



University of Maine  
Cooperative  
Extension  
**Cumberland  
County**



**Annual Report  
2020**



*Putting University research to work in homes, businesses, farms, and communities for over 100 years.*

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**Our annual report features highlights of recent accomplishments and the difference we make in the lives of Maine citizens and their communities.**

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## Office of the Dean

Welcome to the University of Maine Cooperative Extension! We are located across the state in 16 county offices, research farms, 4-H camps and learning centers, and online. We are the largest outreach component of the University of Maine and reach more Maine people than any other entity within the seven campus University of Maine System. Our work is focused on helping Maine communities thrive and we do so by connecting people to research-based information, education, and services. UMaine Cooperative Extension conducts the state's most successful out-of-school youth education program through 4-H, empowering young people to reach their full potential. Extension also helps support, sustain, and grow the food-based economy across the entire state of Maine. In addition, we partner with other organizations and programs to provide additional educational opportunities to a diversity of audiences across this state.



UMaine Cooperative Extension is determined to make a positive difference in our areas of excellence and beyond for the citizens of Maine. Explore our website, visit a county office, and contact our enthusiastic workforce.

— Hannah Carter, Dean

## University of Maine Cooperative Extension's Digital Presence and Pandemic Response

In 2020, University of Maine Extension's website at [extension.umaine.edu](http://extension.umaine.edu) – a composite of over 58 interconnected websites – received over 2.8 million pageviews. More than 50,000 followers followed or were subscribed to UMaine Extension's 58 county and program-specific social media accounts on Facebook, Twitter, YouTube, Pinterest, and Instagram. More than 93,000 web visits were referred from social media. More than 400 educational videos were available to visitors on our YouTube and Kaltura channels, or embedded in our web pages. More than 8,350 clients used our online registration system to register for classes, workshops, events, and more. In the wake of COVID-19, UMaine Extension quickly moved its workshops, classes, and events online. Between March 1, and December 31, 2020, unique pageviews on the UMaine Extension website increased nearly 30% over the same period of time the previous year.

- New resources were created and added to the website and social media, including COVID-19 support for Maine farmers, livestock producers, U-pick operations, cut flower and seedlings industries, and consumers.
- Weekly Zoom meetings allowed producers to share what was happening on their farms.
- New “Learn at Home” resources provided educational opportunities for parents, teachers, and youth during school closures.
- Horticulture and food preservation videos, webinars, interactive forms, and virtual office hours provided answers to an increased number of questions from home gardeners.
- A new interactive locations map allowed clients to find Maine farm and seafood products; the map has been viewed over 190,000 times since it became available to the public on March 20, 2020.
- With the closing of state and county fairs, the first-ever Maine State 4-H Virtual Fair was created to recognize 4-H'ers for their efforts on projects they completed and skills they gained over the past year.
- More than 180 online events were promoted through Facebook, which had a reach of 470,000 views and 11,7000 responses.
- Our popular Ask the Expert online form received 346 questions from Maine home gardeners between March 1 and December 31, 2020, nearly twice the number during the same period in 2019.
- 42 new publications were published specifically in response to the pandemic. These included: *Finding New Markets for Maine Farmers*, *Managing Garden Centers and On-Farm Seedlings Sales Safely in Maine*, *Best Practices for Washing Produce*, *Use of Sanitizers on Commercial Farms*, *Tips for Starting a Healthy Garden*, and *Maine Maple Tours: Guidance During COVID-19*. Extension typically publishes 22 new publications in a 12-month period.

## CUMBERLAND COUNTY – STAFF & BOARD

### Cumberland County Staff

**Brenda Bracy**, EFNEP Nutrition Education  
Program Community Education Assistant

**Sara Conant**, 4-H Community Education Assistant  
& Administrative Specialist

**Dana Dotson**, 4-H Communities, Youth, Families at  
Risk Grant Professional

**Becky Gray**, Agriculture & Horticulture  
Administrative Specialist

**Pamela Hargest**, Home Horticulture Professional

**Jason Lilley**, Sustainable Agriculture Professional

**Mitch Mason**, 4-H Youth and Family Development  
Extension Educator

**Kate McCarty**, Food Preservation Professional

**Kathy Savoie**, Nutrition Extension Educator

**Mary Wicklund**, Home Horticulture Community  
Education Assistant

### Cumberland County Extension Association Board

**Valerie Jones**, President, Portland, ME

**Theresa Kelly**, Treasurer, Pownal, ME

**Claire Schreiber**, Secretary, Portland, ME

**Lynda Murphy**, Windham, ME

**Hollye Seddon**, Cumberland, ME

**Jeremy Gould**, Pownal, ME

**Tim Schmidt**, Pownal, ME

**Andrea Herr**, Portland, ME

**Mia Cooper**, Cumberland, ME

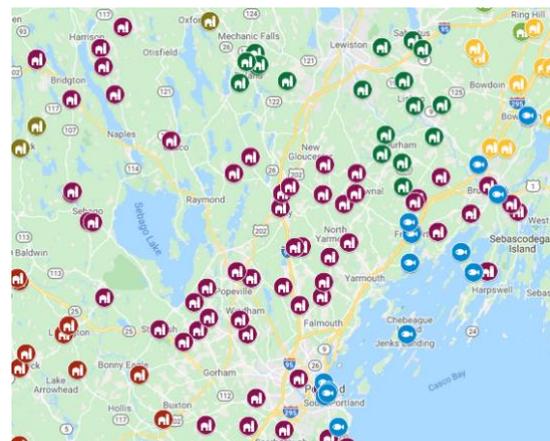
## COUNTY HIGHLIGHTS — SUSTAINABLE AGRICULTURE

**Jason Lilley**, [jason.lilley@maine.edu](mailto:jason.lilley@maine.edu)  
**Becky Gray**, [rebecca.gray@maine.edu](mailto:rebecca.gray@maine.edu)

The Sustainable Agriculture program develops and delivers educational programming and resource development for the agricultural community of Cumberland County. These resources serve to increase farm economic viability, safety, and environmental and community sustainability.

