

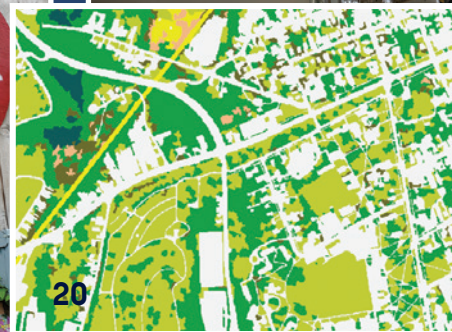
EXTENSION²⁰²²

Highlights from UConn Cooperative Extension



UConn Extension

UConn CAHNR Extension has more than 100 years' experience strengthening communities in Connecticut and beyond. Our educators are ready to work together with your community.



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ACKNOWLEDGMENTS

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Enhancing Pathways to Extension

Organizations and businesses that successfully operate for over 100 years are celebrated because it's a rare feat. The Cooperative Extension System is proud to be thriving over a century later, although today's model and programs are different than what was offered when Cooperative Extension started in 1914.

Extension transcended from its original intent of providing support to agricultural producers and youth and adapted to address the needs of all of Connecticut's residents. Today, our programs also address climate issues; promote diversity, equity, justice, and inclusion; enhance health and well-being; and foster sustainable landscapes at the urban-rural interface.

We are welcoming many new faces in Extension as well. A new associate dean, educators, and programmatic staff joined us after several retirements. Dr. Amy Harder is serving as the new associate dean for Extension, and you can learn more about her on page five. She brings extensive experience and dedication to the community to this role. We are confident that she will help the College build on the current success of UConn Extension to serve our communities and fulfill our land-grant mission.

Our 2022 Highlights of Extension shows how UConn Extension continues innovating to meet audiences and partners around the issues identified in the strategic initiatives set forth by the College of Agriculture, Health and Natural Resources (CAHNR). Youth programs, water quality, and geospatial education are all part of the sustainable landscapes' portfolio and featured throughout this issue. In agriculture, we continue partnering with the Mashantucket Pequot Tribal Nation, innovating aquaculture production in the state and serving new and beginning farmers. The work of our financial literacy program is needed now more than ever and aligns with our other health programming.

The work of our educators and volunteers continues to improve the lives of residents in all 169 cities and towns. Extension is steadfast in our commitment and will continue evolving alongside those we serve. We invite you to explore the progress made over the past year and join us in future programs.

Best,

Amy Harder Brings a Range of Experience as New Associate Dean

Amy Harder, Ph.D. joined Extension in January as associate dean, bringing a unique skillset and dedication to the Cooperative Extension System.

For the last 22 years, she's exclusively thought about Extension as a practitioner, evaluator, and teacher, with the goal of improving Extension to continue changing lives and further benefit the communities served.

Harder grew up in the Chicago suburbs and was introduced to Extension as an undergraduate at Colorado State University, where she also pursued her master's degree.

"Dr. Glen Rask was my advisor, his enthusiasm and passion for Extension was contagious," Harder says. "He planted the seed for my involvement in Extension. Many students in the cohort from my master's degree program went on to work in Extension. It's a credit to the foundation Dr. Rask created in us, we wanted to make a meaningful difference in our communities."

Her pathway with Extension continued as she became a county 4-H agent at Colorado State University and started building teams of volunteers and an informal educator team. "I thought a lot about what agents could do themselves but that we also needed a system to help

agents be successful. If the system functions well, the agents can be successful; systems can remove barriers and provide support for Extension professionals," she says.

This led to a doctoral degree in agricultural education at Texas A&M University, and then roles at the University of Florida, where she most recently served as director of the Extension Program Development and Evaluation Center in the Institute for Food and Agricultural Sciences.

Harder's goal is for UConn Extension to be intentional about contributing to the College's strategic vision, thoughtful in decisions, and make a real impact on important issues facing our residents and stakeholders. She is excited to meet people in the community, noting that the associate dean serves two audiences, the people of the organization and the residents of Connecticut.

"I want to start building relationships and learn what's important to our Extension professionals and residents," Harder says. "Relationships are the heart of Extension. Moving to Connecticut is an awesome professional opportunity for me and is also an amazing opportunity for my family. We feel so welcomed by everyone and excited to join the greater UConn family."

Michael P. O'Neill previously served as associate dean and retired on December 30th after 10 years of service.



Amy Harder, Associate Dean

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and Natural Resources (CAHNR)

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FUNDING



92

active grants &
20 new grants



203

donors to
Extension
programs



\$5.2M

value of 175,184
volunteer hours

SPECIALISTS

Our award-winning Extension specialists have years of experience working to solve problems and enhance the wellbeing of our state residents (and beyond) where they live, work and learn.

141

PUBLICATIONS (JOURNAL ARTICLES,
BULLETINS, FACT SHEETS)

35

AWARDS & HONORS RECEIVED
(STATE, NATIONAL & INTERNATIONAL)

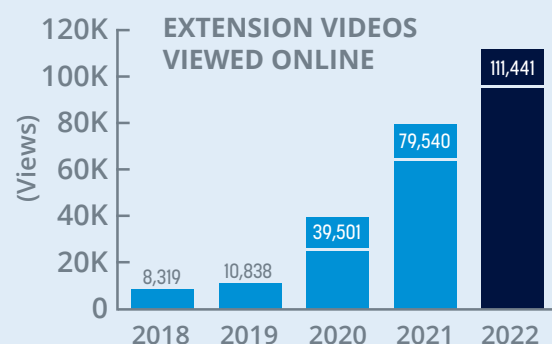
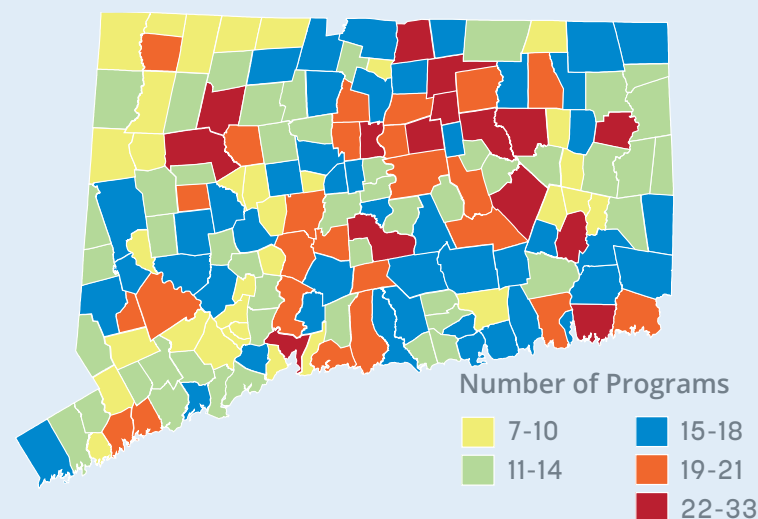
BY THE NUMBERS



