# 116th Plant Science Day 2026

Lockwood Farm
890 Evergreen Avenue, Hamden, CT 06518
**Wednesday, August 5, 2026**

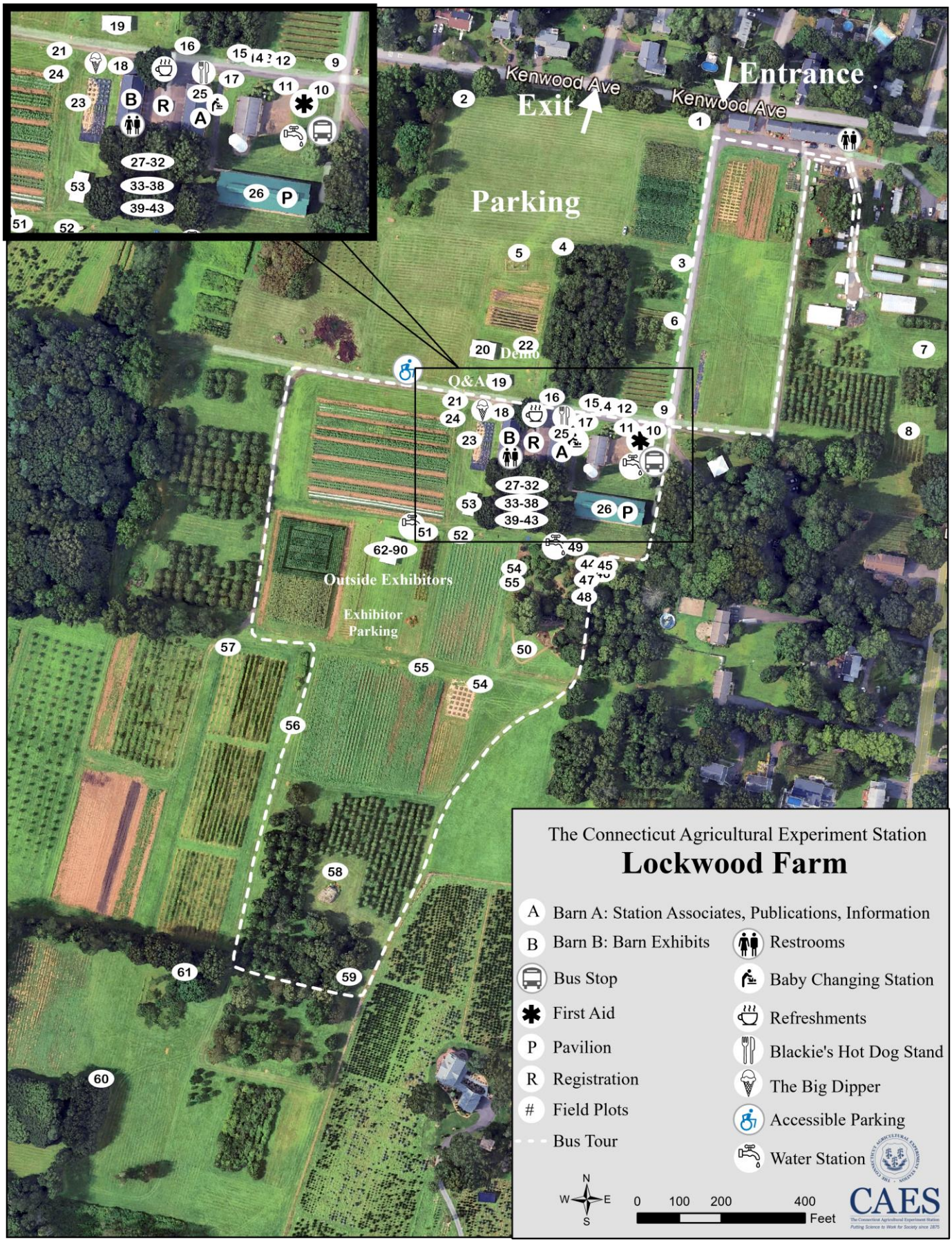
CAES
The Connecticut Agricultural Experiment Station
*Putting Science to Work for Society since 1875*

Health

Food Safety

Agriculture

Environment


Kenwood Ave
Exit
Kenwood Ave
Entrance
Parking
Demo
Q&A
Outside Exhibitors
Exhibitor Parking
27-32
33-38
39-43
62-90
The Connecticut Agricultural Experiment Station
Lockwood Farm
A Barn A: Station Associates, Publications, Information
B Barn B: Barn Exhibits
Bus Stop
First Aid
P Pavilion
R Registration
# Field Plots
Bus Tour
Restrooms
Baby Changing Station
Refreshments
Blackie's Hot Dog Stand
The Big Dipper
Accessible Parking
Water Station
N
W
E
S
0 100 200 400
Feet
CAES

The Connecticut Agricultural Experiment Station's **Plant Science Day** is held at Lockwood Farm on the first Wednesday of August every year, beginning in 1910. This one-day event features reports on research, field plots, barn exhibits, tours, and other opportunities for Connecticut residents and attendees to discuss many topics of plant science on an informal basis and interact with CAES scientists and staff. While the event only lasts one day, planning for Plant Science Day is a year-round activity spearheaded by the *Plant Science Day Planning Committee*. This committee, chaired by Vickie M. Bomba-Lewandoski, is comprised of CAES staff members who strive to make this event as meaningful and organized as possible. We acknowledge their hard work and thank them for allowing this historic event to happen each year.

## Plant Science Day Planning Committee

Michael Ammirata
Terri Arsenault
Joseph Barsky
Gregory Bugbee
Meghan Cahill
John Donovan
Vickie Bomba-Lewandoski
Richard Cecarelli
Jeremiah Foley
Lisa Kaczenski
Andrea Gloria-Soria
Michael Last
Joseph Liquori
Justin Lizon
Robert Marra
Goudarz Molaei
Craig Musante
John Ranciato
Natalie Rivera
Kitty Prapayotin-Riveros
Blaire Steven
Lindsay Triplett
Yi Wang
Summer Weidman
Jason White
Quan Zeng
Nubia Zuverza-Mena

Program booklet created, compiled, and edited by
Vickie Bomba-Lewandoski, Natalie Rivera, and Summer Weidman

# TABLE OF CONTENTS

# HISTORY OF LOCKWOOD FARM, HAMDEN

Lockwood Farm is a research facility of The Connecticut Agricultural Experiment Station. The farm was purchased in 1910 with monies provided by the Lockwood Trust Fund, a private endowment. The original farm was 19.6 acres with a barn and a house. Since then, several adjacent tracts of land have been purchased, enlarging the property to 75.0 acres.

The farm is located in the extreme southern portion of the Central Lowland Physiographic Province. This lowland region is underlain by red stratified sandstone and shale of Triassic age from which resistant lava flows project as sharp ridges. One prominent ridge, observed from the farm, is Mount Carmel (the “Sleeping Giant”), which lies to the north. The mountain is composed of diabase, a dense igneous rock which has a fine crystalline texture, having been pushed up as magma close to the surface where it cooled quickly. The "trap rock" of this region is either diabase, or its compositional equivalent basalt which was extruded onto the surface in lava flows that form topographic "trappa" or "trappe" (steps or stairs) and it is commonly used as a building material and ballast for railroad tracks.

The topography of the farm is gently rolling to hilly and was sculpted by the Wisconsin glacier that overrode the area some 10,000 years ago and came to rest in the vicinity of Long Island. A prominent feature of the farm is a large diabase boulder that was moved by flowing ice from its place of origin, and is therefore also known as a Glacial Erratic. The boulder probably fell onto the top of the glacier oozing its way down past the Sleeping Giant's head during the waning stage of the last continental glaciation. It was deposited here, near the toe of the waning glacier, onto "till," an unsorted mass of sandy or silty material mixed with rounded pebbles and boulders that had been pushed in front of, or under, the glacier, and deposited as the ice melted. Most of the boulders around the area, such as those in the nearby stone walls, are rounded and their surfaces have been ground smooth by abrasion beneath the glacier. The boulder came to rest on the crest of a hillock to the south of the upper barns. From this hillock, Sleeping Giant State Park comes into full view and is a favorite spot for photographers and other artists.

The soils of the farm developed on glacial drift are composed primarily of the underlying reddish-brown sedimentary rocks. The soils, characterized by reddish-brown profiles, are the well-drained Cheshire fine sandy loam (67%), the moderately well-drained Watchaug loam (10%) and the shallow-to-bedrock Sunderland fine sandy loam (16%). Along the western edge of the farm, adjacent to the Farmington Canal Greenway, lies a level terrace of stratified glacial drift. There, the well-drained Branford loam and the moderately well-drained Ellington loam (7%) dominate. Elevations on the farm range from 140 to 220 feet above mean sea level.

The farm lies in the Coastal Plain Climatological District. The local climate is influenced by its proximity to Long Island Sound, which lies 9 miles to the south. The average frost-free season is 190 days, compared to 180 days at the inland Valley Laboratory in Windsor.

In 1936, a fully instrumented weather station was established on the farm. The weather data are reported to and published by the U.S. Weather Service in their cooperative observer program. The mean annual temperature for the farm is 49.0 F. A record high temperature, 104.0 F, was observed on July 4, 1949. A record low temperature, -24.0 F was recorded on February 16, 1943. The mean annual precipitation for the farm is 52.6 inches. The greatest total precipitation, 74.36 inches, was recorded in 2011. The least precipitation, 30.4 inches, was recorded in 1965. The mean annual snowfall for the farm is 32.3 inches. The greatest total snowfall, 78.5 inches, was recorded during the winter of 1995-1996. The least total snowfall, 10.0 inches, was recorded in 2011-2012.

The farm provides a field laboratory for Experiment Station scientists who learn how to control the pathogens and insects that attack trees, fruit, and vegetables. In some experiments, scientists learn how crops grow and develop strategies for efficient crop production. All field research can be observed at Plant Science Day, held each year on the first Wednesday in August.

# 2026 CONNECTICUT CENTURY FARM AWARD

The Century Farm Award is selected by the Connecticut Agricultural Information Council and goes to a deserving farm that has been in operation for more than 100 years. The award is presented at the CAES Plant Science Day in August and recognized at Ag Day at the Capitol.

The 2026 winner of the Century Farm Award is:

## Killam & Bassette Farmstead, LLC
## South Glastonbury, CT
### Established 1893

*Proclamation from Governor Ned Lamont:*

The story of Killam & Bassette Farmstead, LLC is one of deep roots, determined hands, and an unwavering belief that land is worth fighting for. In 1893, the Killam family purchased the property after it had gone into foreclosure from the Hollister family. The historic Hollister house, built in 1675, served as the original farm stand where milk and eggs were sold directly to local customers.

For many decades, the farm produced dairy, hay, broadleaf tobacco, eggs, and corn silage. When both the tobacco and milk markets declined, the family shifted toward fresh fruits and vegetables and began attending more than two dozen farmers' markets each week. They expanded into on-farm events and later developed four CSA programs to better serve the community.

A major step forward came in 2017 with the purchase of a second location on Main Street. This allowed the farm to bring in a wide range of Connecticut Grown and Connecticut Made products, supporting local farmers and producers. The farm also wholesales to other farms and restaurants, creating strong regional partnerships that continue to grow.

Today the farm spans more than 95 acres and plays an active role in improving food access. It accepts FMNP, EBT, and SNAP at the farm stand and at farmers' markets, helping ensure that fresh food is available to individuals and families experiencing food insecurity. The farm also supports local shelters, veterans, and many community programs.

Henry Killam, now 95, still works on the farm every day with his family. His dedication reflects the values that have carried the farm through more than a century of change and earned it recognition as a Century Farm. The family continues to build on that history while creating new opportunities for the future.

## THE SAMUEL W. JOHNSON MEMORIAL LECTURE (Pavilion)

The Experiment Station Board of Control established the lectureship to further discuss issues of concern to Connecticut residents and the Station. Professor Johnson was director of the Experiment Station from 1877 to 1900 and a leader in the establishment of American agricultural experiment stations.

## LOST AND FOUND

Plant Science Day LOST AND FOUND is located at the Registration Booth (between Barn A and Barn B). After Plant Science Day, all lost and found items will be at the CAES Business Office, Slate Building, 123 Huntington Street, New Haven, voice: 203-974-8500, which is the official lost and found for CAES.

## ANSWERS TO YOUR QUESTIONS (Plot 19)

Staff members in the "questions and answers" tent are prepared to give information on the identification of insects, plant disorders, soils, and their management, and other problems of growers and gardeners.

## KIDS' CORNER (Plot 21)

Come to the Kids' Corner to pick up your child's passport and a gift. The passport is a special activity for young children to help them enjoy and explore Plant Science Day. There are six different stations located throughout Lockwood Farm that visitors can explore, where they can ask questions, learn about the featured topic, and receive a special stamp for their passport. Once the passport is complete, they can go to the Self-Guided Activity Plot (plot 22) to collect a CAES patch. ***NEW:*** this year, you will have the opportunity to be part of a citizen science project!

## SELF-GUIDED ACTIVITY FOR ALL CHILDREN, INCLUDING GIRL SCOUTS (Plot 21)

Girl Scouts and older children should be directed to this plot. A self-guided worksheet is available to all children and is better suited to older children than the passport. The activity will guide them in interacting with some of the many people here today, helping put science to work for society. Additionally, Girl Scouts can use the activity to complete steps toward their Naturalist Legacy badge. Once the activity is completed, all children can return to this plot to collect either a Girl Scout or a CAES patch. Children with completed passports should also return here to collect their badges.

## CONNECTICUT PESTICIDE CREDITS (Registration, R)

To obtain pesticide credits, you must follow these 3 steps:

1) 9:30 a.m. - 10:00 a.m. Sign in at the registration desk (R)
   - *Present photo ID to obtain your Pesticide Credit Passport and Schedule Handout*
2) Follow the *Schedule* and attend each required talk and barn exhibit. Make sure to have your *Passport* validated after each.
3) 2:30 p.m. – 3:45 p.m. Redeem your completed Passport at the Registration Desk (R) to receive your signed Pesticide Credit Form.

**ALL CATEGORIES and PRIVATE APPLICATOR (PA) CATEGORY / 2.50 TOTAL CREDIT HOURS.**

# Stay in Touch with CAES

Keep current with The Connecticut Agricultural Experiment Station by following us on social media.

Tag us or use the hashtag #CT_CAES to share your posts with us.

@CT.CAES

@CT.CAES

@CT_CAES

@CTCAES

Connecticut Agricultural Experiment Station

@CTAgExpStation

Coast & Country Podcast

CAES
The Connecticut Agricultural Experiment Station
Putting Science to Work for Society since 1875

portal.ct.gov/caes

## NO PETS, PLEASE. SERVICE DOGS ONLY.

Under the Americans with Disabilities Act (ADA), "a service animal is defined as a dog that has been individually trained to do work or perform tasks for an individual with a disability."


Also, under the ADA, "emotional support animals, comfort animals, and therapy dogs are not service animals under Title II and Title III of the ADA."

## JUST A REMINDER THAT LOCKWOOD FARM IS A WORKING FARM WITH ACTIVE RESEARCH BEING CONDUCTED, SO PLEASE RESPECT THE SCIENTISTS' WORK.

After the lecture, visitors may remain in the pavilion to eat lunch. Coffee and cold drinks are free.

CAES

The Connecticut Agricultural Experiment Station

*Putting Science to Work for Society since 1875*

# 116th PLANT SCIENCE DAY

Gates open at 9:30 a.m.
Program begins at 10:00 a.m.
Event 10:00 a.m. – 4:00 p.m.