### Supporting Our Farms to Face COVID-19 Safely

The Sustainable Agriculture Program in Cumberland County was able to pivot quickly to support farmers at the onset of the COVID-19 pandemic. On March 19, 2020, this team launched the Maine Farm and Seafood Directory with the intention of highlighting our local farms to the public. The resource highlights what products farms have available and how consumers can access those products in COVID-safe ways. The directory lists 72 Cumberland County



*Farm and seafood sites listed on the Maine Farm and Seafood Directory.*

based operations, 491 producers throughout the state and has been viewed over 190,000 times.

This team also led efforts to create several COVID-19 guidance documents for farms producing and marketing seedlings, u-pick strawberries, u-pick apples, and fall maple events. In addition to the

written guidance documents, we offered highly attended webinars on each topic, and worked one-on-one with producers to help them develop COVID safety marketing and employee management plans.

### Program Overviews

- Organized 4 listening sessions for Cut Flower farmers to discuss their concerns, pivot strategies, and collaborative marketing. 62 participants.
- Trained 61 people on improved beekeeping methods.
- Supported the Maple Industry throughout Cumberland County and Maine, by offering the Maple Grading Schools, and workshops on safety in the sugarbush, and food safety with maple. Also supported their marketing strategies during COVID-19.
- Trained 17 beginning or perspective farmers on farm business and planning strategies, tools and resources. Those participants received “Borrower Training Credit” from the USDA Farm Service Agency.
- Collaborated with other Ag Service Provider Agencies to collect statewide survey data on drought impact on farms.
- Developed three rounds of surveys to assess how farms throughout the county and the state responded to the pandemic. Results highlighted market trends, farmer needs and stressors, labor management, etc.

### Workshops, Field Days, and Outreach

- Two-part workshop with Maine Mobile Health Partners and DACF on keeping migrant and season farm workers safe during the pandemic. 24 participants
- Cover cropping and planning for soil health. Virtual, 18 participants.

- Field day to demonstrate best-practices for u-pick apple operations during the pandemic. In-person, 49 participants.
- Livestock Nutrition 5-part webinar series in collaboration with Windham Butcher Shop. 76 participants.
- Develop and distribute bi-weekly farming newsletters to over 1500 recipients, including over 300 in Cumberland County. Topics included financial assistance and COVID relief, COVID safety resources, general farm safety, soil health topics, and upcoming events.

### Collaborating Agencies & Program Partners

AgMatters LLC.; Cumberland County Food Security Council; Maine Department of Agriculture, Conservation & Forestry; Maine Farm Bureau, Maine Organic Farmers & Gardeners Association; MB Tractor and Equipment; New York Center for Agriculture Medicine & Health; Northeast Cover Crop Council; Northeast SARE; Pennsylvania State University; Portland Arts and Technology High School; Portland Food Council; Southern Maine Maple Sugarmakers Association; Town of Gorham; USDA Farm Services Agency; USDA Natural Resources Conservation Service, and Windham Butcher Shop.

## COUNTY HIGHLIGHTS — HOME HORTICULTURE

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The Home Horticulture program administers the University of Maine Gardens at Tidewater Farm, Maine Harvest for Hunger program, and Master Gardener Volunteers program. The

Home Horticulture program provides community education, helps people identify plant and pest problems, and advises schools, community gardens, and businesses with best management practices for their gardening projects.

### UMaine Gardens at Tidewater Farm

The Gardens at Tidewater Farm provide agricultural and horticultural education as it relates to sustainable food production and ecologically compatible landscapes, while creating a community for gardeners of all ages and skill levels.

- We continue to collaborate with the Horticulture program at Southern Maine Community College:
  - Students grew the plants for our All-America Selections Display garden (an independent plant trialing and award program).
  - We hosted a few classes during the summer and fall semester.
- This year, in light of the pandemic, we experienced a higher than average number of visitors from the public.
- We grew over 1,000 pounds of produce for local food pantries in Cumberland County.

### Program Overview

- Improved food security through production, donation, and/or gleaning of garden and farm produce, by increasing the number of home gardeners, Master Gardener Volunteers, and local businesses growing and donating for the Maine Harvest for Hunger program (over 44,000 pounds of fresh produce was donated in Cumberland County).
- Provided virtual learning opportunities for Cumberland County residents and beyond by organizing 30 Garden Chats (1-hour informal webinars), 2 Invasive Plant Webinars, 2 Gardening for Wildlife Series (total of 8 webinars), and 12 webinars as part of our Summer and Fall Gardening Series.
- Developed educational resources for beginner gardeners, including 10 episodes of Victory Gardens for ME.
- Created a (virtual) Garden Mentorship Program for gardeners of all experience levels who were matched with Master Gardener Volunteers in their local area.
- Provided support to 65 trained Master Gardener Volunteers in Cumberland County who either volunteered in-person (after receiving approval for COVID-19 volunteering) or virtually during the pandemic.
- Distributed 500 seed packets and 900 seedlings to ninety-two families across six Portland Housing Authority sites.

- The home horticulture staff experienced more than double the number of gardening questions this year due to the pandemic and the increased interest in gardening. Provided information and assistance regarding sustainable gardening practices, soil testing information, and pest and plant identification.



### The Value of Volunteers

Sixty-five Master Gardener Volunteers were involved with a dozen projects and provided about 900 hours of service to the community. Projects included Maine Harvest for Hunger, creating educational resources, writing articles for the Maine Home Garden News, providing garden mentorship for residents, and much more. The volunteer service provided is valued at \$24,480.

### Collaborating Agencies & Program Partners

Cumberland County Food Security Council, Cumberland County Beekeepers Association, Cultivating Community, local farms and orchards, local libraries and businesses, local nurseries and greenhouses, Maine Audubon, Maine Department of Agriculture (Maine Board of Pesticides Control, Animal & Plant Health), Maine Forest Service, Maine Landscape and Nursery Association, Portland Housing Authority, Southern Maine Community College Department of Horticulture, town, school, and community gardens, and Wayside Food Pantry.

