ISSUE FIVE / 2020

radius

CONNECTING NEW HAMPSHIRE THROUGH EDUCATION AND INFORMATION

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Adaptation

Extension

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UNH Extension

Opposite: Ken La Valley, vice provost of university outreach and engagement and director of UNH Cooperative Extension, works from home during the COVID-19 pandemic. Photo by Christian McDonald '22. On the cover: Andre Cantelmo of Heron Pond Farm and the Three River Farmers Alliance has adapted his agricultural business practices in response to the pandemic. Photo by Jeremy Gasowski.

adapting programs, building resiliency

When the COVID-19 pandemic swept across the world and into New Hampshire communities, our team members at UNH Cooperative Extension knew we would need to rapidly modify our approach to delivering science-based education and support to residents.

With offices closed, we shifted our focus online to address critical concerns and offer valuable advice through blogs, fact sheets, Zoom calls, webinars and social media.

In the following pages, you will read examples of how Extension has provided support in innovative ways. You'll hear from members of our nutrition connections team, who helped families access food and essential personal items by centralizing information into a digital map. You'll learn how our agriculture team sent daily email updates to farmers detailing the latest regulations and created online farmers' forums to discuss challenges facing the industry.

You'll also see how our specialists are researching ways to help the environment and the economy — studying public health concerns like cyanobacteria and analyzing the viability of new markets for local forest products.

From downtown assessments for small business owners to K-12 learning activities for parents and educators to answers for thousands of questions from home gardeners, one thing is clear: Our work is as relevant and essential as ever. We are able to serve in leadership roles during challenging times because of our strong relationships across the state in the public, private and government sectors.

As we continue to build resiliency in all 10 counties and fulfill UNH President James W. Dean Jr.'s strategic priority of embracing New Hampshire, we remain committed to our mission of accessibility and inclusion. We take pride in fostering a culture where all are safe and welcomed as coworkers, participants and volunteers and know that this ongoing work will make life better for the Granite State.

Kenneth J. La Valley
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WATCHING *for* ***blooms***

PROFESSIONAL AND CITIZEN SCIENTISTS RAISE AWARENESS ABOUT THREATS TO NEW HAMPSHIRE LAKES

Warren Muir witnessed firsthand how cyanobacteria can disrupt a lake's health. In 2018, a cyanobacterial bloom accumulated near where he lives, along the shores of Lake Winnipesaukee, prompting the New Hampshire Department of Environmental Services to issue a three-week warning while samples were gathered and analyzed for toxins.

Cyanobacteria are single-celled, microscopic organisms found naturally in all types of water. Cyanobacteria become problematic when they quickly multiply and form a bloom. This occurs in warm, slow-moving water due to an excess of nutrients (phosphorus and nitrogen) from sources like fertilizer runoff or septic tank overflows.

When a bloom forms, the water often changes to a blue-green color that many people describe as looking like pea soup with a frothy scum on its surface. Cyanobacterial toxins from that bloom can cause health problems in humans ranging from skin irritations to damage to the liver and nervous system. These toxins can also be harmful or fatal for animals, including dogs that drink or swim in contaminated water.

Research is currently underway to analyze their effects on aquatic life forms and the subsequent effects that can occur as toxins travel through the food chain — a process known as bioaccumulation.

Many tourists visit New Hampshire for its pristine lakes, but cyanobacterial blooms can pose a threat to the tourism industry and may lead to a reduction in property values.

BRINGING TOGETHER STAKEHOLDERS

Muir is an environmental scientist and retired director of the Division on Earth and Life Studies at the U.S. National Academies of Science, Engineering and Medicine. As a volunteer monitor for Lake Winnipesaukee through Extension's Lakes Lay Monitoring Program, seeing the bloom in 2018 was a disturbing indication of changes in the lake that his family has witnessed over the course of 70 summers.

The CMC rolled out a new pilot project in the summer of 2020 and sent kits to groups throughout New England to collect cyanobacteria samples. The EPA used advanced analysis techniques to characterize the types of cyanobacteria and toxin concentration for each sample. This project provides both useful information to individual lakes and a more comprehensive overview of cyanobacteria across the region.

The town of Wolfeboro responded to the first cyanobacterial bloom reported in its lakes by forming a cyanobacteria task force, of which Muir is a member, to assess the quality of Wolfeboro waters and to coordinate community-wide efforts to protect its lakes. Wolfeboro has also joined the Cyanobacteria Monitoring Collaborative (CMC), which is a regional group of professional scientists, citizen scientists and trained water professionals.

Extension specialist Shane Bradt represents Extension within the CMC. Bradt, a geospatial technology and water quality state specialist, earned his master's and doctoral degrees at UNH by studying cyanobacteria under the mentorship of biological sciences professor Jim Haney.

Bradt has been instrumental in convening stakeholders around this issue to develop consistent methods for both short-term cyanobacterial bloom detection and long-term monitoring of cyanobacterial populations. Beyond monitoring and generating awareness, the collaborative is also trying to proactively prevent blooms from occurring in the first place.

The CMC gathered on UNH's Durham campus in January 2020 for a conference to discuss the ongoing efforts to track blooms and strategize about ways to educate the public. Warren Muir was among the 69 participants who attended in person, joined by 18 others across New England and as far away as Colorado who participated via video. Participants represented environmental nonprofits, town and city departments, state and federal organizations and Penobscot Indian Nation.

The conference was a joint effort among UNH Extension, the UNH Department of Biological Sciences, the UNH Center for Freshwater Biology and the Environmental Protection Agency (EPA) Region I Laboratory.

Bradt explained that decreasing the amount of nutrient runoff into lakes requires looking at the activity that occurs near the water like paving, fertilization, tree cutting and septic system installments.

"We look at ways to lessen the problem, which means thinking about the conditions that allow the blooms to flourish," he says.

BY EMMA JOYCE

Invasive species reduce biodiversity by outcompeting native plants and animals for resources. They can also degrade water quality, cover nest sites, reduce crop production and cause human health problems.

Stopping the Spread of INVASIVES

WORKSHOPS BUILD CAPACITY FOR MANAGING INVASIVE PLANTS

"If you put your hand over a knotweed plant it gets nervous," jokes Tom Lee, UNH associate professor emeritus for natural resources and the environment. "Deep shade excludes many invasive plants. In other words, shade is an ally."

Lee is speaking to participants from across New Hampshire gathered at the Enfield Shaker Museum in September 2019 for a two-day workshop to learn about the ecology and management of invasive plants in the Granite State.

For the past two years, Extension has provided educational presentations and immersive field work for community volunteers, foresters, natural resource professionals, municipal staff, private landowners and other individuals interested in invasive plants.

Krystal Costa, who graduated from UNH in 2015 with a degree in environmental conservation in watershed management, serves as the conservation program coordinator for NH Lakes. She says she signed up for the workshop because the presenters included "an all-star lineup" and the price was affordable. "We have a wide reach into the lakes communities. It's important to stay up-to-date on these issues," she says.

Why are Invasive Plants Problematic?

Plants disperse by seeds, fragmentation, rhizomes, wind and animals. There are a lot of hypotheses about why invasives are so successful, but the one that stands out most to Lee is that invasives have fewer enemies.