## AGENDA

**Moderator – Vickie M. Bomba-Lewandoski, Information Officer**

**10:00 a.m. – 10:15 a.m.** **PAVILION**
***MORNING GREETING AND OPENING REMARKS***
**Jason C. White, Ph.D., Director**
**The Connecticut Agricultural Experiment Station**

**10:15 a.m. - 10:45 a.m.** **PAVILION**
**Jeremiah R. Foley IV, Ph.D., Assistant Agricultural Scientist II, Department of Environmental Science and Forestry**
***Ripples of Invasion: Spread and Management of Hydrilla in Connecticut Waterways***
Hydrilla (*Hydrilla verticillata*) is one of the most aggressive aquatic invasive plants in the world, and the establishment of a new subspecies in Connecticut waterways presents significant ecological and management challenges. Since its initial detection in the Connecticut River, hydrilla has spread to additional water bodies across the state, forming dense monocultures that displace native macrophytes, alter habitat structure, and impair water quality and recreation. This talk traces the invasion trajectory of hydrilla in Connecticut and examines the ecological and anthropogenic factors driving its spread. The Connecticut River hydrilla population represents a genetically distinct subspecies whose biology, reproductive potential, and response to management interventions remain poorly understood. Ongoing management efforts are discussed, including how an integrated pest management framework combining mechanical control, herbicide application, and biological control agents offers the most promising path toward sustainable, long-term suppression. This talk synthesizes current knowledge of the Connecticut River hydrilla invasion and highlights priorities for research and management moving forward.

**10:15 a.m. – 10:35 a.m.** **TECHNICAL DEMONSTRATION TENT**
*(20-minute demonstration, repeated twice during the day, 10:15 a.m. & 2:30 p.m.)*
**Felicia Millett, Agricultural Research Technician I, Department of Plant Pathology & Ecology**
***Summer Problems of Lilac***
Lilacs are a popular woody shrub found in many New England gardens. Their showy purple flowers bloom in mid-spring, delighting homeowners with their sweet fragrance. Now that it's August and their blooms are spent, high temperatures and varying rain patterns leave lilacs susceptible to several different issues. We'll focus on a rise in foliar diseases, late summer defoliation and September bloom episodes that have been observed on lilacs in Connecticut in recent years. Learn about the relationship between environmental conditions and late-season lilac problems and find out when is the best time to take action to protect your plants. In this technical demonstration, pruning techniques and spray solutions will be shown which can minimize disease issues. Additional management strategies including proper planting and cultivar selection, irrigation, and sanitation will be discussed as well.

**10:40 a.m. – 11:00 a.m.** **TECHNICAL DEMONSTRATION TENT**
*(20-minute demonstration, repeated twice during the day, 10:40 a.m. & 3:15 p.m.)*
**Paula Wolf, Agricultural Research Technician I, Department of Entomology**
***Understanding Honey Bee Swarms and How to Manage Them***
Honey bee swarms can look dramatic, but they're also one of the most fascinating examples of collective behavior in nature. This talk will explore the science behind swarming, from the environmental triggers that set it in motion to the remarkable way thousands of bees coordinate their search for a new home. We'll unpack how bees evaluate nesting sites, communicate through movement and scent, and make group decisions. We'll also cover why swarms are usually not aggressive, and what simple, practical steps to take if you find one in your yard. This is a chance to see swarms not as something to fear, but as a window into the hidden intelligence of honey bee colonies.

**10:45 a.m. - 11:00 a.m.** **PAVILION**
***CENTURY FARM AWARD***
**Killam & Bassette Farmstead, LLC, South Glastonbury, CT**

**11:00 a.m. – 11:10 a.m.** **PAVILION**
***EXPERIMENT STATION ASSOCIATES***
**Cheryl Cappiali, President**

**11:10 a.m. – 12:00 noon** **PAVILION**
***THE SAMUEL W. JOHNSON MEMORIAL LECTURE***
**Charlie Nardozzi**
**Regional Emmy award-winning garden writer, speaker, and media personality**
***Growing a Continuous Vegetable Garden***

**12:00 p.m.-1:15 p.m.** **LUNCH on your own**

**1:15 p.m.-1:45 p.m.** **PAVILION**
**Washington Luís da Silva, Ph.D., Associate Agricultural Scientist, Department of Plant Pathology and Ecology**
***Vaccinating Crops Against Viruses: A New Way to Protect Plants***
When a person receives a vaccine, their immune system learns to recognize and fight a virus before it causes harm. Plants have no equivalent mechanism — but researchers at the Connecticut Agricultural Experiment Station have developed a spray-based approach that mimics this effect. The technology uses nanoparticles — far smaller than a grain of pollen — to deliver a small sequence of genetic material matched to a specific plant virus. Once absorbed, the material triggers the plant's own defense system to identify and suppress that virus. In greenhouse trials with potato plants, a single application reduced Potato Virus Y (PVY) infection by up to 92%, with protection persisting beyond 40 days. Field trials produced an 80% reduction in viral presence under real growing conditions. This approach uses no harmful chemicals, leaves no toxic residues, and could eventually help protect many different crops from many different viruses — a major step toward safer, more sustainable farming.

**1:45 p.m.-2:15 p.m.** **PAVILION**
**Nathaniel Westrick, Ph.D., Assistant Agricultural Scientist II, Plant Pathologist, Valley Laboratory**
***More than Blight: How Fungal Pathogens Shape Farms, Forests, and the Natural World***
Abstract: Fungal and fungus-like plant pathogens are among the most important biological drivers of disease in both agriculture and natural ecosystems. These organisms are responsible for substantial global crop losses each year, affecting staple and specialty crops alike and contributing to some of the most devastating famines in human history. At the same time, plant pathogens are not solely destructive forces. In forests and other natural ecosystems, disease plays a fundamental ecological role by limiting the dominance of individual plant species and helping to maintain biodiversity. Pathogens can influence which plants survive, where they grow, and how ecosystems are structured over time. This presentation will explore the biology and ecology of fungal plant pathogens, with an emphasis on the complex relationships these organisms have with their hosts. Drawing from historical examples and current research on strawberry diseases, Dr. Nathaniel Westrick will discuss how pathogens infect plants, why disease outbreaks occur, and how environmental conditions can strongly influence disease development. The talk will also examine emerging evidence that many plant-associated fungi exist along a continuum between harmless colonization and pathogenicity, spending part of their life cycle living asymptomatically within plants before causing disease under favorable conditions.

**2:15 p.m.** **PAVILION**
Adjourn Main Talks

**2:30 p.m. – 2:50 p.m.** **TECHNICAL DEMONSTRATION TENT**
(*20-minute demonstration, repeated twice during the day, 10:15 a.m. & 2:30 p.m.*)
**Felicia Millett, Agricultural Research Technician I, Department of Plant Pathology & Ecology**
***Summer Problems of Lilac***
Lilacs are a popular woody shrub found in many New England gardens. Their showy purple flowers bloom in mid-spring, delighting homeowners with their sweet fragrance. Now that it's August and their blooms

are spent, high temperatures and varying rain patterns leave lilacs susceptible to several different issues. We'll focus on a rise in foliar diseases, late summer defoliation and September bloom episodes that have been observed on lilacs in Connecticut in recent years. Learn about the relationship between environmental conditions and late-season lilac problems and find out when is the best time to take action to protect your plants. In this technical demonstration, pruning techniques and spray solutions will be shown which can minimize disease issues. Additional management strategies including proper planting and cultivar selection, irrigation, and sanitation will be discussed as well.

**3:15 p.m.-3:35 p.m.** **TECHNICAL DEMONSTRATION TENT**
(*20-minute demonstration, repeated twice during the day, 10:40 a.m. & 3:15 p.m*.)
**Paula Wolf, Agricultural Research Technician I, Department of Entomology**
***Understanding Honey Bee Swarms and How to Manage Them***
Honey bee swarms can look dramatic, but they're also one of the most fascinating examples of collective behavior in nature. This talk will explore the science behind swarming, from the environmental triggers that set it in motion to the remarkable way thousands of bees coordinate their search for a new home. We'll unpack how bees evaluate nesting sites, communicate through movement and scent, and make group decisions. We'll also cover why swarms are usually not aggressive, and what simple, practical steps to take if you find one in your yard. This is a chance to see swarms not as something to fear, but as a window into the hidden intelligence of honey bee colonies.

**3:35 p.m.** **TECHNICAL DEMONSTRATION TENT**
Adjourn Technical Demonstrations

**2:30 p.m.-3:30 p.m.** **SIGN-OUT (For those requesting pesticide credits) (R)**
Attendees can pick up their Pesticide Credit forms at the registration table (R).

# BUS STOP ( )

**10:00 a.m.-11:00 a.m. & 1:00 p.m.-3:30 p.m. (tours run every half hour during these hours)**

***Take a number and have a seat under the willow tree, and wait for the next bus tour***

**10:00 a.m. - 11:00 a.m.** **MEET AT THE BUS STOP ( )**
A 30-minute bus tour of Lockwood Farm narrated by a CAES Staff member. Tours run every half hour.

**1:00 p.m. - 3:30 p.m.** **MEET AT THE BUS STOP ( )**
A 30-minute bus tour of Lockwood Farm narrated by a CAES Staff member. Tours run every half hour.

# LOCKWOOD FARM WALKING TOUR
# (Meet at the Registration Desk, R) AT 10:50 A.M.

**11:00 a.m.–12:00 p.m.**

**11:00 a.m. - 12:00 p.m.** **LOCKWOOD FARM WALKING TOUR:** A one-hour guided tour of selected "off the beaten path" field plots. Learn about persimmons, beach plums, pawpaws…and more!
**Robert E. Marra, Ph.D., Associate Agricultural Scientist, Department of Plant Pathology and Ecology**
**Meet at the Registration Desk (R) at 10:50 a.m.**

# ALL ABOUT APPLES WALKING TOUR
# (Meet at the Registration Desk, R) AT 11:50 A.M.

**12:00 p.m.-12:45 p.m.**

**12:00 p.m. - 12:45 p.m.** **All ABOUT APPLES WALKING TOUR:** A 45-minute guided walking tour all about apples. Apples are the second most-consumed fruit in the United States. Do you know how apples are propagated, grown, and protected from pests and diseases? On this walk, you will learn all you need to know about apples, their diseases and pests, and ongoing research conducted at CAES for sustainable disease management of apples.
**Quan Zeng, Ph.D., Agricultural Scientist, Department of Plant Pathology and Ecology**
**Meet at the Registration Desk (R) at 11:50 a.m.**

# BARN EXHIBITS (BARN B)

**Valley Laboratory Renovation and Hundred-Year History**
*Department*: Valley Laboratory
*Investigator*: Michelle Salvas
*Abstract*: The renovation of the historical 1941 building and construction of the new Anderson-Magnarelli Valley Laboratory building in Windsor, Connecticut is scheduled for completion on August 30, 2027. Have a glance into the 100-year chronicle and historical photos of the original 1921 wooden structure, then known as the Tobacco Experiment Station, of early staff scientists and field plots. After the Connecticut Agricultural Experiment Station fully acquired the substation in 1929, the location continued as a grower resource and also expanded to cover additional agricultural crops with numerous scientists serving farmers and Connecticut citizens on topics such as plant health, plant breeding, insects, indoor molds, weeds, plant diagnosis, and soil and nematode testing.

**How Microplastics Affect Contaminant Uptake by Plants**
*Department*: Analytical Chemistry
*Investigator*: Nubia Zuverza-Mena, Ph.D.; *Co-Investigator*: Jason White, Ph.D. *assisted by* Mandeep Kaur, Ph.D.
*Abstract*: Plastic waste can break down into small pieces called micro- and nano-plastics (MNPs), which can be found in soil and water. These MNPs can interact with toxic elements and other contaminants present in the environment. Plastics may therefore affect plant growth and influence how plants take up these contaminants. Because plants are part of the food chain, MNPs and contaminants may move from the environment into the foods we eat. Our studies examine how degraded plastics influence the movement of contaminants into plants like lettuce and wheat, helping us understand how plastic pollution may affect food safety, the environment and human health.

**Biocontrol of Spotted-Wing Drosophila in Connecticut**
*Department*: Entomology
*Investigator*: Claire Rutledge, Ph.D.; *Co-Investigator*: Richard Cowles, Ph.D. *assisted by* Oliver Kelsey and James Guerrieri
*Abstract*: Spotted-wing drosophila (SWD) is an important invasive pest of soft fruit that arrived in Connecticut in 2011. This arrival required a shift in management tactics for small fruit crops such as raspberry and blueberry including a much higher pesticide load. The parasitoids of *Drosophila* sp. are a complex group, but a SWD specialist *Ganapsis kimorum* (Hymenoptera: Figitidae) was discovered, named and approved for release in 2021. Non-specialist parasitoid, *Leptopelina japonica* (Hymenoptera: Figitidae) and *G. kimorum* were both adventitiously introduced to North America, first found in Washington State, USA and British Columbia, Canada in 2020, both spreading on their own. In 2024 we conducted surveys in Massachusetts and in 2024 & 2025 in Connecticut to ascertain presence of one or both of these parasitoids. Surveys in 2024 found abundant *L. japonica* in CT and MA but no *G. kimorum*. There were differences in rate of parasitism among plant hosts of SWD, in particular pokeberry, which was abundant at all collection sites and heavily sampled. Pokeberry yielded high numbers of SWD and other drosophila species but only one *L. japonica* was collected. This highlights the need to take non-crop hosts into consideration. In 2025, we released 3,000 individual *G. kimorum* wasps at three farms. Despite the releases, surveys still only found only *L. japonica* at those farms. Surveys are currently being conducted at farms for SWD and its parasitoids, and releases of *G. kimorum* are scheduled for mid-August and mid-September. Once established, G. kimorum could reduce the number of pesticide applications currently required to keep berry crops free of SWD.

**Linking Soil Moisture, Microbes, and Carbon Cycling in Soils**
*Department*: Environmental Science and Forestry
*Investigator*: Blaire Steven, Ph.D.; *Co-investigator:* Itamar Shabtai Ph.D.
*Abstract*: Soil activity is strongly controlled by water availability, influencing both fertility and carbon cycling. At The Connecticut Agricultural Experiment Station we are investigating how the microbes in soil respond to different water contents. This study utilized a roughly linear gradient in water content, and a labeled-glucose tracer, to study microbial activity and the fate of added carbon. Interestingly, we observed distinctly non-linear patterns. In dry conditions, microbes metabolized the glucose but primarily used it for survival rather than growth. At moderate moisture levels, microbes shifted to consuming native soil organic matter, while preserving the added glucose. In saturated soils microbial metabolism shifted to anaerobic processes and microbes metabolized a larger fraction of the glucose. These findings demonstrate that soil microbes experience specific moisture thresholds where their behavior and community structure shift abruptly, suggesting that climate models must account for these sudden transitions to accurately predict soil carbon stability.

**Biocontrol Bacteria in Connecticut: Local Solutions for Managing Plant-Parasitic Nematodes**

*Department:* Plant Pathology and Ecology

*Investigator:* Raquel Rocha, Ph.D.; *Co-investigator:* Lindsay Triplett, Ph.D., *assisted by* Ravikumar Patel, Ph.D., Saikumar Rudra, Neuzivette Abecassis, and Juliana Milagres

*Abstract:* Plant-parasitic nematodes are microscopic worms that attack the roots of many plant species, leading to significant losses for farmers and gardeners. In Connecticut, root-knot nematodes are particularly prevalent, causing characteristic "knots" on roots that debilitate plants and reduce yields. Traditional control strategies commonly rely on chemical pesticides, which can pose risks to both the environment and human health. Biological control, or biocontrol, provides a safer and more sustainable alternative by using naturally occurring organisms to manage nematode populations. This exhibit showcases current research at CAES aimed at discovering new beneficial bacteria from Connecticut soils for use by both conventional and organic growers throughout New England. Visitors will also learn what protists are: single-cell microorganisms found in soil and water that play central roles in microbial communities, including as predators of bacteria. The exhibit explores how culturing with protist predators fosters a diverse community of bacteria, some of which can either suppress or enhance root-knot nematode egg hatching. Importantly, bacteria that inhibit protist excystment and growth also suppress nematode hatching, suggesting that the ability to limit protist growth may predict nematode suppression. Building on these findings, we are developing a protist-based selection and screening pipeline to accelerate the identification of novel biocontrol bacteria and mechanisms that target nematode hatching. This innovative approach aims to broaden the range of biological agents available for nematode management and support more sustainable agricultural practices.