173,717

CT RESIDENTS ENGAGED IN 506
EXTENSION PROGRAMS & EVENTS

ACTIVE PROGRAMS IN CONNECTICUT



16,117

hours of
instruction



47

services to
agencies &
institutions



1,481

online courses/
certificates

VOLUNTEERS

Volunteers share their knowledge and experience through Extension and expand our capacity to deliver programs in every city and town in Connecticut.



175,184

TOTAL NUMBER IN
VOLUNTEER HOURS

2,057

4-H VOLUNTEERS

3,847

VOLUNTEERS ACROSS
ALL PROGRAMS

680

MASTER GARDENER
VOLUNTEERS



"My son has sensory issues with food, and we have a difficult time getting him to touch, eat or be involved with food. Because of this class he chopped, prepped and actually touched the foods. Thank you so much for helping us to move in the right direction of having a more positive relationship with food. We will join any classes you have!"

EFNEP program participant

"The Master Gardener course literally changed my life. I've become a garden lecturer, have taught Advanced Master Gardener classes, and found my voice in life. Before taking the course, I had some level of knowledge about gardening, but I had no idea just how much there was to the world of plants."

Master Gardener participant

"4-H has helped me take new steps each year towards a career path. I'm achieving my goals through UConn 4-H."

UConn 4-H New London County participant

"This was a great, informative course! Thank you for providing this to those who are interested. Appreciated hearing from the farmers in addition to the UConn staff/scientists."

Online
Vegetable
Certificate
Course
participant



Support for Beginning Farmers

Helping New Farmers Find Solid Ground

Beginning farmers in Connecticut are changing the face of agriculture. With their values-driven, regenerative farming practices, they are filling the direct-to-consumer marketplace with high quality food grown intensively on small parcels. Nearly 30% of all producers in Connecticut are beginning farmers with less than 10 years of experience operating their own business.

With support from USDA-NIFA, UConn Extension's Solid Ground Farmer Training program offers a mix of in-person trainings, events, one-on-one consulting, webinars, online courses, and videos designed to meet the needs of new farmers as they navigate critical early decisions about their production systems, soil management, finding customers, infrastructure, and scaling up. Thanks to a long list of agriculture service providers that have partnered with UConn Extension to support new farmers, the Solid Ground program continues to grow in visibility, quality, and reach; each year the program reaches between 300-400 unduplicated participants.

The program's agriculture mechanic series is popular for its hands-on and small group experience, such as chainsaw safety and operation for women, power tools and carpentry basics, and small engine maintenance and repair. UConn Extension partners with Nonnewaug and Rockville



Agriculture Science and Technology High Schools to take advantage of their excellent agriculture mechanic learning facilities. The program's agroecology series has covered topics such as no-till production systems, on-farm composting, and ecological growing systems.

In order to help new farmers meet their peers and build resilient support networks, the Solid Ground program has fueled the creation of Farmer Circles, relying heavily on our partners at New Connecticut Farmer Alliance and Connecticut Northeast Organic Farming Association for coordination. For those who prefer to learn through virtual platforms, the Solid Ground Program is producing the 'Getting to the Root' video series that features new agricultural entrepreneurs, as well as the 'DIY Farm Infrastructure' video series that highlights how farms are building their own cool bots, tunnels, wash stations, and other infrastructure.

For urban farmers, Solid Ground is working with trainers from the I Got Next Farmer Coalition to deliver full-day trainings in Hartford, Bridgeport, and New Haven. With additional support from Connecticut Department of Agriculture, the Solid Ground program delivered a mental health and wellness webinar series in 2022. Since new farmers struggle to find farmland, the program offers 'Farmland Mixers' where farmland owners and farmland seekers can meet and network; these events are developed in partnership with Land For Good, Connecticut Farmland Trust, and CT FarmLink. In early 2023, the Solid Ground program is excited to launch its first online course—Soil Health and Climate Adaptation for Connecticut Growers.

Due to the impacts of COVID-19 on producers, and given Solid Ground's record of past accomplishments, USDA awarded supplemental funds to UConn Extension to help alleviate these impacts and respond to COVID-related disruptions faced by beginning farmers. Accordingly, the Solid Ground program implemented a stipend program in 2022, distributing \$60,000 directly in small payments to farmers, distributed CT-Grown lumber to urban growers for raised bed production, and is launching two shared equipment libraries in 2023 in Bridgeport and Hartford. 

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Read the full article and watch a video at s.uconn.edu/seaweed


Seaweed is the broad name for marine algae; there are thousands of species, including sugar kelp. It's a marine algae that grows in shallow coastal areas, and many recognize sugar kelp's yellowish brown, long, wavy strands that resemble lasagna noodles. In addition to using sunlight, sugar kelp grows by taking up excess nutrients and carbon dioxide directly from the water, while providing environmental benefits.

The high nutritional value, including fiber, vitamins C and K, and minerals like iron, calcium, iodine, magnesium, make sugar kelp a popular food item in other parts of the world where it's used

in soups and salads. The flavor is sweet, and the texture is thick, so it's often added to other foods to improve one or both qualities. Sugar kelp also has a vibrant green color once it's blanched, making it an attractive addition on plates.

"While there's a lot of interest in seaweed farming from producers, we really need to see increased and consistent sales to consumers. Supply and demand don't match right now," Concepcion says. Consumers are interested in seaweed products, but local sugar kelp isn't readily available to purchase.

Connecticut is now a national leader in sugar kelp farming and industry growth, although Concepcion notes that there is still work to be done. She is trying to inform multiple audiences about the barriers, including preservation and distribution, that exist for the industry.

