

February 2021

News From CCE

News from CCE

By Jingjing Yin, CCE Chemung

Happy February! Are you enjoying the winter, or counting down the days until spring? February is still a perfect time for gardeners to catch up on tasks that were put off when the weather was nicer. Whether it is painting the handles of your garden tools, planning your vegetable garden on graph paper, or making ice luminaries, there is plenty to keep you busy while you dream of spring.

Winter gardens can be very interesting too, especially if you have snow covering your trees and perennials. But when heavy snow or ice builds up on the branches, it may break weak or delicate branches and possibly cause injury to people or plants below.

I love snow. It is not only because it makes everything look so beautiful and pure, but also because it is a great gift from sky for gardeners and farmers. There is a saying in China that a fall of seasonable snow gives promise of a fruitful year. Snow acts as an extra layer of mulch for your plants, protecting them from the wind and the cold. Microorganisms also become more active under snow, breaking organic matter and releasing more nutrients to the soil. When snow melts, the ground receives water slowly and steadily, providing needed water for dry plants.

In this month, there still will be lots of virtual workshops and conferences for gardeners and farmers. They are listed in this newsletter and CCE Chemung and Tioga website. Make sure to check them out. I am sure you will find the topics you are interested.

Finally, if you have any questions, concerns, or comments, please feel free to contact us. Stay safe and healthy.



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Inside this issue:

- Tomato breeding breakthrough
- New yummy and beautiful cherry tomato variety
- NYS Farm outlook
- Carrot disease research
- Workshops — online of course
- And more!

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For more information about the Tioga County Master Gardener program, please contact Barb Neal at 607-687-4020 or ban1@cornell.edu.



New Cherry Ember tomato reveals striped charm, bright flavor

By Erin Rodger | January 26, 2021

Cherry tomatoes are a staple in home gardens, farm fields and local food markets, but growing them can be a challenging undertaking. Now, a new variety from Cornell AgriTech provides improved yield and shelf-life while enhancing both visual and culinary appeal.

A cross between heirloom tomato varieties, Cherry Ember was developed by Phillip Griffiths, associate professor of horticulture in the School of Integrative Plant Science, part of the College of Agriculture and Life Sciences. The new tomato is now on sale through Fruition Seeds, an organic seed company based in Naples, New York.

“One of the problems with cherry tomatoes is that they tend to have thin skins, and so half of them crack on the plant, and the half that you pick crack after a few days,” Griffiths said. “Cherry Ember is a little firmer, with more of the post-harvest characteristics of a grape tomato.”

Cherry Ember tomatoes dazzle growers with their metallic gold stripes and thick, crack-resistant skin.

Its thicker skin and meatier flesh helps keep the fruit from cracking both in the field and after being harvested — even during high rainfall seasons, which pose problems for thinner skins.

“The increased shelf-stability is a very important attribute of this variety,” Griffiths added, “especially when combined with high yield, desirable aesthetics and a smaller, single-bite size.”

When Petra Page-Mann saw Cherry Ember at one of Griffiths’ field trials in 2019, it stood out like a “luminescent gem.” As the co-owner of Fruition Seeds, she has seen increased grower interest in unique color and flavor combinations. With its metallic gold stripes, rich taste and ease to grow, Page-Mann was eager to add the new variety to their sales portfolio, but it still needed a name.

Last fall, she launched a naming contest on Fruition Seeds’ Instagram account with Griffiths’ support. They sorted through more than a thousand suggestions before holding the final runoff vote, where Cherry Ember emerged as a clear winner.

“It’s a great introduction to life beyond the red tomato,” Page-Mann said. “It’s like a classic red tomato in terms of flavor, but there are brighter notes, especially if you let it sit on the vine. Then you get bright fruit flavors.”

Cherry Ember also gives growers something to look forward to as early as mid-July since it ripens just 65 days after being planted and continues to grow until the first frost.

“We love Griff’s creativity with visuals and flavors, as well as his focus on regional adaptation,” Page-Mann said. “We’ve trialed dozens of his tomatoes over the past few years, and they are a dream to grow and sell in New York.”