They thrive in landscapes that have been clear-cut or are under construction, so land development increases the amount of area suitable for invasives. "It doesn't mean you shouldn't cut or log; it means you need to think ahead," Lee says.

Invasive species reduce biodiversity by outcompeting native plants and animals for resources. They can also degrade water quality, cover nest sites, reduce crop production and cause human health problems.

Proper Identification is Key

For Karen Bennett, Extension forestry professor and specialist, getting to know plants is like getting to know people. She leads a hands-on activity so that participants can feel, smell and occasionally taste some samples of common invasives found in New Hampshire. Participants discuss features of oriental bittersweet, burning bush and multiflora rose.

"Sometimes you need to use your imagination," Bennett says, referring to the somewhat subjective nature of identification. What two people remember about a plant might differ.

For example, she explains that tree-of-heaven looks like sumac but can be differentiated by their seeds. Tree-of-heaven smells like peanuts, so someone with a strong sense of smell might prefer using that indicator.

"You need to learn the rules to know the exceptions — branch formations, silhouettes, flowers, fruits, seeds," Bennett says. "Using a dichotomous key — 'it's either this or that' — can be helpful, like opposite or alternate branching."

Betsy Drinkwater, a graduate of Extension's Master Gardener program, volunteers at the Enfield Shaker Museum. "I came to the workshop because I help maintain the museum's herb garden. I spend a lot of time with school groups that visit the museum and I wanted to expand my ability to identify invasives," she says.

Empowering Stewards

In exchange for the low cost of this two-day training, participants agree to return to their New Hampshire communities and contribute 20 hours of their time to share information they learned with landowners, colleagues, clients or other members of their community.

Martha Twombly, co-chair of the Hebron Conservation Commission, and Gary Dickerman, chair of the Claremont Conservation Commission, are among the attendees who express excitement about sharing their newfound knowledge. "I look forward to sharing this information with the commission because it's something we all need to be concerned about and the response needs to be collaborative," Dickerman says.

BY EMMA JOYCE

Reviving an **American Tradition**

ANDY FAST ASKS: CAN THE ART OF CRAFTING BARRELS BENEFIT THE STATE'S FOREST PRODUCTS INDUSTRY?

Inside the 19th century Dinsmore Shop at Strawberry Banke Museum in Portsmouth, master cooper Ron Raiselis keeps alive the nearly lost art of handmaking casks. Once one of the most popular jobs in America, coopering— making and repairing wooden barrels and casks — is now viewed by many as a novelty profession or hobby.

Andy Fast, Extension state specialist for the forest industry, wants to change that.

"I'm trying to figure out how to reinvigorate a regional cooperage industry of an appropriate scale," he explains. "Many local breweries and distilleries are interested in procuring local barrels but don't have the means to do it."

Fast is working with Raiselis as well as a cooper in Maine and one in Vermont to try to develop a viable niche forest products market that satisfies regional demand.

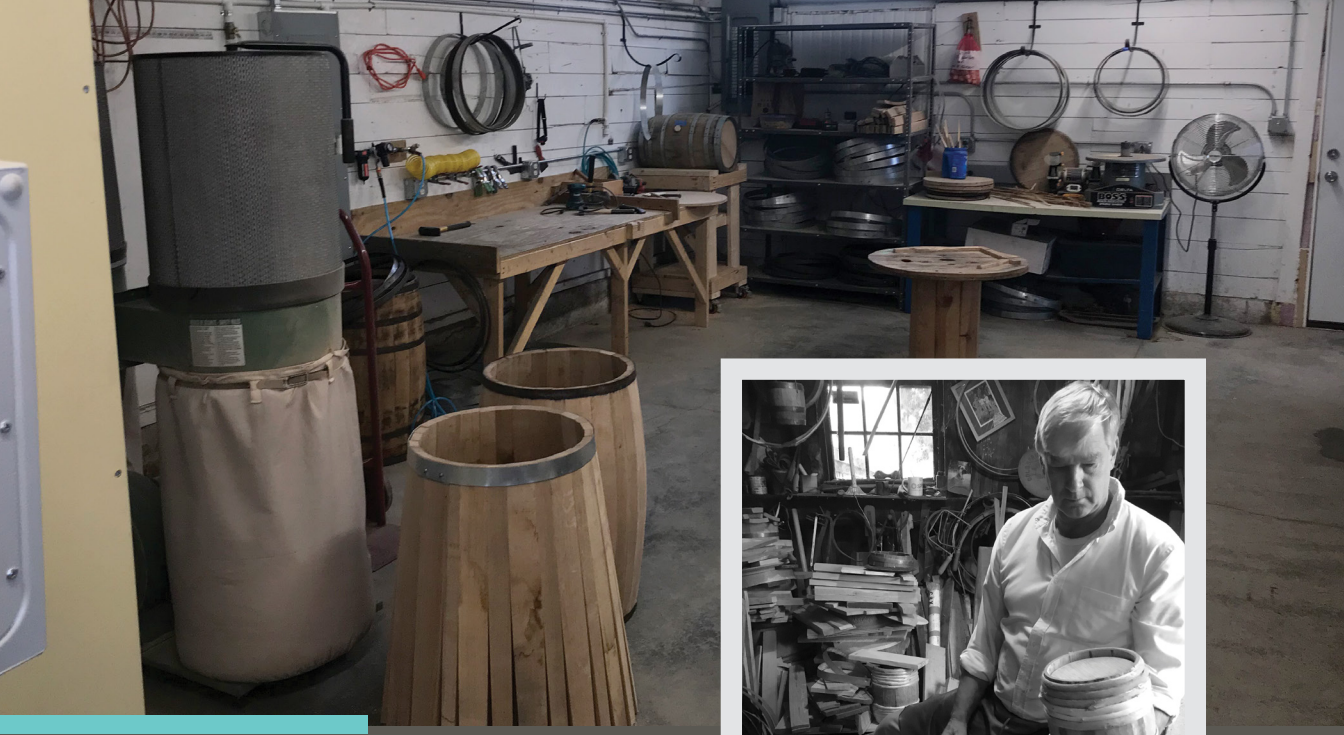
A Change in Production

The cooperage trade came to America with the first English settlers in the 17th century. Coopers made wooden containers that were instrumental for the home, for business and for trade. These containers held food, beverages and supplies — everything from grains, vegetables and fish to tobacco, gunpowder and beer.

By the mid-20th century, however, these wooden containers were replaced by materials like plastics, cardboard and stainless steel. New England could not produce barrels at competitive prices relative to other parts of the United States and their utility was relegated to the alcoholic beverage industry. A trade profession that relied upon apprenticeships soon became obsolete.

Certifying New England White Oak

Most casks are made from "American" white oak (*Quercus alba*), which is found throughout the eastern and central United States, but



there is great variability within these growing regions. “You could have a barrel made of ‘American’ white oak, but that oak could be coming from 800 miles away,” Fast says.

A barrel is a cask that typically holds 53 U.S. gallons. Given the surge of the craft beverage industry in New Hampshire — which relies on barrels — Fast undertook a study to examine how New England’s white oak could be marketed as a unique product. For this, he turned to science.

The chemical composition of wood affects characteristics of the beverages held within the casks, such as the flavor, aroma and color.

