Local Partnership

The partnership between the University of Maine, County Governments and the county Extension Associations has endured for over a century. As the needs of the people of Maine have changed, so has Cooperative Extension. We are committed to helping Maine succeed across our spectrum of programming. However, success is best achieved by collaboration with the people, businesses, organizations and communities that we work with. Extension is a reflection of the locally identified needs that form the basis for the educational programs that are offered statewide.

The county report is an important way to share the work that has been happening locally and statewide. This report is also an important way that the county Extension Association documents accountability for the investment of funds from County Government. We are very pleased to share this report with you and encourage you to contact your local office with questions or for more information on anything in this report.  

-John Rebar, Executive Director

Waldo County Extension Association

Katy Green, President
Eric Rector, Vice President
Mary Ann Hayes, Secretary
Anne Rothrock, Treasurer

Ken Clements
Anne Devin
Theresa Gaffney
Jodie Martin
David McDaniel
Anna McGalliard
Matthew McKillop
Samara Santiago

Waldo County Staff

Sónia Daniel O. Antunes, administrative specialist
Alicia Greenlaw, parent education professional
Rick Kersbergen, Extension educator, sustainable dairy & forage systems
Viña Lindley, food systems/youth development professional

Wesley Neff, parent education professional
Billiejo Pendleton, administrative specialist
Diane Russell, parent education professional
Joyce Weaver, 4-H program aide

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

Our annual report features highlights of recent accomplishments and the difference we make in the lives of Maine citizens and their communities.
AGRICULTURE AND
NATURAL RESOURCES -
Research & Education

Cover crop & no-till corn silage production

Rick Kersbergen continued his research and education efforts working on increasing the acreage of no-till corn and the use of cover crops with dairy farmers throughout the state. Research results (including those from farmers in Waldo County) indicate that adoption of this growing technique saves over $50/acre in time and money, by reducing costs and improving profitability. Cover crop and no-till adoption is a proven way to reduce environmental impacts from farm operations. In 2017, additional Waldo county dairy farms participated in trials initiated with help from a Conservation Innovation Grant funded through the Natural Resources Conservation Service. Three additional farmers substantially increased cover crops and invested in no-till planters. It is now a common sight to see green fields in the fall and spring where corn was grown in the summer.

Dairy Research

Organic dairy farmers are now challenged with lower milk prices, as are conventional dairy farmers. Extension works to help producers by conducting research on ways to cut expenses and manage high feed bills. In 2017, Kersbergen collected economic data from 38 Maine dairy farms as part of the Dairy Cost of Production study that supports the Maine Tier program (a price support program for Maine dairy farmers). Work also continues through organizations such as the Maine Organic Milk Producers (MOMP) to facilitate educational programs and marketing efforts.

Corn Silage Variety Trials

Now in the 14th year, the state corn silage variety trials are managed by Rick Kersbergen and Caragh Fitzgerald. This research represents some of the best corn hybrids available to growers in Maine. The data resulting from this project is critical for producers who now spend significant amounts of operating capital each spring on corn seed. Making informed decisions about hybrids that perform well in Maine conditions is crucial to profitability. Differences found through simple hybrid selection can make a huge difference in the amount of purchased grain dairy farmers need to buy and greatly influences milk production on the farm. In 2017, additional plots were planted to evaluate several other crops in addition to corn silage, including forage sorghum, sorghum sudan and millet. A research grant was funded that will allow for research in 2018 on interseeding cover crops into growing corn as a way to get better establishment and improved soil health. A video about cover crops and no-till corn was produced. www.extension.umaine.edu/agriculture/soil-health/no-till-and-reduced-tillage

Tractor and Farm Safety Courses

Since agriculture is one of the most hazardous occupations, UMaine Extension in Waldo County offers a tractor and farm safety class for youth and adults each year in cooperation with Ingraham Equipment in Knox. The class is designed for youth 14-16 to earn certification so as to be able to work on a farm and use tractors as part of their employment. In 2017, twelve students graduated from the class. In addition, safety classes are organized and presented to MOFGA apprentices, employees of Johnny’s Selected Seeds and students at Kennebec Valley Community College. In 2017, Kersbergen received funds from Bassett Hospital in NY to expand farm safety education programs. Displays and presentations were made at Maine Farm Days and several other events in 2017 including the Agricultural Trades Show in Augusta.

Ag Education Programs and Partnerships

Extension in Waldo County partners with agencies such as the Maine Organic Farmers and Gardeners Association (MOFGA) and producer groups such as the Maine Grass Farmers Network (MGFN) to coordinate educational programs such as pasture walks, and the Farmer-to-Farmer conference. Extension also hosts the website for MGFN www.umaine.edu/livestock/mgfn and organizes their Annual Grazing Conference held in Fairfield that draws over 150 participants.
Rick works closely with the Maine Organic Milk Producers (MOMP) and helps provide educational programs and a unique equipment-sharing program. Organic dairy farms now make up over 30% of all dairy farms in Maine.

Small farmers continue to call the office for assistance. Some of these are to explore new opportunities in agriculture and others are to try and solve problems. Extension helps to run the Beginning Farmers Resource Network (BFRN) www.umaine.edu/beginning-farmer-resource-network that helps new and developing farm operations to find educational resources throughout the state. New livestock as well as vegetable operations are starting up in Waldo County as a result of a renewed interest in local foods and healthy lifestyles.

UMaine Extension in Waldo County hosts the Maine Hay Directory, which serves as a resource for farmers marketing hay as well as those animal owners in need of feed www.extension.umaine.edu/ Waldo/hay.

State and National Representation

Rick Kersbergen serves on several state organizations and holds leadership roles. He has served on the State Nutrient Management Review Board since 2000. Rick is a cooperating member in the Department of Animal & Veterinary Science at UMaine. In addition, he is on the agriculture and forestry technical committee for Maine Technology Institute.