Tomato could get genetic reboot from wild ancestor

By Aaron J. Bouchie *Cornell Chronicle* December 3, 2020

Thousands of years ago, people in the region now known as South America began domesticating *Solanum pimpinellifolium*, a weedy plant with small, intensely flavored fruit. Over time, the plant evolved into *S. lycopersicum* – the modern cultivated tomato.

Although today's tomatoes are larger and easier to farm than their wild ancestor, they also are less resistant to disease and environmental stresses like drought and salty soil.

Researchers from Boyce Thompson Institute have created a high-quality reference genome for *S. pimpinellifolium* and discovered sections of the genome that underlie fruit flavor, size and ripening, stress tolerance and disease resistance. Their results were published Nov. 16 in *Nature Communications*.

“This reference genome will allow researchers and plant breeders to improve traits like fruit quality and stress tolerance in the tomato, for example, by helping them discover new genes in the modern tomato as well as by reintroducing genes from *S. pimpinellifolium* that were lost over time,” said Zhangjun Fei, co-corresponding author and an adjunct professor in the School of Integrative Plant Science (SIPS) in the College of Agriculture and Life Sciences (CALS).

Although other groups had previously sequenced *S. pimpinellifolium*, Fei said this reference genome is more complete and accurate, thanks in part to cutting-edge sequencing technologies that are able to read very long pieces of DNA.

“Older sequencing technologies that read short pieces of DNA can identify mutations at the single-base level,” said Shan Wu, a postdoctoral scientist in Fei's lab and co-corresponding author on the paper. “But they aren't good at finding structural variants like insertions, deletions, inversions or duplications of large chunks of DNA.”

“Many known traits of the tomato are caused by structural variants, so that is why we focused on them,” Fei said. “Structural variants also are understudied because they are more difficult to identify.”

Fei's group compared their *S. pimpinellifolium* reference genome to that of the cultivated tomato, called Heinz 1706, and found more than 92,000 structural variants.

The researchers then combed the tomato pan-genome, a database with the genomes of more than 725 cultivated and closely related wild tomatoes, and discovered structur-



Solanum pimpinellifolium, the predecessor of the modern cultivated tomato. Photo: Carmen Catalá Lab/Provided

al variants related to many important traits. For example, the modern cultivated tomato has some genomic deletions that reduce their levels of lycopene, a red pigment with nutritional value, and an insertion that reduces their sucrose content.

Jim Giovannoni, a BTI faculty member and co-author of the study, said many consumers are disappointed in the quality and flavor of modern production tomatoes because past breeding efforts ignored those traits in favor of performance and yield.

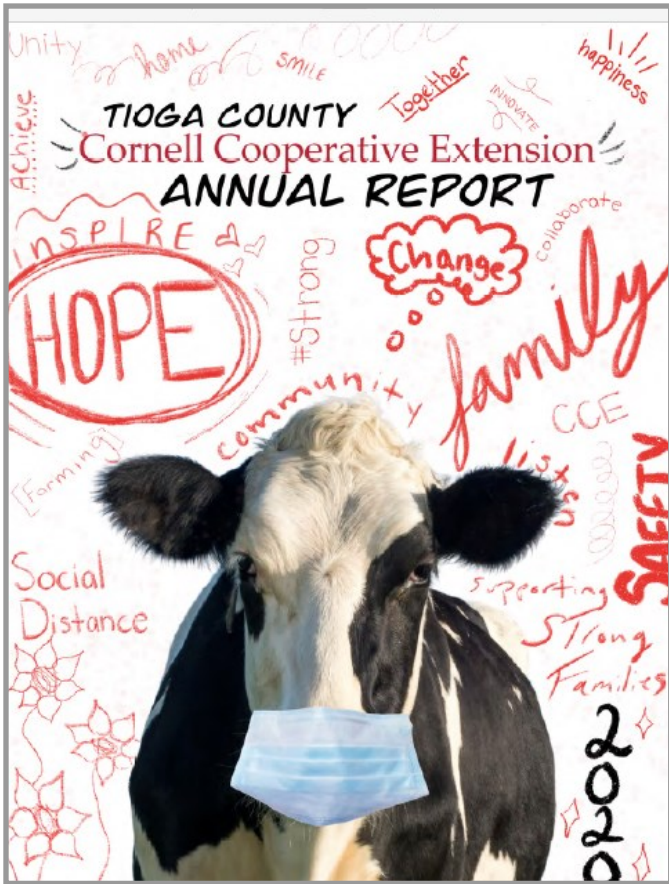
“Identification of the additional genetic diversity captured in the *S. pimpinellifolium* genome provides breeders with opportunities to bring some of these important features back to store-bought tomatoes,” said Giovannoni, an adjunct professor in SIPS and a scientist with the U.S. Department of Agriculture's Agricultural Research Service.