With a European-based cooperage and UNH partners, Fast examined more than 50 white oak samples from New Hampshire, Vermont, Maine and Connecticut. He specifically looked at compounds known as trans-whisky-lactones, cis-whisky-lactones and tannins. The samples showed that this region’s white oak contains more trans-whiskey lactones and fewer tannins than Midwest white oak. Fast explained that a producer might prefer the characteristics of the New England product over the Midwestern product.

This has led him to register a certification mark with the United States Patent and Trademark Office to label New England white oak and market to local beverage producers as well as producers beyond New England. In fact, he has already shipped some certified New England white oak to Ohio. The driving force behind this effort is to increase the value of New England casks so the cooperage industry can sustainably reestablish itself.

Experimenting with Non-Oak Species

Beyond the white oak certification, Fast is also researching the viability of barrels produced from alternate hardwood species. He secured a small grant from the New England Society of American Foresters and went through UNH’s I-Corps training program — a National Science Foundation initiative that fosters entrepreneurship — to test beech, red maple and yellow birch.

Fast teamed up with several partners at the university, demonstrating how UNH research directly benefits business development for the state.

Under the direction of UNH woodlands manager Steve Eisenhaure, forestry students

harvested samples and then sawed them alongside lecturer Mike Simmons. UNH woodworking helped prepare wood samples that were "toasted" and used in a beer flavoring experiment by the university's brewing program.

Students ages 21 and over who are minoring in brewing sampled beer from the small containers made from different species and discussed their unique flavor profiles. Cheryl Parker, who oversees the UNH brewing program, invited head brewers from local commercial breweries to also weigh in with their tasting notes and commentary on possible pairings. Anecdotally, beech seemed like the best alternative to white oak.

Fast still has a lot more research to explore, but these preliminary trials suggest to him that there's room for growth in this niche market of cask production, in which casks usually sell for $300-$400 per unit.

He has worked with stakeholders across the state (the beech he tested came from Berlin in Coös County) and even across international waters (the white oak samples were analyzed by Seguin Moreau in France).

"In addition to supporting the forest industry, this work is about helping people recognize the connection between cutting trees in a responsible way and using those resources for things we all use and enjoy," he says.

BY EMMA JOYCE

"In addition to supporting the forest industry, this work is about helping people recognize the connection between cutting trees in a responsible way and using those resources for things we all use and enjoy," says Andy Fast.

WHITE OAK
New England
CERTIFIED®

When the pandemic disrupted their wholesale distribution model, Three River Farmers Alliance shifted to delivering fresh farm products directly to 900 households.

farming TOGETHER

THE AGRICULTURAL INDUSTRY WEATHERS TOUGH TIMES THROUGH COLLABORATION AND ADAPTATION

First, the late winter farmers markets were canceled. Then restaurants shut down. When COVID-19 hit New Hampshire, the state's stay-at-home order quickly posed a threat to farmers' livelihoods.

Andre Cantelmo of Heron Pond Farm in South Hampton recognized that the situation presented opportunities alongside its challenges. "We had two choices: we could figure out how to adapt and distribute even more food locally or we could hunker down and wait for this to pass and get back to what we were doing before," he explains.

Cantelmo went with the first option. Because he did, and with some guidance from Extension, his farm is one of many local agricultural businesses successfully weathering a challenge unlike any this region has ever experienced.

THINKING OUTSIDE THE BOX

Back in 2015, Cantelmo decided to pool resources with three other farmers on the New Hampshire Seacoast to form the Three River Farmers Alliance to jointly deliver their vegetables to local restaurants, grocers, hospitals and other institutions. When it comes to large-scale distribution, he explains, "It's just not economically viable for a small farm to pull off."

Over the past five years the quartet built up a robust network with an online marketplace for fresh, local food from more than 50 farms and food producers. But when the pandemic altered the dining and retail industries, the alliance knew they needed to rethink their business model.

"We decided to take the wholesale model and make a home delivery retail side of the business. There was no way to get our product to our people and it turns out this was a necessary step for not only producers but also the customers," Cantelmo says.

An idea took root. The name? Veggie-Go. The method? Refrigerated box trucks packed with locally grown vegetables, local meat and dairy products destined for personal homes, rather than businesses. Cantelmo and his partners swiftly set up an online ordering system and expanded distribution service to include delivery to some 900 households each week, serving 63 towns in New Hampshire, Maine and Massachusetts.

Customers register for an online account for free. Each order must tally to a minimum of $25 and there is a $10 delivery fee per order (or $5 for pick-ups).

Because of federal regulations, low-income families who are eligible for the Supplemental Nutrition Assistance Program (SNAP) must pay in-person and cannot be charged a delivery fee. In response, the alliance has set up an option for customers to make a donation with their order to cover some of the costs of delivery to SNAP customers, and they can also donate to an emergency food fund for families in need.

NH Farm Products Map

Between monetary and food donations, in just over three months the alliance had given away $40,000 worth of food. “Not only are we aggregating local food sales, we’re aggregating local food donations and helping them get distributed,” Cantelmo says.

NAVIGATING PROTOCOLS

Each step of the way, Cantelmo knew he could rely on Extension if he had questions or needed guidance on agricultural business best practices, safety protocols or logistics. He reached out to Extension staff members to run ideas by them and see if there were aspects of the new model that he was not thinking about.

He read Extension’s daily COVID-19 updates and attended Extension’s webinars and farmers’ forums — Zoom sessions designed for farmers to discuss obstacles and come up with solutions.

“We’ve continued to get support from Extension’s food safety team and having the COVID-19 updates was really important,” he says.

Safety has remained at the forefront of operations. Cantelmo changed the layout of his farm stand and implemented limits on how many people could be in the stand at a time. The alliance has adopted social distancing norms for harvesting and packing. Crew members wear masks and remain vigilant about handwashing and sanitation.

CREATING SPACES FOR CONNECTION

For Extension’s agricultural team, life moved at warp speed at the start of the pandemic. Olivia Saunders, fruit and vegetable production field specialist in Carroll County, knew it would be important to share rapidly evolving information about the virus while creating new resources so that farmers could move forward with operations.

"Across all commodities — didn't matter if you were a dairy farmer or a pick-your-own farm — they all needed to be making some sort of change, and that's where the stress piece came in," she explains. "Planning is done in the winter; seeds should already be in the mailbox by early spring and suddenly there were decisions that need to be made with immediacy. Normally, during March, April and May the plans have already been set."

While working remotely, Extension specialists wrote blogs, gathered data, made phone calls and set up Zoom meetings. They created a daily FAQ e-mail to address COVID-19 concerns and hosted twice-a-week forums for farmers and members of the ag service provider industry, which included representation from nonprofit, state and federal organizations.

Traditional field and in-person meetings for growers, focused on timely production issues, were converted into an online format, which meant they could recruit speakers and producers from a much larger geographical area.