**Gourmet Mushrooms, Wine-Cap and Morel Cultivation as Intercrops of Christmas Tree Production**

*Department:* Valley Laboratory

*Investigator:* DeWei Li, Ph.D., *assisted by* David Yih, Ph.D., Ethan Paine, and James Preste

*Abstract:* Wine-cap (*Stropharia rugoso-annulata*) and morel (*Morchella* spp.) are the favorite, edible, and gourmet mushrooms in the country and have significant economic and scientific values. These mushrooms are delicious and nutritious. They are highly sought after and favored by mushroom hunters, citizen mycologists, and chefs. Cultivation of these mushrooms for mass production remains challenging. In the last several years, two projects have been carried out to cultivate the two mushrooms, as intercrops of Christmas tree production on three farms. Wine cap mushrooms were successfully cultivated as intercroping on Christmas tree farms using wood chips as substrates. In the forests this mushroom only fruit in spring. Our study showed that wine cap mushroom fruited twice a year, spring and early fall. Yield of the mushrooms can reach up to 5500 lbs/acre (fresh weight). The wine cap mushrooms' water content ranged from 81.5 to 89.5%. Wine-cap mushrooms can be marketed as fresh and dried produce as well as spicy baked produce as a snack. Morel cultivation study is underway. Thirteen isolates of eight morel species were used to prepare spawns, which were mixed with peat moss as a supplementary substrate to inoculate white pine Christmas tree field. The fields were divided with black mesh hoophouses and no hoophouses to determine the effects of reduced light on fruiting. The morels are expected to fruit this year or the coming year.

## THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

The experiments exhibited here depict only a portion of the work performed by Experiment Station scientists. In addition to Lockwood Farm, Griswold Research Center, and laboratories in New Haven and Windsor, Station scientists use state forests, private orchards, lakes, and farms for their experiments. Experiments and surveys are conducted in many widely separated towns of the state.

## THE EXPERIMENT STATION WEB PAGE: http://portal.ct.gov/caes

## EMAIL US AT: CAES@CT.GOV

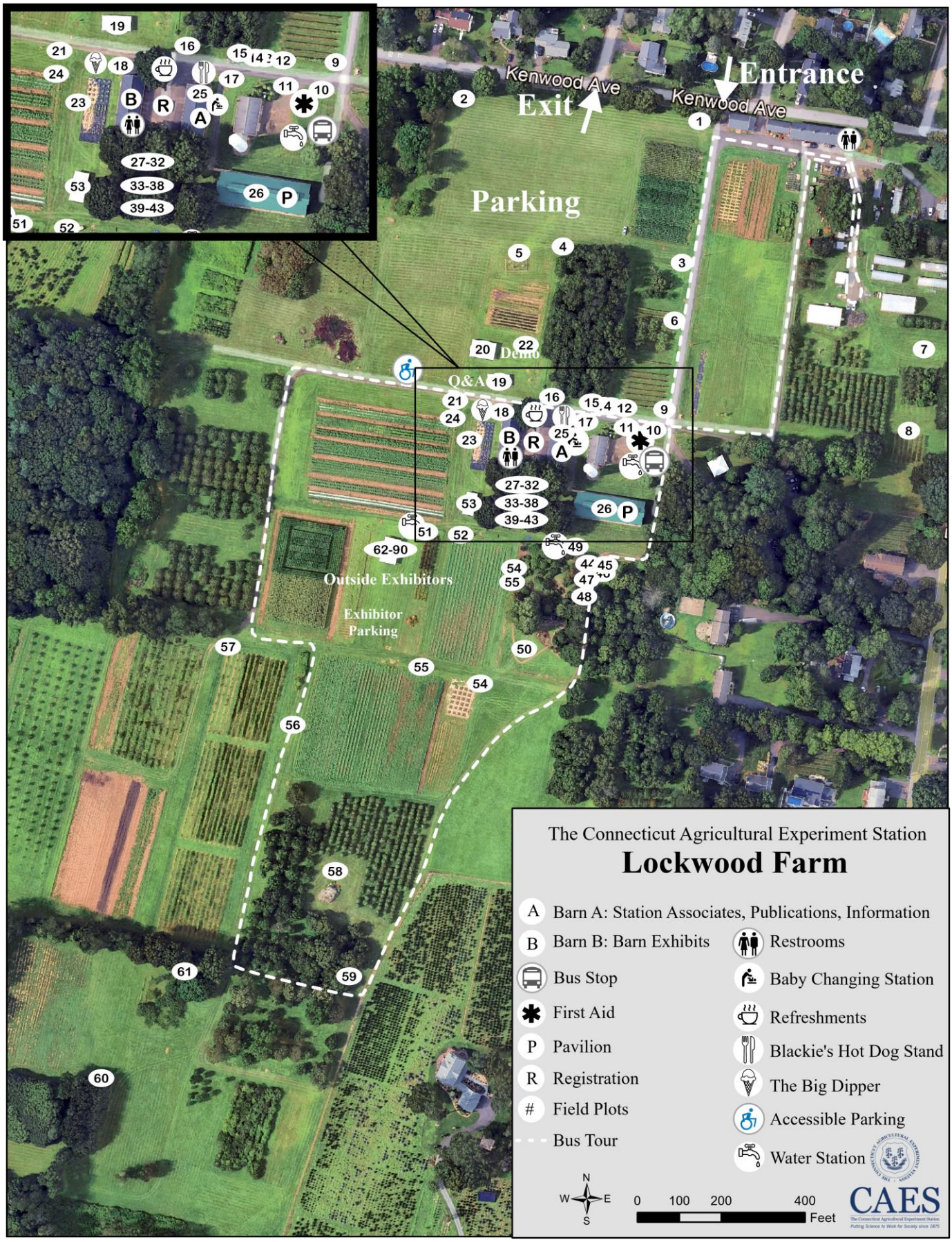
### TO RECEIVE A COMPLETE LIST OF STATION SPEAKERS:

Inquire at the publications table in BARN A, or write to:
Publications; The Connecticut Agricultural Experiment Station; New Haven, CT 06511, phone 203-974-8447, fax 203-974-8502, e-mail Vickie.Bomba-Lewandoski@ct.gov, or on the web at https://portal.ct.gov/CAES/ABOUT-CAES/Speakers/Available-Speakers

### TO RECEIVE A COMPLETE LIST OF AVAILABLE EXPERIMENT STATION PUBLICATIONS:

Inquire at the publications table in BARN A, or write to:
Publications; The Connecticut Agricultural Experiment Station; New Haven, CT 06511, phone 203-974-8447, fax 203-974-8502, e-mail Vickie.Bomba-Lewandoski@ct.gov, or on the web at https://portal.ct.gov/CAES/Publications/Publications/Publications

CAES
The Connecticut Agricultural Experiment Station
*Putting Science to Work for Society since 1875*


Kenwood Ave
Exit
Kenwood Ave
Entrance
Parking
Demo
Q&A
Outside Exhibitors
Exhibitor Parking
27-32
33-38
39-43
62-90
The Connecticut Agricultural Experiment Station
Lockwood Farm
A Barn A: Station Associates, Publications, Information
B Barn B: Barn Exhibits
Bus Stop
First Aid
P Pavilion
R Registration
# Field Plots
Bus Tour
Restrooms
Baby Changing Station
Refreshments
Blackie's Hot Dog Stand
The Big Dipper
Accessible Parking
Water Station
N
W
E
S
0 100 200 400
Feet
CAES

# FIELD PLOT LISTING

***Outside Exhibitors (Plots 10- 12, 17-18, 62-90) are invited to participate.***

The plots at Lockwood Farm are planted and maintained by The Connecticut Agricultural Experiment Station's scientists and technical staff, along with the help of Farm Manager, Richard Cecarelli, Agricultural Research Technician II, Rollin Hannan, and Farmer, Joseph Toth, as well as Seasonal Resource Assistants, Henry Burns, Miles Houston, and Joe McVerry. Other plots here at the farm provide food for the Connecticut Food Bank.

1. Chinese Chestnut Tree
2. Nut Orchard
3. Commercial Chestnut Cultivars
4. New Hybrid Chestnut Orchard
5. Remote Access Weather Station
6. Commercial Chestnut Seedlings
7. Advancing Aquatic Plant Research Through Mesocosm Infrastructure: Inaugural Research Season
8. Chardonnay Wine Grapes
9. Table Grapes
10. Hamden Police Department
11. Hamden Fire Department
12. Crown Castle Cellular Tower
13. 50 Years of Chestnut Blight Biocontrol Research at CAES
14. Site and Soil Factors Affecting Urban Tree Health and Mycorrhization in Connecticut
15. Seedlings of Old Surviving American Chestnuts
16. Wild Chestnuts from Turkey
17. Blackie's Hot Dog Stand
18. The Big Dipper
19. Questions and Answers Tent
20. Technical Demonstration Tent
21. Kids Korner and Girl Scout Badges
22. Effects of Compost Additions to Agricultural Green Roofs on Crop Production and Green Roof Benefits
23. Baby Pools: Low-Cost Containers for Vegetable Production in Urban Agriculture
24. Farm Equipment Used at Lockwood Farm
25. Experiment Station Associates
26. The Pavilion at Lockwood Farms
27. Hands on Chemistry
28. The Antifungal Properties of Nanoparticles: protecting Plants, Food, and Human Health
29. Christmas Tree Preservatives: Science and Snake Oil
30. Testing Adult-Use and Medical Cannabis Products in Connecticut: Ensuring Safety and Quality
31. Transport Patterns of Copper Nanomaterials in leaves and Their Effects on Plant Growth
32. **PLOT REMOVED POST-PRODUCTION**
33. A World of Viruses
34. Novel Lures for Controlling the Spotted Lanternfly
35. Using X-rays to Study Soil Organic Matter
36. Per- and Polyfluoroalkyl Substances (PFAS)
37. Irrigation with Recycled Wastewater – Risks and Benefits
38. Identification of a Fire Blight Resistant Apple Cultivar and Efforts to Investigate its Resistance Mechanism
39. Understanding Soil Microbiomes with the Help of Grower Citizen Scientists
40. Breeding for Disease Resistant Apples
41. Piloting Novel Organic Management Methods for Apple Diseases in the Northeast - Grower Collaboration
42. Yeast-Based Biological Control of Fire Blight
43. The Application Method Influences Winged Euonymus Response to Herbicides

44. Promoting Forest Health in Connecticut
45. The Connecticut Oak Mast Surveillance Program: 2025 Results and Emerging Trends?
46. Chestnut Species and Hybrids
47. Inspection of Trees, Bees, and Commodities
48. Biological Control of Hemlock Woolly Adelgid: A Statewide Connecticut Strategy
49. Bird and Butterfly Garden
50. Mighty Monarchs and Busy Bumblebees
51. Planting for Wild Bees in Southern New England
52. Office of Aquatic Invasive Species
53. The Public Health and Entomology Tent
    a. Statewide Monitoring Program for Mosquito-Borne Viral Diseases in Connecticut
    b. Passive Tick and Tick-Borne Disease Surveillance: Informing Public Health Action in Connecticut
    c. American Dog Tick Surveillance and Management on Branford's Thimble Islands
    d. Statewide Tick Surveillance in Connecticut: Monitoring Emerging Threats
54. Protecting Northeastern Strawberries from Invasive Disease
55. Monitoring for Sweet Corn Insect Pest Resistance
56. The Effects of Management Practices on Cut-and-Come-Again Greens Production
57. Grapes
58. The Rock
59. Asian Chestnut Gall Wasp on Chestnut
60. Hybrid Elm Trees
61. Rocky Hill American Chestnut Trees
62. Cheshire Pollinator Pathway & Hamden Land Conservation Trust – Joy VanderLek and Gail Cameron
63. Connecticut College Arboretum – Scott D'Agostino
64. Connecticut Federation of Lakes – Rebekah White
65. Connecticut Forest and Park Association (CFPA) – Elizabeth (Beth) Merow
66. Connecticut Invasive Plant Working Group – Rose Hiskes
67. Connecticut Land Conservation Council – Ricky Bentley
68. Connecticut Professional Timber Producers Association – Kit Serafini
69. Connecticut Tree Protective Association, Inc. – Cathy Dvorsky
70. CT DEEP Forestry Division – Beth Bernard
71. CT DEEP Pesticide Management Program – Zachary Donais
72. CT DEEP Wildlife Division – Paul Benjunas
73. DEEP Wildlife Division Habitat Management Program – Peter Picone
74. Hamden Tree Commission – Kyle Dougherty
75. Levo International – Nate Heiden
76. Master Gardeners, UCONN – Giulia Gambale
77. North Haven Land Trust – Anita Dunn
78. Northeast Organic Farming Association of CT (CT NOFA) – Kim Stoner
79. Sleeping Giant Park Association – Mick Martucci
80. Southwest Conservation District – Chris Sullivan and Melissa Mostowy
81. Spring Glen Garden Club – Theresa McCabe
82. The American Chestnut Foundation - CT Chapter – Florian Carle
83. The Federated Garden Clubs of Connecticut, Inc. – Norma Jean Macauto
84. U.S. Department of Agriculture - APHIS PPQ – Ionela Scott
85. U.S. Department of Agriculture - Farm Service Agency – Karen Murray
86. U.S. Department of Agriculture - Forest Service Northern Research Station – Nathan Havill
87. U.S. Department of Labor - Wage and Hour Division – Heather Callahan
88. UConn 4-H – Emily Picard and Halie Shea
89. Wild Ones Mountain Laurel Chapter – Lydia Pan
90. Yale Peabody – Victor DeMasi

# FIELD PLOT ABSTRACTS

**1. Chinese Chestnut Trees**
Sandra Anagnostakis, Ph.D. (Emeritus)
These Chinese chestnut trees, planted by Donald Jones in 1941, were selected by chestnut grower W.C. Deming of Litchfield and grafted by the Hartford Park Department. The second tree from the gate is a graft of the cultivar Bartlett that was developed by the Bartlett Tree Co. in Stamford. All have been used by The Experiment Station and the American Chestnut Foundation in crosses with American chestnut trees to produce blight-resistant forest and orchard trees.

**2. Nut Orchard**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)
This orchard of nut trees was begun by Richard Jaynes in the spring of 1981. There are several named cultivars of chestnut and other nut trees included. Trees that fail to survive or produce well are replaced with new nut cultivars that we want to test for their production potential in Connecticut. All the recently planted trees are butternuts (*Juglans cinerea*), seedlings from trees that may have some resistance to the butternut canker fungi that have nearly killed the large, grafted butternut trees in this plot.

**3. Commercial Chestnut Cultivars**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)
These trees are potential commercial cultivars of orchard chestnut trees. The largest tree (grafted) is cultivar 'Colossal' (Japanese x European) which is the most frequently planted commercial cultivar in the U.S., with large acreages in Michigan and on the west coast. The other trees are seedlings from a cross of 'Colossal' x 'Lockwood' made here in 2014. We are evaluating the potential of these trees for nut production here in Connecticut.

**4. New Hybrid Chestnut Orchard**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)
These trees are from some of our hand-pollinated crosses done in previous years and were planted as seedlings. All are hybrids of American chestnut trees and blight-resistant Chinese, Japanese, or hybrid trees. They are being grown to evaluate their blight resistance in the presence of the biological control that we assume will move over from the adjoining plot. The trees that look most like American chestnut trees and have good blight resistance will be used in future crosses for timber trees. Others will be developed as orchard trees for Connecticut growers. The paper bags on the trees cover hand-pollinated flowers from this year's crosses.

**5. Remote Access Weather Station**
Remote-access weather stations are deployed at the three Connecticut Agricultural Experiment Station farms located in Hamden, Windsor, and Griswold, CT. One additional unit is located at Gouveia Vineyards in Wallingford, CT, where a wine making trial for Saint Croix grapes is underway. Cumulative precipitation, growing degree days (GDD), frost events, and disease-risk assessments are recorded and/or calculated from the data collected.