"The industry is still small and facing some challenges, but we're going to continue working to get sugar kelp on the menu in more homes and restaurants." 

Connecticut's Sugar Kelp Industry

Seaweed is on the Menu

When you crave something tasty, seaweed may not be the first thing that springs to mind, but Extension educators want to change that.

Our team is using innovative research and community outreach to help make this novel food more accessible for consumers and more profitable for producers.

Anoushka Concepcion, associate extension educator, and her Connecticut Sea Grant colleagues wanted to help shellfish farmers find ways to diversify their crops. Along with other UConn researchers, they used their knowledge

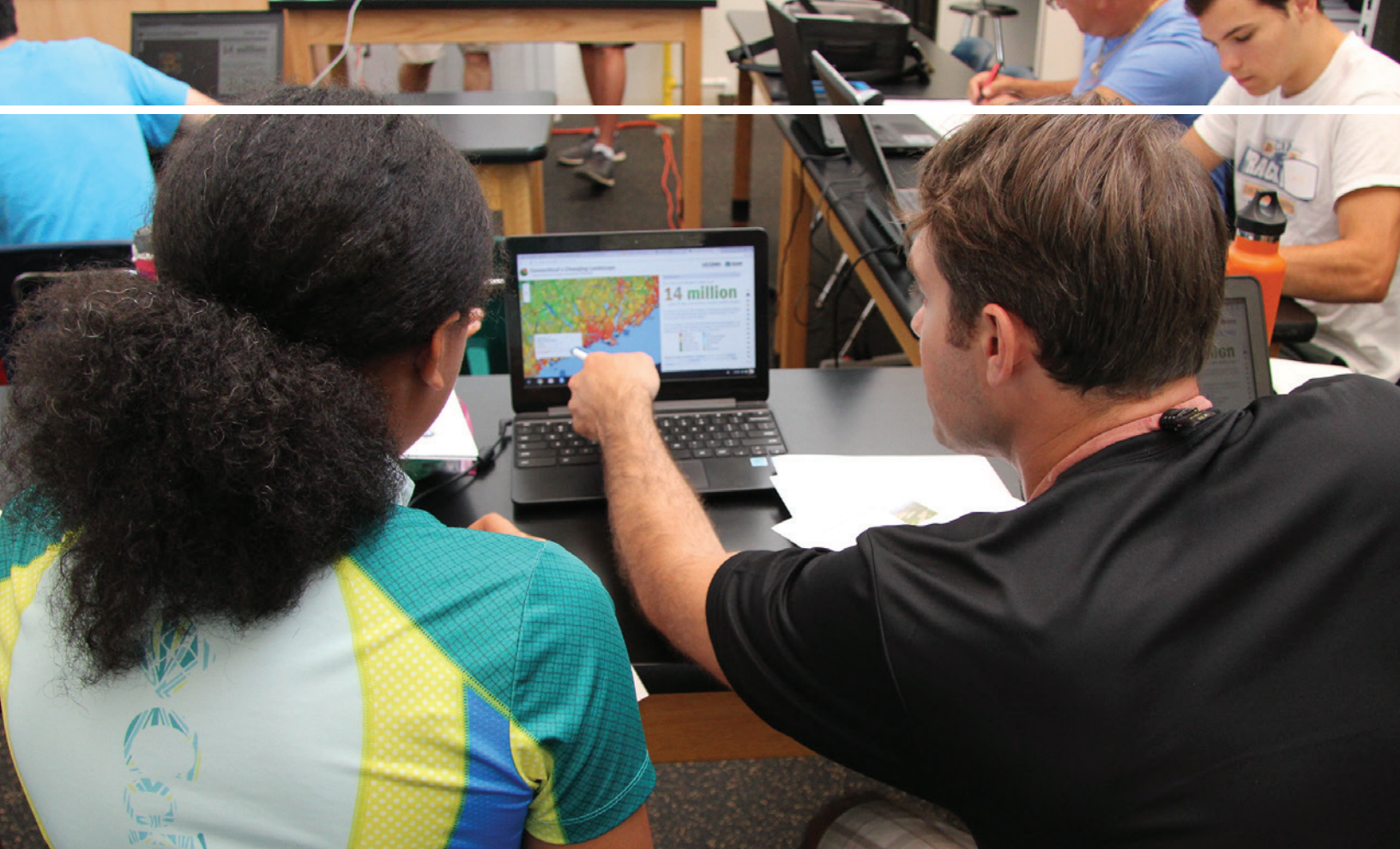


of the seaweed life cycle to make sugar kelp farming possible. The interest and potential for the new industry caught on after a successful pilot. Through this crop diversification, the producers

are not only growing a versatile, environmentally-friendly product, they are minimizing their financial risks and improving economic viability.

"Part of our job with Extension is adapting to the emerging needs of our stakeholders," says Concepcion. "We're making sure public health officials and farmers have the information they need about what successful seaweed farming looks like in Connecticut."





E-STEAM Ahead

Connecticut High Schoolers Become Eco-digital Storytellers Through Interdisciplinary Grant

The science behind protecting the environment is only one piece of addressing the climate crisis; people need to communicate this information and the stories of those impacted by climate change to the public to inspire necessary action.

The new E-STEAM (environmental science, technology, engineering, arts, and mathematics) project merges environmental science, geospatial technology, digital media, and education. This ambitious collaboration between faculty across disciplines is being led by Laura Cisneros, assistant Extension professor of natural resources and

the environment and director of the UConn Natural Resources Conservation Academy (NRCA).

This interdisciplinary group of UConn researchers received a \$1.35 million grant from the National Science Foundation to support high school students in designing multimedia projects that focus on environmental issues in their communities.

The College of Agriculture, Health and Natural Resources and the Neag School have been collaborating for a decade, working to bring learning opportunities to youth and adults so

they can carry out local environmental projects through the NRCA. However, Cisneros says these efforts have missed a critical component: communication.

This led the Extension team to connect with the Department of Digital Media and Design over their shared interests in improving scientific communication skills and diversifying the voices of people telling environmental stories. The team is working with high schools in New Haven, Hartford, and Willimantic on this project; all three serve diverse student bodies. Both STEM (science, technology, engineering, and math) and the digital

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Read the full article at s.uconn.edu/e-steam

media and design fields have historically been dominated by a white male perspective.