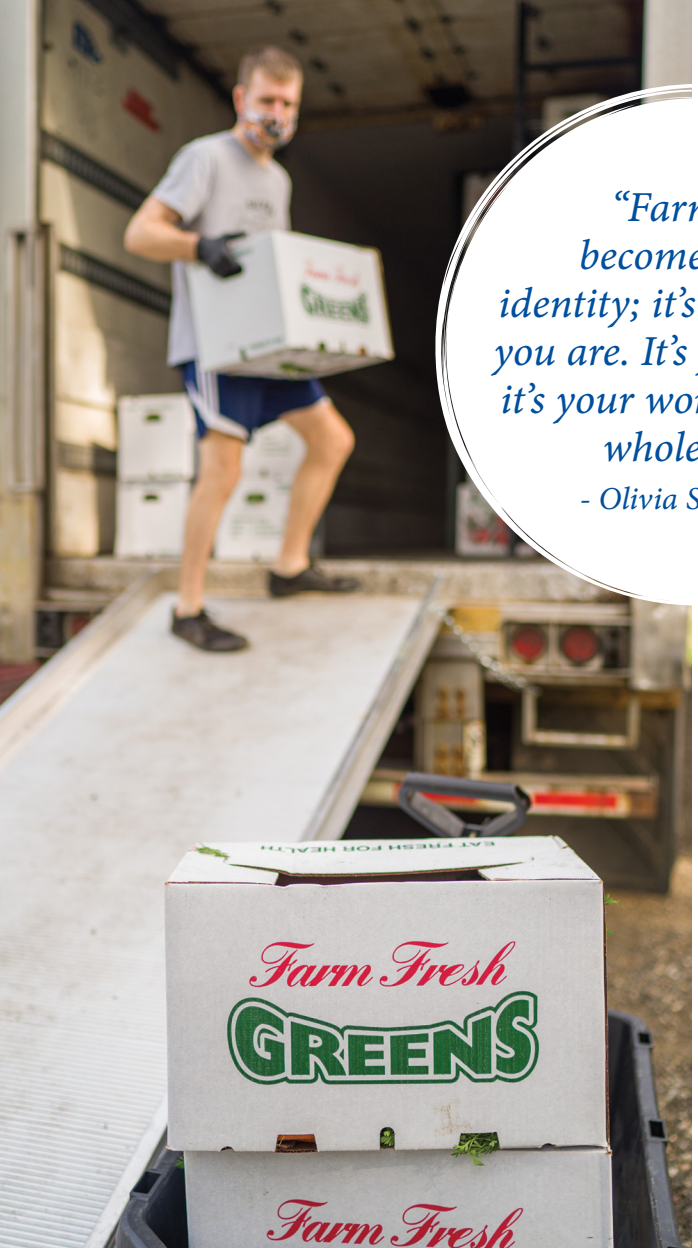
Extension staff provided information and answers to questions about food safety, health of the labor force, new market opportunities and safe ways of conducting CSAs, farmers markets and pick-your-own operations. Specialists assisted producers with production, management and financial education tools. Staff continued to make solo farm visits for diagnostic consultations, using smartphones to video their observations and then relaying their advice digitally to farmers.

Extension also teamed up with the New Hampshire Department of Agriculture to gather farm listings from across the state to build an interactive farm products map, designed by Extension geospatial technology specialist Shane Bradt. In addition to food essentials like meat, produce and dairy, farmers can list other offerings like cut flowers, hay, compost, seedlings, soap, candles and more.

One centralized map makes it easy for farmers to connect directly with consumers while sharing the most up-to-date information about pick-up locations, delivery options, contact information, payment methods, product listings, purchasing incentives and food access programs.

INTERPRETING LAWS

Seth Wilner, agricultural business management field specialist in Sullivan County, says Extension's cohesive team approach to the COVID-19 response — under the direction of team leader Amy Papineau — was key to successfully communicating with farmers. Existing relationships with farms in every county, agency staff and agricultural organizations across the state meant that the infrastructure for this communication was already in place.



"Farming becomes your identity; it's everything you are. It's your home, it's your work, it's your whole life."

- Olivia Saunders

It was these relationships, he reiterates, that made everything possible.

One of the largest challenges came from regular output of complex rules and regulations. Wilner and agricultural business state specialist Kenesha Reynolds spent countless hours interpreting legal information and requirements from legislation and funding opportunities like the Families First Coronavirus Response Act, Paycheck Protection Program and Economic Injury Disaster Loan.

"Because growers trust us and didn't have time to interpret new laws on their own, they turned to us. We read, we listened to webinars. We found out as much information as we could," he says.

New legislation would pass but rules would lag by weeks. Some funds were distributed on a first-come, first-served basis. Eligibility requirements shifted. Whether working with the U.S. Department of Labor, federal organizations, state entities or lawyers, it became vital to know the right kind of questions to ask and how to pass that information along in a timely manner. "It was high pressure and hard," he says.

When federal money from the CARES Act became available in each state, Gov. Sununu set up the Governor's Office for Emergency

Relief and Recovery (GOFERR) Committee. Data was needed to inform their allocations. Extension quickly swung into action, working with the New Hampshire Farm Bureau and New Hampshire Commissioner of Agriculture Shawn Jasper to help secure funding from the CARES Act. Within a 48-hour time span they developed, deployed and analyzed a survey and then created a report in order to procure $1.5 million for specialty crops and maple growers in New Hampshire. Extension also helped communicate about funding opportunities to the farmers.

SUPPORTING MENTAL HEALTH

Farming, Extension specialist Olivia Saunders says, is unique to many professions because it can be all-consuming, especially for multigenerational farming families and beginner farmers who may be pursuing the path alone. With all the added stress of the virus, Saunders saw an important need to generate awareness about mental health issues. Extension collaborated with the New Hampshire Farm Bureau to implement a campaign called Farming Together to provide resources and support for mental health.

"Farming becomes your identity; it's everything you are. It's your home, it's your work, it's your whole life. The question, 'What if I fail, after this has been in my family for so long?' is a heavy burden," Saunders says.

The campaign's overarching message to farmers? Reach out. Start a conversation. We're here for you and other farmers are here for you.

Amy Franklin of Riverview Farm in Plainfield is grateful for Extension's efforts to bring together farmers from across the state. "I think that checking in with each other, even if it is just to comment on these unprecedented times, can open a gateway between farmers to have a more meaningful conversation about experiences during the growing season and express any stress that has come with it," she says.

In other words, we're all in this together.

BY EMMA JOYCE

THANK YOU!

We are grateful for the support within the farming community. This year Branch Hill Farm in Milton Mills generously donated $10,000 to Extension's internship program through the university's annual fundraising event, The (603) Challenge.

Resurgence of the VICTORY GARDEN

CULTIVATING A NEW CROP OF GROWERS IN THE GRANITE STATE

Soldiers were fighting overseas. Farms were stretched to capacity. Food needed to be rationed. During the economic hardships of the First and Second World Wars, American citizens were asked to help their country by planting victory gardens. Millions answered the call by transforming lawns, vacant lots and city rooftops into green spaces.

Fast-forward to 2020 and the pandemic's stay-at-home order forced many families to think about food in new ways. Disruptions within supply chains, scarcity of specific items, limited shopping trips and more time at home all led to a renewed interest in learning how to grow produce — with many opting to call their plots modern victory gardens.

Starting a backyard garden might sound simple enough, but there are quite a few decisions that need to be made and steps to follow. Would-be gardeners must prepare a site, choose what to plant, decide whether to start by seeds or to purchase seedlings, fertilize, harvest and preserve.

To support this heightened interest, Emma Erler, who serves as the program coordinator for Extension's Education Center, wrote blog posts covering all these topics along with commonly asked questions like: Are garden soil test kits a good alternative to lab testing? What is the best way to grow potatoes in containers? How do I get rid of flea beetles in my vegetable garden?

