in Costa Rica. The group will travel to the Alajuela area and visit a strawberry farm dedicated to agritourism in Fraijanes and dine at a local's home that evening. We will stay at the [Hotel Martino](#) in Alajuela that night.

On the 6th day we'll depart for Guanacaste and the best beaches in Costa Rica! Enroute we'll visit a large scale farm of palm oil, sugarcane, dragon fruit, rice and quarter horses and then enjoy a BBQ lunch before touring a commercial rice mill on the way to the [Bosque del Mar hotel](#) on the Pacific Ocean.

On day 7 the group will visit [Hacienda El Viejo](#) and take a guided wildlife tour boat ride in the wetlands. The free



evening is followed by day 8 which is free time to relax by the beach or take in any optional activities in the area, which include catamaran snorkel and sail, sportfishing, zipline, etc. Or visit Flamingo beach via your guide and driver to do some shopping and enjoy lunch on the town. A farewell dinner in Hermosa Beach will round out the entire tour.

Participants need to arrange their own transportation into San Jose, Costa Rica Airport on December 3rd and out of Liberia, Costa Rica Airport on December 11th. Hotel rooms, most meals, transportation, bilingual guide(s), tours/technical visits, gratuities for driver and guide are all included. Estimated pricing is based on double occupancy, per person is \$2,450.

Reservation/payment deadlines: August 1, 2022 - \$250 non-refundable deposit. October 15, 2022 - remaining balance. The single supplement is \$575. Minimum capacity of 20 people must be met; technical visits are subject to change, but replacements of equal value will be arranged. Full COVID vaccination and a valid passport is required of participants.

Space is limited! Register soon to reserve your spot. An invoice for the deposit, due on August 1st will be sent as soon as two weeks before the August first date or when the trip meets the 20 traveler minimum. For more information, please contact Laura McDermott, lgm4@cornell.edu. For specific tour information and help with air travel, contact Explorations by Thor, info@explorationsbythor.com, Phone: 859.459.0500.

REGISTER HERE: <https://form.jotform.com/213615514749156>



Upcoming Events

Remote Good Agricultural Practices (GAPs) Training & Farm Food Safety Plan Writing

April 4-5, 2022

Join Cornell Cooperative Extension's Lake Ontario Fruit Program, Cornell Cooperative Extension of Broome County, and the CCE-Eastern NY Horticulture Team on April 4th for a remote GAPs training. Instructors will walk growers thru how to conduct a risk assessment on their farm utilizing the seven areas of farm food safety. Participants will gain hands-on experience in creating a traceability system for their farm, as well as learn about packing house design with food safety principles guiding placement of equipment and suggested materials. Students will also learn about how to train their employees related to food safety and understand what they will need to implement on their farm in order to pass a third-party food safety audit, such as GAPs.

For more details and registration: <https://lof.cce.cornell.edu/event.php?id=1648>

2022 Virtual Agricultural Seminar

April 5-7, 2022 10am—4pm

Presented in coordination with various federal agencies, the Seminar will focus on federal regulations governing agricultural employment and include presentations on the Fair Labor Standards Act, Migrant and Seasonal Agricultural Worker Protection Act, H-2A temporary agricultural program and Office of Foreign Labor Certification. Learn about requirements for wages, housing, transportation, field sanitation, farm labor contractor certification, and more. Discussions will also include Equity, Retaliation and Labor Trafficking in agriculture.

Register Here: <https://virtual-ag-seminar22.eventbrite.com>

Greenhouse IPM Meeting

April 6, 2022 2pm—4pm

Dr. Betsy Lamb, NYS IPM, will be presenting about integrated pest management in greenhouses and about the use of biologicals to control greenhouse pests. Chris Stoltzfus will provide a tour of the greenhouses and discuss their best practices for transplant production. 2 credits available for categories 1A, 23, and 24

Register Here: https://enych.cce.cornell.edu/event_preregistration_new.php?id=1639

Respirator Fit Testing Clinics

April 7 - Orleans County

April 8 - Niagara County

April 25, 26 - Orange County

May 2 - Warren County

May 3 - Albany County

May 12 - Ontario County

May 13 - Yates County

NYCAMH will be offering respirator fit testing clinics across the state this year. For more information, contact NYCAMH at 800-343-7527 or fittest@bassett.org

Micro (Drip) Irrigation for Small Vegetable Farms

April 19, 2022 2pm

Access to capital, reliable water with acceptable quality, and initial design and installation are a few of the challenges facing adoption of micro-irrigation in small farms. Proper operation and maintenance are equally important. Observations suggest there is a lack of desire on the part of most third-party designers to engage small settings and a need for enhancing farmers' technical knowledge of micro systems. This webinar is intended to enhance in-house awareness of key planning and design considerations for micro-irrigation in small farms with participants also exposed to design tools, templates, and other information resources, handouts, and factsheets.

Register Here: <https://conservationwebinars.net/webinars/microirrigation-for-small-vegetable-farms?sr=wp~mkt-whenPub>



Cornell Cooperative Extension
Eastern NY Commercial Horticulture Program

The Label is the Law. Cornell Cooperative Extension and the staff assume no liability for the effectiveness of results of any chemicals for pesticide use. No endorsement of any product is made or implied. Every effort has been made to provide correct, complete, and current pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly and human errors are still possible. These recommendations are not substitutes for pesticide labeling. Please read the label before applying any pesticide. Where trade names are used, no discrimination is intended and no endorsement is implied by Cornell Cooperative Extension.

Diversity and Inclusion are a part of Cornell University's heritage. We are a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.