The researchers found many other structural variants that could be of interest to plant breeders, including variants in numerous disease-resistance genes and in genes involved in fruit size, ripening, hormonal regulation, metabolism and the development of flowers, seeds and leaves.

“So much genetic diversity was lost during tomato domestication,” Fei said. “These data could help bring some of that diversity back and result in tomatoes that taste better, are more nutritious and more resilient.”

Other BTI faculty members on the paper include Carmen Catalá, an adjunct assistant professor in SIPS; Gregory Martin, a professor in SIPS; and Lukas Mueller, an adjunct professor in SIPS. Also contributing was Susan Strickler, director of the BTI Computational Biology Center.

The research was supported by the National Science Foundation. Plant material for gene sequencing was provided by the C.M. Rick Tomato Genetics Resource Center at the University of California, Davis.

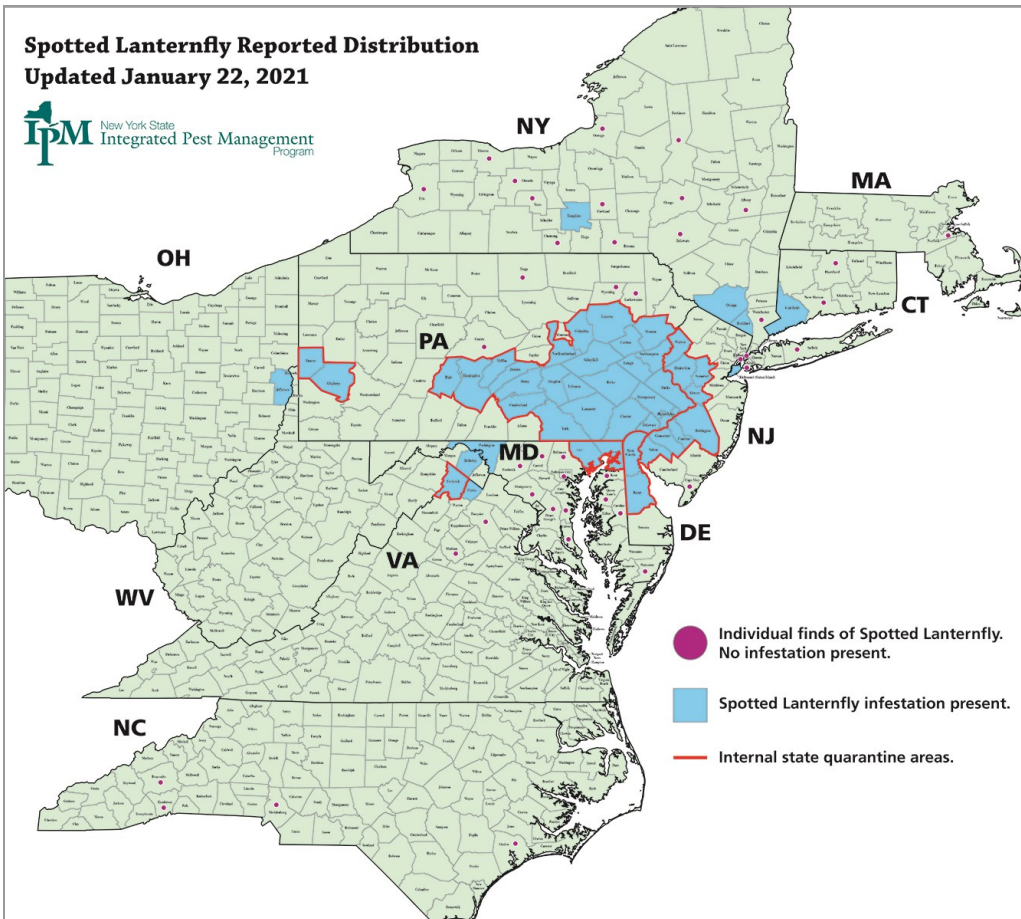


CCE Tioga’s Annual Report is Here!