**6. Commercial Chestnut Seedlings**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)
These seedling trees are open pollinated (Chinese) Dunstan chestnuts (a trademarked name). They are not a cultivar (clones from a single tree), but a variety (a type) and are widely available for sale in garden centers.

**7. Advancing Aquatic Plant Research Through Mesocosm Infrastructure: Inaugural Research Season**
Jeremiah R. Foley, Ph.D. *Assisted by* Madeline Watts and Olajumoke Omosowone
This year marks the official opening of CAES's Office of Aquatic Invasive Species mesocosm facility, a "tank farm" of 30 large fiberglass tanks built to support controlled, replicable experiments on aquatic invasive plants. The facility's first research season features three concurrent experiments. In the large tanks, we are investigating how the growth stage of Hydrilla verticillata subsp. lithuanica (Northern hydrilla) at the time of herbicide treatment affects its regrowth and survival, helping us identify the most effective treatment windows. In smaller container mesocosms, a multi-site phenology study is tracking seasonal hydrilla growth and reproduction in coordination with cooperators in Florida and Mississippi. A third study examines how three common aquatic herbicides affect native species, Elodea nutallii (Western waterweed) and Vallisneria americana (Eelgrass) at varying concentrations and exposure times, ensuring that management tools remain safe for native plants.

**8. Chardonnay Wine Grapes**
Washington da Silva, Ph.D. and Richard Cercarelli

Chardonnay vines are prized for the quality of the wine they produce but are very susceptible to powdery mildew. This plot was first planted to study the relationship between the onset of powdery mildew and climate in order to attune disease-risk models to our local weather conditions.

**9. Table Grapes**
Washington da Silva, Ph.D. and Richard Cercarelli
Table Grape vine rows ate the seedless table grapes Candice and Vanessa (red), Himrod (green), and Jupiter (black). The vines were planted in 2006 and bore their first crop (small) in 2008, with full crops since.

**10. Hamden Police Department**
The Hamden Police Department's goal is to enforce the law in a fair and impartial manner, recognizing both the statutory and judicial limitations of police authority and the constitutional rights of all persons. http://www.hamdenpd.com

**11. Hamden Fire Department**
The Department of Fire and Emergency Services looks forward to providing continued quality care and services to the citizens of Hamden. Pride, tradition, and professionalism equal our community to you and your families. https://www.hamden.com/154/Fire-Department

**12. Crown Castle Cellular Tower**
Learn about the cellular transmission tower.

**13. 50 Years of Chestnut Blight Biocontrol Research at CAES**
Susanna E. Keriö, D.Sc., Nathaniel Westrick, Ph.D., Elisabeth Ward, Ph.D., Sandra L. Anagnostakis, Ph.D., *Assisted by* Julia Celio, Kris Chaney, Jack Hatajik, Anna Wix, and Joseph P. Barsky
Chestnut blight is a disease caused by the invasive fungal pathogen Cryphonectria parasitica. Biocontrol of chestnut blight is possible with hypovirulent strains of the fungus carrying hypoviruses which slow down pathogen growth and allow the tree to heal the cankers. A chestnut plot planted in 1976 with 71 American chestnut trees showcases an example of a chestnut blight biocontrol trial. In 1978-1981, the cankers on these trees were treated with a mixture of hypovirulent strains. After 50 years, tree survival is 54%. In 2013, hypoviruses were detected in 14 out of 15 trees examined. In 2026, the pathogen was isolated from 39 trees, and many of the isolates have abnormal morphology typical for hypovirulent strains. The presence of hypoviruses will be confirmed with RT-PCR and identified by sequencing. In 2027-2028, these viruses will be used to create custom hypovirulent strains for chestnut blight management in forests with surviving American chestnut sprouts.

**14. Site and Soil Factors Affecting Urban Tree Health and Mycorrhization in Connecticut**
Susanna Keriö, D.Sc., *Assisted by* Julia Celio, Kris Chaney, and Henry Mayne-Chang
Urban trees are part of the critical green infrastructure that affects the lives of 265 million Americans who live in cities. Street trees provide several valuable benefits including shading, cooling, and storm water management, which improves the habitability of urban areas. However, urban site conditions are often suboptimal for tree health, and it is estimated that 6-15% of newly planted trees die within five years of planting which is costly. Especially soil factors can limit root health which affects the ability of trees to form mycorrhiza, which are root tips colonized by beneficial fungi. Learn how site conditions, environmental factors, and soil quality affect tree health and mycorrhization, and how these fit with results from CAES research projects. The exhibit will provide information on site factors that affect both tree health and the success of mycorrhization across various tree species and sites in Connecticut.

**15. Seedlings of Old Surviving American Chestnuts**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)
In the southern U.S., large surviving American chestnut trees have been found scattered through the range. When we checked the blight fungi in the cankers on these old trees, we found several new kinds of hypovirulence viruses. We believe that these trees have a little more resistance than surrounding trees, which all died of blight, and that allowed viruses from other fungi in the area to infect the blight fungus. The American Chestnut Cooperators Foundation (www.ppws.vt.edu/griffin/accf.html) has been collecting cuttings from these survivors and grafting them together in orchards where they can cross with each other. This will allow any resistance genes present in individuals to be joined together in the resulting seedlings. The ACCF sent us this collection of seedlings that we have inter-planted with seedlings from crosses of American trees here at Lockwood Farm. We will compare their winter hardiness and blight resistance with that of the European chestnut trees from Turkey and the old American chestnut trees north of them.

**16. Wild Chestnuts from Turkey**
Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)

These seedling trees are from six wild populations along the Black Sea in Turkey. Those from the eastern border are near the population in the Caucasus Mountains where European chestnuts (*Castanea sativa*) survived the ice ages and are genetically quite diverse. Those from the western border are much less diverse. We are growing these here to compare their winter hardiness (not very!) and resistance to chestnut blight disease (also not very!) with that of American chestnut trees and with the seedlings from "old survivors" planted next to them.

**17. Blackie's Hot Dog Stand**

We've been a popular family-owned spot since 1928, and we've been serving our signature hot dogs and burgers fresh daily since then. Our hot dogs are a custom recipe made exclusively for Blackie's by Martin Rosol's of New Britain, CT. Our famous homemade Hot Pepper Relish has delighted travelers and families, and many have tried to copy the secret family recipe – but there's nothing like it anywhere! We're proud of our deep traditions and intent on keeping it going for another 80 years! https://blackieshotdogs.com/

**18. The Big Dipper**

Harry Rowe

Our home-style ice cream is freshly made on the premises in small batches to ensure the finest product is produced. In our search to bring you premium, gourmet ice cream we use the world's highest quality vanilla from the island of Madagascar and the best cocoa made from Holland. We combine farm fresh dairy cream from one of the leading dairies on the east coast with choice chocolates, nuts, berries, and the purest of flavors and extracts. With over 25 years and two generations of making ice cream, we strive to make your experience one that you will come back to for years to come. www.bigdipper.com, harry@bigdipper.com, (203) 758-3200, 75 Waterbury Rd, Prospect, CT.

**19. Questions and Answers Tent**

Katherine Dugas, Rose Hiskes, Yonghao Li, Ph.D., Felicia Millett, Diane Riddle, and Gale E. Ridge, Ph.D.

This is a great opportunity to ask the experts about growing plants, testing soil, and identifying plants, plant diseases, and insects. Bring samples of soil, symptomatic plants, and insects for testing and identification. Visit the displays and pick up fact sheets about current insect and disease problems.

**20. Technical Demonstration Tent**

*See page 10 of the program for a schedule of Technical Demonstrations.*

**21. Kids Korner and Girl Scout Badges**

Andrea Gloria-Soria, Ph.D. and Terri Arsenault, *Assisted by* Jack Brophy

Bring your children to the Kids' Corner to make fun crafts and learn interesting facts about insects, plants, and more! NEW: this year you will have the opportunity to participate in a citizen science project. Children can come to this plot to collect an age appropriate, self-guided activity, to earn a patch of their choosing among several options. Children are directed to a few of the many exhibits where age-appropriate activities and speakers are available just for them. In addition, Girl Scouts will have the option to earn the Naturalist Legacy badge appropriate for their level of scouting (Bugs, Flowers or Trees). Once the activity is complete, return to this location to collect your patch or badge!

**22. Effects of Compost Additions to Agricultural Green Roofs on Crop Production and Green Roof Benefits**

Leigh Whittinghill, Ph.D., *Assisted by* Sofia Shubin, Briana Mendez, Rahila Sulthana, Constance Blankson, and Plant health fellow Peyton Daniels.

The use of green roof technology enables the growth of plants on rooftops in urban areas. This has many benefits including stormwater management, increased habitat and biodiversity, aesthetic appeal, and more recently the production of food. The use of this technology to produce food is still relatively new, and best management practices have not been well researched. This project was constructed to compare the growth of vegetables in green roof media to growth in similar topsoil filled beds, and to compare the use of different amounts of compost (0, 1, 5, 7, 14, and 21 kg/m2 added annually) in the green roof media. This year we are growing eggplants. We will be monitoring media moisture and temperature, plant growth and development, and harvests quantity and quality, and runoff volume and nutrient content. We hope to see similar yields in the green roof and topsoil plots. We also expect that there will be increases in runoff water nutrient content with increasing compost additions.

**23. Baby Pools: Low-Cost Containers for Vegetable Production in Urban Agriculture**

Leigh Whittinghill, Ph.D., *Assisted by* Sofia Shubin, Briana Mendez, Rahila Sulthana, Constance Blankson, and Plant health fellow Peyton Daniels.

The use of inexpensive containers, such as small plastic pools, could help expand production in urban areas. An experiment was conducted from 2022 to 2024 to 1) compare cucumber production in pools to traditional nursery pots, 2) find the optimal growing media/compost mixture, and 3) optimize the drainage strategy (drainage hole and pine bark placement) for growing

cucumbers in pools. We found production to be heavily affected by the compost that was not fully matured and by fungal disease. We are repeating the experiment using a different compost and a fungal disease resistant cucumber variety. We monitor soil moisture and temperature, plant growth and development, and harvests quantity and quality. Yields early in 2025 were high, with no differences between drainage strategy or media mix. Pots did produce more cucumbers than pools when adjusted for area. In 2025, we still had pressure from fungal disease (downy mildew this time), so yields tapered off earlier than expected.

**24. Farm Equipment Used at Lockwood Farm**
Lockwood Farm is a 75-acre working research farm. Here are some examples of the tractors and other equipment used for plowing, cultivating, tilling, and mowing the farm to assist the scientists in their research.

**25. Experiment Station Associates**
Cheryl Cappiali, ESA President
Information is available on this organization formed to help promote scientific advances at The Connecticut Agricultural Experiment Station. Visit their webpage at: http://www.ct.gov/caes/ESA or http://www.agstationfriends.org.

**26. The Pavilion at Lockwood Farm**
*See page 10 of the program for a schedule of short talks held in the pavilion.*
The pavilion at Lockwood Farm was commissioned by the Experiment Station's Board of Control with funds provided by the William R. Lockwood Trust. Completed in May of 2016, it was designed and built by Steven Strong of Strong Timber Frames, East Hampton, CT. All wood products used in construction of the pavilion are Connecticut grown. The posts, beams and walls are eastern white pine, grown and harvested from Babcock Pond Wildlife Management Area in Westchester, CT. The pegs and splines are white oak, harvested from the Strong's 50-acre farm in East Hampton, CT. The pavilion is constructed using traditional timber framing post and beam techniques with large heart sawn timbers. The pavilion design features a large cupola with window and louver units that were constructed from the edges of the timbers. It functions to allow natural light and ventilation which provides an open feel in the interior of building.

**27. Hands on Chemistry**
Meghan Cahill
Join us at our Hands-On-Chemistry station for a fun and interactive experience where you can become a chemist for the day! This booth offers hands-on experiments that allow visitors of all ages to explore the exciting world of chemistry. Whether you're mixing colorful reactions, watching chemical processes unfold right before your eyes, or learning about the science behind everyday substances, there's something for everyone. Come curious, leave amazed. Let's make science fun.

**28. The Antifungal Properties of Nanoparticles: Protecting Plants, Food, and Human Health**
Bianca L. Peregrino, Jason White, Ph.D., and Christie M. Sayes, Ph.D.
Fungi are found everywhere in our environment. While many are harmless, some damage crops, contaminate food, and cause serious infections in humans. As antifungal resistance continues to grow, researchers are exploring new ways to control harmful fungi. This project investigates whether engineered nanoparticles, ultra-small materials with unique physical and chemical properties, can reduce fungal growth more effectively than traditional treatments. Laboratory studies examine how nanoparticle size, surface properties, and concentration influence antifungal activity against fungi relevant to agriculture, environmental exposure, and human health. This exhibit highlights the connection between plant science, environmental health, and human disease while exploring how nanotechnology may provide innovative tools to reduce fungal threats and improve public health.

**29. Christmas Tree Preservatives: Science and Snake Oil**
Richard S. Cowles, Ph.D., Ethan Paine, and Audrey Dunlap
Many products are commercially available that claim to help displayed Christmas trees hold their needle longer. Do any of them work? Research from past decades, including from the CAES, have suggested that the best practice is to use cool tap water in the tree stand. Our work has demonstrated that many of the commercial products are damaging to displayed trees, but there are a few products that may have value for specific kinds of trees (such as Douglas-fir or true firs). In true firs, needle loss can be triggered by exposure to salts in the water or by stress that leads to ethylene production within the trees, or by exposure to ambient sources of ethylene gas. Materials added to the water that block the enzymes responsible for biosynthesis of ethylene, or that block the effects of ethylene can help these trees retain their needles for extended display.

**30. Testing Adult-Use and Medical Cannabis Products in Connecticut: Ensuring Safety and Quality**
Anuja Bharadwaj Ph.D., Terri Arsenault, Michael Ammirata, Christian Dimkpa, Ph.D., and Jason C. White, Ph.D.
Following the legalization of adult-use marijuana in Connecticut, a regulatory testing program continues to assess cannabinoid content and product safety. CAES, in collaboration with the Connecticut Dept. of Consumer Protection (Drug

Control Division), ensures that medical and adult-use cannabis products meet label claims and regulatory standards. The Analytical Chemistry Department at CAES utilizes validated High-Performance Liquid Chromatography with UV detection (HPLC-UV) & Gas Chromatography Mass Spectrometry (GCMS) testing methods, both accredited by the American Association for Laboratory Accreditation (A2LA) ensuring adherence to rigorous quality and reliability standards. The lab quantifies cannabinoids-THC (delta-9-tetrahydrocannabinol), CBD (cannabidiol), THCA (Tetrahydrocannabidiolic Acid) & CBDA (Cannabidiolic Acid), and screens for potential contaminants such as pesticides, mycotoxins, and toxic elements as needed. This work helps safeguard public health and consumer safety by ensuring cannabis products are safe and free from harmful substances.

**31. Transport Patterns of Copper Nanomaterials in Leaves and Their Effects on Plant Growth**

Zeyu Cai, Ph.D., Chaoyi Deng, Ph.D., Christian Dimkpa, Ph.D., Jason C. White, Ph.D., and Yi Wang, Ph.D., *Assisted by* Dan Wang, Jing Wei, and Craig Musante

Our team developed a way to 'package' copper sulfide nanomaterials (CuS NPs) using three different organic coatings to see how they benefit soybean and tomato plants. We found that these nanomaterials are absorbed remarkably fast, entering the leaves and spreading from the base to the tips within just one day. Not only do they move efficiently through the plant, but they also act as a boost for crop quality by increasing the levels of essential nutrients like proteins and carbohydrates. Among the nanomaterials we tested, the CuS coated with alginate—a natural substance from seaweed—performed the best, proving to be a highly effective tool for enhancing plant growth.