Over the course of three years, the program will serve 270 high school students across 54 school pods. Each pod includes a small group of high school students and their teacher.

The team will teach the pods how to engage in educational storytelling, using geospatial technology and digital media tools as vessels to convey their messages. Participants learn how to use a mapping application, called ArcGIS Storymaps, to create interactive online narratives using maps and digital media. They will also learn basic digital media and design skills, such as video and animation, to share engaging stories about their environmental projects.

The pods will apply these skills to a project addressing a local environmental concern. These may include issues like endangered species, protecting coastal


towns from the impacts of climate change, water quality, wildlife monitoring, or environmental justice based on the unique needs of each community. Students will present their projects in an end-of-year showcase.

"I believe it's going to open up an avenue to connect to and communicate with young audiences, on their level," team member Cary Chadwick says. "I'm really excited about the storytelling aspect of this. I think it has a real potential to reach and engage with new audiences."

In working with groups that aren't traditionally represented in E-STEAM, the researchers aim to not merely teach them a set of skills but to learn from and with these communities.

This project's findings will provide insight into how to ensure the

contributions of all individuals, including underrepresented groups, are valued, and recognized in the E-STEAM field. "The missing piece here is how these individuals can reconnect projects back to their community in a creative and innovative way, and really, that science communication piece," Cisneros says.

E-STEAM team members include Todd Campbell, department head and professor of curriculum and instruction in the Neag School of Education; Cary Chadwick, Extension educator with the UConn Center for Land Use Education and Research (CLEAR); Heather Elliott-Famularo, department head and professor of digital media and design; Anna Lindemann assistant professor of digital media and design; David Dickson, Extension educator and interim director of CLEAR; and Nicole Freidenfelds, Extension educator and NRCA program coordinator. 





State of the Water in Connecticut

Climate and Environmental Concerns Threaten This Precious Resource

Connecticut has seen dramatic differences in precipitation over the past few years. In 2020, the state had a severe drought. Then in 2021, roads washed out in northeastern Connecticut and the Natchaug and Mount Hope Rivers had the highest flow rates ever recorded in 90 years of data collection. Although the UConn Storrs campus only received a maximum daily total of five inches of rain that year, the Norwich area received eight inches.

This was a 100-year event, meaning we only have a 1% chance in any given year of getting this much rain over a 24-hour period. This caused the Yantic River to flow over 1,000 cubic feet per second, a new high-flow record. Two weeks prior, the river was setting low-flow records. Then in 2022, we were back to drought for summer through fall, with low-flow records on these rivers again. This is just one example for the state, with other regions seeing similar challenges.

Extra heat in the atmosphere drives severe climate swings because the extra energy affects the hydrologic cycle. Heavy precipitation, long drought periods, and other extreme events will continue worsening because of hydrologic cycle alterations.

There are other water issues we need to pay attention to as well. The



Departments of Public Health and Energy and Environmental Protection created a PFAS task force. PFAS is a human-made forever chemical found in many products. Testing is expensive but the agencies are developing a comprehensive strategy to monitor, minimize release, and mitigate PFAS in the environment, including drinking water.


There are strict state and federal standards for drinking water, but private wells have separate regulations with no enforcement or consistent testing mechanisms. Testing private wells is only required when they are drilled, or the property is sold. Therefore, most people don't test their water and are unaware of hazards they may be consuming.

The Connecticut Institute of Water Resources, led by Mike Dietz, an Extension educator with a joint appointment in the Department of Natural Resources and the

Environment, had a small program to test private wells. Of the 25 wells tested under the program, the majority were within acceptable limits. However, four had coliform bacteria present, two had high manganese levels, and one had high iron levels, reinforcing the importance of private well water testing.

There is a new project underway led by Dietz and Gary Robbins, a professor of geology in the College. They received USDA funds to address the need to test private well water more regularly. This includes testing for arsenic, uranium, and lead, in addition to the standard potability parameters. The first round of sampling on this project revealed private well water that exceeded either bacteria, uranium, or arsenic in more than 30% of homes sampled.

Reducing road salt is also a big issue. The state legislature recently passed a law that requires Green Snow Pro training for roadside salt application and that now includes private contractors too. Road salt is a problem in the state, and the legislature recognizes that this training program works. The T2 Center at UConn provides the Green Snow Pro training to municipal workers and has added training for private applicators.

Water is a vital natural resource and one we must continue protecting and managing. 

Article by Elaina Hancock and Michael Dietz

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You have questions.

Connecticut is a small, diverse state with urban and rural spaces. We understand that because we live and work here. Extension specialists are here to help you, your family, and your community.

We have answers to your questions ranging from livestock to farm business and regulations; climate resilience to finding community training opportunities; gardening to wildlife management; fitness to nutrition; and more.



Connect with one of our professionals today.

We are ready to answer your questions.

- Submit a question online: s.uconn.edu/AskExtension
- Q & A Video Gallery: s.uconn.edu/AskExtensionVideos
- Email us: extension@uconn.edu
- Extension Specialists Directory: s.uconn.edu/Specialists
- Call us: 860-486-9228



How can I help conserve water?

Answered by Mike O'Neill, Retired Associate Dean | s.uconn.edu/water

Connecticut is a water rich state. But drought conditions out west, population growth, and increasing water demands are adding stress to the water supply locally and nationally. Reducing water usage at home will also help homeowners keep more money in their wallets.

You can take steps to reduce the amount of water you use.

There are many indoor and outdoor water savings activities you can pursue to help conserve water, including:

- Reduce irrigation station run times by two minutes or installing a smart irrigation controller (this can save up to 40 gallons per day).

- Stop irrigating lawns.
- Use a broom instead of a hose to clean driveways and sidewalks.
- Fix a leaky toilet (can save up to 45 gallons of water per day).
- Replace an old, non-efficient showerhead with low flow showerhead (20 gallons daily savings).

There are many other ways to conserve water. We also encourage you to take the 40 Gallon Challenge (pledge to reduce your water use by 40 gallons per day) at 40gallonchallenge.org.

Measure Your Water Footprint

Visit waterfootprint.org to learn more about how to measure your water footprint.



How do I plant a tree?