2020 was a year like no other and CCE Tioga’s staff was up to the task of pivoting and delivering the fine content and services you have come to expect—but this time with a socially distant twist.

Take a minute to read through the annual report. Find it here at:

<https://www.flipsnack.com/ccetioga/cornell-cooperative-extension-tioga-annual-report.html>



Spotted Lanternfly in Ithaca

Folks, we knew this would happen eventually, but Spotted Lanternfly has been found in Ithaca—very near our counties to the south.

SLF has the capacity to truly disrupt the apple and grape industry here in NYS.

For information about SLF, go to: <https://nysipm.cornell.edu/environment/invasive-species/exotic-pests/spotted-lanternfly/>

Container Grown Trees and Shrubs – Fix Those Roots Before You Plant

By Vincent Cotrone, Penn State Extension <https://extension.psu.edu/container-grown-trees-and-shrubs-fix-those-roots-before-you-plant>

There are several situations that can trigger root problems and death of your new plant. Using preventative or correctional measures will help to ensure your plant thrives.



Photo Credit: Vincent Cotrone

Years ago, trees and shrubs were dug up and transplanted to a new location or shipped by nurseries with bare roots while they were dormant (not in leaf). This system of transplanting worked well if the roots were kept moist and as long they were planted quickly before they broke bud.

Today most of the shrubs and many small trees are being grown in light plastic containers at nurseries around the country. This allows us to move and transplant these plants almost anytime throughout the growing season, extending our ability to plant landscapes later into the summer. The shrubs and trees are grown in a soilless media such as pine bark and perlite and constantly irrigated in the nursery (often drip-irrigated) to increase growth and keep the plants alive. Containerized plants do not require the labor-intensive digging that bare root or balled and burlapped plants require before plants break bud. They also do not leave roots behind during a digging process and undergo transplant shock due to loss of roots.

Containerized plants sound great, but there are several problem conditions that can cause root problems and the death of your new plants. The first major problem has to do with growing a root system in a small pot. Tree and shrubs will quickly grow large root systems that hit the sides of the container and turn. Within no time the container is full of circling roots and the plant becomes pot bound. Several years after planting, these circling roots will begin to girdle or strangle the stem or

trunk, ultimately killing the tree or shrub.

The next issue is the soilless media that quickly dry out when planted in a landscape that soon becomes hot and dry. The plant's root system that was used to be irrigated in a nursery, is now under stress and drying out after transplanting into soils. Because containerized plants have 100% of its root system, they quickly struggle to survive if they are not irrigated, so make sure you are watering container-grown trees and shrubs.

The last concern involves the depth of the stem and root system in the container. All too often the trees or shrubs are planted a little bit deep in the container. This causes more root defects and when planted deeper in a landscape the root system often adjusts by growing up and then circling or girdling the stem with time.

Preventing or correcting these problems is not that difficult, but needs to be done. First, examine the root system of the plants you are about to purchase. Pull them out of the container and look to see if it is "pot bound" and already has many circling roots. If so, you might want to look for another plant. You can also ask the nursery if they are using new containers that air-prune roots, or container painted with SpinOut, a copper hydroxide solution that reduces circling root.

Once you have purchased containerized trees and shrubs, be prepared to cut and manipulate roots before you plant it. Research has shown that it is best to sever roots with a sharp utility knife or handsaw or even a sharp spade. Even shaving the sides of the container-grown root system with a handsaw works well to remove the circling roots that formed at the edge of the container. Don't worry, this won't really hurt the plant. It has 100% of its root system unlike bare root and balled and burlapped production that leaves many roots back in the nursery when dug. Studies show that the roots that are cut regenerate quickly and grow into the landscape soils, helping the plant get established and survive dry spells.