State Specialists working with Waldo County Agriculture

Agricultural programing in Waldo County is assisted by state specialists who provide valuable assistance to farms and natural resource based. One example of this includes Gary Anderson, State Dairy Specialist who has worked with numerous dairy farms solving milk quality issues and helping to do financial planning and farm transitions.

Dairy Grazing Apprenticeship Program

In 2017, Rick Kersbergen continued his role as the Education Coordinator for the Dairy Grazing Apprenticeship Program in Maine and Vermont. This is a federally approved Department of Labor (DOL) Apprentice program that pairs “Master” farmers with apprentices for a 24 month apprenticeship. Rick coordinates educational opportunities for apprentices and manages the program for Masters in Maine and in Vermont.

Currently there are 5 Master farmers in Maine, with 5 apprentices. This project is in cooperation with Wolfe’s Neck Center for Agriculture and the Environment in Freeport and Stonyfield Yogurt in New Hampshire.

HORTICULTURE

The Master Gardener Volunteer program in Knox, Lincoln & Waldo Counties provides over 50 hours of training in the art and science of horticulture. In return, Master Gardeners volunteer at school, community, and public gardens, conduct educational programs, and support Maine Harvest for Hunger - Extension’s food security initiative. MGVs reported over 4,679 hours of volunteer work in 2017.

Home and Community Client Calls

We received over 428 calls, emails and in-person visits from home, school and professional gardeners. Topics included identification and control of invasive plant and insect species, management of plant diseases and pests, growing advice for vegetables and ornamentals, and help with problems related to drought.

Callers are given information from UMaine Extension’s Garden & Yard website www.extension.umaine.edu/gardening and help from
specialists. Clients receive research-based information focusing on integrated pest management reduced use of pesticides and fertilizers for more sustainable landscapes.

Pruning the flowering crabapple allée at Belfast City Park, which is cared for by Master Gardener Volunteers and the Belfast Garden Club

Resources for Gardeners:

UMaine Extension Garden & Yard:
www.extension.umaine.edu/gardening

- Maine School Garden Network:
  www.www.msgn.org
- Maine YardScaping:
  www.maine.gov/dacf/php/pesticides/yardscaping

Liz Stanley
UMaine Extension Community Education Assistant
eлизabeth.stanley@maine.edu

FOOD SYSTEMS PROGRAMMING

FoodCorps

A national program, FoodCorps has service members in 18 states and hundreds of schools across the country who teach kids about the importance of healthy food, engage students with hands-on nutrition and garden education, and increase local food purchasing in school cafeterias while promoting school lunch. In 2017 supervision of Maine’s statewide FoodCorps program continued from the Waldo County Extension office, under the direction of Food Systems & 4-H Professional Viña Lindley.

Of the twelve service members located in the state of Maine, two were based in Waldo County in 2017—one member at the schools of RSU3 and one serving at Tanglewood 4-H Camp & Learning Center, reaching schools in Lincolnville and Northport.

In 2017, service members spent a total of 1460 hours in schools in Waldo County where they taught lessons, tended school gardens and helped promote healthy eating. From the gardens at their schools, service members harvested 219 pounds of produce - 40% was cooked,
tasted, or eaten with students, 46% was donated, 11% was served in school cafeterias, and the rest was given away to school staff. These service members achieve their success with support from the community. In 2017 they engaged 73 volunteers who contributed a total of 246 volunteer hours. FoodCorps is leaving a lasting impact on the lives of students in our community. When students at Walker School in Liberty were asked what impact FoodCorps programming had in their lives they had a lot to say.

Caleb Mack said, “I think we should have more time to go outside and plant some fruits and veggies for our greenhouse. I love the greenhouse because I want strong and healthy people in the program.”

A fellow student, Blair Barnard pointed to how the school garden and FoodCorps are helping change students’ eating habits: “When I was little all I could eat was chips and soda, so I got chubby. Today I’m healthy because I went to Walker School and they have a garden, gym and other things.”

Dakota Freeman talked about a harsh reality for a number of Waldo County families, when she said, “Some of the students here at Walker School don’t have enough to eat at home, so they depend on the school for food.”

Having a FoodCorps member at Walker School has helped grow a strong program and increased students appreciation for nutritious, fresh foods but 2017 was the last year that FoodCorps would have a member based in RSU3. Students, staff and families rallied to keep the programming going; successfully convincing the school board to add a position at the district level to keep garden education part of the curriculum. Originally the request was for an Ed Tech position but the school board voted that down in favor of a full time certified teacher position. This demonstrated commitment to continuing the program is a huge success and RSU 3 is being held up as an exemplary program on the national level.

**WALDO COUNTY 4-H**

4-H is a positive youth development program where youth partner with caring adults to explore areas of interest. 4-H provides the flexibility in planning activities and projects for youth throughout the county. There are several ways youth ages 5-18 can participate in 4-H: in school, afterschool clubs, traditional clubs and camps. In 2017, Waldo County had 44 youth enrolled in 4-H with 26 volunteers. Through our UMaine Extension and 4-H programs, over 250 students were connected to a positive youth development learning experience in 2017.

**Waldo County Public Speaking Exhibition**

The Waldo County Speakers Tournament is an annual event hosted by The GameLoft and sponsored by the Waldo County 4-H Leaders Association. The speakers’ event is free and open to current 4-H members. 4-H members from traditional clubs, independent members and afterschool program members present either a demonstration or short illustrated talk. Participants with top scores have an opportunity to compete at the state 4-H public speaking contest held annually in April, at the University of Maine campus in Orono. Top scorers then become part of the Maine 4-H Communication Team who go on to the regional Eastern States Exposition [known as the Big E] in September. These youth serve as Maine 4-H Ambassadors who educate the public how 4-H activities and projects help youth grow into caring, confident, competent, connected and contributing civic leaders – now and in the future.