Answered by UConn Home & Garden Education Center | s.uconn.edu/treeplanting

Planting trees and shrubs is good for the environment, our sustainable landscapes, and the aesthetics of your home and community. Fall and early spring are the best time of year to plant a tree or shrub. You want to allow the tree or shrub as much time to prepare and adapt for summer heat as possible. Here are quick steps for planting a tree:

- 1. Choose your site.** Look at how tall and wide the tree or shrub will become when considering possible locations.
- 2. Dig a hole.** It should be at least three times wider than the roots and no deeper than the container the tree or shrub came in.

3. Break up the roots if needed. Roots that are growing in the shape of the container need to be separated.

4. Leave some of the root ball above ground (about 25%) and taper the soil and mulch up to it. The tree or shrub will eventually settle into the hole and be at ground level.

5. Don't add soil amendments. Research shows this doesn't actually help. Instead, wait until the new tree or shrub is established.

6. Add mulch and water frequently. Both will help the new tree or shrub take hold.

For a more in-depth guide visit s.uconn.edu/treeplanting.

What are the current US Dietary Guidelines for salt intake and how do I lower my intake?

Answered by Sharon Gray, RD, Nutrition Education | efnep.uconn.edu

The US Dietary Guidelines recommend a limit of 2,300 mg for people ages 14 and up. That is a single teaspoon of salt. Most Americans consume 3,400 mg or more of sodium each day which equals 1.5 teaspoons of salt. About 70% of the sodium in American diets comes from packaged, processed and restaurant foods, not the saltshaker.

Hidden salt is everywhere in the typical American diet, and it adds up quickly.

A high sodium diet strains the kidneys. Eventually this leads to high blood pressure, and an increased risk of heart attacks, strokes, heart failure and kidney disease.

Reduce Your Sodium Intake

- Carefully read nutrition labels on packaged foods (the Daily Value for sodium is less than 2,300 mg per day.)
- The % Daily Value (DV) shows how much of the maximum recommended amount of sodium is in a single serving.
- Aim for less than 5% DV for sodium if you are looking for low sodium foods.
- Limit or avoid foods with 20% DV or more sodium.
- At restaurants, eat less and consider ordering sauces and dressings on the side.
- Try using herbs and spices in recipes to season your food instead of salt.





Growing a Farm

Transforming Land Back into Production with the Mashantucket Pequot Tribal Nation

Six years ago, there was a 300-acre parcel of wooded land in North Stonington. A dirt road led into the property, and Jeremy Whipple, executive director of the Mashantucket Pequot Tribal Nation (MPTN) Department of Agriculture, had a dream of building a farm for the tribe on the land and reconnecting to their agricultural roots.

That parcel of land has transformed into Meechooók Farm, a vibrant agricultural operation for the tribe. Today, there are two parcels of land on 600 acres. The farm has greenhouses growing hydroponic lettuce and tomatoes year-round, fruit plantings, live-stock, and plans for further expansion.

While the tribe's agricultural activities are having immediate impacts on the community, the goal is also to support future members.

"It's important because it's part of our culture," Whipple says. "Teaching the principles of the Seven Generations, that's what we're doing it for. The Seven Generations is a mindset the tribe has where every decision is considered based on how it will impact the next seven generations."

The history of the Mashantucket Pequot tribe traces back 10,000 years in southeastern Connecticut, and many of those years were spent fighting to keep their land.



"As tribal people, we have an obligation to the next seven generations and what better gift to leave than clean water and food," says Daniel Menihan, Jr., a tribal councilor. "It's getting right back to our roots from a cultural and historic standpoint. But when it comes to agriculture, it's really the tribe just repositioning ourselves as we always have been."

UConn Extension educators, who specialize in nutrition, provide virtual cooking and nutrition classes through the project. Youth members can also participate in fitness classes and are actively involved with the agricultural production and the UConn 4-H program.

"The long-term goal is to increase the institutional capacity of Mashantucket Pequot Tribal Nation to meet their own food production needs," explains Shuresh Ghimire, assistant extension

educator and principal investigator on the project. "Tribal food security, food sovereignty, youth engagement, and health of the tribal members, are among the top priorities for the tribal nation."

Further land clearing and expansion of the agricultural enterprise is underway. The tribe is building more greenhouses, a meat processing facility, a winery, and a commercial kitchen to expand sales beyond fruit and vegetables. They plan to partner with local farmers and share their resources, with the goal of helping other agricultural producers in Connecticut to increase food security in the state.