Photo: University of Maryland

Corralling Carrots' Microbial Allies Could Stymie Disease

ARS USDA January 28, 2021

Contact: Jan Suszkiw

Email: Jan.Suszkiw@usda.gov

Carrots, while in the ground, are home to a community of microorganisms, some members of which wage a kind of battle for supremacy against others that cause plant disease and costly losses to farmers who grow the vegetable.

Now, a team of university and Agricultural Research Service (ARS) scientists has begun to identify some of these "good guy" microbes. Reported in the June 2020 issue of *PLOS One*, the findings provide a critical step toward learning how carrot growers could enlist these beneficial microbes as an effective defense against diseases like *Alternaria* leaf blight.



One clue to emerge is soil-building practices that allow the microbes to colonize carrots, protecting them from attack. Another tantalizing clue is the genetic makeup of the carrot varieties themselves, which may predispose them to being colonized.

Annually, Americans eat nearly 14 pounds of carrots per person, making it the nation's six-most consumed fresh vegetable. In addition to adding appealing color and flavor to salads, vegetable medleys and other dishes, carrots are rich in beta carotene, vitamins, minerals and dietary fiber. Seven states, led by California, produce 94 percent of the U.S. carrot crop.

Threatening that farm-to-table supply, however, is *Alternaria dauci*, the fungal culprit behind *Alternaria* leaf blight, which occurs in most areas where carrots are grown. Unchecked, the disease causes decay in both the carrot's distinct feathery leaves above ground and taproot, below ground, diminishing its yield, quality and marketability.

Fungicide use, rotations with non-host crops and resistant varieties are among tactics used to counter *Alternaria* leaf blight. However, the potential of bacteria and fungi that peacefully

colonize the carrot plant—called "endophytes"—may also have merit, said Philipp Simon, a plant geneticist who leads the ARS Vegetable Crops Research Unit in Madison, Wisconsin.

ARS and university researchers are studying ways to bolster helpful soil microbes that can naturally protect carrots from disease.

To learn more, collaborators with Purdue University and the Organic Seed Alliance, together with Simon, evaluated 36 diverse commercial carrot varieties and breeding lines for their reactions to *Alternaria* leaf blight in either conventionally managed or organically farmed plots. In the conventional plot, for example, pre-emergent herbicides were applied after the carrots had been planted, while in organic plot, weeds were hand-pulled as needed.

The researchers ranked the severity of *Alternaria* leaf blight in the carrots on a scale of 1 to 12 and harvested the vegetables. They grew cultures of endophytes from nine of lowest-scoring (healthiest) carrot varieties and identified them using DNA "fingerprinting" methods. They also conducted petri-dish and seed experiments confirming the endophytes' anti-*Alternaria* activity.

Among their findings:

- More bacteria (22 species) than fungi (six species) were isolated from the carrot varieties.
- *Stenotrophomonas*, *Xanthomonas*, *Pseudomonas*, *Paenibacillus* and *Methylobacterium* bacteria were among the most prevalent.
- Soils in organic plots had more organic matter, a greater diversity and abundance of endophytes, and plants grown in these plots had lower disease levels than conventional plots.

Some carrot varieties' genetic makeup made them more "endophyte-friendly" than others, especially in the organic plot. Other varieties hosted lots of endophytes regardless of how they were grown, suggesting a complexity that still needs to be teased out.

Exactly how the endophytes protect carrots also isn't well understood. Some possible explanations include excluding *Alternaria* leaf blight fungi from choice space and nutrients, secreting antibiotics to keep them at bay or by helping mobilize the carrot plant's own defense, called "induced systemic resistance."

The researchers plan additional studies to learn more about which mechanisms are at work in carrots and explain these results. They will also conduct more field trials to confirm and expand upon the results observed thus far.

The [Agricultural Research Service](#) is the U.S. Department of Agriculture's chief scientific in-house research agency. Daily, ARS focuses on solutions to agricultural problems affecting America. Each dollar invested in agricultural research results in \$17 of economic impact.