**32. PLOT REMOVED POST-PRODUCTION**

**33. A World of Viruses**

Godfrey Indinda Nattoh, Ph.D., Jonathan Karisa, Ph.D., and Rebecca Johnson, Ph.D., *Assisted by* Duncan Cozens

Viruses are parasitic microorganisms that replicate within infected cells. Composed of genetic material bundled in a protein shell, viruses are relatively simple. Yet, despite their simplicity, viruses play a significant role in shaping the world we live in from global economics to human health. They infect all living organisms from bacteria in deep-water vents to plants and animals. This exhibit will explore the fascinating world of viruses from their diversity and size to their medical and agricultural importance to how we study them in the lab. Bring the kids and join us in constructing our own virus models as well as exploring how viruses infect cells.

**34. Novel Lures for Controlling the Spotted Lanternfly**

The Dweck Laboratory

The spotted lanternfly is an invasive insect that damages grapes, fruit trees, and other plants. It spreads quickly and is hard to control with current methods. This project explores a new way to manage this pest by studying how it uses smell to sense and respond to its environment. Insects rely on odorant receptors—proteins in their antennae—to detect specific smells. We identify which receptors the spotted lanternfly uses to sense important odors and test these odors in the lab and field. By linking specific smells to the insect's behavior, we aim to discover new attractants or repellents. These findings can be used to develop better lures and traps that target the spotted lanternfly more effectively and reduce its impact on crops and ecosystems.

**35. Using X-rays to Study Soil Organic Matter**

Itamar A. Shabtai, Ph.D. and Alice Zhou, Ph.D.

Soil organic matter makes up only a small fraction of the soil — typically between 0.5 and 3% of its mass — yet is crucial in soil fertility, water retention, and storing carbon out of the atmosphere. When organic matter becomes bound to minerals, or trapped inside soil aggregates, it breaks down more slowly and persists in the soil for longer. These interactions happen at submicron scales, a hundredth of the size of human hair, requiring specialized tools to study them. Here, we present two studies using techniques made possible by synchrotron radiation — an extremely intense X-ray source. In the first, we used micro computed tomography, a method that visualizes organic matter inside a soil aggregate in 3D, to understand how plant litter becomes incorporated into soil organic matter. In the second, we used X-ray absorption spectroscopy, a technique that reveals the chemical composition of organic matter, to study how mineral soil amendments such as basalt powder affect how organic matter interacts with minerals.

**36. Per- and Polyfluoroalkyl Substances (PFAS)**

Sara Nason, Ph.D., Jasmine Jones, Priyankar Chand, Ph.D., and Haoran Yang, Ph.D.

PFAS are highly toxic chemicals that have become common environmental contaminants. We provide information about the CAES program that conducts free analysis of PFAS in soil from Connecticut farms. We will also share our research on PFAS in maple syrup production, Atlantic fish, and monarch butterflies.

**37. Irrigation with Recycled Wastewater – Risks and Benefits**

Sara Nason, Ph.D., Nubia Zuverza-Mena, Ph.D., Raees Ahmad, Ph.D., and Priyankar Chand, Ph.D.

Recycling wastewater for use in crop irrigation is a key strategy for reducing freshwater needs. Additionally, recycled wastewater can supply nutrients that increase crop growth and reduce fertilizer needs. However, there are many chemical contaminants in wastewater. Understanding their movement in agricultural systems is important for reducing risk from eating irrigated crops.

**38. Identification of a Fire Blight Resistant Apple Cultivar and Efforts to Investigate its Resistance Mechanism**

Naziya Nabi and Quan Zeng, Ph.D.

Fire blight, caused by a bacterial pathogen Erwinia amylovora, is one of the most devastating diseases of apples, pears, and other members of the Rosaceae family. Harnessing host resistance is the most effective and sustainable method for controlling plant diseases. Known fire blight resistance currently all comes from crab apple species which can either be overcome by specific populations of E. amylovora or have not been introduced into domesticated apple cultivars due to the lack of an identified resistance gene. In this research, we identified a fire blight–resistant apple cultivar, N-12. Inoculation of the wild type E. amylovora to N-12 is asymptomatic on shoots and fruits and causes hypersensitive responses and tissue abscission on flowers. This suggests N-12 can recognize the presence of E. amylovora and trigger defense responses. Host resistance is mainly triggered by the host resistance protein recognizing the type III effectors (T3Es) secreted by the pathogen. To identify genes in E. amylovora that triggers resistance in N12, we generated 14 knockout mutants of known T3Es (eop1 and hopC) and putative T3Es (Gene 6 and Gene 12) identified through a genome-wide prediction. The mutations of these effectors in E. amylovora partially had the potential to overcome this resistance, suggesting they are avirulent factors in E. amylovora during its interaction with N12. Ultimately, identifying the resistance genes in N-12 will provide valuable tools for breeding new apple cultivars with durable fire blight resistance, helping to reduce chemical inputs and support more sustainable apple production.

**39. Understanding Soil Microbiomes with the Help of Grower Citizen Scientists**

Stephen Taerum, Ph.D. and Lindsay Triplett, Ph.D., *Assisted by* Elana Lancia

Soil microorganisms strongly impact plant health, but it is still unclear how farm management practices (e.g., fertilizer use) affect the soil microbiome. To help address this problem, we are conducting a citizen science project involving organic growers from across the country. This summer, we are sending participating growers a soil collection kit containing a survey and sampling supplies. From the surveys we will learn about the growers' farm management practices and their perceptions of the importance of soil microbiomes to their crops, while the soil samples will be analyzed for their chemical properties and microbial communities. At the end of the study, we will send the participants reports detailing the chemical properties and microbial diversities of their soils compared with those of other participants. We hope to better understand how grower perceptions and practices impact their soil microbiomes, and learn how useful a soil collection kit would be to growers.

**40. Breeding for Disease Resistance Apples**

James Standish, Naziya Nabi, Joseph Liquori, and Quan Zeng, Ph.D.

Apples are an essential fruit crop, but are also susceptible to many diseases and pests. Due to the extensive use of pesticides, apples are constantly on the "Dirty Dozen" list of produce with the most pesticides detected. In collaboration with researchers from Cornell University, we developed and tested apple cultivars that are naturally resistant to plant diseases. The apple seedlings displayed are offspring of a disease-resistant apple cultivar and a disease-susceptible apple cultivar. In the next 2 years, we will evaluate their susceptibility to plant diseases and map the disease resistance loci on their chromosomes. Fruit quality and post-harvest properties will also be evaluated in disease resistant offsprings. The goal is to provide genetic resources for future breeding of disease-resistant apple cultivars, and ultimately to breed disease-resistant apples with good horticulture traits.

**41. Piloting Novel Organic Management Methods for Apple Diseases in the Northeast - Grower Collaboration**

Quan Zeng Ph.D. Evan Lentz

There is increasing demand for organically grown fruit in the United States. However, organic fruit production remains highly imbalanced, with more than 95% of organic apples produced in the Pacific Northwest. One major factor contributing to this imbalance is the lack of effective management tools for growers in humid climates, such as the Northeast, to control plant diseases and pests. Among these challenges, fire blight is one of the most serious bacterial diseases affecting apples and pears in Connecticut and across the United States. This disease causes significant yield losses as well as tree death, and to date, there are no effective organically approved control methods available. CAES scientists have developed and tested a novel disease management protocol, known as the "2+2" program, which combines pathogen antagonism with plant defense induction. Since 2025, this program has been piloted in 11 apple orchards across the Northeast, where it has proven effective and received positive feedback from fruit growers.

**42. Yeast-Based Biological Control of Fire Blight**

Jewell Jung, Jessica Cyr, Quan Zeng, Ph.D.

Apple growing is an important part of agriculture in Connecticut, but plant diseases can make it difficult for farmers to protect their crops. One of the most harmful diseases of apples is fire blight, which can quickly damage entire apple trees. Compared to pesticide applications, a more sustainable approach to managing fire blight is to use biological control microorganisms. Our research has identified a beneficial yeast, Aureobasidium pullulans, which can boost the plant's natural defenses and change the floral environment, leading to high efficacy of fire blight suppression. In this study, we aim to elucidate the mechanism of this biocontrol yeast by randomly mutating genes in A. pullulans and screening for loss of function in plant defense activation and changing the pH of the plant environment. Mutants of Aureobasidium pullulans were successfully generated, and screening methods have been established.

**43. The Application Method Influences Winged Euonymus Response to Herbicides**

Jatinder S. Aulakh, Ph.D. and Ethan Paine

Winged euonymus [Euonymus alatus (Thunb.) Sieb.] is a highly invasive, deciduous shrub native to Asia. It was introduced to the United States in the 1800s as an ornamental plant, but it has since become invasive in several northeastern states, including Connecticut. The effectiveness of aminocyclopyrachlor, aminopyralid, glyphosate, and triclopyr ester was assessed using either a hack and squirt or a basal bark application method in Manchester, CT, during the fall of 2023 and 2024. The findings from the hack and squirt application method indicated 72 to 95% euonymus control depending upon the herbicide and experiment year. In contrast, the basal bark application method showed that triclopyr ester was the most effective treatment with 91 to 98% control, while the efficacy of glyphosate varied with control rates of 61% in 2023 and 22% in 2024. Based on these findings, all herbicides demonstrated high effectiveness in controlling euonymus when using the hack and squirt application method, whereas triclopyr ester proved to be more effective as a basal bark treatment.

**44. Promoting Forest Health in Connecticut**

Elisabeth B. Ward, Ph.D., *Assisted by* Jack Hatajik and Joseph P. Barsky

Forests in the Northeast face multiple stressors, which threaten their ability to provide important social and ecological services. These include pest, pathogen, and plant invasions; climate change; forest conversion and fragmentation; and over-browsing by white-tailed deer. As the lead forest health agency in the state, CAES works in cooperation with the USDA Forest Service and other forestry agencies to monitor and manage threats to Connecticut's 1.8 million acres of forested land. These initiatives include an annual aerial survey to detect landscape-level changes in tree health and mortality and ground surveys to evaluate the impacts of changing conditions on forests. Specifically, we are investigating how losses of tree species from pest and pathogen invasions, such as emerald ash borer and beech leaf disease, are affecting understory plant composition and tree regeneration and whether different management practices can maintain native plant diversity at the landscape scale.

**45. The Connecticut Oak Mast Surveillance Program: 2025 Results and Emerging Trends?**

Joseph P. Barsky

Oaks are important to our eastern forests. They support many wildlife species and help keep forests healthy. Sustaining them is challenging as young oaks face heavy browsing, less desirable growing conditions, strong competition, insect outbreaks, and storm damage. These stresses make it difficult for new oaks to grow.

To guide forest management, the Connecticut Oak Mast Surveillance Program measures acorn crops on 575 mature oaks at twelve sites each August. Results are shared during "Oaktober." In 2025, red oaks showed an interesting pattern. A late freeze in May 2023 likely damaged flowers in northern Connecticut, affecting acorn yields. In 2025, those areas had high acorn yields, while other areas had poor crops, possibly because they produced many acorns in 2024. Since red oak acorns take two years to mature, the freeze may have caused an alternating cycle. White oaks, however, show frequent yearly failures and produce far fewer acorns, creating major challenges for forest managers.

**46. Chestnut Species and Hybrids**

Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)

These trees are part of the large collection of species and hybrids of chestnut maintained by The Experiment Station. Great differences can be seen in chestnut blight resistance, Asian chestnut gall wasp resistance, form, and nut production. Hypovirulent strains of the blight fungus help protect the trees from lethal cankers (see Control of Blight on American Chestnuts). Plants of all seven species of chestnut are growing here. One seedling from the Caucasus Mountains of Russia (a true European chestnut), planted in 1994, has not survived well through our Connecticut winters. Commercial European chestnut trees from Northern Turkey have also done poorly. Two trees of the chinquapin native to northern Florida are planted across the road from an Allegheny chinquapin from Ohio. The original tree (the "ortet") of the cultivar 'Lockwood' is at the southwest corner of the plot.

**47. Inspection of Trees, Bees, and Commodities**

Jacob Ricker, *Assisted b*y: Tia Blevins, Jeff Fengler, Ally Greene, Ella Nastri, and Paula Wolf

This office helps protect plant health by slowing the spread of pests on plant products sold in CT. In 2025, we 185 registered licensed nurseries and did 166 inspections. Our state apiarist checks honeybee health for over 900 licensed beekeepers and 6,279 hives. We certified 181 shipments to 28 states and territories, and 349 international shipments for 31 countries. We surveyed state forests for spongy moths, and other forest pests. With federal support we survey exotic insects and diseases not found in our state. In 2025 we looked for box tree moth, old world bollworm, oak ambrosia beetle, and fruit tree pests. Our long-term purpose is to reduce negative impacts to agriculture in CT.

**48. Biological control of Hemlock Woolly Adelgid: A Statewide Connecticut Strategy**

Carole Cheah, Ph.D.

Hemlock woolly adelgid (HWA), a devastating national exotic pest of our native Eastern and Carolina hemlocks, continues to threaten Connecticut's hemlocks in urban and forest landscapes. Connecticut has a collaborative, no-chemical strategy to manage HWA outbreaks using Sasajiscymnus tsugae, a tiny native ladybeetle predator of HWA from Japan. Discovered by Japanese and Connecticut scientists, it is the first HWA biological control agent released in North America and available commercially. Nearly 350,000 S. tsugae have been released in Connecticut since 1995 in multiple state lands, town open space, land trust preserves, private forests, bird sanctuaries, water company lands, and on homeowner properties. The Upper and Lower Farmington River and Salmon Brook is the first case study for this important strategy. Miles of riparian hemlock forests along the Nation's first Partnership Wild and Scenic River are now being protected without chemicals using S. tsugae.

**49. Bird & Butterfly Garden**

The Bird & Butterfly Garden creates several favorable habitats for our native birds, butterflies, and pollinating insects and helps us determine which plants may work best in southern Connecticut gardens. At this time of year, the garden is at its peak performance with plants thriving in the garden and meadow. Plant labels are placed near the plants in the garden to provide the botanical and common name. Throughout the day, we update our list of birds, butterflies, and moths spotted in the garden. The Bird & Butterfly Garden at Lockwood Farm is listed in the "Nature Conservancy Open Days Directory for New England". Do you have a butterfly garden or would you like to start one? Experiment Station staff members can provide you with support by answering your questions and suggesting ways for you to enjoy a butterfly garden small or large on your patio or in your yard.

**50. Mighty Monarchs and Busy Bumble bees**

Kelsey E. Fisher, Ph.D. and Caleb B. Bryan, Ph.D., *Assisted by* Violet Bisset, Kit Libby, and Sabrina Osowiecki

Pollinator populations have been declining for the past several decades. One of the causes we can control is the lack of available nesting, foraging, and overwintering habitat. Many CT residents are doing their part by establishing and maintaining small gardens with blooming flowers that provide nectar for pollinators across the state. This is a great first step! But, focusing solely on floral habitat restoration may not be enough, as nesting and overwintering habitat may be limited as well. Come learn about our current research projects that will help us understand habitat needs for all the life stages of some of our favorite, charismatic pollinators: monarch butterflies and bumblebees. Our pollinator friends are looking forward to meeting you!

**51. Planting for Wild Bees in Southern New England**

Tracy A. Zarrillo and Kelsey Fisher, Ph.D., *Assisted by* David P. Mantack, Dr. Steve Alm, Casey Johnson, and Emma Tondre

Wild bees are declining around the world for many reasons. One major problem is habitat loss, which means bees are losing the flowers they depend on for food and the places they need for nesting. This 3-year project, in cooperation with the National Resources Conservation Service and the University of Rhode Island, helped to address floral resource loss. We studied which flowers wild bees use in habitat restoration sites across Connecticut and Rhode Island. Using what we learned, we created a special seed mix designed to support wild bees in southern New England.