## COUNTY HIGHLIGHTS — 4-H YOUTH DEVELOPMENT

**Mitch Mason, [mitchell.mason@maine.edu](mailto:mitchell.mason@maine.edu)**

**Sara Conant, [sara.conant@maine.edu](mailto:sara.conant@maine.edu)**

**Dana Dotson, [dana.dotson@maine.edu](mailto:dana.dotson@maine.edu)**

### Program Overview

The 4-H Youth Development program provides high-quality educational experiences for Cumberland County

youth ages 5-18. 4-H in Cumberland County is the largest 4-H program in Maine with 372 children enrolled in 4-H community clubs. An additional 3,884 youth were in 4-H short-term educational activities or school enrichment programs. 4-H club programs are run by trained volunteers supported by 4-H staff. Young people in 4-H not only learn content about topics of interest, they also develop

important life skills through the program. 4-H delivers programming through a variety of local institutions including local 4-H clubs, short-term special interest clubs (4-H SPIN), libraries, after-school programs, and special events open to the public.

- 4-H Community Club program (twenty-two clubs)
- Four virtual County-wide events for 4-H Members
- Twelve Meet & Greet Mondays for 4-H families to stay connected during the Pandemic
- 4-H Face Mask Challenge donated 243 face masks made by 18 Cumberland County 4-H families Atlantic Health Systems.
- 4-H Family Support Project helped the New England American Arab Organization distribute gift cards (provided by Harvard Pilgrim) to 33 4-H families that do not qualify for the Tax Relief Act.
- 4-H Pledge Project to engage teen 4-H'ers to produce videos of the 4-H Pledge in French, Portuguese, Arabic, and Somali.
- 4-H Summer of Science trained ten teens and four college interns to make videos for home-based STEM activities.
- Six Virtual Maker Mondays with free supply kits
- Two Virtual Summer Special Interest Clubs; #EmpoweringMEandYou Mental Wellbeing & Exploring the Night Sky with free supply kits
- Research on the effects of Teens as Teachers
- Monthly 4-H newsletters to 258 families

#### **4-H Community Central**

4-H Community Central is a five-year project to prepare Cumberland County teens to find their career spark and develop the workforce skills necessary to realize their goals. The project is funded by USDA through the *Children, Youth and Families at Risk (CYFAR)* program. In 2020, the project conducted two 4-H clubs with 20 teens; the 4-H clubs learned about careers in Teaching and careers in Civic Engagement (including the law, government, and non-profit management).

#### **Summer of Science Remote Teaching**

UMaine 4-H provided 2,860 take-home science kits for Cumberland County children in 2020. The kits were a solution to the pandemic problem of no in-person teaching of youth. The kits, each fitting in a gallon size

bag, were distributed by libraries, Boys & Girls Clubs, Learning Works, and Summer Food sites. In addition to distributing take home science activities, UMaine 4-H trained 10 area teens to create YouTube videos that instructed youth with the kits to conduct the activity. Illustrated instructions were added to the kits to encourage parents to help conduct the science activities along with their children ([umaine.edu/4h/2020-virtual-summer-of-science/](https://umaine.edu/4h/2020-virtual-summer-of-science/)).

#### **4-H Healthy Living - #EmpoweringMEandYou**

#EmpoweringMEandYou lessons are a part of a state-wide, multi-year, mental wellbeing focused project, linked to the National Youth Summits on Healthy Living. Each lesson is designed by Maine 4-H youth, with assistance from Cumberland County 4-H staff, to be taught by and for middle to high school-aged teens. In 2020 the Maine 4-H Healthy Living Team taught their Stress Less and Don't Fall Into the Thinking Trap lessons virtually to a national audience of 150 youth and adults. Workshop participants reported an increase in their awareness of the effects of stress, capacity to cope with stress, and understanding of thinking traps. A majority of teens who participated on the Healthy Living Team reported a strong increase in their self-esteem, ability to communicate with a team, goal-setting, and critical thinking skills as a result of this project. Lessons can be accessed for free at: [umaine.edu/4h/healthy-living-curriculum/](https://umaine.edu/4h/healthy-living-curriculum/).

#### **The Value of Volunteers**

Eighty certified 4-H volunteers were involved with projects and provided over 9,120 hours of service. 4-H volunteers' projects included serving as club leaders, volunteering at countywide events, and serving on volunteer committees. The volunteer service provided is valued at \$260,284.80.

#### **Collaborating Agencies & Program Partners**

Boys and Girls Club of Greater Portland, Cumberland Farmers Club, Hannaford Supermarkets, New Gloucester Library, Portland ConnectEd, Portland Public Schools, Portland Out of School Time Network, Raymond Village Library, Shaw's Supermarkets, South Portland Schools, Tractor Supply Company, and YMCA of Greater Portland.

## COUNTY HIGHLIGHTS — FOOD & NUTRITION

**Kathy Savoie, ksavoie@maine.edu**  
**Kate McCarty,**  
**kate.mccarty@maine.edu**

### Program Overview

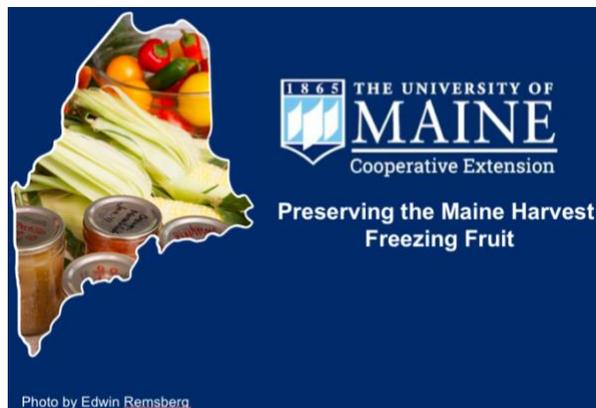
Over the past decade, interest and demand for local food and food preservation has continued to grow, due in part to economics and the public's interest to support a local food system. UMaine Cooperative Extension efforts seek to create a social shift towards a more educated and skilled public that will revitalize our local food system and positively impact the local agricultural economy through an increase in safely preserving local Maine foods at home to eat year round. As the “go-to” resource for food preservation and food safety education, UMaine Extension has responded to meet the needs of the public.