**Citizenship Washington Focus (CWF)**

Every summer, high school students from across the country travel to Washington, D.C. to participate in Citizenship Washington Focus, CWF is an opportunity for 4-H’ers to learn how to be citizen leaders and make a difference in their communities.

The Waldo County 4-H Leaders Association Live 4-H Auction fundraiser makes 4-H Programs, like CWF, possible for county youth. As a result of this support, 14 county youth have participated in 4-H educational trips from 2012-2017. CWF educational trip is valued at $1300 for each Maine 4-H Delegate.

Special thanks go out to our generous businesses and individual donors who continue to support our Annual Live 4-H auction - making this a successful fundraising event with all monies raised supporting 4-H programs like CWF. Our Maine 4-H Foundation also provides financial support including the cost of the chartered bus making this trip more affordable for 4-H youth.
Meet Some of Our Inspiring Waldo County 4-H Youth

Emma Mehuren - Independent 4-H Member

Emma Mehuren, is a 4-H Independent member in Waldo County. Emma enjoys showing dairy at Maine Agricultural Fairs. Emma respectively won grand champion in Dairy showing at the Union Fair. She also won overall at Bangor State Fair.

Emma is a high school senior this fall with aspirations attending college at the State University of New York College of Agriculture and Technology at Cobleskill. Cobleskill is a comprehensive college offering degrees in agriculture and technology; business and computer technology; culinary arts, hospitality and tourism; early childhood; and liberal arts and sciences. Emma will graduate this June from Belfast Area High School.

Abigail Smith - 2017 Citizen Washington Focus (CWF) Delegate

Abigail has been a 4-H Independent member for two years. She is the oldest of 9 children, and enjoys public speaking, and baseball. Abigail represented our Maine 4-H Program as a CWF Delegate. Abigail shares that CWF has been a changing experience. “I expected to learn and to grow perhaps, but in fact I have changed in ways I did not know I ever would. A major theme for me was respect. Every day, I was surrounded by people from different places, and backgrounds, who held different views and opinions.”

“Because government and politics is the central theme of CWF, I would often disagree with others on political issues and topics. But while we disagreed it always remained a respectful environment, and I was taught that regardless of personal beliefs and opinions, we all have something beneficial to bring to the table, and as human beings who hold a common dignity, we are all deserving of respect.”

Abigail is in a transitioning year as she graduates this June completing her Homeschool School Work. As she discerns what her next journey will be, Ms. Smith has recently been hired as a new staff person being employed at our UMaine Extension 4-H Camp & Learning Center at Tanglewood, in Lincolnville. Welcome aboard Abigail!

Jeremiah King - 2017 CWF Delegate

“Everyone had a really good time on this trip. I enjoyed meeting the people from all over the country but I especially liked the Maine delegation. I was proud to be with them. My favorite part of the trip was seeing the monuments. I had been to Washington, D.C. before but we spent most of our time at the museums. I really enjoyed the chance to walk around the capital and see the beautiful architecture. I liked the way the buildings don’t tower above you but you can really appreciate each one.”

“Another thing I really enjoyed was the dinner theater. We saw Joseph and the Amazing Technicolor Dream Coat. When Pharaoh came out dressed like Elvis the whole crowd went wild. It was hot but I realized that it would be before we went. I liked the 4-H hotel because the rooms were big and comfortable. The food was fine but some people found it tempting to eat too much junk food. We certainly were never hungry. I would advise people going on next year’s trip to sleep on the bus because there isn’t much time to sleep on the trip; we were busy every moment. It was a fantastic trip and I am so glad I went.”

Jon Landers - 2017 CWF Delegate

“My favorite part of the trip was the people I met. I even got to be an honorary member of the Ohio delegation! There were no cliques in this group. We got to hang out with everyone and everyone was great. I think I took a photo of every member of the trip, I must have a gazillion photos. I have one regret about the trip, though, and that is that I didn’t sign up for the talent show. Jeremiah did and he was an amazing Uncle Sam, really funny. I made some friends on the trip and we are getting together in Farmington later this summer to discuss respect for people and monuments in the nation’s capital. All the CWF people were respectful but other visitors were not. I think people need to feel more reverence for the capital.”

“We also wrote four bills while we were at CWF but we were so busy that we didn’t have a chance to pass all four. There was always something to do and never enough time to finish everything. I hadn’t really be aware of the range of things 4-H does across the country and I am pleased to be part of 4-H after-school. The whole trip was awesome and I am so glad I went.”

Jon Landers and Jeremiah King agree that the 2017 CWF trip was fantastic! Both are seniors in high school and will
graduate this coming June. Jeremiah and Jon are members of the Game Loft afterschool program. The GameLoft is a non-traditional 4-H program, located in Belfast and with a satellite site at the Mt. View Complex, in Thorndike.

Both Jon and Jeremiah thank the Waldo County 4-H Leaders Association for helping them go on this trip.

Meet Our Clubs & Partner Programs

RSU # 20 Afterschool Program

The RSU # 20 Afterschool Program has a long-standing partnership with the University of Maine Cooperative Extension in Waldo County. Through the 4-H collaboration, students have been able to participate in the National Youth Science Day experiment. In 2017 the theme of the experiment was Incredible Wearables - where youth got to try their hand at programming wearable technology, joining thousands of other young people around the world who take part in this National 4-H sponsored annual activity.

Later in the year Maine 4-H STEM Ambassadors program came to the afterschool program and provided six sessions using STEM based curriculum. 4-H STEM Ambassadors are trained University of Maine students who facilitate hands-on science, technology, engineering, and math (STEM) activities with youth 8–14 years old throughout Maine. Site leaders and assistants also took advantage of some of the many 4-H Science Kits available for borrowing to further youth learning at their site.