Support Local Farms and Local Farmers

Some websites to explore:

Buy Local Food—a searchable website with farmers who sell direct to consumers. You can narrow your search for product and location: <https://buylocalfoodny.org/>

Finger Lakes Farm Country—an agritourism website, but includes maple, honey, and other products available for sale: <https://fingerlakesfarmcountry.com/>

Meat Suite: buy quantities of meat from local suppliers: <https://www.meatsuite.com/>



Now's the Time to
Spot Spotted Lanternfly

Photo USDA APHIS.

Photos: Richard Gardner, Bugwood.org

A graphic with a red background. On the left, a magnifying glass with a green handle and a pink lens is focused on the word 'Spot'. To the right, the text 'Spotted Lanternfly' is written in white. Below the text are two photos of spotted lanternflies on a rock. At the bottom, there are two photos of tree bark with egg masses: one showing a close-up of a light-colored, hexagonal egg mass, and another showing a yellow circle drawn around a similar egg mass on a tree trunk.

**Our egg-masses are subtle, and can be found on bark, rocks,
& many other surfaces. If you spot us, report us!**

spottedlanternfly@agriculture.ny.gov

FACT SHEET
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NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels.

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NYSERDA offers free energy audits to help eligible farms identify ways to save energy and money on utility bills. Reports include recommendations for energy efficiency measures.

Eligibility

Eligible farms include but are not limited to dairies, orchards, greenhouses, vegetables, vineyards, grain, and poultry/egg. The farms must also be customers of New York State Investor-owned utilities and contribute to the System Benefits Charge (SBC). Please check your farm's current electric bills to see if your farm pays the SBC.

Energy audit options

You can request the level of energy audit that best fits your farm's needs. NYSERDA will assign a Flexible Technical Assistance Program Consultant to visit your farm and perform an energy audit at no cost to you.

Level	Audit Activities	Type of Report that the Farm Receives
Comprehensive	Detailed energy audit	Energy audit report with calculated evaluations of appropriate energy efficiency measures including simple payback; meets ANSI/ASABE S612 standards
Targeted	Energy audit focused on specific systems, energy efficiency measures, or renewable energy	System-specific energy analysis report

Get started

Visit **nyserdera.ny.gov/agriculture** to download an application or apply online. Call **1-800-732-1399** to learn more, request an application, or for assistance with determining the audit level.



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3. **Assisted Home Performance with Energy Star**– For families making up to 120% of the state median income (\$120,452 for a family of 4) through June 30, 2021. This covers 50% of Energy Improvements such as insulation and a heating system up to \$5000.

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- **Cord Wood boiler**– Get up to \$18,000
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- **Ground Source Heat Pump**– Get up to \$15,000/ \$500,000 - Provides heating AND cooling



Get Community Solar– Get your solar from a local solar farm!

1. **Solar For ALL**– Save \$10 avg/mo. Eligible households can subscribe to community solar for free. Income eligibility based on families making below 60% state median income (\$60,226 for a family of 4).
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For questions or if you would like a **FREE** Home Energy Assessment, Contact one of our Community Energy Advisers:

Broome, Tioga, Chemung, Chenango Counties: Eileen Hanrahan t. 607.366.0833 eeh85@cornell.edu

Delaware County: Valerie Dudley t. 607.865.6531 vsd22@cornell.edu

Tompkins, Schuyler, Steuben Counties: Karim Beers t. 607.272.2292 kwb6@cornell.edu



Cornell Cooperative Extension Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans and Individuals with Disabilities and that provides equal program and employment opportunities.

Learn more about these programs at www.smartenergychoices.org

NYS farm outlook: scarce labor, higher wages in '21

By James Dean, Cornell Chronicle January 29, 2021

New York state farm operators can expect a tight labor market and rising wages in the year ahead, in addition to continued pandemic precautions, debate over immigration reform and potential changes to overtime pay, according to a Cornell agriculture expert.