### Home Food Preservation Education

In 2020, as a result of the COVID-19 pandemic, UMaine Extension transitioned to a webinar format to meet the needs of veteran (35%), intermediate (20%), and beginner (45%) home food preservers. Webinar topics coincided with the Maine growing climate and featured a demonstration of the food preservation topic, pre-recorded instructional videos, and a Q & A session. Over 1,175 people, representing each county in Maine, 23 states, and seven countries, attended at least one of the 23 Preserving the Maine Harvest webinars offered. Webinar recordings posted to the webinar resources page have been viewed 3,798 times.

### Exploration of High-Risk Food Coping Strategies of Maine Food Pantry Clients

Many Americans today struggle to provide enough food for their household. Food coping strategies



(FCS) are behaviors adopted by individuals to obtain adequate food. Research conducted by UMaine prioritized FCS through a 46-item survey of food pantry clients (n = 566). Use of expired foods was identified as the most common (62.7%) high-risk FCS. Four focus groups consisting of 59 total individuals were conducted at Maine food pantries to investigate the FCS further. Results from the focus groups identified that food safety education at the point of acquisition of perishable and non-perishable food items could assist with decision-making to reduce risk for foodborne illness and unwarranted food waste.

### Expanded Food and Nutrition Education Program

The Expanded Food and Nutrition Education Program (EFNEP) provides limited-income youth and families with interactive education in homes, community groups, in schools, and through remote education. Annual Behavior Change Data\* confirms that of the 70 adult graduates (representing 242 family members), 89% improved their diet, 77% improved food resource management practices, 62% improved food safety practices and 71% improved physical activity behaviors. Of the 418 youth reached, 96% graduated from the program, 75% improved their nutrition knowledge and 56% improved food safety practices.

\* WEBNEERS FY20 Summary Report

### Collaborating Agencies and Program Partners

Local Housing Authorities, Crossroads for Women, public schools, adult education programs, local food pantries, partners of Good Shepherd Food Bank, Hannaford, Whole Foods Market, IDEXX, LL Bean, Maine Ag in the Classroom, and Maine Nutrition Council.



# FINANCIAL SUPPORT

## University of Maine Cooperative Extension Support for Cumberland County

Without statewide support, UMaine Extension would not be present in your county. Funds for projects are provided through the University of Maine, Federal Formula Funds, grants, contracts, and fees. Dollars from other sources support salaries and benefits for Extension specialists, county educators, Extension administration, computer equipment and networking, publications, postage, telephone, and travel.

### Statewide Extension Funding

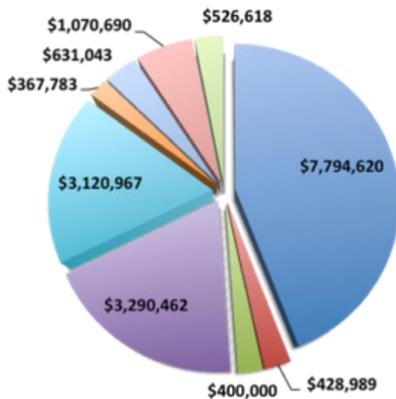
As a unique partnership among federal, state, and county governments, UMaine Extension uses funding from Maine counties and the University to match and leverage support from the United States Department of Agriculture, other federal grantors, state agencies and private foundations. Each county UMaine Extension office is also part of a statewide organization, and the national Extension system.

This pie graph illustrates the financial resources for programs offered, supported, and managed out of the Cumberland county office.

Cumberland County	2020
Local Salaries and Benefits	\$731,098
Prorated Support from UMaine*	\$435,866
Computer Equipment and Networking	\$3,077
Statewide Animal Diagnostic Lab	\$4,790
Marketing, Publications, Video	\$522
Local Programming Supplies & Expenses	\$26,469
Postage	\$855
Telephone	\$1,048
Annual Building Support	\$37,877
Travel	\$20,513
<b>TOTAL</b>	<b>\$1,262,115</b>

*\* Prorated support from UMaine reflects travel, postage, telephone, computer equipment & networking, salaries & benefits for administrative and state-wide staff.*

### Funding Levels by Source - 2020



Univ. E & G	\$7,794,620
MEIF	\$428,989
State of Maine - Diagnostic Lab	\$400,000
Grants & Contracts	\$3,290,462
Federal Capacity Funds	\$3,120,967
Gifts and Fundraising	\$367,783
County Funds	\$631,043
Income from Operations	\$1,070,690
4-H Camp Operations	\$526,618
<b>TOTAL</b>	<b>\$17,631,172</b>

# Cumberland County Government Support for UMaine Extension Cumberland in 2020

Each year, Cumberland county tax dollars support the UMaine Extension Regional Learning Center in Falmouth with physical office space, support staff salaries, office supplies, equipment, and some programming expenses to help us bring University resources to the vast population of Cumberland County.

<b>2020</b>	
Cumberland County Grant	\$135,000
<b>Total Income</b>	<b>\$135,000</b>
Salary	\$109,586
Office Rent	\$8,500
Insurance	\$347
Technology & Equipment	\$1,600
Janitorial & Building Maintenance	\$4,800
Equipment Contracts	\$3,622
Supplies	\$3,509
Program Support	\$3,036
<b>Total Expense</b>	<b>\$135,000</b>



## The County Extension Act

*The County Extension Act explains the role of county government in funding local Extension offices.*

Cooperative Extension work shall consist of the giving of practical demonstrations in agriculture and natural resources, youth development, and home economics and community life and imparting information on those subjects through field demonstrations, publications and otherwise. For the purpose of carrying out this chapter, there may be created in each county or combination of two counties within the State an organization known as a “county extension association,” and its services available to all residents of a county. The county extension is viewed as a unique and important educational program of county government. The executive committee of each county extension association shall prepare an annual budget as requested, showing in detail its estimate of the amount of money to be expended under this chapter within the county of counties for the fiscal year. The executive committee shall submit to the board of county commissioners on a date requested by the county commissioners, and the county commissioners may, if they deem it justifiable, adopt an appropriate budget for the county extension program and levy a tax therefore. The amount thus raised by direct taxation within any county or combination of counties for the purposes of this chapter shall be used for the salaries of clerks, provision of office space, supplies, equipment, postage, telephone, a contribution toward the salaries of county educators and such other expenses as necessary to maintain an effective county extension program.<sup>1</sup>

<sup>1</sup>Excerpted from Title 7, Chapter 7 of the Maine Revised Statutes, §191–§195.