The GameLoft Afterschool Program

Coming of Age Program

The Game Loft youth have been studying U.S. and Maine history this past year focusing on the pre-Civil War era. The cast of youth and adults who participated and made history come alive an event held on April 15th event at Union Hall in Searsport. The GameLoft’s Coming of Age Program is a non-traditional 4-H club where youth are earning high school history credit through an innovative afterschool role-play experience.

4-Horse’s 4-H Club

4 Horses 4-H Club meets once a month with opportunities to have hands-on horse experiences. Our horse club is accepting new members. 4-H members project work focused on blanketing horses in the winter, preparing for horse shows, nutrition, and horse health. We volunteered at a water station for a 5k walk/run in Winterport, a local community service project. All proceeds of the 5k benefited the Winterport Volunteer Fire & Rescue Association and the Winterport Memorial Library.

Born to Ride 4-H Club

Born to Ride is a 4-H Youth Group for all equine enthusiasts from ages 9 to 18. The program is a fun, hands-on learning experience that develops life skills, as well as teaches knowledge of horsemanship and responsible, ethical equine use, care and management. Youth have the opportunity to do activities and enrichment workshops like judging, exhibits, community service and 4-H Horse Shows. Youth who participate in these programs develop skills that include leadership, sportsmanship, teamwork, a positive attitude, and a sense of self-worth.

This is our first year as a 4-H equine club. We have 13 members. During February of 2017 we did an equine enrichment project at Mt. View Middle School. Some of the 4-H members mentored 10 junior high students on health and anatomy of horses. In April 2017, we hosted an Introductory to 4-H event with over 100 attendees. Throughout this year we have been involved in two community service events, mentored at two horse camps, attended 4-H Days at Windsor Fair Grounds, visited Witter Farm twice, went to Eastern States and attended 6 horse clinics and 9 horse shows. To complete the 4-H year, youth presented their projects at our county’s first 4-H Project Exhibition.

Little Beaver’s 4-H Club

Little Beavers 4-H Club began in 1974. We are a 5th generation 4-H family with a big focus being involved in community and STEM projects like animal science [dairy cattle and market animals] and the annual National Youth Science Day Challenge.
We work very hard at all our community service projects. In the fall, we travel around town and pick up any trash and make sure there are nice flags on each veteran in the five cemeteries in the Knox Cemeteries. We also care for the Knox Veterans Memorial. We donated $25 to the veteran’s home for holiday gifts for veterans that have no family. In the spring, we clean the five cemeteries and put flags on our veterans in the cemeteries. We also help put flags on the Maine State Veterans Cemetery in Augusta for Memorial Day. Our 4-H member’s projects included dairy cattle and market animals. At our meetings, we worked on judging dairy cattle and prepared for state dairy competitions and then onto the State Dairy Quiz Bowl. In April, we attended the State Dairy Judging competition. We planned a dairy mini clinic for June and held it at Happy Acres Farm.

MAINE FAMILIES

Maine Families is a home visiting program for expecting or new parents with a focus on family strengths. The Maine Families Home Visiting Program is part Maine’s strategy to ensure healthy futures for our children.

Home Visiting professionals provide individualized parent education and support throughout Waldo County to expectant parents and parents of babies and toddlers to support safe home environments, promote healthy growth and development, and provide key connections for families to available services in their communities. The program is tailored to meet the needs of each family.

Maine Families believes that parents are their children’s first and most important teachers. Parent/child interaction and experiences in the early years determine how the baby’s brain develops and sets the stage for the child’s future.

In 2017 Maine Families in Waldo County also offered twelve playgroups for enrolled families. These groups are offered at the UMaine Cooperative Extension building in Waldo. Children attend with their families and sometimes friends. It is chance to get out, meet other families with children and learn new games and activities to play at home. Each group includes free play, a healthy snack, information related to nutrition, social development, motor skill development, brain development and the value of learning through play.

In 2017, 68 families received 784 home visits

Families receive access to the latest research based information about:
- Healthy prenatal practices
- Feeding and nutrition
- Safety and health
- Connections to community resources
- Child growth and ways to encourage healthy development

www.extension.umaine.edu/parenting/main-family
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.

### Waldo County CY2017

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

### 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 Waldo county office. Each year, Waldo county tax dollars support the UMaine extension with physical office space, support staff salaries, office supplies, equipment and some programming expenses.
Statewide Highlights – Maine Food System

Helping Grain Growers Expand to Serve High Value, Specialty Markets

The growing demand for locally grown and processed small grains, such as barley, oats, rye, and wheat, represents an economic opportunity for Maine’s farmers. Current and aspiring small grain farmers face a continuing need to improve their skills and capacities with grains that meet the quality standards of high-value specialty markets such as baking, brewing, and distilling for human consumption, as well as organic feed for dairy and egg production.

Grain farmers, processors, and buyers improved their skills, markets, and business viability as a result of Extension’s Local Grains Program, including growing a new crop, changing a fertility, weed, or disease practice, and improving cleaning, drying and storage systems. These changes resulted in improved grain yields and quality, enhanced farm or grain business viability, and improved family quality of life. For organic small grains, production, yields, and value have increased dramatically in Maine over the last 5 years.

In 2016
- 2/3 of the processors reported having increased purchases and developed new sources and markets
- Maine grew 3.6 times more organic small grains compared with 2011 (1423 vs. 498 tons), on 2.5 times more acres
- 20% increase in yield
- $800,000 total value of organic small grains and pulses produced by Maine farmers

Researching Hops as a Maine Crop and Supporting Growers

Maine is home to 60 breweries producing over 200 beers, and is a leader in the production of craft beers. Yet most of the ingredients are imported into the state, including the hops that give our products their unique character. Developing a sustainable hops industry in Maine to supply the brewing industry will enhance product appeal and reduce reliance on imported ingredients. Maine breweries added $228 million to the state’s economy in 2016 and employed 2177 people.