“Ag labor is going to remain scarce due to ... underlying demographics and labor market factors, even if we get immigration reform,” said Richard Stup, agricultural workforce specialist in the College of Agriculture and Life Sciences and at Cornell Cooperative Extension. “Wages are going to continue to climb from both market and regulatory pressure.”

Stup offered his outlook for the sector during the Charles H. Dyson School of Applied Economics and Management’s 2021 Agricultural and Food Business Outlook Conference, held virtually Jan. 25. The conference also featured presentations on the outlook for the U.S. economy and for the dairy, fruit, vegetable and wine markets.

Long-term demographic trends have made it more challenging for farms to find workers, Stup said. Those trends include a more urbanized U.S. population, declining flows of new immigrants and – prior to the pandemic – unemployment near 50-year lows.

“The overall unemployment rate was so low, it’s no wonder farms are having a hard time identifying people,” he said. “People don’t show up at the farm office anymore just looking for work.”

Overall, roughly 11,000 New York farms employed nearly 56,000 workers in 2017, down from 61,000 in 2012, according to the 2017 Census of Agriculture. Fruit and tree nut farms accounted for 24% of the hiring, followed by dairy cattle and milk production at 22%.

Stup highlighted Pew Research Center data showing that unauthorized immigration, upon which the agricultural sector has relied heavily, declined nationally between 2007 and 2016, with New York experiencing the second-largest drop after California.

And among the estimated 11 million current unauthorized immigrants, according to Pew, 66% are long-term residents who have been in the country for more than 10 years. Stup said that was evident on many farms in the state, where unauthorized immigrants who arrived in the 1990s are now middle managers, have families and are established in rural communities – a different image from one many people have had over the years, he said.

“It’s important for us to upgrade that image and modernize that image of who the unauthorized immigrant workforce really is,” said Stup. “This industry is changing as we watch

it.”

President Joe Biden is calling for comprehensive immigration reform, something the federal government hasn’t achieved since 1986, Stup said. At the same time, he said, legal hiring of temporary agricultural guest workers under the H-2A visa program has grown dramatically in recent years. New York’s 8,482 certified H-2A positions last year was more than double its total in 2012 and was in the top 10 nationally, according to the U.S. Department of Labor.

“I suspect it will continue to grow here in New York because of the continued demand,” Stup said.

Regarding wages, Stup noted that New York state is moving toward a mandatory \$15 minimum wage. Long Island farms must pay at least \$14 per hour this year and move to \$15 next year, Stup said. The upstate minimum is now set at \$12.50, with the timing of future increases uncertain.

CCE Tompkins Classes Rev Up

Planning Your Vegetable Garden
Tuesday, February, 9th, 2021 6-8 p.m.

Take your vegetable gardening to the next level by learning how to create a comprehensive garden plan that includes timing on seeding, transplanting, succession planting, interplanting and crop rotation. This class will cover how to integrate flowers and herbs and will explore a few styles of garden planning including drawings, spreadsheets, journals, and online programs. Come with a drawing of your garden and a list of what you plan to plant and we will have some time to start working on your plan. Instructor Jennie Cramer is our Horticulture Program Manager and loves to get people excited about gardening!. She is an ecologist and educator with a passion for organic gardening, regenerative agriculture, medicinal herbs, natural history, food justice, and botanical education. She is especially smitten with the miracle of seeds. She has been gardening organically for over 25 years and teaching for just as long. This class is designed for gardeners who have some experience growing vegetables and want to make the most of their gardens this year. If you are brand new to vegetable gardening, check out our Veggie Gardening 101 class.

Fee: \$0-\$30 sliding scale, pay what you can

Register Here: <https://ccetompkins.mahaplatform.com/events/planningyourveg>

Facebook event for sharing and posting: <https://www.facebook.com/events/3492378974321144>

Upcoming classes are listed here: <http://ccetompkins.org/gardening/gardening-classes>



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Starting a Livestock Farm Workshop Series

Wednesdays, Biweekly starting February 24, 2021
7:00 PM – 8:30 PM By Zoom

There are many aspects to consider when starting a livestock farm, such as land, what to sell, and how to sell it. Cornell Cooperative Extension's Specialists Nancy Glazier and Joan Sinclair Petzen are offering a beginning farmer educational series via Zoom beginning 7:00-8:30 pm February 24.