Meanwhile, Nate Bernitz — who coordinates the Education Center's Infoline — continued to field questions from residents about their gardens by email, phone and social media. Erler and Bernitz also teamed up for

a Facebook Live video series called Granite State Gardening to address a wide array of topics like plant diseases, pollinators, herbs, compost and greenhouses.

They invited guests from other program areas in Extension to share knowledge about specific aspects such as food safety and nutritious meal preparation. The videos and information were well received. In just four months, the Ask Extension Facebook page gained 1,246 followers, representing a 49% increase. Most videos received 1,000 or 2,000 views. During that same time, the team answered 2,200 questions from home gardeners.

Residents chimed in with questions and shared praise. In response to a post about squash vine borer reports, resident Nichole Hunter commented: “I found and removed several eggs today because of your reminder. We lose our squash every year because I forget to check before they already are showing signs of invasion. So thank you!”

Becoming a Master Gardener at Home

For Sandra Pickering of Hancock, gardening was of interest throughout her years growing up in Texas. “I’ve always believed in taking care of living things. I think it’s so cool to plant things and watch them grow — to be able to taste the difference of when they’re fresh out of the ground versus brought from a grocery store,” she says.

Pickering moved to New Hampshire 15 years ago. After retiring from a career in education and global technology last year, she applied to Extension’s Master Gardener program and had attended three in-person sessions when the state’s stay-at-home order began.

Learning shifted online, under the leadership of coordinator Ruth Smith. “The staff did a fabulous job; they had to be very creative,” Pickering says.

With raised beds, a landscaped yard and solar panels at home, Pickering continued to implement what she learned by way of Zoom lessons to the vegetables and flowers of her own yard.

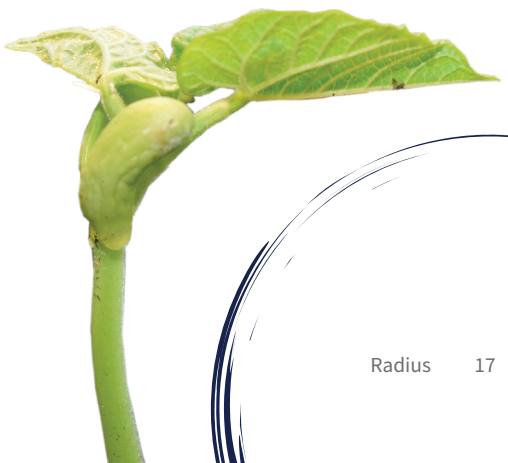
She also helped create a new presentation for the public about gardening in a changing climate, with specific examples relevant to the region and a few key indicators of climate change she’s noticed.

“Frost dates fluctuate a little bit each growing season; temperatures fluctuate in the winter; we have less snow cover that stays on the ground; we have more ticks in the winter and more invasive insects,” she says.

Pickering will next work on a rain garden restoration project for the Keene Recreation Center. A rain garden, Pickering explains, “is a more natural method of stormwater management. When we have big floods, curbsides fill up with water — rain gardens naturally help absorb that water, so it doesn’t pool.”

She has enjoyed getting to tailor the projects to her interests. “The primary goal of the program is community engagement and education. Everybody has a different approach to how they do that — you can customize it to meet your needs and the community’s needs.” r

BY EMMA JOYCE



from BOAT *to* BUYER

AMID PANDEMIC CLOSURES, NH SEA GRANT HELPS SEAFOOD PRODUCERS SHIFT TO DIRECT SALES

Laura Brown has pulled into the parking lot next to the Scammell Bridge in Dover countless times. Off Route 4, the bridge spans a section of waterway where the Bellamy River meets Little Bay — the water that nourishes Brown's oysters. She's the owner of Fox Point Oysters, a one-woman operation that raises and supplies locally grown, sustainable shellfish.

But this Saturday is different than most. Instead of pulling on waders or unloading her gear, Brown dons a mask and gloves. She pulls out coolers, a table and a sign that reads "Fresh Oysters" and "Pick up: Today, 11-1."

It's May 30, 2020, and the restaurant and wholesale seafood markets that usually buy Brown's oysters have been greatly impacted by the COVID-19 pandemic, which has caused business closures around the country and world.

Portsmouth lobsterman Dennis Robillard of the F/V *Julie Ann III* has experienced similarly dry markets for his catch, which he usually sells to lobster dealers year-round.

"We've had to try to come up with other ways to deal with low prices, no demand or just plain not going fishing," says Robillard.

Closed restaurants don't stop seafood lovers from craving local oysters or lobsters, and producers like Brown and Robillard have pivoted from selling to businesses and markets to selling directly to consumers. "People are looking for, I almost want to say, a little adventure," says Brown. "They're looking for something new to do, a new place to drive to. People are restless."

Gabriela Bradt, fisheries specialist for UNH Extension and NH Sea Grant, recognized this trend a few weeks into the stay-at-home directive and saw an opportunity to help. "I realized that while there weren't many [fishermen] doing direct sales yet, it was going to take off. I wanted to be able to connect consumers with fishermen who were being proactive and COVID-19 protocol conscious," says Bradt.

Bradt created a Local Seafood Finder online map, a resource for New Hampshire residents

to learn about local seafood producers and support local seafood businesses affected by market changes. In the weeks following the online map's launch, hundreds of people accessed the link. She points out that buying off the boat "supports local business, keeps their locally harvested seafood in-state and accessible, and is more eco-groovy as it has a smaller carbon-footprint and you know where your fish came from."

Bradt also compiled guidance from the Centers for Disease Control and Prevention, NH Fish and Game and the National Sea Grant Network to help the fishing industry understand reporting protocols, permits for off-the-boat and dockside sales and best practices for seafood handling, crew health monitoring, disinfecting and sanitizing.

For Brown and Robillard, the new sales tactic may change their business long-term. While neither see their sales shifting fully to a direct sales model, they're thinking differently about the future of local oysters and lobsters.

Some of Brown's new customers are longtime oyster enthusiasts but first-time shuckers, so she walks them through the technique used to open oyster shells for a classic "raw on-the-half-shell" experience, selling oyster knives alongside the bags she fills with bivalves. Customers order online a day ahead and then pick up from Brown in the Scammell Bridge parking lot.

New Hampshire hosts 13 active oyster farms, mostly in the Great Bay Estuary. Buyers in these direct seafood sales leave with more than just fresh seafood. Brown offers lessons about the local environment when customers ask, "Wait, you pulled these out this morning? From there?" she says. "They don't even know where their food comes from. So, that's been awesome, to help teach people."

"I think it might become a regular 'order online and pick up at this location' once-a-week kind of a situation," says Brown. "If people enjoy it and it's worth it to do it, I will definitely continue."

BY TIM BRIGGS

Can't Hold Back the Tide

SEACOAST LANDOWNERS LEARN HOW TO PREPARE FOR AND MITIGATE FLOOD RISKS

For residents of the New Hampshire Seacoast, life often brings sunny days on the beach, fishing and kayaking along the inlets and eating delicious local seafood. But as the climate warms and sea levels rise, ocean water has become an encroaching threat for coastal landowners. Low-lying coastal communities are increasingly vulnerable to natural hazards and looking to adapt to a changing environment.