# STATEWIDE HIGHLIGHTS— MAINE FOOD SYSTEM

## Tree Fruit IPM Increases Crop Value and Decreases Pesticide Costs

**Relevance** — Pest and weather are primary causes of significant damage to tree fruit crops. Tree fruit growers rely on UMaine Extension’s monitoring and management guidance to avoid or reduce pest and weather damage to crop quantity and quality.

**Response** — The Extension Tree Fruit IPM Program provides growers with regular newsletters, statewide field reports, research updates, weekly on-farm scouting visits, situational analysis, weather data resources, individual consultations, meetings, and webinars.

**Results** — In 2020, a survey that reached the majority of Maine commercial tree fruit growers and production found:

- 100% of growers benefited from the weather resources and decision support reports provided by Extension.
- 67% of growers benefited from the Extension orchard scouting program, and 96% of those growers reported benefiting from either an IPM presentation, in-person field visit, or telephone or email consultation.
- Growers estimate that crop value, either yield or quality, would have been 31% lower without the Extension Tree Fruit IPM Program. Extrapolating from the most recent USDA statistics for apple crop value in Maine, the value of crop losses prevented by the IPM program services is more than \$5.1 million per year.
- In addition to higher production value, Maine growers reported pesticide savings of \$436 per acre. Across the 2,688 acres of orchard in Maine, estimated pesticide savings in purchase costs was over \$1.17 million.

## Protecting Maine’s Layer Poultry Industry

**Relevance** — Maine has a poultry industry worth nearly \$39 million in 2020, with over 3.5 million layers. Of Maine’s 7,600 farms, many raise hens to sell eggs on a large scale (in which case, the FDA mandates testing for *Salmonella enterica* subspecies Enteritidis (SE)), for

home consumption, or to neighbors. In any case, testing for SE is a prudent plan.

**Response** — The UMaine Veterinary Diagnostic Laboratory’s (VDL) certified salmonella testing allows poultry farms to meet FDA standards for SE screening. Because the VDL provides FDA-mandated salmonella testing for medium- to large-sized egg producers in Maine, New Hampshire, and Vermont, these farms can operate within FDA’s Egg Rule. Recently, retailers such as Whole Foods have required smaller farms to meet FDA standards, and VDL testing has enabled these farms to gain access to a valuable market. In 2020, the VDL processed 1,107 environmental swabs for SE (none were positive), and tested more than 1,000 blood samples to confirm salmonella vaccination status.

**Results** — An ongoing cooperation between Extension, the state of Maine, and the layer industry consists of sharing results of SE screening, oversight of rodent control and barn hygiene on the farm (provided by the state and Extension veterinarians), and yearly meetings to discuss poultry health challenges (all entities). This protects public health via prevention of human salmonellosis (SE) that might be acquired through eggs. It is estimated that the cost to the egg industry of an SE outbreak could be greater than 10% of production.

## Supporting Home Horticulture

**Relevance** — Every day, Maine gardeners are deciding on whether and how to manage pests, what fertilizers to use and how much, what plants to grow, methods to cultivate the soil, and how to utilize water resources to maintain landscapes. Nearly every residential site has a landscape that requires maintenance. Decisions made at these sites can have a significant impact on our natural resources. Home gardener success also results in improved food security and has an economic role in our green industry.

**Response** — In 2020, UMaine Extension home horticulture programs directly reached more than 10,900 adults and 50 youth through over 130 hours of in-person and virtual education programs. Program staff answered more than 6,000 questions received via email, phone calls, and walk-ins, and reached 19,100



people indirectly through videos, newsletters, television segments, and publications.

**Results** — As a result of Extension programs, participants reported developing new, or expanding existing gardens; increasing their consumption of home-grown food; adopting sustainable gardening practices involving soil quality, improving efficiency, and adopting IPM strategies; and using Extension to identify pest problems and to determine research-based management strategies.

### Victory Gardens for ME

**Relevance** — In 2020, the pandemic created a significant increase in demand for home food production information, particularly from beginning gardeners. It simultaneously put a stop to UMaine Extension's ability to provide in person programming to support that interest.

**Response** — In response, Extension created a 10-part video series for Mainers growing their first vegetable garden, with episodes including Vegetable Gardening, Planning Your Garden, Preparing Your Garden Soil, Get Planting, Managing Weeds, How to Water Your Garden, What's Wrong With My Plant?, What to Do With Your Harvest, Pain-Free Gardening, and Preparing Your Garden for Winter. Extension also created an online series hosted three times a week called "Garden Chats."

**Results** — The Victory Garden series has had more than 5,000 views. In 10 weeks the Garden Chat series had 1,155 participants.

### Maine Farm and Seafood Products Directory Helps Consumers Find Vendors

**Relevance** — The onset of the COVID-19 pandemic created widespread fear about what would happen to the markets and businesses of Maine-based farmers. The nearly overnight shutting of restaurants and institutional markets (such as colleges and industrial campuses) and temporary closing of farmer's markets appeared to directly shut off farmers from the majority of their markets. This impacted farms and food-based businesses of all types and scales, including vegetable, meat, dairy, cut flower, seafood, and bakeries.

**Response** — In March 2020, an innovative farmer reached out to UMaine Extension for support in promoting a simple spreadsheet that she had created for seven neighboring farms. This sheet included their contact information, products available, immediate needs on the farm, and COVID-19 protocols that they had incorporated into their marketing strategies. Extension used our statewide networks and staff to expand on this idea, developing a process for farmers throughout the state to join the list, creating a website to promote the effort, and creating a public-facing map

and spreadsheet for viewing the farm information. The farm community saw the value of this marketing tool for connecting with direct-to-consumer sales, and quickly signed up.