<table>
<thead>
<tr>
<th>60 Maine breweries</th>
<th>$228 million added to Maine’s economy annually</th>
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<td>200 local beers</td>
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UMaine Extension established a hops variety trial and demonstration planting at the Maine Agricultural Experiment Station at Highmoor Farm to determine suitable types and production practices in Maine and conducted an Extension Hops to educate new and potential grower.

Over 40 growers and potential growers visited the hops trial site. Eighty-nine new growers and potential growers attended the hops school, and 20 attended the hops twilight meeting. As a result of the trainings at least three new commercial hops plantings are being established, and a hops grower association is forming. Eighteen of the people attending the hops school intend to start a commercial hops yard within the next 3 years. Portland-based Allagash Brewing Co., which used over 115,000 pounds of local grains in 2017, has pledged to use 1 million pounds of Maine-grown grains annually by 2021.
Master Farmers and Dairy Grazing Apprentices

Maine has an aging population of dairy farmers. Dairy farming is an occupation that is both physically demanding and difficult to enter without significant capital. Dairy is important to the state since it serves as a major supporter of many agricultural support businesses. Many organizations have partnered to find ways to help this industry, including Maine Farmland Trust, MOFGA, Dairy Industry Association, Land for Good, and UMaine Extension. In 2016, supported by a grant from Stonyfield Yogurt, Wolfe’s Neck Farm (WNF) initiated the organic dairy training program to try to train a new generation of dairy farmers. WNF partnered with the Dairy Grazing Apprenticeship (DGA) to provide a two-year training program with education coordination from Extension. Currently there are six Master Farmers in Maine, and five apprentices and WNF apprentices who are completing a two year, 4,000-hour training program. As an example of the utility of the program, a small organic dairy farmer recently was severely injured in a farming accident. WNF was able to work with Organic Valley, Extension, and the DGA program to provide trained apprentices to the farm to enable the it to stay in business during the farmer’s four-week recovery. Without DGA support they likely would have had to sell the cows.

Meeting the Demands of New and Emerging Milk Markets

U.S. organic agriculture operations are rising, with USDA data showing a 13 percent increase in certified organic farms and businesses between 2015 and 2016. With this growth, organic dairy processors and farmers are expanding into what used to be a niche market. A UMaine Extension assessment of organic dairy farmers in the Northeast revealed that to meet the demands of new and emerging markets these farmers need to extend the grazing season and implement practices consistent with entering the value-added milk market.

To extend the grazing season while improving the nutritional quality and content of omega-3 fatty acids in forage-based diets, Extension developed and assessed multi-cultivar mixtures of cool season perennial grass and legume species, and evaluated cool and warm season annual forages through agronomic research. We also assessed the utility of supplemental ground flaxseed to further bolster health-beneficial fatty acids (omega-3 and conjugated linoleic acid - CLA) and enhance the marketability of organic milk. Our findings were shared with farmers.

As a result:

- Over 100 northeastern organic dairy farmers transitioned their milking cows to high-forage or forage-only diets.
- Over 200 northeastern organic dairies adopted or fine-tuned the use of annual forage crops to extend the grazing season.
- Fifty of the dairy farmers interviewed reported increased milk production and milk quality and reduced grain/feed purchases, with farmers saying improved forage yield and quality were the major contributors to these outcomes.
- Over 6,000 acres of organic summer annuals have been planted in NH, ME, VT, PA, and NY.
- Milk content of omega-3 fatty acids and CLA increased an average of 76 and 42%, respectively, in cows fed ground flaxseed compared with those not receiving flax supplementation.

“Working closely with this program helped me reduce grain purchases by 25% and helped put more money back in my pocket”.

“Help from this program allowed us to apply soil amendments that boosted yield and quality. We went from a deficit of feed to a surplus of hay in just one year”.

Cooperative Extension Diagnostic and Research Laboratory

Accurate and early detection of animal diseases is important in limiting or eradicating the impacts of disease. With Maine’s continued growth of small farms getting animal health information into the hands of farmers is vitally important, as is having a state conduit for veterinarians to learn about livestock disease.

The Cooperative Extension Diagnostic and Research Laboratory is dedicated to providing high-quality diagnostic services and educational programs to support the health and productivity of livestock and poultry. Their efforts help to ensure the safety and well-being of both animals and their owners. By working closely with farmers and veterinarians, they provide timely and accurate information to aid in decision-making processes. This support is crucial in maintaining a sustainable and healthy agricultural industry.
Laboratory serves the state’s veterinarians, livestock producers, and animal owners by performing diagnostic services that include necropsy, microbiology, virology, pathology, and special research support. Through Extension it links with industry to help control animal health related problems. A new Cooperative Extension Diagnostic and Research Laboratory will expand services to serve Maine’s over 8,000 farms.

In 2017, the lab tested over 10,000 samples, the majority of which were from farm animals. It tested over 7,000 poultry samples and over 3,000 milk samples, thus allowing farms of all sizes to operate with more assurance of healthy animals and healthy products. Poultry farms were able to meet their FDA-requirements for salmonella testing locally. Sheep and goat owners were able to find out whether their animals have enteric parasites, and what to do about it.

**Salmonella Testing at the Cooperative Extension Diagnostic and Research Laboratory**

Maine has a poultry industry worth $38,983,000. For any of Maine’s 8,200 farms that raise hens to sell eggs, testing for salmonella, especially Salmonella enterica subspecies enteritidis (SE) is a prudent plan. Mid- to large-scale farms are required by the FDA to test their environment for SE. UMAHL’s National Poultry Improvement Plan (NPIP) certified salmonella testing allows Maine poultry farms to meet FDA standards for Salmonella entericenteritidis (SE) screening.