According to UNH Extension and NH Sea Grant coastal ecosystems specialist Alyson Eberhardt, "People are seeing two things: They're seeing sunny day flooding, which is flooding associated with large tides, not with storms, and then they're certainly seeing more impacts associated with storms."

In 2017, longtime New Hampshire residents Michael and Denise Tager moved to a small neighborhood called Fifield Island behind North Hampton Beach. Fifield Island is encircled by a salt marsh with just a single access road. Although Fifield Island is not in a flood zone, the Tagers are surrounded by one.

Sunny day flooding and storm surge are enough to make any landowner nervous, and UNH researchers and staff at the NH Department of Environmental Service's (NHDES) Coastal Program started hearing from residents, like the Tagers, looking to make changes.

"We've been increasingly seeing landowners reach out to us to ask us about how to deal with erosion and other flooding issues," says Kirsten Howard, coastal resilience coordinator at NHDES.

In response, Eberhardt, Howard and UNH faculty colleagues David Burdick and Gregg Moore spearheaded a UNH and NHDES cooperation — the Coastal Landowner Technical Assistance Program (LTAP) — to guide residents through assessing and mitigating flooding and erosion risk on their properties. Since launching in 2019, LTAP has helped close to 20 New Hampshire property owners.

Michael Tager first contacted NHDES with flooding concerns and soon became an LTAP participant. "The LTAP team helped me to think beyond just this one topic of needing flood insurance and to look more carefully at the neighborhood and New Hampshire coastal flood risks," Tager says.

The program begins with a property survey to gauge the landowners' goals and priorities, informing an initial site visit. "We do an assessment of their property, but we also provide them with some very basic information that's fairly easy to put together about where they are in the regulatory floodplain, what sea-level rise might look like on their property in the future," says Howard. The second phase brings landowners more specific recommendations in a report that LTAP specialists tailor to each property and owner's needs.

"I now have a 'punch list' of suggestions to think about and implement, from simply installing a sump pump to continuing to pursue flood insurance to revisiting our landscaping to

improve on drainage from the house," Tager says. These recommendations can be very different for each landowner.

"Property owners have very different goals, very different willingness to accept risk," Howard says. "There's no silver bullet answer for any property owner. Some of the process is helping them to come to an understanding or make peace with the fact that a lot of the actions and decisions they're going to have to make, or not make, are up to them."

The program showed Tager that his property's risk is greater than he once thought. "This is a more critical and time-sensitive issue than I had imagined. It will impact not just our home and our neighborhood but the entire coastline, with environmental, economic and social consequences," he says.

Eberhardt and Howard hope to continue to help landowners and communities make informed decisions about their coastal properties, and LTAP participants like the Tagers may be the best ambassadors.

"I would like to introduce my neighbors to LTAP, especially those who abut the salt marsh," Tager says. "I think it would be very productive to invite my neighbors to hear more about LTAP from a terrific team of knowledgeable, experienced and passionate staff. And I know just who to invite to make that presentation!"

BY TIM BRIGGS

partnering up for Citizen Science

EXTENSION VOLUNTEERS COLLABORATE WITH ELEMENTARY SCHOOL TEACHERS TO IMPLEMENT SCIENCE INVESTIGATIONS

Each week Mimi Jost visited Kate Zimar's second grade class at Mast Way Elementary School in Lee, she brought "treasures," Zimar recalls.

One day Jost pulled tree samples from her bag so that the students' small fingers could count the circular rings and determine each tree's age. Other times her pockets bulged with tulip bulbs and bean seeds. A mushroom that she found growing in a glass bottle prompted lots of questions from the children. Why did it start growing in there? How long did it take to grow?

An avid naturalist,

Jost has served as a volunteer for the Schoolyard Science Investigations by Teachers, Extension Volunteers and Students (Schoolyard SITES) research program.

The program, which pairs Extension science volunteers with elementary school teachers to bring citizen science projects to elementary students, is made possible by a grant from the National Science Foundation (NSF) and in cooperation with the UNH Leitzel Center.

Teachers and volunteers participate in a workshop series over the course of a year led by UNH science education and citizen science professionals. Participants learn together as a team and gain experience with scientific investigations and content that they will use later in their classrooms.

Students learn about biodiversity, seasonal precipitation patterns, plant phenology and/or wildlife habitats

through immersive, authentic experiences. Each volunteer and teacher team decides what content is most appropriate for their classroom, but all activities align with Next Generation Science Standards and school district requirements.

Before participating in Schoolyard SITES, Melissa Cunliffe, a fourth-grade teacher at Gonic School in Rochester, had never heard of citizen science. “This program has changed how I structure my whole curriculum to think about the changing seasons. It’s especially meaningful for urban places like Rochester. Many of my students live in apartment buildings. It’s important that they develop a connection with their environment and realize they are stewards of the Earth,” she says.

Some classrooms have focused on bird identification by setting up feeders and participating in a national citizen science program called Project FeederWatch. Students have drawn field guides featuring common backyard birds like robins and sparrows.

Other classrooms have studied native trees by using data collection, measurements and graphing to track tree growth and maple syrup production.

UNH Provost and Vice President for Academic Affairs Wayne Jones says the program demonstrates high-impact learning experiences that align with the university’s strategic priority to support New Hampshire’s quality of life and economy, noting the importance of STEM education.

“The gem that is UNH combined with the strength of the local school systems creates something truly special,” Jones says. “It’s important that we grow and celebrate these valuable partnerships.”

Kathy Prewitt, a fifth-grade teacher, explains that her classroom’s precipitation study addressed scientific crosscutting concepts such as scale and proportion. “The kids have been really excited about their contributions to the dataset and comparing their measurements with other schools…Schoolyard SITES works really well. I’ve never seen kids learn decimals so fast. This year they had context,” she says.

Schoolyard SITES has been implemented in Rochester, Portsmouth, Manchester, Nashua, Bedford and the Oyster River Cooperative School District during the past two years. A final cohort will be selected under this NSF grant for the 2021-2022 school year.

BY EMMA JOYCE

Volunteer Q&A
Rebecca Bordonaro

How did you first get involved with 4-H?

An injured, pregnant Jersey cow was given to us because we have a small farm. We were fortunate to deliver a live heifer, but the mother died. It was heartbreaking. I explained to my son Gauge, who was 11, that I didn't have the time to bottle-feed a calf. I had planned on giving her to a local farmer with more time. Gauge stepped up. He bottle-fed little Rosie. She is now three years-old and very spoiled.

Gauge wanted to learn more. He asked me to call 4-H and see if there was a club in our area. There wasn't, but 4-H program manager Donna Lee talked me into starting a club in Rumney.

Why did you choose to organize a 4-H food drive for Grafton County in the spring?

Many food pantries get donations during the holiday season, but by April their supplies are low. We also included household essentials in the drive like toothpaste, shampoo, diapers and toilet paper, which can't be purchased with food stamps.

We held a competition to see which 4-H club could donate the most items. Our club ultimately won with more than 1,500 items. In total, 4-H donated 2,182 items to locations around our region. The Rumney Farmers 4-H Club had been working on a biosecurity educational project prior to the pandemic, so we also donated masks, gallons of hand sanitizer, shoe covers and hair bonnets for healthcare workers.

What do you enjoy about serving as a leader of a 4-H club?

It is extremely rewarding. We have a very diverse group of members — kids ages five to 16. I have seen so many examples of growth with my group. The moments that make me most proud are when they do things that demonstrate what amazing humans they are.