The two sessions will cover resource assessment, business planning, basic bookkeeping, and budgeting. Time will be available each evening for discussion. Follow-up sessions will be held biweekly if enough interest. The goal of the workshops is to provide livestock farms the right tools to get started.

The cost of the workshops is \$20 per person or farm couple. Pre-registration for the first session is required by February 17, 2021.

Register at: <https://nwnyteam.cce.cornell.edu/event.php?id=1496> or by contacting Brandie Waite at (585) 343-3040 x138.

For workshop questions please call Nancy Glazier at (585) 315-7746 or email nig3@cornell.edu.

[SARE has released an updated Guide to USDA Programs, called Building Sustainable Farms, Ranches and Communities.](#)

The 101-page guide covers 62 government programs and has been updated to include program updates from the 2018 Farm Bill. Each program listing provides a description of the program's available resources, information on how to apply, and in some cases, examples of how the funding has been used. The guide also includes basic information on how to design sound projects, find appropriate programs and write grant applications.

Cornell Cooperative Extension | Broome County

Spring 2021 Horticulture Online Classes

Indoor Seed Starting Online Class via Zoom Wednesday, February 24th at 6:30pm

Broome County Master Gardener James Dunn will lead you through all you need to know for successful indoor seed start-

ing. Lighting fixtures and requirements, seed starting media, seed germination and how to successfully acclimate and transplant your seedlings to their garden settings. The fee for the class is \$10.00 per email address. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu To register and pay online please visit: <https://tinyurl.com/y29fnoz9>

Pruning Your Home Orchard Online Class via Zoom Wednesday, March 10th at 6:30pm

Roger Ort from CCE Schuyler County will present on pruning fruit trees. One of the prime reasons for annual pruning is to encourage lots of productive fruiting wood. How you prune your trees affects how they grow as well as how much they fruit. Learn how to manage your home orchard to keep your trees producing. The fee for the class is \$10.00 per email address. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu To register and pay online please visit: <https://tinyurl.com/y4urk5rj>

Growing Hydrangeas Online Class via Zoom Thursday, March 25 at 6:30pm

Broome County Master Gardener Tony Antes will present on these popular ornamental shrubs; the different species and cultivars commonly available and the care and maintenance they need, including pruning, propagation by cuttings, drying, and changing bloom color in most hydrangeas. The fee for the class is \$10.00 per email address. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu To register and pay online please visit: <https://tinyurl.com/y69z38bd>

Growing Culinary Herbs Online Class via Zoom Wednesday, May 20th at 6:30p

Broome County Master Gardener and herb enthusiast Elaine Gregory will take you through the basics of growing, harvesting and preserving some of our most popular culinary herbs and some less common herbs to expand your palette. The fee for the class is \$10.00 per email. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu To register please visit: <https://cornell-cooperative-extension-of-broome-county.myshopify.com/products/growing-culinary-herbs-online-class>



Helping You Put Knowledge To Work

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and that provides equal program and employment opportunities.

**Creating a Butterfly Garden Online Class via Zoom
Wednesday, May 27th at 6:30p**

Would you like to see more butterflies in your garden? Broome County Master Gardener Tony Antes will take you through some basic guidelines with step-by-step pictures to plan and plant a garden that will attract an array of butterflies and other pollinators. The fee for the class is \$10.00 per email. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu

To register please visit: <https://cornell-cooperative-extension-of-broome-county.myshopify.com/products/creating-a-butterfly-garden-online-class>

Weed Identification and Management Online Class via Zoom

Tuesday, May 19th at 6:30p

Weeds getting the best of your gardens? There are ways to prevent them. Learn identification strategies and management tactics to help control weeds in your landscapes. The fee for the class is \$10.00 per email. This class will be held via Zoom, a link for the Zoom meeting will be sent to you via e-mail on the day of the event. For more information contact: Dan Cargill at dec24@cornell.edu

To register please visit: <https://cornell-cooperative-extension-of-broome-county.myshopify.com/products/weed-identification-and-management-online-class>