The Cooperative Extension Diagnostic and Research Laboratory provides timely and continuous access to SE testing to large and medium-scale poultry producers. The outcome of this work 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 higher than 10% of production.

**Master Food Preservers**

Economic sustainability of farms is a daily issue faced by farmers, who understand that profitable farms are sustainable farms. Consumer purchasing power can significantly impact the profit base for farmers. Home food preservation education programs can increase consumer sales and ultimately profitability of farms by influencing point of purchase consumer behaviors to preserve (freeze, can, dry) fresh produce to use in the “off-season” to increase access to local foods.

UMaine Extension adult and youth food preservation education efforts are extended through our Master Food Preservers program. Master Food Preservers serve as volunteers and a community resource to provide the public with research-based information from Extension and USDA. In 2017, 64 Master Food Preserver volunteers contributed over 760 hours of food preservation education and community projects, reaching over 2190 people in 9 Maine counties. Volunteers taught 86 preserving workshops, staffed educational displays, and demonstrated at farmers’ markets, harvest festivals, agricultural fairs, and local food events.

**64 Master Food Preservers**

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<th>760 volunteer hours</th>
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<td>2,190 people in 9 Maine counties</td>
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Volunteer hours = $18,000 in wages

The time volunteered by Master Food Preservers is the equivalent of over $18,000 in wages.

**So You Want to Farm in Maine?**

Current farmers thinking about changing farm enterprises and new farmers interested in starting a farm often lack skill, knowledge and confidence in areas such as access to capital, rules and regulations affecting agriculture operations, and marketing.

Since 2011, UMaine Extension has provided diverse educational outreach through its “So You Want to Farm in Maine” series to enhance the skills, business management knowledge, confidence of new and established farmers. Extension programs are live, live-streamed and archived, and reached 754 participants from all Maine counties and out-of-state. Topics included agriculture enterprise selection, business planning, record keeping, market research, regulations, and resource identification.

The series trained people to pursue farming as a viable career option.
• 69 % increased knowledge about the importance of developing a business plan and the items a farm business plan should include.

• 67 % increased knowledge about where to look for resources and information about their farm enterprise of interest including web resources, government agencies, universities, and other organizations.

• 67 % increased knowledge about production and financial recordkeeping and the different methods that can be used including paper and electronic records.

• 64 % increased knowledge about market research techniques that they could implement to refine the knowledge of markets for their agriculture products.

• 56 % increased knowledge about the rules and regulations affecting agriculture enterprises and the agencies that enforce them.

Many students have already implemented new practices. As a result of attending the program the number of farmers increased from 27% to 73% and 3-4 people worked on the farm. In the fourth year, when the training qualified as FSA borrower training, farmers with FSA loans were able to complete their loan requirements and received nearly $313,000 in farm loans.

Supporting Maine’s Potato Industry

The $500 million potato industry is the largest agricultural sector in Maine, encompassing over 500 businesses generating over $300 million in annual sales, employing over 2600 people, and providing over $112 million in income to Maine citizens. The management of insects, diseases, weeds, and other pests is integral in sustaining a healthy Maine potato crop. Potato growers are increasingly relying on a multidisciplinary Integrated Pest Management (IPM) approach to ensure that Maine’s potato crop is pest and damage free while attempting to minimize the amount of pesticides that are applied.

UMaine Extension's Potato IPM Program impacts Maine’s 300 commercial potato growers and 48,000 acres of potatoes and has become an integral part of the Maine Potato Industry. The program also broadly impacts national and international growers who rely on the state’s seed crop. The project maintains nearly 100 specialized insect traps, coordinates a statewide network of electronic weather stations, and surveys 75 potato fields on a weekly basis for weeds, insects and diseases. IPM scientists track potential pest outbreaks to provide growers with current information on treatments to minimize the number of pesticide applications and maximize potato yield.

The economic impact from Extension’s pest monitoring and educational programs for the 2017 season is estimated at over $8.8 million.
Supporting Local Business Expansion

The goal of UMaine Extension’s Food Safety programs is to ensure a safe food supply while reducing foodborne illness risks by teaching proper sanitation, food preservation, and food-handling practices. To that end Extension educators, specialists, and professionals conduct a variety of programs for Maine citizens and food businesses. In 2014, a gourmet gelato business, Gelato Fiasco, was operating out of a small commercial facility producing about 2,000 units a day, with 10 full time employees. The business’ sales had increased and they required an expansion of their current facility.

From 2014 to 2017 Extension staff provided technical and educational support to assist with general food safety, quality, sanitation, facility design, and regulations. UMaine Extension assisted the business with designing a new 10,000 sq. ft. facility, including scale-up and sourcing processing equipment. Gelato Fiasco is now safely producing and selling over 13,000 units per day out of their newly expanded facility and employing 24 full-time employees.

Facilitating Community Planning to Support Affordable Housing

Housing costs in southern Maine coastal communities are largely unaffordable to the local community’s workforce, with the majority of residents spending more than 30% of their income on housing.

UMaine Sea Grant and UMaine Extension facilitated a planning process with the Workforce Housing Coalition of the Greater Seacoast, the Town of Berwick, and community members. Workshops were held to engage the community in conversations about the disconnect between income and housing costs and the need to plan for the housing needs of the community's workforce.

As a result of the workshops, recommendations were made to the community’s redevelopment plans. Community planning and actions provided the town with new resource and ideas, and a vision for the future that has attracted significant funding and investors. The Town applied for a U.S. EPA Brownfield Program grant, and was awarded $600,000, the largest single site grant in the history of the Brownfields grant program nationwide.