I remember when one of our 4-H members who is on the autism spectrum was at his first goat show. He was afraid to participate in the obstacle course. He let everyone else go before him. When he stepped out with his baby goat, five other club members ran out with him. They cheered him on and supported him as he made his way through the course. They didn't plan this. They were not told by an adult to support this club member. I cried with pride!

BY EMMA JOYCE

Mindful moments

Some 4-H members proudly display summer squash. Others dutifully watch over seeds just beginning to sprout. Children pose with egg cartons packed with soil, stand next to raised beds or hold up chickens.

These scenes are posted as photo comments on the NH 4-H Community Facebook page, which was created to foster connection during times of social distancing.

The campaign "Let's Root For Each Other" encourages 4-H families to share their home gardening experiences. Some counties even mailed seed packets and growing supplies to assist 4-H'ers in launching their gardens.

Michelle Bersaw, 4-H horticulture field specialist, explains that gardening can yield numerous mental health benefits like increasing attention span and boosting self-esteem. This initiative demonstrates one of the many ways that Extension has continued to cultivate wellbeing through remote learning.

Managing Stress, Processing Grief

In addition to providing educational experiences to advance technical skills, Extension staff help youth and families with social, emotional and mindful learning. This skillset focuses on managing emotions and developing empathy while building positive relationships.

The COVID-19 pandemic disrupted many families' routines in sudden ways, leading to difficult feelings like disappointment, frustration, anxiety and sadness. School shifted online, sports seasons were curtailed, graduations and other celebrations were scaled down or canceled altogether.

Creating a Sense of Belonging

How do you run a virtual meeting that makes participants feel seen, heard and valued? What protocols should you establish? With distance learning comes a need for understanding best practices for virtual communication with children and young adults.

The pandemic has also coincided with a national discussion about race. How does a parent start a conversation about racism? What literature is available to help with these teachable moments?

Extension is using tools like webinars, social media, blogs, newsletters and online training sessions to provide support, share resources and offer guidance to families experiencing these challenging situations.

Building Resiliency

Kendra Lewis, state specialist for youth and family resiliency, emphasizes that Extension's work focuses on the opportunity for growth. "Resiliency is being able to not only bounce back from trauma, but also thrive," she says. "It's about growing and being better prepared for whatever comes next."

BY EMMA JOYCE

EMPOWERING
Families to Live and Eat Well

NUTRITION CONNECTIONS PROVIDES EQUITABLE FOOD ACCESS AND EDUCATION

When COVID-19 upended daily life across the globe, some goods and services were deemed essential. At the top of this list? Food.

Extension's Nutrition Connections program supports families who have limited resources and qualify for financial assistance from federal programs.

The first step to eating healthy is knowing where to access food, but the pandemic's stay-at-home order created additional barriers to food access for people who are already food-insecure.

Because of panic buying, supplies that are usually widely available flew off shelves at alarming rates. Many workers lost their jobs and steady sources of income.

MAPPING FOOD ACCESS

In response to these events, Extension's Nutrition Connections members Sara Oberle, Brooke Kelleher and Heidi Barker swiftly teamed up with Extension's geospatial technology specialist Shane Bradt to publish the New Hampshire Food Access Map.

This digital map can be viewed on a computer, tablet or phone. It shows food support sites (pantries, backpack programs and meal delivery); sites for personal items (like toilet paper, soap and diapers), nutrition assistance sites (farms and small grocers offering discounts or incentives for food-insecure families and offices providing food benefit support) and summer meals sites, which are maintained in partnership with the Department of Education (for children 18 and younger when school is out of session).

Having one centralized location with this information streamlines the process of identifying where to go for assistance and at what time. It also shows locations where donations can be dropped off and where volunteers can help their neighbors.

TRAINING SHOPPERS

Once a family has secure access to food, the focus shifts to how to create healthy meals. Extension has teamed up with a national nonprofit called the Fair Food Network, which operates a program for stores called Double Up Food Bucks to improve health of underserved communities while also supporting local farmers and economies.

There are currently 16 retail sites in New Hampshire participating in Double Up Food Bucks. To be eligible, a store must be a part of the Supplemental Nutrition Assistance Program (SNAP) and prioritize sourcing produce from local farms within New England.

Shoppers who qualify for SNAP can use their Electronic Benefits Transfer (EBT) cards to purchase produce for 50% off the regular or sale price. The Fair Food Network will then subsidize the costs, so the retail store continues to make the same profit.

Extension teacher Brenda Carey provides training sessions for SNAP shoppers to discuss best practices for grocery shopping. She typically leads in-person classes at supermarkets but, due to the pandemic's social distancing protocols, she decided to make these tours virtual.

Carey connects with participants one-on-one through Zoom. They watch seven videos together over the course of an hour, stopping between each clip for a discussion. The video topics include information about buying fresh and frozen produce, canned fruits and vegetables, cereals, snacks, beverages, bread and frozen meals.

Carey will ask questions like, "Did you learn anything?" and "How was that helpful?" She shares tips on how to use sales flyers and weekly coupons to make participants' dollars go further. She explains unit pricing and how to read food labels. After completing the session, shoppers receive a $10 gift card

(provided by the Fair Food Network) to a supermarket participating in the Double Up Food Bucks program.

While they might have been necessitated by COVID, Carey found that the virtual classes provided many benefits relative to the in-person sessions. “We’re not limited to certain hours and we can make it convenient to work with everyone’s lifestyle. I can tailor the session to their needs and address what they want to learn,” she says.

Liz Alpern serves as a program manager for Double Up Food Bucks Northeast. "The virtual store tours conducted by UNH Cooperative Extension have been such an incredibly innovative and inspiring way to engage SNAP shoppers on the topic of healthy eating during this pandemic," she says.

INCENTIVIZING HEALTHY DECISIONS

Many of the stores participating in Double Up Food Bucks are community-centered and on the smaller side, like Vista Foods in Laconia. Store manager Bob Fitzpatrick is grateful for the program.

“We’re not a big box store; you get to know people one-on-one. Most of our shoppers are residents,” he says.

Because he knows the local farmers, Fitzpatrick says it makes the program more meaningful. “We get cucumbers, peppers, tomatoes, onions and rhubarb from Ramsay’s Farm Stand in Loudon. We get fresh corn from Pearls & Sons Farm in Loudon — come August, that’s a big draw. We really try to get the word out, put banners up and make sure people know about the program.”

Heidi Barker, an Extension healthy living field specialist, explains that all this nutrition work is aimed at creating large-scale, systemic change. “We’re providing the ability to let people make their own informed decisions. People need to have all options. It’s their decision of how they’re going to spend their money,” she says.

“But it’s about making the healthy choice the easier choice.”

BY EMMA JOYCE

CIVIC PRIDE

MAIN STREET LOOKS TOWARD THE FUTURE

Car parades to celebrate birthdays and graduations. Drive-in movies. Curbside pick-ups for food and retail purchases.

These are just a few of the creative solutions that residents and business owners in New Hampshire are developing to support local communities during challenging times.

Molly Donovan, community and economic development specialist for Extension, explains that creating vibrant downtowns requires investment that includes but also goes beyond buying local.

"The economy is part of a Main Street, but developing vibrant downtowns means creating positive community spirit and new ways to connect," she says.