**52. Office of Aquatic Invasive Species**

Gregory Bugbee, Jeremiah Foley Ph.D., Summer Weidman, Riley Doherty, Madeline Watts, *Assisted by* Olajumoke Omosowone, Matthew Petrovich, and Luca Gherardi

Connecticut's lakes and ponds face a growing threat from invasive aquatic plants like Eurasian watermilfoil and fanwort. These species disrupt native ecosystems, impede recreational use, reduce property values, and create conditions favorable to harmful algal blooms. Since 2004, our team has surveyed nearly 350 waterbodies across the state, identifying over 100 plant species – 14 of which are invasive. Roughly 60% of surveyed locations contain at least one invasive species. In 2018, we identified a new subspecies of hydrilla in the Connecticut River, which has since spread to 11 additional waterbodies in CT and MA. We are actively researching management strategies including herbicides, biological controls, and drone-based mapping technology. At this plot, you will see our surveillance boats, a fixed-wing survey drone, and underwater video

equipment. There will be live invasive plants on display to practice identification skills. A researcher will be available to discuss our program and answer questions about lakes and ponds.

**53. The Public Health and Entomology Tent**

**a. Statewide Monitoring Program for Mosquito-Borne Viral Diseases in Connecticut**

Philip Armstrong, Ph.D., John Shepard, Andrea Gloria-Soria, Ph.D., Angela Bransfield, Michael Misencik, Tanya Petruff

Mosquito-borne viral diseases constitute an annual threat to human health in Connecticut. A comprehensive surveillance program complemented by science-based controls and timely public outreach are the most effective ways to protect the public and reduce the risk of human disease. The Connecticut Agricultural Experiment Station (CAES) maintains a network of 108 mosquito-trapping stations in 88 municipalities throughout the state. The surveillance program monitors the types, numbers and locations of mosquitoes and tests them for the presence of viruses that can cause illness including West Nile virus (WNV) and eastern equine encephalitis virus (EEEV). To date, more than 5 million mosquitoes representing 48 different species have been collected, identified, and tested since 1997. A total of 3,164 WNV isolations have been recovered from 24 different mosquito species and a total of 645 isolations of EEEV have come from 21 species of mosquitoes. WNV has been detected every year since its introduction into Connecticut in 1999, virus activity peaks from July-September and is most frequently detected in densely populated areas of lower Fairfield and New Haven Counties, and Hartford metropolitan area. Seasonal transmission of EEEV occurs sporadically and the focal areas are located near forested swamps in southeastern Connecticut. Further information on weekly test results and annual summaries for previous years can be found on the CAES web site (https://portal.ct.gov/caes/mosquito-testing/introductory/state-of-connecticut-mosquito-trapping-and-arbovirus-testing-program).

b. **Passive Tick and Tick-Borne Disease Surveillance: Informing Public Health Action in Connecticut**

Goudarz Molaei, Ph.D., *Assisted by* Ms. Lorelei Sandland

The rising abundance and range expansion of both native and invasive ticks pose a critical public health threat in the United States. Most TBDs are associated with the blacklegged (aka deer) tick (Ixodes scapularis), the primary vector of seven pathogens responsible for Lyme disease (LD), anaplasmosis, babesiosis, and Powassan virus, among others. The CDC estimates suggest the actual burden is much higher, with more than 475,000 Americans diagnosed and treated for LD annually. This trajectory is particularly pronounced in Connecticut, where environmental factors have historically fostered ideal tick habitats. In 2025, the Tick Testing Laboratory received over 6,000 submissions. Of these 4,094 (69.4%) were blacklegged ticks, 1,486 (25.2%) were American dog ticks, and 266 (4.51%) were lone star ticks, with smaller percentages representing longhorned, Gulf Coast, and a few other tick species. Among the 3,975 engorged nymphs and adult female blacklegged ticks tested, infection rates for the causative agents of LD, anaplasmosis, babesiosis, Borrelia miyamotoi disease, and Powassan virus were 36.9%, 7.6%, 14.8%, 2.3%, and 0.3%, respectively.

**c. American Dog Tick Surveillance and Management on Branford's Thimble Islands**

Jessica Brown, Ph.D., Natalie Bailey, Scott C. Williams, Ph.D., and Megan A. Linske, Ph.D.

Horse Island is the largest of the Thimble Islands, an archipelago in Branford, Connecticut. Owned by Yale University and managed by the Yale Peabody Museum as a research site and educational space for visiting classes, the 10-acre island is composed primarily of deciduous forest. During the spring and summer, island visitors report a high prevalence of American dog ticks. While this species of tick does not frequently transmit pathogens to humans in Connecticut, these ticks are numerous on the island during peak activity periods and may deter visitors. The island lacks freshwater and is unable to sustain larger mammal hosts typically required for dog tick reproduction. During the summer of 2025, our team began visiting the island to investigate potential causes of the unusually high tick population and to apply experimental tick management methods. We used camera traps, small mammal traps, and tick sampling methods to monitor tick activity and investigate host presence on the island. We also deployed bait boxes containing a treated bait throughout the island to systemically treat small mammals to kill ticks feeding on them. This preliminary work will guide further investigations of American dog ticks and their potential hosts on the island.

**d. Statewide Tick Surveillance in Connecticut: Monitoring Emerging Threats**

Megan Linske, Ph.D. and Doug Brackney, Ph.D., *Assisted b*y Jamie Cantoni and Duncan Cozens

Connecticut has seen a steady rise in the abundance and distribution of medically important tick species in recent years. In response, the Active Tick Surveillance Program (ATSP) was established in spring 2019 to monitor changes in tick populations and assess the associated risk of pathogen transmission across the state. The ATSP conducts routine collections of adult and nymphal ticks from 40 permanent monitoring sites during peak activity seasons, typically from late March through November. Collected ticks are identified and tested for a panel of

pathogens of significant public health concern, including Borrelia burgdorferi (Lyme disease), Babesia microti (babesiosis), Anaplasma phagocytophilum (anaplasmosis), Borrelia miyamotoi (relapsing fever), Borrelia mayonii (a novel Lyme agent), and Powassan virus (Powassan encephalitis). Since its launch, the program has collected, identified, and tested nearly 20,000 ticks. As new species such as the lone star tick (Amblyomma americanum), the longhorned tick (Haemaphysalis longicornis), and the recently detected Gulf Coast tick (Amblyomma maculatum) continue to expand their range into Connecticut, surveillance efforts are increasingly focused on tracking their spread and understanding their potential impact on tick-borne disease dynamics in the state.

**54. Protecting Northeastern Strawberries from Invasive Disease**

Elizabeth Indermaur, Ph.D., Ravikumar Patel, Ph.D., and Nathaniel Westrick, Ph.D.

Strawberry cultivation is a critical component of Connecticut's agricultural heritage and has historically been protected from many fungal pathogens by our cold winters that limit pathogen establishment in the Northeast. Unfortunately, with warming climates multiple pathogens previously restricted to the Southern US have been identified in Connecticut, the most immediately concerning of these is Colletotrichum siamense, causative agent of Anthracnose Crown Rot (ACR). These field plots are part of a large research project to understand the biology of this pathogen and improve current management recommendations for farmers. Efforts include a largescale evaluation of strawberry varieties for ACR resistance and research into what chemical signals cause the pathogen to transition between a symptomatic and asymptomatic state.

**55. Monitoring for Sweet Corn Insect Pest Resistance**

Kelsey E. Fisher, Ph.D.

In the early 1900s, the European corn borer (ECB) was introduced to North America near Boston, MA, with the importation of broomcorn from Italy and Hungary. By 1942, ECB was distributed throughout the major corn-growing regions and was the most economically impactful corn-insect pest through the 20th century. Many management strategies were attempted, but few were successful until 1996 with the commercialization of genetically modified corn encoded with Bacillus thuringiensis (Bt corn). Bt corn expresses insecticidal crystalline proteins in plant tissues and ingestion by larvae results in death. Bt corn is highly effective and accounts for 85% of the corn planted in the United States, which reduces our reliance on pesticides. Over 20 years, no cases of ECB resistance to targeted toxins were identified; however, in 2018, evidence of resistance was reported in Nova Scotia and continues to persist. This monitoring plot will enable early detection of potential Bt resistance in Connecticut.

**56. The Effects of Management Practices on Cut-and-Come-Again Greens Production**

Leigh Whittinghill, Ph.D., *Assisted by* Sofia Shubin, Briana Mendez, Rahila Sulthana, Constance Blankson, and Plant health fellow Peyton Daniels.

Cut-and-come-again is a practice in which greens are harvested by removing the outer leaves, leaving the growing center of the plant intact to be harvested again. Experimentation at CAES has been focused on determining what management practices increase yields and crop quality at later harvests. In this plot, kale was planted in the spring and has been harvested weekly since May, and some were just planted. Some of the kale receive only an initial fertilizer application, or that plus a side dressing of nitrogen, while others are fertilized at every harvest. We are removing half of the leaves that are ready in some plots and removing all but four of the leaves in others. Plots that are only harvested once that act as controls. We are monitoring yield quantity and quality, leaf nutrient content, and nutrient leaching. Preliminary results from 2025 do not show an increase in yield with increasing applications of fertilizer, or any difference between the number of leaves harvested.

**57. Grapes**

Washington da Silva, Ph.D. and Richard Cecarelli

Wine Grapes – these vines are reminiscent of the first grapevines planted at Lockwood Farm in 1978 by CAES scientists when the grape research program was established at CAES. Over decades, many studies were conducted on grape disease susceptibility and winter hardiness, which helped to propel the wine and grape industry in Connecticut by providing important information on the varieties best adapted to the local climate.

**58. The Rock**

This rock is (technically) a Glacial Boulder composed of diabase. It was moved by flowing ice from its place of origin and is therefore also known as a Glacial Erratic. The boulder probably fell onto the top of the glacier oozing its way down past the Sleeping Giant's head during the waning stage of the last continental glaciation. It was deposited here, near the toe of the waning glacier, onto "till", an unsorted mass of sandy or silty material mixed with rounded pebbles and boulders that had been pushed in front of, or under, the glacier, and deposited as the ice melted. Most of the boulders around the area, such as those in the nearby stone walls, are rounded and their surfaces have been ground smooth by abrasion beneath the glacier. Diabase has a fine crystalline texture, having been pushed up as magma close to the surface where it cooled quickly. The

"trap rock" of this region is either diabase, or its compositional equivalent basalt that was extruded onto the surface as lava flows that form topographic "trappa" or "trappe" (steps or stairs).

**59. Asian Chestnut Gall Wasp on Chestnut**

Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)

Many of the chestnut trees here at Lockwood Farm are heavily infested with Asian chestnut gall wasp (*Dryocosmus kuriphyllis*). The insect was first detected in CT in 2011 but has done serious damage to commercial orchards in the mid-west and in Italy. We have been making crosses of susceptible trees with species of chinquapins which seem to have good resistance to this insect, and some are planted here. There are more wasp galls on some of these trees than on others, and we will continue to evaluate the effect of these galls on the growth and nut production of the trees.

**60. Hybrid Elm Trees**

Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)

The late Eugene Smalley spent his whole career at the University of Wisconsin breeding elm trees for resistance to Dutch Elm Disease and for the tall, vase-shaped form of American elm trees *(Ulmus americana*). The problem with this kind of breeding is that American elms have four sets of chromosomes, and all the other species of elm have two sets. They bloom at different times, but stored pollen can be used to make crosses. In 1992, Dr. Smalley sent us trees of Chinese elm (*Ulmus parvifolia*) and some of his successful crosses. Mortality has been high, but some of the trees still survive. A few of them look like good replacements for American elms as street trees.

**61. Rocky Hill American Chestnut Trees**

Sandra Anagnostakis, Ph.D. (Emeritus), *Assisted by* Pamela Sletten (Retired)

Seed collected from selected American chestnut trees in a woodlot in Rocky Hill, CT in 1985 grew into the trees planted here. They are used as female parents in our crosses and are being treated with hypovirulence (see Control of Blight on American Chestnuts) to keep them alive.

**62. Cheshire Pollinator Pathway and Hamden Land Conservation Trust**

Joy VanderLek and Gail Cameron

Cheshire Pollinator Pathway and Hamden Land Conservation Trust's Pollinator Pathways partner together to promote the use of native plants in the local landscape, and raise awareness about native plants, pollinators, and biodiversity. www.Cheshirepollinatorpathway.org, Joyvlek@gmail.com, cheshirepollinatorpathway@gmail.com, 203-623-4027.

**63. CT College Arboretum**

Scott D'Agostino

The Arboretum, established in 1931, is a signature feature of Connecticut College. Today it encompasses 750 acres, including the landscaped grounds of the College campus as well as the surrounding plant collections, natural areas and managed landscapes. The Arboretum offers visitors a chance to explore a diverse collection of native plants and natural habitats or simply wander and enjoy the beauty of this precious natural resource. Taking a self-guided tour (offered May-October) is an excellent way for first-time visitors to experience many interesting features in the Native Plant Collection. Approximately 2,500 trees, shrubs and vines native to eastern North America and hardy in southeastern Connecticut are labeled with scientific names and accession numbers. The various species take turns displaying their beauty throughout the seasons: shadbush and willows in April; dogwood and azaleas in May; mountain laurel and magnolias in June; giant rhododendron, sourwood, and sweet pepperbush in July; Franklin tree in September; brilliant autumn foliage in October; evergreens and conifers year-round. Spring blooming wildflowers and late summer blooming perennials add color and pollinator habitat across the landscape. The Arboretum is open to the public, free of charge, every day of the year from sunrise to sunset. For more information, please feel free to contact arbor@conncoll.edu, (860) 439-2144 or visit our website at www.arboretum.conncoll.edu.

**64. Connecticut Federation of Lakes**

Rebekah White

The Connecticut Federation of Lakes (CFL) is the Voice of Connecticut Lakes. Connecticut Lakes need a voice to represent these important inland water bodies so they can become and/or remain the healthy, desirable natural resources our families and friends deserve. The CFL is a partner, resource, a sounding board, a clearinghouse, and an advocate in matters as they pertain to CT lakes. The CFL wants to help you in your efforts to protect your lake, pond and/or watershed to be healthier now and in the future. www.ctlakes.org, Admin@ctlakes.org.

**65. Connecticut Forest and Park Association (CFPA)**
Elizabeth (Beth) Merow
The Connecticut Forest & Park Association (CFPA) connects people to Connecticut's forests, parks, and Blue-Blazed Hiking Trails, and ensures these special places are protected and well-managed for future generations. CFPA inspires active, lifelong engagement with Connecticut's abundant forests, parks, and trails by building a vibrant and diverse conservation community, including individuals and families, educators, community leaders, and volunteers. Through its forest education programs, CFPA offers engaging, hands-on learning opportunities for school children and adult learners alike, fostering a deeper understanding of and connection to the natural world. CFPA is a nonprofit organization that relies on members and supporters to carry out its mission. www.ctwoodlands.org, emerow@ctwoodlands.org, 860-346-8733.

**66. Connecticut Invasive Plant Working Group**
Rose Hiskes
The mission of the Connecticut Invasive Plant Working Group is to gather and convey information on the presence, distribution, ecological impacts, and management of invasive species; to promote uses of native or non-invasive ornamental alternatives throughout Connecticut; and to work cooperatively with researchers, conservation organizations, government agencies, green industries, and the general public to identify and manage invasive species pro-actively and effectively. www.cipwg.uconn.edu, rose.hiskes@ct.gov, 860-683-4977, x1

**67. Connecticut Land Conservation Council**
Ricky Bentley
The Connecticut Land Conservation Council is the only statewide service provider and voice for all Connecticut land trusts. CLCC is a leader in advocacy and policy, education and training, and technical assistance to empower Connecticut's 120+ land trusts and ensure the long-term viability of land conservation efforts in the state. Since its formation in 2006, CLCC has grown into one of the most effective land trust service associations in the country, offering a wide range of programming and services – from traditional capacity building, training and education, to new and creative opportunities for land trusts to better connect to one another and their communities for greater conservation, economic, and social impact. www.ctconservation.org , rbentley@ctconservation.org, 860-852-5512.