Parent Education: Laying the Foundation for Future Success and Wellbeing

The first three years of a child’s life are a critical time for growth and development. Investing in children, starting with the earliest years, produces significant long-term impacts for individuals and communities from reduced child abuse and neglect, lower health care costs to school success and better employment.

UMaine Extension Parenting Education Professionals are part of a statewide network of Maine Families Home Visiting Programs. In 2017, Extension’s two Maine Families Programs were endorsed by the Parents As Teachers National Center as exemplary Blue Ribbon Affiliates, delivering high-quality services to children and families. This makes both programs among the top performing early education and home visiting affiliates within the international Parents as Teachers network. Families receive services including home visits, group connections, child screening and connections to community resources, knowledge and resources to prepare their children for a stronger start in life and greater success in school.

10 Parent Educational Professionals

2,414 home visits

271 families

Results:

- 79 % of infants were breastfed at 6 months.
- 93 % of primary caregivers were screened for depression.
- 91 % of caregivers who used tobacco at enrollment received tobacco cessation referrals.
- 100 % of children with positive screens for developmental delays received services in a timely manner.
- All enrolled families were assessed for basic needs and referred to services as appropriate.
Homemakers Promoting Community Based Adult Education

Extension Homemakers is a volunteer group that develops leadership skills, supports community causes, and promotes UMaine Extension’s educational programs in nine Maine counties. These organized programs are part of the statewide network of Extension Homemakers that participate in educational programs, and identify community projects, such as providing assistance to local food pantries or nursing homes or veterans groups, funding educational scholarships or youth camp programs.

In 2017, over 600 Extension Homemakers from over 40 Local Extension Homemaker Groups met and delivered or engaged in Extension programming involving over 3,100 participants and 321 programs including food, personal and community; nutrition and health; gardening and environmental, financial planning and consumer; personal growth; and cultural and creative arts.

600 Extension Homemakers
$541,000 monetary value to their communities

In many Maine counties Extension Homemakers remain a traditional and vital part of the community fabric. They provide direct and indirect benefits in terms of volunteer hours, fundraising, and material donations. In 2017, the total estimated monetary value of the Extension Homemaker program to their communities was over $541,000.

College Students take Action on Food Insecurity

Since 2014, UMaine Extension has collaborated with the Maine Campus Compact to hold annual Maine Hunger Dialogues, inviting all Maine colleges and universities to send students and staff to learn about hunger on local, national, and global scales, and to leave with ideas and action plans for ending hunger in their regions. The events promote inter and intra-campus networking to capitalize on the diverse group.

In 2017, 80 student and staff from 14 campuses attended the Maine Hunger Dialogue where they developed new partnerships, assessed community needs and assets, and set goals and steps to reach them. Eleven teams successfully applied for Maine Hunger Dialogue grants to support new and existing initiatives. Teams used the funds to develop food recovery networks, initiate food pantries and resource hubs, donate fresh produce to food insecure students, conduct food drives and hunger awareness initiatives, host cooking on a budget and nutrition courses to food insecure adults and children, supported income refugee and immigrant residents with a healthy cooking workshop series, and helped build capacity between students and local Native American residents through providing a nutrition and food preservation workshop series. “Meal food pack-outs” (packaging healthy nonperishable meals) held at UMaine packed 107,562 meals that were distributed to food insecure students and community members.

Through the Maine Hunger Dialogue, Extension has strengthened partnerships with Maine Campus Compact, Good Shepherd Food Bank, Maine Corporations, UMaine System campuses, and other Maine Institutions of Higher Education.

Analyzing Cruise Ship Tourism in Bar Harbor

Cruise Ship tourism is one of the fastest growing segments of Maine’s tourism industry. In 2016, 377 cruise ships, carrying 283,000 passengers were scheduled to visit Maine’s twelve ports, up 6 percent from 2015. Maine’s busiest port, Bar Harbor, has experienced remarkable growth, hosting 117 cruise ships carrying 163,000 passengers in 2016, a 36 percent increase since 2002. While the cruise ship industry is growing rapidly, little is known about the current demographic characteristics of these passengers or what their economic impact is on the Bar Harbor area economy.

The UMaine School of Economics and UMaine Extension examined the economic impacts of cruise ship passengers visiting Bar Harbor. The study found that cruise ship passengers spent an average of $108.21 on goods and services in the town of Bar Harbor during 2016. The total annual economic impact of cruise ship passenger spending, including multiplier effects, was over $20 million in sales revenue throughout the Bar Harbor area. Economic activity associated with this spending supported 379 full- and part-time jobs, and provided $5.4 million in wages and salaries.
The results of this research were presented to the Bar Harbor Town Council, posted to the town’s website, and widely disseminated through television, radio, newspaper, Internet, and town meetings. Small business merchants in Bar Harbor have found the report very useful to their cruise ship passenger marketing efforts and local policymakers have used it to educate the public about the economic importance of cruise ship tourism to the Bar Harbor economy, especially during the shoulder seasons.

**Providing Access to Capital: $8 Million Invested in Local Communities**

Aspiring and existing entrepreneurs need capital to start, improve and expand their businesses to create good paying jobs for Maine people. Many business owners are challenged to secure adequate funding from traditional lenders to start or expand a business. However, by partnering with a regional economic development organization, traditional lenders like banks are able to increase access to capital for Maine businesses that otherwise would not be eligible for financing.

UMaine Cooperative Extension supports improved access to financing for Maine business through its collaboration with a regional economic development agency that provides SBA loan guarantees for prospective borrowers. As an active member of the Loan Review Committee, Extension provides guidance and oversight on credit and lending strategies, reviews loan applications and along with other business and community leaders arrives at a loan recommendation.