**Results** — Within a month there were 405 farm and seafood vendors listed, and more than 100,000 views to the page. By the end of 2020 there were nearly 500,000 views. While the community demand for local food and direct-to-consumer sales has significantly increased as a result of the pandemic, farmers have attributed much of their new customer base this year to the popularity of this list. The directory has also assisted farms in finding complementary farms with which to build collaborative marketing systems. This transition of markets also includes farms that were primarily wholesale farms transitioning to marketing through established direct-to-consumer farms.

### Food Safety Extension Educators Develop and Offer First-Ever Virtual Seafood HACCP Training

**Relevance** — The 2011 Food Safety Modernization Act (FSMA) was a significant change to food safety regulations in the U.S., introducing a proactive rather than reactive approach to outbreaks. Two major rules impact farmers and food businesses in Maine and throughout the U.S.; the Produce Safety Rule, and the Preventive Controls for Human Food Rule. The overall goal of these rules is to make America's food system safer. For produce farmers, the impact of the changes is great because this industry has not been regulated as thoroughly before. Many farmers remain uncertain of how the regulations affect their work.

**Response** — In 2020, the pandemic created an increased demand for training and need to innovate to offer cutting-edge educational programs. UMaine Extension collaborated with Cornell University/New York Sea Grant to develop national and international guidelines for offering virtual seafood Hazard Analysis Critical Control Points (HACCP) training available through the national Seafood HACCP Alliance and Association of Food and Drug Officials (AFDO).

**Results** — Since being granted approval by these certifying bodies in April 2020, Extension led and delivered the first-ever virtual Seafood HACCP training in the world, and taught in seven additional training sessions, reaching 117 participants. Extension also facilitated a new FSMA Preventive Controls virtual training.

# STATEWIDE HIGHLIGHTS — 4-H POSITIVE YOUTH DEVELOPMENT

## QuaranTEEN Science Cafés Introduce Youth to Faculty Research

**Relevance** - As the number of jobs in Maine requiring post-secondary education or training continues to increase, providing opportunities for youth to explore and develop college and career aspirations is paramount to supporting the state's businesses and economy. Unfortunately, the number of Maine high school graduates enrolled in higher education lags at 40th in the nation. Although research recommends beginning to address college and career aspirations in elementary and middle grades, coordinating access to a college campus presents barriers for rural Maine communities.

**Response** - Maine 4-H staff connect youth to the STEM (Science, Technology, Engineering, and Math) resources of the University of Maine. We make these connections by bringing youth to campus, or engaging youth with students, faculty, and staff at their school/afterschool/club sites. In 2020, 4-H Virtual "QuaranTEEN" Science Cafés were developed as a way for youth to engage with UMaine scientists and engineers in an informal setting. The format included time for the guest scientist to introduce themselves, show some of their work, and share a bit about their pathway to UMaine. There was also time for informal questions from teen participants.

**Results** - More than 140 youth from Maine and 10 other states participated over the initial 11-week session. While the pandemic prohibited us from bringing youth to campus, this virtual program proved to be an accessible way for many youth to be introduced to UMaine and its programs, and resulted in a high level of student engagement. The program's success prompted Extension to host a second Science Café series in the fall.

## 4-H Summer Learning Series Provides Peer Connections & Teaching Mentorship, and Science & Leadership Development

**Relevance** - As a result of the pandemic Maine schools and community sites shut down and summer camps and traditional in-person summer programs were cancelled. Youth and educators were left struggling to find a way to connect with each other while remaining

physically apart. Maine youth were feeling isolated, alone, and without a sense of purpose.



### **Response** - UMaine

Extension responded with a statewide team of 35 staff and 28 volunteers who launched a 4-H Summer Series of virtual learning programs for youth, offering 85 unique workshops over the summer. Topics ranged from squid dissection to citizen science and leadership development. The series attracted 127 youth, and had participation from all Maine counties. The virtual program reduced barriers and allowed participants, presenters, and staff to collaborate in ways not typically accessible.

**Results** - Participants reported they enjoyed learning about new and different topics. Parents said that the 4-H Summer Learning series provided a sense of peer connection that was missing because of the pandemic. For many presenters this was their first time teaching in a virtual setting, and one expressed gratitude "for the opportunity to teach virtually and practice with an experienced and confident mentor," and said they "enjoyed seeing students learn, engineer, and be creative."

## 4-H Volunteers Go Virtual to Help Youth Thrive in the Pandemic

**Relevance** - As the pandemic progressed there was widespread concern for youth who were experiencing isolation and loss of daily routine and social outlets. 4-H is well-positioned to help families reduce isolation and increase social interaction, and while it could not be done in person, it could be done with virtual platforms programming. "4-H can build intentional programs for youths as we move from reaction to recovery and rebuilding...ensure that young people not only survive but thrive in this time like no other" (Arnold and Rennekemp, 2020). To help youth to thrive, UMaine Extension staff recognized it would be crucial to have confident and capable volunteers on board. However, many 4-H club volunteers were not confident in adapting from in-person to virtual programming.

**Response** - Extension created a collection of six tip sheets: *4-H Volunteers Can Go Virtual!* The tip sheets and embedded videos provided tangible ideas to help volunteers navigate how to set up and run virtual meetings. Topics included:

- 1) Tips for Hosting a Virtual 4-H Club Meeting
- 2) Components of a Virtual 4-H Club Meeting
- 3) Ice Breaker Ideas for Virtual 4-H Club Meetings
- 4) 4-Hing at a Distance Activity Ideas

- 5) Virtual Judging Workshop
- 6) Virtual Skill-a-thon

**Results** - These resources were widely shared through a variety of means, including a website that has received more than 5,206 views from individuals located across 44 states and 16 countries.

### Web-based Resources for Families, Caregivers, and Educators

**Relevance** - The pandemic caused Maine schools to close and left families and children with huge gaps in daily structure and educational experiences.