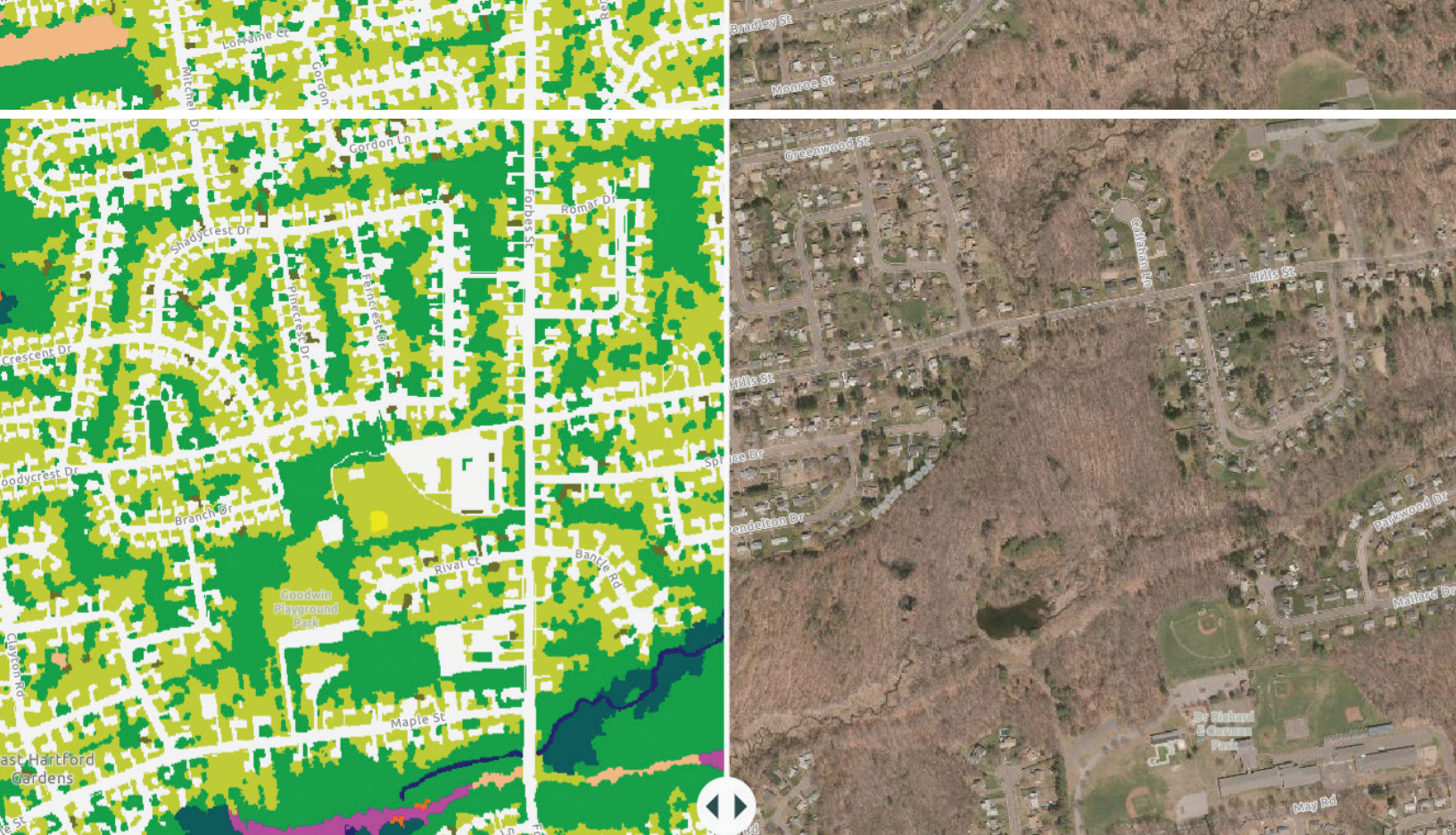
"UConn Extension has been a great partner and friend," says Menihan. "The relationship is a cornerstone to what we have here today; it's a two-way relationship. We've had very young tribal members extremely inspired by what's happening here and that's probably the most rewarding—the team's ability to have built up the interest and inspire the next generation that will carry this forward." 

Financial support for this work was provided by the USDA NIFA Federally-Recognized Tribes Extension Program (FRTEP Awards 2017-41580-26950 and 2022-41580-37944).

Article by Stacey Stearns

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Read the full article at s.uconn.edu/roots



Local Watershed Assessment Tool

Assessing the Health of Watersheds in Connecticut

Water quality is strongly related to land use. New high-resolution land cover data for Connecticut makes it possible to look at the land and water connection at a finer scale than ever before. The UConn Center for Land Use Education and Research (CLEAR) developed the Local Watershed Assessment Tool, an online tool that uses this new higher resolution land cover data to estimate the health of local watersheds at a much finer scale than has ever been possible. The Long Island Sound Study (LISS) funded the project, and it was conducted in partnership with the Connecticut Department of Energy and Environmental Protection (CT DEEP) and Footprints in the Water, LLC.

Many studies throughout the country have demonstrated the close relationship between watershed health and land use. However, studies were limited to what can be determined using moderate resolution land cover data. In the past, CLEAR evaluated watersheds using moderate land cover data to look at critical characteristics such as impervious cover, forest cover, and riparian (streamside) land cover. These studies aligned with the USGS Hydrologic Unit Code. With the release of NOAA's high resolution land cover data for Connecticut, a more targeted, localized analysis is possible. Using this data, CLEAR accurately quantified land cover in smaller

watersheds that we were unable to measure before. The result is information for over 4,300 small basins across the state, averaging about 790 acres in size. The higher resolution allows for improved accuracy in determining the land cover within narrow (100-foot) riparian corridors, a critical determinant in watershed health. In addition, the high-resolution land cover has a separate impervious cover category, allowing us to directly measure impervious area rather than estimate it from models as in previous studies. In developing the Local Watershed Assessment Tool, CLEAR used this data to analyze the land cover profiles of both the overall local basin and the

Article by David Dickson

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Access the tool at s.uconn.edu/WatershedTool

100-foot riparian zone within that basin. Next, they compared the combined landscape metrics with the CT DEEP network of sampling sites measuring stream bottom macroinvertebrate communities, a widely accepted method for estimating the bio-integrity (health) of the drainage area upstream of the sampling site.

The website lets users learn about the study, explore the landscape surrounding the over 4,300 local waterways in our state and the implications for the health of these waterways, and test out landscape change scenarios to see what effects they might have.

A watershed health dashboard for each of the 4,300 basins uses a number called the Combined Condition Index (CCI) to create three color-coded categories for action—Conservation, Recovery, and

Mitigation—to help prioritize and guide local decisions such as riparian protection or restoration.

In addition, the tool dashboard provides a nitrogen Enrichment Factor, or EF, for each basin. EF is an estimate of how much nitrogen is being generated by a given basin compared to the amount that would be expected from a totally forested basin. Thus, an EF of three would mean that the land cover profile from that basin is expected to export about three times the pristine (baseline) nitrogen load.

The tool also includes a scenario builder that allows users to see the expected changes to watershed health that result from changes to basin-wide and riparian land cover. For example, what will happen to the bio-integrity (CCI) or nitrogen load if you restore more natural

land in the riparian zone, and how would that affect the overall health ranking (conservation, restoration, mitigation) of that watershed?

The goal is to present land cover information and its implications for watershed health at a geographic scale that will be immediately recognizable—and therefore potentially actionable—for local land use decision makers at the municipal and individual property levels.

The new Local Watershed Assessment Tool is ready for residents and land use officials to use, and we encourage everyone to explore its many features. The Story Map includes a description of the project, the data, and how to use the tool, and there is also a video demonstration of the tool by CLEAR geospatial tool expert, Qian “Rachel” Lei-Parent. [H3](#)





More Than Numbers

4-H Alum Uses Data to Support Farmers and Ranchers Across the Country

As part of his job as an economist with the American Farm Bureau Federation in Washington, D.C., Danny Munch '18 (CAHNR) spends a lot of time analyzing and talking about data. His day may include appearances on live television with outlets like CNN and Yahoo! Finance, crunching agricultural data for reports and studies, or traveling the country discussing policy issues with farmers and ranchers. While numbers are important to Munch's job, he always thinks about the people behind the statistics. That's something he gained early in life thanks to his experience as a UConn 4-H member.