Some examples include community art, displays, signage, downtown entrances, landscaping, lighting, parks, natural features, crosswalks, sidewalks, public facilities, waste management and recycling options.

"We have to ask: How do we bring people downtown even if there aren't a lot of places to spend money? It's about civic pride. It's 'I want this place to look good; I want to bring my friends here.'"

A Place to Gather

Even during times of social distancing, Donovan emphasizes the importance of keeping public spaces open for gatherings like protests. The national discourse about equity is very much a part of this work. "We have to look at downtowns with an eye toward racial justice, because these spaces might not be welcoming to everyone," she says.

Extension's Online Resources on Civic Engagement and Pride

- Community Outreach and Engagement Information Brief
- Characteristics of a Vibrant Downtown
- How Main Street is Responding to COVID-19
- Trailside Services Listings on Trail Finder

Municipalities are showing flexibility with reimagining spaces like allowing more outdoor dining and encouraging activities that are usually held indoors to move outside, such as town meetings, training sessions or yoga classes.

Donovan says it will be important to maintain an entrepreneurial vision when thinking about how communities recover from the setbacks of the pandemic. This is where Extension can offer guidance with downtown assessments, which provide a way for stakeholders to collect data and information that then helps determine where to focus efforts.

Building Resilience

To help businesses and the communities they serve, Extension has teamed up with UNH's Peter T. Paul College of Business and Economics to implement a two-year grant from the NH Small Business Development Center (SBDC).

NH SBDC is using $1.28 million in CARES Act funding to support the state's small businesses. One component of this included a Business Resiliency Survey, sent out in June, which garnered responses from 1,549 small businesses in 172 cities and towns across the state. Results indicated that 19% of these businesses had a resiliency plan in place prior to the pandemic, but nearly 75% think creating a resiliency plan will be important to their business in the future.

To address this, Extension and Paul College will host several regional Small Business Resiliency Academies across the state with tracks for both community economic development practitioners and small businesses. The academies will provide participants with a better understanding of resiliency and help them develop disaster and continuity-of-operations plans.

Liz Gray, state director of the NH SBDC, says, "We knew businesses were struggling, but the survey data quantified the problems and gave us ideas on how we can best support companies going forward."

National Network

Beyond partnerships within the state, Extension is reaching out to national networks as organizations across the country grapple with the question of what the future for community development might look like. In June, Extension hosted the National Association of Community Development Extension Professionals Conference, which featured 90 speakers. Originally scheduled for Portsmouth, the conference moved online, and it was one of the most well-attended conferences to date.

"One of the best things about Extension is that we are part of a national network. We get to learn things from other professionals across the country and bring them to the state," Donovan says.

The team has also received a grant from the Northeast Center for Rural Development to look at how to expand its Main Street Academy program to other states.

"This is a time of learning. We're in an uncharted place and that's okay. We're going to get to economic recovery, but it's going to take some time," Donovan says.

BY EMMA JOYCE

UNH graduate sociology student Morgan Stevens spent spring 2020 as a Dalrymple Graduate Fellow with mentorship from Extension program manager Casey Porter. Stevens remotely interviewed past participants of the Community Engagement and Main Street Academy programs to evaluate their impacts.

"My fellowship gave me valuable research experience, especially with interviewing. Broadening my learning to community engagement and its many tools helped me understand how I can better include the importance of community in my social justice research."

Public Meetings Move Online

Extension has helped municipalities, governmental organizations and nonprofits navigate software options and protocols for hosting public meetings and hearings online. Our staff have facilitated discussions and shared best practices to ensure that local governing bodies can continue conducting business and civic matters remotely with public participation.

Going Digital

PLANNING A CONFERENCE TAKES A YEAR. WHEN THE PANDEMIC HIT, PD&T HAD LESS THAN THREE MONTHS TO CHANGE COURSE

> "When the event organizers reached out to learn if I'd present virtually, I said 'sure.' But then I realized my presentation would include sharing videos with sound, live video editing on my iPhone and testing Facebook Live. It forced me to learn a few new tricks, and I had a lot of fun doing so."
>
> - Presenter Candy Osborne, owner of Snowbird Creatives in Nashua

The UNH Digital Marketing Conference is one of the most popular spring events offered by UNH Professional Development & Training (PD&T). With speakers secured, marketing began in late fall 2019 for the fourth annual conference in June 2020, and enrollments started rolling in.

Then everything changed.

To help flatten the COVID-19 curve, UNH staff began working from home in March. Social distancing became the norm. PD&T worked together while apart — from home offices, laundry rooms and kitchen tables — to pivot spring programming for a remote audience.

Shifting the conference online made sense (who better to embrace an online experience than an audience interested in digital strategies?), but the logistics of pulling off such a feat in a short period proved challenging.

The team met with Extension's IT specialists to discuss how to organize 10 presenters across six online breakout rooms into a seamless experience. They created a road map of the agenda, viewing it from a participant's perspective to anticipate any potential issues.

Next came rehearsals.

The team gathered on Zoom for a run-through. Conference coordinator Stacey Boyle conducted practice sessions with speakers to ensure everyone was comfortable with screen sharing, polling and hosting.

Agendas were sent to 60 participants, and everyone hoped for good Wi-Fi vibes. Sessions covered a wide range of topics — from SEO to inbound marketing to smartphone video production.

When the big day arrived, all participants transitioned from one virtual space to another without issue, serving as a fitting example of PD&T's core belief: learning is lifelong.

BY DONNA FUNTERAL

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Volunteers

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Hours contributed by volunteers

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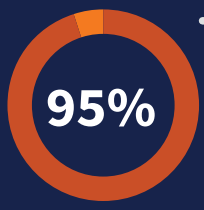
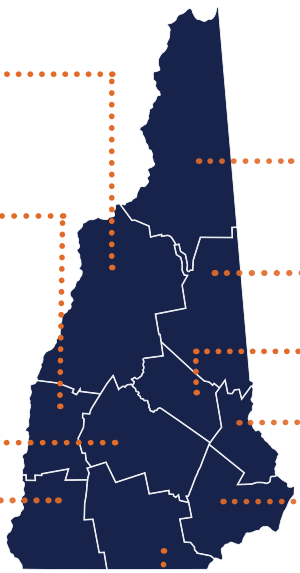


of New Hampshire communities are served by an active Extension Volunteer

Extension volunteers reached **66,627 people** in 2019

WHERE THEY LIVE & GIVE THEIR TIME.

An additional 238 volunteers gave 3,474 hours in statewide initiatives, and 94 volunteers gave 2,364 hours to efforts in neighboring Maine and Massachussetts.



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Sullivan
225 Volunteers
9,667 Hours

Carroll
321 Volunteers
9,708 Hours

Merrimack
516 Volunteers
27,735 Hours

Belknap
233 Volunteers
11,600 Hours

Strafford
704 Volunteers
14,774 Hours

Cheshire
167 Volunteers
11,625 Hours

Rockingham
1,174 Volunteers
34,827 Hours

Hillsborough
665 Volunteers
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To learn more, visit extension.unh.edu/volunteers

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"As an engineer, I was able to help students put together mousetrap cars and show how minor changes make real differences in the cars' performance."

-STEM DOCENT VOLUNTEER MICHAEL FAKE

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