**Response** - UMaine Extension responded by creating a web-based resource center for families, caregivers, and educators. A collection of activity books, guides, and resources were assembled with topics ranging from science to financial literacy, to help children remain engaged in educational experiences throughout the time period of school closures. The resources were arranged by age range and subject area for easy searchability. There was a daily schedule of video clips to engage youth and families in additional learning:

- Mondays - Stir Together (nutrition)
- Tuesdays - Teen Science Cafe (science)
- Wednesdays - Wednesday in the Woods (environment and arts)
- Thursdays - Growing Maine Gardeners (gardening)
- Fridays - 4-H Friday Fun (creativity & STEAM)

**Results** - In just over six months the website “Learn at Home: Educational Resources to Use During School Closures” had more than 11,100 page views, and the educational video clips had over 8,100 views.

### 4-H Summer Camp and Learning Centers Connect Youth to the Outdoors and Build Community

**Relevance** - Research has shown that positive social and emotional learning experiences can significantly impact youth development and that connecting youth to a positive adult role model decreases the risk for making unhealthy choices or engaging in risky behaviors. With youth spending more time connected to social media and other digital platforms, resulting in isolation and sedentary indoor time, many youth suffer from obesity and/or ADHD, and some lack opportunities to develop positive interpersonal communication skills.

**Response** - In 2020, given the pandemic, staff pivoted to find alternative programming both for youth and schools. The initial focus was on 1) designing and

offering virtual environmental programming, 2) serving as a location for local K-12 schools to provide outdoor classrooms to help them meet social-distancing needs, and 3) providing essential community services related to pandemic response. Later in the year in-person programs were increased, incorporating new safeguards and delivery models.

**Results** - In 2020, the 4-H camp and learning staff innovated by:

- Providing 75 middle school youth from St. George with daily education programs at Blueberry Cove.
- Providing 125 primary school youth and teachers from Belfast with weekly educational programs at Tanglewood, where they learned about ecology and seasonal changes while exploring the woods each week. 4-H staff created successive lesson plans and videos for teachers.
- Developing family-oriented programming to provide parents and teachers with hands-on, home-based learning experiences.
- Recorded “Wednesdays in the Woods” series of 44 virtual lessons connected to ecology, observation skills, nature crafts, and personal reflection. This series had over 10,800 views.
- Continuing to support Telstar Freshman Academy at Bryant Pond, offering daily, yearlong, experiential learning designed to engage students in an outdoor setting.
- Continuing at Bryant Pond to deliver the NorthStar Youth Mentoring program that connects young people with caring adults through community engagement, cultural exchange, and adventure, challenge, and leadership.
- Building a fall program at Bryant Pond that allowed the county’s two largest school districts to expand on their open-air classroom spaces. This involved retrofitting buildings, designing two independent health center units with quarantine rooms, and delineating footprints and plans to provide a safe and clean space for students.
- Supporting community pandemic relief efforts. Extension staff at Bryant Pond and Blueberry Cove identified food insecurity as a pandemic-related need. The camps became staging areas for receiving, repackaging, and delivering essential food to food pantries and food banks. Staff were able to move large quantities of food quickly to areas identified as high demand/need for food. These efforts reduced exposure risks to an aging population by door-to-door delivery, relieved the stress on regional food banks, and supported food-insecure families.

# STATEWIDE HIGHLIGHTS —

## Sustainable Community and Economic Development

### Reducing Obesity in Youth

**Relevance** - In 2020, the U.S. youth obesity rate was 14.9%. It is estimated that more than half of today's children will be obese by the age of 35 if current trends continue. Nearly 20% of Maine children are food insecure, and Maine ranks 17th in the nation for child food insecurity. Rising childhood obesity rates coupled with poor dietary intake will strain current health promotion programs, continue to raise health care costs for the nation, and shorten the lifespan of today's youth.

**Response** - To help lower childhood obesity rates, UMaine Extension Expanded Food and Nutrition Education Program (EFNEP) provides direct education to Maine's low-income children to build their knowledge, behaviors, and attitudes related to improving diet quality, increasing daily physical activity, and using food resource management practices to learn how to plan and shop for healthy meals and snacks. Program outcomes are measured for all youth ages 5-18 using validated pre/post program surveys.

**Results** - In 2020, 2,563 youth participated in Maine EFNEP. Youth participated in an average of five classes over a time frame of three months. Sixty-four percent of youth participants completed a pre- and post-survey. As a result of participating in EFNEP:

- 76% of youth improved their abilities to choose foods according to current dietary guidelines or improved nutrition knowledge.
- 32% of youth improved their daily physical activity practices.
- 57% of youth used safe food handling practices more often.
- 44% of youth improved their ability to prepare simple, nutritious, affordable food.

### Improving Food Security and Diet of Parents and Caregivers

**Relevance** - According to USDA, 13.6% of the Maine population experienced some form of food insecurity in 2018, which is a higher rate than the national level of food insecurity of 11.7%. With food insecurity comes greater health disparities among populations. Overweight, obesity, sedentary lifestyles, and poor diet

quality are predictors of many chronic diseases. In Maine, 30.4% of adults are obese. One of the most common and preventable risk factors for premature death is consuming too few fruits and vegetables. In 2017, 31.4% of Maine adults consumed fruit less than one time per day and 12.4% of Maine adults consumed vegetables less than one time per day. The combination of high rates of food insecurity and obesity of Maine adults will continue to strain current health promotion programs and continue to raise health care costs for the state and the nation.

**Response** - To improve the food security and the diet of Maine's low-income parents and caregivers, UMaine Extension implements direct education through EFNEP. Program outcomes are measured for all adults using validated pre/post program surveys.

**Results** - In fiscal year 2020, 518 adults participated in Maine EFNEP, and the education reached a total of 2,157 individuals in the program families. Of the 518 adults, 252 completed pre- and post-surveys. As a result of participating in EFNEP:

- 38% eat fruit more often each day
- 38% eat vegetables more often each day
- 23% drink soda less often
- 38% make small changes each day to be more active
- 40% thaw frozen food at room temperature less often
- 37% plan meals before shopping more often
- 27% make a list before shopping more often.

These small steps taken together and modeled for their children help to improve participants' and families' long-term health and reduce their health care expenditures.