"UConn 4-H really fast-tracked my career in agricultural policy. The program got me into agriculture and that's driven my entire life."

At Farm Bureau, Munch's portfolio includes dairy policy and economics, transportation and infrastructure, disasters, and invasive species, among others. As an economist, he's responsible for running data analysis on agricultural policy and the resulting impacts it will have on farmers, as well as tracking general market trends and

disruptions. He writes for the market intelligence article series, communicating the statistics in short and easy to understand pieces for Farm Bureau audiences. Munch grew up in East Lyme, Connecticut and joined the Grassy Hill Bears 4-H Club when he was eight years old. He participated in beef showmanship, numerous poultry shows, and other 4-H events. Munch credits Tom and Nancy Kalal of Cranberry Meadow Farm and Kathryn Christensen of Green Acres, Inc., his local 4-H leaders, with spurring his passion. He is also grateful to his parents, who constructed a

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chicken coop on their property when he was 10 and allowed him to keep a menagerie of other animals throughout the rest of his childhood, further supporting his love of agriculture. Youth can become more involved in UConn 4-H as their interests grow, since programs evolve as the participants do. Munch pursued this path and was president of the local 4-H club for three years while also being involved in planning the county 4-H fair and serving as county 4-H fair board president.

"I'm not naturally an extrovert. I wouldn't have been on TV or delivered speeches to hundreds of people without the UConn 4-H experience and the skills I learned. The organizational and management skills—all those helped too. You don't understand what you're learning at the time, but we were so ahead of the game."

Applying to UConn was a natural next step from his 4-H involvement, and Munch graduated from UConn in three years, then earned a master's degree at Cornell University. "UConn 4-H provides life transformative experiences and allows youth to create their own path. Danny Munch was an exemplary member and continues giving back to the 4-H program and agriculture," says Bonnie Burr, assistant director, and department head of Extension.

Munch started as an associate economist with the American Farm Bureau Federation in April 2021 and was quickly promoted to economist after work on measuring crops losses from major

disasters, tracking the impacts of milk formula price changes on dairy farmers, and the impact of invasive feral hogs on agriculture production. As he advances in his career, Munch says he feels he's where he wants to be professionally. He says he has UConn 4-H to thank for some of that success. "Being an economist with Farm Bureau has been my dream job, giving back

to the farmers that put so much into us as kids—that's coming full circle for me. UConn 4-H has always been there for me, and I'm still involved. With new opportunities in fields like robotics and technology, 4-H has something for everyone. It gives youth opportunities they just couldn't have anywhere else," Munch concludes. 





Master Gardeners

A Gardening Renaissance Brings New Opportunities

Even in the age of technology, gardening is still a beloved pastime for many. The gardening renaissance inspired by the pandemic increased those looking to work on their green thumb, but many fledgling gardeners need training and skills to succeed in their new hobby.

While many programs struggled to switch to an online model in the early days of the pandemic, the UConn Extension Master Gardeners were ready and continued offering instruction, thanks to forward-thinking transformations the team started in 2017.

Program participants receive horticultural training and certification through a process that includes a community

outreach component. They volunteer in the nine statewide Master Gardener locations, one at each Extension Center along with the Bartlett Arboretum in Stamford. Graduates remain active by completing annual volunteer hours and attending Garden Master classes. These volunteers help mentor new students and lead signature projects throughout the state. On-demand program resources also help those interested in filling knowledge gaps.

Pivoting to Online Options

"We have more online offerings and will continue to since they've been so well-received by the public," says Sarah Bailey, the Hartford County coordinator, and recently retired state

program coordinator. "Digital experiences are the norm now and people want options for learning remotely because it's something we've become accustomed to."

Bailey assumed the role of state program coordinator, in addition to her role as Hartford County Master Gardener coordinator, in the fall of 2016. She wanted to make the program more accessible, since the eight-hour weekday classes mostly attracted retirees. Jean Madden-Hennessey joined the team as an educational technology specialist and the Tolland County Master Gardener coordinator in 2017 to help move the program into a hybrid online model.

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They spent one year preparing and transitioning to the online model before launching the hybrid course in January 2018.

By the time the pandemic began, Extension's Master Gardener program was comfortable online. While Master Gardener programs in other states had a break in classes during the pandemic, UConn Extension's program pivoted and continued offering life transformative education.

That demand for virtual learning opportunities has remained strong as COVID-19 restrictions dwindled. Half of the applications for the 2022 program class selected the online option. While the Master Gardener program won't eliminate in-person programs, the online

option will always be offered in some format. The Garden Master classes, one-time offerings on specialized topics, clearly indicate the preference for online options.

"People prefer online for some classes, and it broadens who you can reach," Madden-Hennessey adds. "Gardening is a hobby for many, our interns and volunteers like being able to sit and learn while being comfortable at home."

The renewed interest in gardening has prompted new course offerings as well, including an online Fundamentals of

Home Gardening series. It provides individuals with an a la carte gardening education experience; modules include core fundamentals, environmental factors, ornamental plants, and growing your own foods.

"A big area where we're seeing this transformation is in how our consumer public is reaching us and getting information," Bailey concludes. "We want people to know that the Master Gardener program is here and accessible. Master Gardener interns and volunteers have a personal connection to their communities. They're enthusiastic members and fans of their programs, they have a sense of community, and become ambassadors for UConn through their work." 





Breadwinner Game

Teaching Young Adults How to Make Wise Financial Choices

Young adults experience significant milestones at the end of high school or college—their first real job, apartment, living on their own, and perhaps buying a car. Sizable financial obligations accompany these rites of passage; obligations for which many young adults have not been educated. Adulthood does not always feel welcoming.

Faye Griffiths-Smith, a UConn Extension specialist, works with audiences across Connecticut, especially young adults, to address the financial literacy gaps in their education before they make decisions that negatively compound their future financial success.

She started presenting the Welcome to the Real World® program created by the University of Illinois Extension. At the programs, teen and young adult participants went to different stations and learned about the various financial decisions they will face as they become more independent.