**68. Connecticut Professional Timber Producers Association**
Kit Serafini
The Connecticut Professional Timber Producers Association is a non-profit organization representing the forest products industry of CT. Our membership works to enhance the image and understanding of the forest products profession in Connecticut through public outreach programs, education, and a commitment to professionalism amongst its members. www.timproct.org, info@timproct.org, 860-948-0432.

**69. Connecticut Tree Protective Association, Inc.**
Cathy Dvorsky
The Connecticut Tree Protective Association is a non-profit organization that supports arboriculture in the State of Connecticut. This association was established to accomplish the following goals: a.) promote the protection and care of trees in the State of Connecticut, b.) to advocate for beneficial legislation as it relates to trees, c.) to sponsor meetings devoted to the presentation and exchange of scientific data and general information in the field of arboriculture, d.) to foster research in the field of arboriculture, e.) to encourage a greater interest in planting trees and how to plant, and nurture them properly and f.) to promote good fellowship and ethical practices in the arboricultural profession. www.ctpa.org, cathy@ctpa.org, 203-484-2512.

**70. CT DEEP Forestry Division**
Beth Bernard, Outreach Forester
The Connecticut Department of Energy & Environmental Protection's Division of Forestry works within the Bureau of Natural Resources to conserve, improve, and protect the state's forest resources. Its programs include Service Forestry, which guides private and municipal landowners in sustainable management, and Urban & Community Forestry, which supports residents and municipalities in every CT town with the care and expansion of their urban and community forests. The Division also advances statewide forestry goals through efforts such as the Connecticut Forest Action Plan, wildfire prevention and management, forest practitioner licensing, and monitoring forest health issues. https://portal.ct.gov/deep/forestry/ct-forestry-division, Elizabeth.Bernard@ct.gov, 860-424-3630.

**71. CT DEEP Pesticide Management Program**
Zachary Donais
The Connecticut Department of Energy & Environmental Protection (DEEP) Pesticide Management Program's main goal is to prevent adverse human health or environmental effects from the misuse of pesticides. We work with all people, products,

permits, and businesses that are related to pesticides and arboriculture and make sure that they are properly certified and knowledgeable in the work they are doing. We would be happy to answer any questions about pesticides or help anyone looking to get certified! https://portal.ct.gov/deep-pmp, zachary.donais@ct.gov, 860-424-3326.

**72. CT DEEP - Wildlife Division**

Paul Benjunas

The DEEP Wildlife Division is part of the Connecticut Department of Energy and Environmental Protection (DEEP) and is responsible for advancing the conservation, use, and appreciation of Connecticut's wildlife resources. This display will highlight some of the Division's ongoing efforts with an emphasis on topics including the Connecticut Migratory Bird Conservation Stamp Program, black bears, and the Connecticut Wildlife Action Plan. https://portal.ct.gov/DEEP/Wildlife/Wildlife-in-Connecticut, paul.benjunas@ct.gov, 860-416-8563.

**73. DEEP Wildlife Division Habitat Management Program**

Peter Picone

DEEP Habitat Management Program biologists manage invasive plants and restore native plants on wildlife management areas and other state lands to improve or restore biological diversity. Biologists also give technical assistance to private landowners, including individual landowners, farms, land trusts, and municipal properties. At this table, I will share technical advice, literature, and information on tools, techniques, and challenges in conducting habitat management. peter.picone@ct.gov, 860-424-3032.

**74. Hamden Tree Commission**

Kyle Dougherty

The mission of the Hamden Tree Commission is to promote the conservation and stewardship of a healthy, safe, and vibrant tree canopy within the Town of Hamden. The Commission is charged with assessing the current tree inventory and canopy cover, developing a tree management plan, and evaluating completed work and programs. The Commission will act as a resource for the community in regards to arboricultural education and planting of new trees. The Commission seeks to increase public understanding of the vital role trees play in our natural environment and character of our community. www.hamden.com/376/Tree-Commission, HBC_Trees@Hamden.com.

**75. Levo International**

Nate Heiden

Levo International is a non-profit 501(c)3 organization with mission of empowering people to end poverty. Levo's work includes interconnected food production, food retail, and workforce development aspects. Hydroponics is the growth of plants without soil in a water-based system. Levo's research program focuses on reducing the inputs required for hydroponic farming to increase its accessibility and impact. With the support of the Connecticut Agricultural Experiment Station, the Northeast SARE, the CT Department of Agriculture, and university partners, Levo has ongoing research efforts exploring the development and deployment of effective organic fertilizers, improved mineral fertilizer usage in hydroponics, and the simplified growth of high-nutrient crops such as strawberries. www.levointernational.org, nheiden@levointernational.org, 844-947-2336.

**76. Master Gardeners, UCONN**

Giulia Gambale

The UConn Extension Master Gardener Program trains citizens to develop skills in botany, horticulture, and gardening to assist the community in best practices for diagnosing diseases and pests by presenting the clients with scientifically based choices. https://mastergardener.uconn.edu, giulia.gambale@uconn.edu, 203-668-6205.

**77. North Haven Land Trust**

Anita Dunn

In 1972, volunteers formed the North Haven Land Trust to preserve local forests, woodlands and wetlands for the benefit of everyone. The 133 acres acquired to date offer native habitats for wildlife, quiet buffers from the noise and lights of traffic and businesses, and restive green space for neighbors and visitors. Our most recent acquisition, the 100-year-old Boy Scout camp Wah Wah Tay See, could not have been made without the generosity and swift action by a core group of neighbors in the area community along the Mt Carmel side of Sleeping Giant Mountain. Future collaboration with other conservation groups will bring additional successes. Our mission is to work with other volunteers and donors who share our love of nature to acquire and preserve land for future generations and to reach the Connecticut goal of 21% of our state land as open space. www.northhavenlandtrust.org , northhavenlandtrust@gmail.com.

**78. Northeast Organic Farming Association of CT (CT NOFA)**
Kim Stoner
The Northeast Organic Farming Association of CT's mission is to ensure the growth and viability of organic agriculture, organic food, and organic land care. We envision a healthy, organic Connecticut founded on ecologically, socially, and economically just principles. In addition to our food-based initiatives, we also run the NOFA Organic Land Care program to train the next generation of organic landscapers, land managers, and conservationists. www.ctnofa.org; kim@ctnofa.org, 203-408-6819.

**79. Sleeping Giant Park Association**
Mick Martucci
SGPA is an all-volunteer 501(c)3 non-profit organization, dedicated to protecting and caring for the Sleeping Giant. The Sleeping Giant Park Association, Inc. was founded in 1924 to protect the Sleeping Giant from quarrying, and to establish the iconic ridgelines as a park for the people of Connecticut. SGPA is Connecticut's oldest state park "friends group" and has a tremendous history of conservation and stewardship. The mission of SGPA, in partnership with the State of Connecticut, is to build upon a legacy of conservation and stewardship to expand the park and the opportunities it offers for physical recreation, spiritual renewal, and enjoyment of and learning about the natural world. www.sgpa.org, hiking@sgpa.org, 203-430-7721.

**80. Southwest Conservation District**
Chris Sullivan and Melissa Mostowy
The mission of the Southwest Conservation District is to provide technical assistance, information, and education in natural resource conservation and management to agricultural cooperators, landowners, and the public across 43 municipalities in southwest Connecticut. Improved soil conservation and water quality means healthier natural systems. These systems provide water for drinking, eating, bathing and recreational activities such as swimming. These same healthy systems create habitats for healthy organisms, both inland and on the coastal Long Island Sound. Improved habitats, protected natural resources, and native populations are also beneficial to human health. csullivan@conservect.org, https://conservect.org/southwest/.

**81. Spring Glen Garden Club**
Theresa McCabe
The Spring Glen Garden Club was founded on July 1, 1925, and celebrated its 100th anniversary in 2025. The club is a founding member of the Federated Garden Clubs of Connecticut and has a long history of promoting gardening, horticulture, floral design, civic beautification, and preservation of natural and native resources. Its community projects include gardens and planters throughout Hamden, including the Jonathan Dickerman House Herb and Shade Garden, Hamden Government Center and Miller Library, Poppy's Garden along the rail trail, and the Red Oak tree at Eli Whitney Park. The club also participates in local events by sharing gardening information, seed packets, small plants, and floral displays. Spring Glen Garden Club is proud of its collaboration with The Connecticut Agricultural Experiment Station and the Federated Garden Clubs of Connecticut Landscape Design Council in establishing the Bird and Butterfly Garden at Lockwood Farm. https://ctgardenclubs.org/club-corner/spring-glen-garden-club-celebrates-100-years, theresamccabe@comcast.net.

**82. The American Chestnut Foundation - CT Chapter**
Florian Carle
More than a century ago, nearly four billion American chestnut trees were growing in the eastern U.S. They were among the largest, tallest, and fastest-growing trees. The wood was rot-resistant, straight-grained, and suitable for furniture, fencing, and building. The nuts fed billions of wildlife, people and their livestock. It was almost a perfect tree, that is, until a blight fungus accidentally introduced by humans killed it more than a century ago. Since then, The American Chestnut Foundation (TACF) is committed to restoring the American chestnut tree to its native range (200 million acres of eastern woodlands). Unlike other environmental organizations, TACF's mission is not about preventing environmental loss or preserving what we already have. The loss already occurred and TACF is trying to restore an entire ecosystem. Our goal is to create a template for the restoration of other chestnut tree species throughout the world. During Plant Science Day Event, members of the TACF Connecticut Chapter will be there to answer all your chestnut-related questions and show you the various species of chestnut trees in the Lockwood orchard we are using to help restore this great tree to Connecticut and the US. www.tacf.org/ct, CTChapter@tacf.org, 203-821-1021.

**83. The Federated Garden Clubs of Connecticut, Inc.**
Norma Jean Macauto, 2nd VP
The Mission of the Federated Garden Clubs of Connecticut, Inc., is to coordinate, stimulate and encourage higher standards in all aspects of Garden Club work; to protect and conserve our natural resources, preserve our heritage, and promote civic beauty. We fulfill our mission in rich and varied ways, offering our 111 member clubs with 6,000 members and our affiliate member organizations opportunities to participate in, and contribute to, the core mission and values of the Federation. https://ctgardenclubs.org, normajean.macauto@ctgardenclubs.org, 917-375-1615.

**84. USDA APHIS PPQ**

Ionela Scott

APHIS' Plant Protection and Quarantine (PPQ) program safeguards U.S. agriculture and natural resources against the entry, establishment, and spread of economically and environmentally significant pests, and facilitates the safe trade of agricultural products. www.aphis.usda.gov/aphis/ourfocus/planthealth, Ionela.Scott@usda.gov.

**85. U.S. Department of Agriculture - Farm Service Agency**

Karen Murray

The Connecticut division of the Farm Service Agency (FSA) offers farmers a variety of assistance through farm programs, farm loans and ad hoc disaster programs. Our employees work with farmers daily to identify the assistance we can provide for their specific operations. We've been serving farmers since 1935 and we're always looking for opportunities to strengthen Connecticut's agricultural community. To learn more about what we can do for you, please contact your local FSA county office. The South Central Farm Service Agency is located at 97 Barnes Road in Wallingford, and serves the Lower CT River Valley, Naugatuck Valley and South Central Planning Regions. https://www.fsa.usda.gov, karen.murray@usda.gov, 203-269-6665.

**86. U.S. Department of Agriculture - Forest Service Northern Research Station**

Nathan Havill

In a region extending from Maine to Minnesota and from Missouri to Maryland, the USDA Forest Service Northern Research Station's science aims to understand all of the elements of forests and related landscapes. The station manages 22 of the 80 experimental forests that are part of the Forest Service Experimental Forest Network; most of these long-term research sites lie within National Forests. The Forest Service's ability to conduct scientific research in-house, apply research findings on National Forest System lands, and transfer these findings to others for use on all of the nation's forest land distinguishes it as a leading natural resource agency. The Forest Service lab in Hamden is part of the Ecology and Management of Invasive Species Unit of the Northern Research Station. This research unit provides knowledge and methods for protecting and sustaining healthy forests affected by invasive species and other disturbances focusing on three major problems:

a. Understanding the biology and ecology of invasive species and their interactions with native species;
b. Developing strategies and tactics to control invasive species; and
c. Developing integrated strategies for sustaining forest ecosystems that are resilient to invasive species and other disturbances.
d. www.fs.usda.gov/research/nrs, nathan.p.havill@usda.gov, 203-230-4320.

**87. U.S. Department of Labor, Wage and Hour Division**

Heather Callahan

The U.S. Department of Labor, Wage and Hour Division's (WHD) mission is to promote and achieve compliance with labor standards to protect and enhance the welfare of the nation's workforce. WHD enforces federal minimum wage, overtime pay, recordkeeping, and child labor requirements of the Fair Labor Standards Act. WHD also enforces the Migrant and Seasonal Agricultural Worker Protection Act, the Employee Polygraph Protection Act, the Family and Medical Leave Act, wage garnishment provisions of the Consumer Credit Protection Act, and a number of employment standards and worker protections as provided in several immigration-related statutes. Additionally, WHD administers and enforces the prevailing wage requirements of the Davis-Bacon and Related Acts and the Service Contract Act and other statutes applicable to federal contracts for construction and for the provision of goods and services. www.dol.gov/agencies/whd, callahan.heather@dol.gov, 860-240-4911.

**88. UConn 4-H**

Emily Picard and Halie Shea

UConn 4-H, the youth development program of UConn Extension, is part of the nation's largest youth organization. For over 100 years, 4-H has connected Connecticut youth ages 5-18 with hands-on learning, mentorship, and real-world experiences that build leadership, confidence, and essential life skills. Each year, more than 22,500 young people across Connecticut participate in UConn 4-H programs focused on STEM, healthy living, civic engagement, the environment, and more. Supported by dedicated volunteers and backed by UConn's research-based resources, 4-H prepares youth to be Beyond Ready—equipped to lead, adapt, and thrive in a rapidly changing world. Youth can join UConn 4-H to explore their interests, take on leadership roles, and make a difference in their communities. Visit our booth to learn more about 4-H opportunities in Connecticut and take part in a hands-on environmental project! www.4-h.extension.uconn.edu, emily.picard@uconn.edu; halie.shea@uconn.edu.

**89. Wild Ones Mountain Laurel Chapter**

Lydia Pan

Wild Ones is a national 501(c)(3) organization that promotes environmentally sound landscaping practices to support biodiversity through education, advocacy and collaborative action. Our vision is native plants and natural landscapes thriving in every community. Wild Ones publishes a quarterly e-journal, awards Seeds for Education grants, certifies native habitat gardens, and provides a library of native garden designs for residential properties across the country. The mission of Wild Ones is translated to the local level by over 90 chapters across the United States. The Mountain Laurel Chapter is based in New London, CT and sponsored by the Connecticut College Arboretum. We provide mentorship and learning opportunities to anyone in our region who aspires to support ecosystems by planting native plants to create wildlife-friendly habitat in the places where we live, work and play. We curate native plant information and resources specific to our region, hold a native plant sale each fall (in partnership with Connecticut College Arboretum) and facilitate native seed sharing. Most of our educational programs are free and open to the public. https://mountainlaurel.wildones.org, wild.native.plants@gmail.com, lcpan01@gmail.com, 860-383-3580.

**90. Yale Peabody**

Victor DeMasi

Victor DeMasi will show various morphological pollen-collecting scopa on a board with photos and then encourage individuals to look at real museum specimens with hand lenses. The display will cover magnification, wild bees, pollen-collecting adaptations, specimens, and pollination. All ages, starting at 3 years old. Victor DeMasi is an extremely active member of The Pollinator Pathway. He was a wetland conservation officer in his hometown of Redding for 20 years and is presently a curatorial affiliate at the Yale Peabody Museum of Natural History in New Haven. He busies himself with preserving open space in town and preserving butterflies in the museum. His field work with butterflies contributed almost a thousand citations to the recently published Connecticut Butterfly Atlas. He has contributed articles to scientific publications and his mark-recapture studies with Swallowtail butterflies was recently cited in the book Swallowtails of the Americas. During the Pandemic he is doing a pollinator survey of two meadows in Redding CT. Recent butterfly study trips with his spouse Roanna, a photographer, have included several trips to the Amazon forest in Guyana and Nicaragua, along with yearly studies in montane California assessing the impact of climate change on that fauna. His work in South America was recently featured in The Yale Environmental News. monarchvictor@gmail.com.