### Maine Harvest for Hunger: Support for Food-Insecure Citizens

**Relevance** - Maine has the highest rate of food insecurity in New England, and ranks 12th in the nation. The USDA estimates that 13.6% of Maine households (over 182,000 individuals) are food insecure. Furthermore, nearly 1 in 5 children are food insecure and 23% of Maine seniors are experiencing marginal, low, or very low food security. In 2020 the pandemic drove a 40% increase in the state's food insecurity rate. Thirty-seven percent of food-insecure people do not qualify for food assistance or other government programs. It is especially challenging for food-insecure people to afford high quality, fresh, nutritious food, and donations of fresh produce to Maine's emergency food system have declined significantly in recent years.

**Response** - Since 2000, UMaine Extension's Maine Harvest for Hunger (MHH) program has mobilized gardeners, farmers, businesses, schools, and civic groups to grow, glean, and donate high quality fresh produce to food pantries, shelters, and community meal sites throughout Maine.

In early 2020, even with restrictions in place due to the pandemic, over 100 Master Gardener Volunteers grew, harvested, and distributed thousands of pounds of fresh produce from the safety of their own home gardens. Once protocols and a training module were in place, Extension trained MHH volunteers so they could safely resume in-person gleaning in small groups. Said one volunteer, "I was so grateful to Cooperative Extension for keeping us safe during COVID-19, while helping me feel that I was still contributing to my community in meaningful ways."

**Results** - By the end of the 2020 growing season, 545 Master Gardener Volunteers, farmers, and members of the public grew, gleaned, and distributed 92,482 pounds of fresh produce, valued at \$156,294, to 219 food pantries, soup kitchens, and meal sites throughout the state. Extension staff and volunteers supported the development of collaborating gleaning organizations such as the Maine Gleaning Network, Merry Meeting Gleaners, and Maine Mid Coast Gleaners. Our MHH harvest donations this year combined with the donations of our collaborating partners to allow us to meet the additional need for fresh produce created by the rise in numbers of food-insecure Mainers during the pandemic. Since 2000, MHH participants have distributed more than 3.1 million pounds of food to citizens grappling with hunger.

### Parent Education Program Promotes Early Screening and Intervention for Developmental Delays

**Relevance** - The first three years of a child's life are a critical time for growth and development. Early identification of developmental delays and subsequent referrals to appropriate early intervention services are essential to reduce the long-term impacts. Developmental delays, learning disorders, and behavioral and social-emotional problems are estimated to affect 1 in every 6 children. Only 20-30% of these children are identified as needing help before school begins. Intervention before kindergarten has huge academic, social, and economic benefits. Studies have shown that children who receive early treatment for developmental delays are more likely to graduate from high school, hold jobs, live independently, and avoid teen pregnancy, delinquency, and violent crime, which results in a savings to society of about \$30,000 to \$100,000 per child.

**Response** - UMaine Extension Parent Educators work from two offices covering five counties, and are part of a statewide network of the Maine Families Home Visiting Program. In 2020, 10 certified parent educators provided 1,686 home visits to 192 parents with 187 children living in four counties. Using the Parents as Teachers model, parent educators met with families in their homes and then virtually due to the pandemic. They:

- provided families with current information on child development and parenting
- shared activity ideas and ways to engage and nurture children's optimal development
- provided connections and linkages to community resources.

**Results** - Over 90% of children enrolled had a timely screening for developmental delays (91% in Knox-Lincoln County and 98% in Waldo County). In cases where a delay was discovered, 100% of those children were successfully referred and connected with local intervention programs for further developmental evaluation and services. All of the families who completed the annual parent survey reported Maine Families helped them understand their child's growth and development.

### Homemakers Promoting Community-Based Adult Education

**Relevance** - Extension Homemakers is a volunteer group that develops leadership skills, supports community causes, and promotes UMaine Extension's educational programs in seven Maine counties. These organized programs are part of the statewide network of Extension Homemakers. Local group members meet throughout the year to participate in educational programs and identify community projects on which to focus, such as providing assistance to local food pantries, nursing homes, or veterans groups, or funding educational scholarships or youth camp programs.

**Response** - In 2020, more than 400 Extension Homemakers from Aroostook, Cumberland, Franklin, Hancock, Oxford, Somerset, and York Counties have had the opportunity to learn with others, make friends, and contribute to their local communities as well as to the State of Maine. Many Extension Homemakers donated their time, money, and materials to numerous community agencies and projects. Homemakers from about 40 local Extension Homemakers groups met and delivered or engaged in Extension programming involving more than 1,950 participants and 230 programs, including food; nutrition and health; gardening and environmental; financial planning; personal growth; and cultural and creative arts.

**Results** - In many Maine counties, Extension Homemakers remain a traditional and vital part of the

community fabric. They also provide direct and indirect benefits in terms of volunteer hours, fundraising, and material donations. In 2020, the total estimated monetary value of the Extension Homemaker program to their communities was more than \$286,000.

### Maine Ocean and Coastal Acidification Partnership Advises on State and Northeast Strategies

**Relevance** - Ocean and coastal acidification (OCA) is highly variable at local scales, as it is influenced by local hydrologic and oceanographic conditions and nutrient pollution. It is therefore essential to conduct coastwide sampling to identify areas of relative vulnerability and resilience to OCA that may inform strategic and sustained efforts over time.

**Response** - Since 2018, through a project supported by the NOAA Ocean Acidification Program, Maine Sea Grant and UMaine Extension have worked with

NOAA staff, UMaine researchers, and other partners to develop and implement a northeast regional strategy for coordinated ocean and coastal acidification monitoring and related education and training activities. The Maine Ocean and Coastal Acidification (MOCA) partnership is a voluntary network of 220 people led by a seven-member steering committee coordinated by Extension, and a 38-member advisory group. MOCA's membership includes scientists, fishermen, aquaculturists, advocates, legislators, and concerned citizens. MOCA works together to understand the impacts of ocean climate change on Maine's marine waters, economies, and communities and to implement the recommendations of Maine's Ocean Acidification Study Commission.

**Results** - In 2020, MOCA shared "An Action Plan to Address and Adapt to Ocean Climate Change in Maine" with legislators and the Maine Climate Council, and has continued to play a role in advising state strategy.

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