Five years ago, the associate dean for Extension, suggested Griffiths-Smith create an online game instead. She began working with team members throughout UConn, including undergraduate student interns, and Nicholas Hanna, a computer programmer, a few years ago to discuss ideas for creating an online game that audiences across Connecticut can access anytime. She recently partnered with the UConn Digital Experience Lab to build the game.




The Breadwinner Game introduces players to financial independence and how choices affect their lifestyle. First, players are prompted to choose an occupation. For many, their choice revolves around a college major or area of interest. Next, a housing location is selected. Variables such as apartment size, commuting and whether they have a roommate can make housing more or less expensive.

Each choice as the player moves through the game, from occupation, to housing, transportation, and insurance, are tabulated behind the scenes. Subsequent levels introduce communications costs (phone, television, and internet), then spending for food, clothing, and hobbies. Chance cards randomly occur throughout the game, presenting unexpected expenses or positive outcomes.

Finally, the player reaches the end of the game and sees how money matters add up, and how their financial choices affect the lifestyle they want to lead. Players can repeat the game to see how their choices can help with their lifestyle and future financial freedom.

Breadwinner is a safe space for teens and young adults to simulate real-world experiences and financial choices they'll soon be facing. Financial literacy curriculum is missing from many schools and universities, and institutions and youth organizations can use the game to address knowledge and competency gaps.

Game development and enhancements are ongoing and it's part of a suite of resources and programs developed by Griffiths-Smith. She also leads Connecticut Saves, part of the America Saves initiative. Connecticut Saves and UConn Extension were named one of the 2022 America Saves Saving Champion Recipients under her leadership; only 34 organizations out of over 5,000 were recognized with this prestigious honor.

Money matters are less stressful for everyone when there is a solid understanding of financial literacy. Extension's programs are helping make the personal finance aspects of adulthood more welcoming. 

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- Experience hands-on learning using the historical backdrop of Washington, D.C.

Similarly, the National 4-H Conference explores current issues affecting youth, the role 4-H can play in addressing those issues and provides federal decision makers with recommendations on their current efforts. Participants are assigned to roundtable groups. Each roundtable focuses on a specific issue and members develop a presentation on their findings with key decision-policy

makers. This gives youth the opportunity to think critically and use their voice to affect change and make a difference.

A team of four teens traveled to Kentucky in November 2022 to participate in the Eastern National 4-H Horse Roundup, a competitive event that tests participants' knowledge and understanding about all things equine. The UConn 4-H team participated in the Hippology Contest which focuses on equine science and management and the practical application of this

knowledge and skill. A team member recalled, "It was a fierce competition, many levels up in difficulty. What a learning experience it's been."

National 4-H events provide youth with the opportunity to build on the local and statewide experiences they have during their 4-H career. The generous donations to the 4-H Centennial fund through the UConn Foundation make these life transformative experiences possible. 

National 4-H

Providing Life Transformative Educational Opportunities Through Donor Support

National 4-H leadership conferences and competitive events are an important part of the educational opportunities offered to 4-H members. They are possible because generous donors support the 4-H Centennial account within the UConn Foundation. The 4-H Centennial account was created over 20 years ago as part of the 100th anniversary of the National 4-H program. It plays a critical role in sending UConn 4-H youth to national events that provide important skills and lifelong memories.

Maddie Hall, a 16-year-old UConn 4-H Litchfield County member recalls

"One of my best memories from attending a National 4-H trip was being chosen, along with 12 other 4-H youth from across the country, to present at a webinar hosted by the USDA National Institute of Food and Agriculture. Every National 4-H trip I have attended has inspired, motivated, and encouraged me to 'make the best better' for UConn 4-H."

National 4-H events are much more than field trips. They incorporate a variety of learning modalities such as

workshops, speakers, and hands-on activities that leave a lasting impression on youth participants. For example, UConn 4-H sent 20 youth to the Citizenship Washington Focus (CWF) experience during the summer of 2022. CWF teaches youth how to:

- Strengthen communication, leadership, and other civic engagement skills on a national level.
- Understand the importance of civic and social responsibilities as they relate to developing better community members and leaders.
- Exchange ideas, practice respect, and form friendships with other youth from diverse backgrounds.



We welcomed new educators and program staff to our team over the past year, meet the new faces of Extension. They are working with our programs and providing life transformative experiences to residents statewide.

Donna Dione

Educational Program Assistant, Haddam Office

“In our building, we have staff from the UConn Center for Land Use Education & Research, Forestry Stewardship, the Middlesex County 4-H Program, and the Master Gardeners. With my background in environmental, marine, and museum education, I’m excited for opportunities to share my knowledge like I did at a recent backyard sugaring workshop for the 4-H Skill-a-thon.”



Jacqueline Kowalski

Associate Extension Educator, Urban Agriculture, Bethel Office

“I love sharing information and appreciate learning from others about their growing practices and journeys. I get to work with all ages to jointly bring the love of growing food to urban centers. I also enjoy talking to policy makers and leaders on why urban agriculture is important and how it can be better incorporated into Connecticut communities.”

Paula Wolf

Educational Program Assistant, Farmington Office

“I love to learn new things and in my personal life spend most of my time on agriculture-related pursuits. I love that every day here exposes me to something new that I didn’t know before. There are always new avenues to explore. I find that the people we serve in Extension share that love and desire to grow and learn. I’m happy to be a part of that.”



Mayra Rodríguez

Assistant Extension Educator, Urban Community Forestry Farmington Office/Hartford Campus

“My favorite aspect of being an Extension educator is that I get to engage with numerous people and organizations. I experience how science is carried out, translated, and applied in different contexts.”

Kaylee Carlisle

Educational Program Assistant, Farmington Office

“I like how versatile my job is. I get to work alongside other Extension employees and educators as well as Hartford County communities. I enjoy being able to learn and participate in the county’s programs and their impacts.”



Zbigniew Grabowski

Associate Extension Educator, Water Quality, Haddam Office

“My research and Extension focus is on ecological restoration, infrastructure transitions, built environment quality, and food systems. I’ll be working with communities on green infrastructure, land conservation, and riparian restoration with an emphasis on equity and justice.”

Melanie Desch

Educational Program Assistant, Brooklyn Office

“Working with Extension I get the opportunity to connect directly with the public and connect them with UConn’s extensive network of specialists. The diversity of work keeps things interesting, and I love learning from my colleagues’ various backgrounds.”





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