*Other plots at the farm provide food for the Connecticut Food Bank.

# SPEAKER BIOGRAPHIES

**Charlie Nardozzi—2026 Samuel W. Johnson Memorial Lecture**
**Regional Emmy award-winning garden writer, speaker, and media personality**
gardeningwithcharlie.com
Charlie Nardozzi is a Regional Emmy® award-winning, nationally recognized garden writer, speaker, online, radio, and television personality. He has worked for more than 30 years bringing expert gardening information to home gardeners through radio, television, talks, tours, online, and the printed page. Charlie delights in making gardening information simple, easy, fun, and accessible to everyone. Charlie has authored 8 gardening books, including his latest, the Continuous Vegetable Garden. He has two radio shows in Vermont and a TV segment on the CBS affiliate in Vermont. He's the former host of the Connecticut Garden Journal on Connecticut Public. Charlie speaks around North America on a variety of gardening topics at venues such as Master Gardener conferences, Garden Club meetings, and Flower Shows. His website, gardeningwithcharlie.com, has hundreds of articles, podcasts, and videos, plus webinars for sale and information about his international garden tours.

**Jeremiah R. Foley IV, Ph.D.**
**Assistant Agricultural Scientist II, Entomologist**
**Department of Environmental Science and Forestry**
**Office of Aquatic Invasive Species**
**The Connecticut Agricultural Experiment Station, New Haven**
**Jeremiah.Foley@ct.gov**
Over the past 15 years, Dr. Foley has had the opportunity to work with some of the world's most invasive plants and animals. His research has focused on invasion ecology from a global change perspective by understanding how native and non-native biological organisms influence invasive pest populations in terrestrial and aquatic ecosystems. He uses a combination of modeling, field surveys, molecular biology, bench-top analytical tools, and field experiments to address various theoretical and applied concepts. His current research is focused on the development of classical biological control for Northern hydrilla.

**Felicia Millett**
**Agricultural Research Technician I, Plant Diagnostician**
**Department of Plant Pathology & Ecology**
**The Connecticut Agricultural Experiment Station, New Haven**
Felicia.Millet@ct.gov
Felicia Millett began working as a Plant Diagnostician in the Plant Disease Information Office at the Connecticut Agricultural Experiment Station in January of 2023. Her work includes fielding public inquiries about plant diseases and plant health, engaging in public outreach events, and conducting seed testing for the state of Connecticut. Felicia joined the lab of Dr. Quan Zeng at The Connecticut Agricultural Experiment Station in 2021 and received a master's degree in Plant Science in 2023 from the University of Connecticut with a research focus on fire blight, a bacterial disease of apple trees. She began her career as an arborist and received the Connecticut arborist's license in 2012. She continues to remain involved with the Connecticut Tree Protective Association, serving as an educator for the biannual Arboriculture 101 program. An active member of the National Plant Diagnostic Network (NPDN), she has served as past chair of the NPDN Proficiency Committee, working to establish standards of diagnostic proficiency across member laboratories.

**Washington Luís da Silva, Ph.D.**
**Associate Agricultural Scientist, Plant Pathologist**
**Department of Plant Pathology and Ecology**
**The Connecticut Agricultural Experiment Station, New Haven**
Washington.daSilva@ct.gov
Dr. Washington da Silva is a plant virologist at The Connecticut Agricultural Experiment Station in New Haven, where he studies viruses that attack crops and seeks new ways to stop them. His current research focuses on "molecular vaccine" strategies: using nanoparticles to deliver genetic instructions that train plants to fight off viral infections. He works with collaborators across the United States and Brazil to test these approaches in the laboratory, the greenhouse, and the field. His outreach goal is simple - to make sure Connecticut farmers and the public understand how plant viruses spread, what damage they cause, and what new tools are becoming available to protect crops sustainably.

**Nathaniel Westrick, Ph.D.**
**Assistant Agricultural Scientist II, Plant Pathologist**
**Valley Laboratory**
**The Connecticut Agricultural Experiment Station, Valley Laboratory**
Nathaniel.Westrick@ct.gov

Dr. Nathaniel Westrick is a plant pathologist at The Connecticut Agricultural Experiment Station, where he studies fungal diseases affecting specialty crops and forest systems. His research focuses on how fungi transition from harmless or symptomless colonizers into destructive plant pathogens, particularly under environmental stress. His work combines field research, genomics, and evolutionary biology to better understand the ecology of plant disease and improve sustainable disease management strategies. Much of his current research centers on fungal diseases of strawberry, chestnut, and apples.

**Paula Wolf**
**Agricultural Research Technician I, State Apiarist**
**Department of Entomology**
**The Connecticut Agricultural Experiment Station, New Haven**
Paula.Wolf@ct.gov
Paula Wolf serves as The Connecticut State Apiarist with The Connecticut Agricultural Experiment Station where she supports honey bee health and responsible hive management across the state. Her primary role involves inspecting colonies and identifying pests and diseases, helping beekeepers diagnose and address these issues. In addition to her field work, she is actively engaged in outreach and education, sharing practical, science-based information with both beekeepers and the public.

# Index of Scientists' and Staff Names and their Field Plot Numbers

| NAME | FIELD PLOT NUMBERS |
|---|---|
| Ahmad, R. | 37 |
| Ammirata, M. | Beverage Coordinator, 30 |
| Anagnostakis, S. (Emeritus) | 1,2,3,4,6,13,15,16,46,59,60,61 |
| Anderson, J. (Emeritus) | |
| Andreadis, T. (Emeritus) | |
| Argraves, A. | |
| Armstrong, P. | 53a |
| Arsenault, T. | 21,30 |
| Aulakh, J. | 43 |
| Aylor, D. (Emeritus) | |
| Bailey, N. | 53d |
| Barsky, J. | PA System Coordinator, Pavilion, 13,44,45 |
| Bharadwaj, A. | |
| Blevins, T. | 47 |
| Bomba-Lewandoski, V. | Pavilion |
| Brackney, D. | Bus Tours, 53d |
| Bransfield, A. | CAES Lunch Tent, 53a |
| Brown, J. | 56c |
| Bryan, C. | 50 |
| Bugbee, G. | 52 |
| Cahill, M. | 27 |
| Cai, Z | 31 |
| Cantoni, J. | PA System, Pavilion, 53d |
| Cecarelli, R. (Farm Manager at Lockwood Farm) | 8,9,57 |
| Chand, P | 36,37 |
| Cheah, C. | 48 |
| Cowles, R. | Barn (B),29 |
| Cozens, D. | 33,53d |
| Crowell,C. | |
| da Silva, W. | Short Talk Pavilion,8,9,57 |
| Deng, C. | 31 |
| Dimkpa, C. | 30,1,32 |
| Doherty, R. | 52 |
| Donovan, J. (Maintenance) | |
| Douglas, S. (Emeritus) | |
| Dugas, K. | 19 |
| Dweck, H. | 34 |
| Eitzer, B. (Emeritus) | |

| | |
|---|---|
| Elmer, W. (Emeritus) | |
| Fairbrother, K. | Registration, Connecticut Pesticide Credit Registration,Publications |
| Fengler, J. | 47 |
| Ferrandino, F. (Emeritus) | |
| Fisher, K. | 50,51,55 |
| Foley, J. R. IV | Short Talk Pavilion,7,52 |
| Garcia Lira, A. | |
| Gent, M. (Emeritus) | |
| Gloria-Soria, A. | 21, 53a |
| Gordon, J. | Registration |
| Greene, A. | 47 |
| Hannan, R., Jr. (Lockwood Farm Crew) | |
| Hatajik, J. | 13,44 |
| Hiskes, R. | 19 |
| Indinda, G. | 33 |
| Johnson, R. | 33 |
| Jones, J. | 36 |
| Kaczenski-Corsaro, L. | Registration |
| Karisa, J. | 33 |
| Keriö, S. | 13,14 |
| Krol, W. (Emeritus) | |
| LaFrazier, R. (Maintenance) | |
| LaMondia, J. (Emeritus) | |
| LaReau, J. | Bus Tours |
| Last, M. (Chief Financial Officer) | |
| Li, D. | Barn (B) |
| Li, Y. | 19 |
| Linske, M. | 53c,53d |
| Liquori, J. | 40 |
| Lizon, J. | |
| Luther, S. (Maintenance) | |
| Maier, C. (Emeritus) | |
| Marra, R. | Lockwood Farm Walking Tour, Pesticide Credit Coordinator |
| Mattina, M. (Emeritus) | |
| Maynard, A. (Emeritus) | |
| McHale, N. (Emeritus) | |
| Millett, F. | Technical Demonstration Tent,19 |
| Misencik, M. | 53a |
| Mistry, L. | Registration |
| Molaei, G. | 53b |

| | |
|---|---|
| Musante, C. | |
| Nason, S. | 36-37 |
| Nastri, R. | 47 |
| Paine, E. | Barn (B),29,43 |
| Patel, R. | Barn (B),54 |
| Peterson, R. (Emeritus) | |
| Petruff, T. | 53a |
| Pignatello, J. (Emeritus) | 40 |
| Prapayotin-Riveros, K. | Outside Exhibitors Tent,Lunch Tent |
| Preste, J. (Farm Manager at Valley Laboratory) | Barn (B) |
| Ranciato, J. | Front Gate |
| Rathier, T. (Emeritus) | |
| Ricker, J. | 47 |
| Riddle, D. | 19 |
| Ridge, G. | 19 |
| Rivera, N. | Registration |
| Rocha, R. | Barn (B) |
| Roman, M. (Maintenance) | |
| Rutledge, C. | Barn (B) |
| Salvas, M. | Barn (B) |
| Sandland, L. | 53b |
| Schultes, N. | |
| Shabtai, I. | Barn (B),35 |
| Sharma, S. | 39 |
| Shaw, T. (Maintenance) | |
| Shepard, J. | 53a |
| Stafford, K., III (Emeritus) | |
| Steven, B. | Barn (B) |
| Stoner, K. (Emeritus) | |
| Stuber, H. | |
| Taerum, S. | 39 |
| Tamez, C. | |
| Toth, J. (Lockwood Farm Crew) | |
| Triplett, L. (CAES Vice-Director) | Barn (B),39 |
| Vossbrinck, C. (Emeritus) | |
| Wang, Y. | 31 |
| Ward, E. | 13,44 |
| Ward, J. (Emeritus) | |
| Watts, M. | 7,52 |
| Weidman, S. | 52 |

| | |
|---|---|
| Westrick, N. | Short Talk Pavilion,13,54 |
| White, J. (CAES Director) | Pavilion,Barn (B),28,30,31,32 |
| Whittinghill, L. | 22,23,56 |
| Williams, S. | 56c |
| Wolf, P. | Technical Demonstration Tent,47 |
| Xue, Q. | |
| Yang, H. | 36 |
| Zarrillo, T. | 51 |
| Zeng, Q. | Short Talk-Pavilion, All About Apples and Diseases Walking Tour - Registration Tent (R), Barn (B),38,40,41,42 |
| Zhou, A. | 35 |
| Zuverza-Mena, N. | Barn (B),Outside Exhibitors Tent,32,37 |

# History of The Connecticut Agricultural Experiment Station

The Connecticut Agricultural Experiment Station (CAES) is one of a national network of state agricultural experiment stations. Experiment Station scientists collaborate with researchers in other states and the federal government to solve local, regional, and national problems.

The CAES is the first state agricultural experiment station in the United States. It was founded by the efforts of Samuel W. Johnson, a professor of agricultural chemistry at Yale University. Johnson had seen an agricultural experiment station when he did his studies in Germany during the 1850s. He saw how the science of chemistry could be used to aid farmers and campaigned for 20 years until one was established by the Connecticut legislature in 1875. Initially opened as a chemistry laboratory at Wesleyan University in Middletown, the Station was moved to Yale in 1877, where its first bulletin reported on analysis of a fertilizer that had little agricultural value. In 1882, the Experiment Station moved to its present location on Huntington Street (previously named as Suburban Street) in New Haven. Besides Lockwood Farm, its outdoor laboratory in Hamden, the Experiment Station also has a research farm and laboratories in Griswold and Windsor.

Through the years, many important discoveries have been made by researchers at the CAES. For example, vitamin A was discovered as an outgrowth of studies of the chemical composition of foods. The first practical hybrid of corn was developed, and many experiments in increasing the yield of corn were conducted at Lockwood Farm by Donald F. Jones. This discovery led to the doubling of yields of corn crops throughout the nation and led to more abundant and lower-cost food for mankind. Additionally, at Lockwood Farm, experiments were conducted that led to the development of organic fungicides, some of which are still in use to combat plant diseases. These fungicides replaced toxic heavy metals previously used to control plant pathogens. The first culture of the West Nile virus in North America was made at the main campus in New Haven.

Research at the Experiment Station covers plants and their pests, such as diseases and insects; the pests of humans and animals such as mosquitoes and ticks; growth of the state's forests; methods of enhancing the growth of plants by protecting them from pests and increasing crop yields through cloning of genes; and studies of environmental contamination and ways to reduce application of pesticides or their impact on the environment. Research continues on sustainable nanotechnology for crop protection and health. Staff at the Station also analyze fresh fruits and vegetables for excess pesticide residues, test fertilizers and animal feeds for compliance with label claims, and screen a wide variety of foods as part of the federal and state food and product safety monitoring programs.

Some current research includes:

- Release of a lady beetle to control the hemlock woolly adelgid, which can kill hemlocks throughout the state.
- Studies of the pathogen that causes Lyme disease and the means of controlling the tick vector.
- Treatments to reduce the toxicity of organic contaminants in soil and water.
- Studies of natural changes in Connecticut's forests and control of exotic plant species.
- Ways to control insect pests of plants using non-chemical means.
- Surveys and studies of the eastern equine encephalitis virus, West Nile virus, and other encephalitis viruses in mosquitoes.
- Enhancing the growth of crops through the use of novel organic and inorganic materials that boost fertilizer use efficiency.
- Finding new crops for Connecticut farmers and developing the best growing practices for existing crops in Connecticut.
- Studies of invasive aquatic plants and methods of control.
- Quantifying the impacts of the establishment and maintenance of small pollinator gardens on monarch butterfly and bumble bee conservation.
- Surveys for the emerald ash borer and the release of parasitoids to help control this invasive insect.
- Studies of native pollinators and floral resources for wild bees.

The experiments at Lockwood Farm are only a portion of those conducted by Station scientists. Scientists also perform experiments in New Haven, Griswold, and Windsor and carry out other experiments in state forests and on private lands.

The Connecticut Agricultural Experiment Station

*Putting Science to Work for Society since 1875*

***THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION,*** founded in 1875, is the first state agricultural experiment station in America. It is chartered by the General Assembly to make scientific inquiries and experiments regarding plants and their pests, insects, soil, and water, and to perform analyses for State agencies.


**OFFICE AND MAIN LABORATORIES**
123 Huntington Street; New Haven, CT 06511-2016, (203) 974-8500,
toll-free, statewide, 1 (877)-855-2237

**VALLEY LABORATORY**
153 Cook Hill Road; Windsor, CT 06095-0248, (860) 683-4977

**LOCKWOOD FARM**
890 Evergreen Avenue; Hamden, CT 06518-2361, (203) 974-8618

**GRISWOLD RESEARCH CENTER**
190 Sheldon Road; Griswold, CT 06351-3627, (860) 376-0365


**THE EXPERIMENT STATION'S WEB PAGE: http://portal.ct.gov/caes**
or just scan our QR code below with your smartphone.

Revised: Tuesday, July 07, 2026, 4:32:41 PM

---



---