In fiscal year 2017 the Loan Review Committee approved 33 loans of over $3.2 million to 29 businesses. Over $4.9 million was leveraged bringing the total investment to over $8 million. Forty-eight jobs were created or retained, and seven of Maine’s 16 counties benefited from the program.

379 full- and part-time jobs

$5.4 million in wages and salaries

$20 million in sales revenue throughout the Bar Harbor area.
Tech Wizards Students Helping Solve Real Community Problems

Tech Wizards is a youth mentoring program that uses STEM (science, technology, engineering and mathematics) education and service learning to help youth learn life and workforce skills, improve academic performance, and aspire to post-secondary education, productive careers, and community engagement.

Students from Captain Albert Stevens Elementary School in Belfast are working with local naturalists, biologists and a drone pilot to survey and map their local watershed to gather and share data about the health of Wescott Stream, where they will release classroom-raised salmon in 2018. Native salmon are currently listed as endangered under the Endangered Species Act. Through Tech Wizards, the students joined their science teacher and 4-H mentors and:

- Used videography and photography to record findings from water quality tests and biotic indices for evaluation by the scientific community, and used a local drone pilot to identify and mapped species vectors and barriers to salmon migration.
- Researched several aquatic habitats using field guides.
- Critically evaluated the veracity of their research and received feedback from local experts.
- Practiced nature drawing techniques with a local naturalist.
- Developed a new outdoor classroom at Tanglewood 4-H Camp and Learning Center as a community service project.
- Were introduced to career opportunities within science, technology, and art.

Statewide in 2017, Maine’s Tech Wizards program matched 275 students with community mentors in 7 schools. Students participated in ongoing fieldwork, citizen science initiatives, and service learning and were empowered to engage with their communities and contribute their time and skills to address important scientific questions, and to recognize that environmental stewardship is both the platform for their learning and an overarching life ethic.

4-H Youth Voice: Youth Choice

In Maine, 28 percent of youth are overweight or obese and 17 percent of children under age 19 live in poverty. One of the most common and preventable risk factors for premature death is consuming too few fruits and vegetables. In 2009, 72 percent of Maine adults consumed less than five servings of fruits or vegetables per day, while only 20 percent of Maine middle school students and 15 percent of Maine high school students consumed five servings of fruits or vegetables per day. In 2015, only 19 percent of Maine adults were meeting minimum recommendations for physical activity.

UMaine Extension implemented the national 4-H Youth Voice: Youth Choice program to mobilize under-served youth to take action around nutritional deficiencies, healthy food choices, and physical activity. The goal is to train 50 teen teachers to educate 2000 underserved youth about nutrition and physical activity, to change knowledge, attitudes and behavior so youth will make healthy food, physical activity and lifestyle choices to reduce the risk of obesity and chronic disease later in life. A second goal is to create supportive community environments where healthy lifestyles are the norm.

Of teen teachers participating in Maine YVYC:
- 88% reported eating more fruits and vegetables.
- 66% reported eating less junk food.
- 71% reported drinking less soda.
- 88% reported drinking more water.
- 93% reported learning cooking skills to prepare healthy foods at home.

Of youth participating in Maine YVYC:
- 91% reported eating more fruits and vegetables.
- 81% reported eating less junk food.
- 88% reported drinking more water.
- 70% of youth participants reported being physically active for 60 minutes every day.
- 90% agreed that being active is fun, and will help them stay healthy.

Meeting Learning Standards through Lakeside and Open Air Classrooms

Educators in Maine K-12 schools are tasked with aligning their lessons in meaningful ways with local and national learning standards. To succeed in meeting standards and improving student learning, teachers are looking beyond the walls of their classrooms to integrate different academic content areas and engage students in active learning environments. Gardens, vernal ponds, forested land, and outdoor classrooms have become more popular at schools across Maine, but teachers often lack the professional support to know how to best use these spaces to incorporate curricula.
UMaine Extension’s 4-H Camp and Learning Centers’ Open Air Classrooms (OAC), at Tanglewood, Blueberry Cove and Lakeside Classroom at Bryant Pond provide residential, nature and school-based programs that help schools to meet learning standards.

In 2017, the 4-H Camp and Learning Centers conducted Lakeside and OAC programs and with over 5,000 students from 100 Maine school groups. Teachers find the OAC a valuable complement to their traditional classroom.

4-H@UMaine Gives Youth a Preview of the College Experience

Education after high school is critical to supporting skilled jobs in Maine. Engaging youth in getting college degrees helps to grow and strengthen Maine’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.

UMaine Extension created 4-H@UMaine to provide a safe and supportive environment for Maine youth grades 6-12 to experience life on a college campus. Participants come to the UMaine campus and imagine the possibility of college attendance as they stay in campus residence halls, eat in the dining commons, get active in the student recreation center, and participate in hands-on workshops with UMaine students, staff, and faculty. While they are there, Extension also fosters healthy relationships using small-group settings led by trained adult leaders and teenage peer mentors.

In 2017, 4-H@UMaine hosted 55 youth (grades 6-10), 15 Teen Leaders (grades 9-12), and 27 adult staff and volunteers. In addition to the traditional youth experience for grades 6-10, college-ready teens took part in an exclusive experience that included pre-event training, planning roles as youth mentors, and workshops to further develop leadership skills and connect with campus staff.

Of those attending 4-H@UMaine:
- 92% of all the youth indicated they learned about new career possibilities, helping to raise their career aspirations.
- 91% plan to go to college.

4-H Ambassadors Sparking Student Interest in STEM Careers

Relevant, meaningful, and authentic experiences in science, technology, engineering and math (STEM) are important to developing positive attitudes, increasing knowledge, and preparing Maine youth for the estimated 9 million STEM-related occupations projected between 2012 and 2022. Developing Maine youth’s STEM literacy is vital to ensuring that our state continues to thrive economically and socially. Given the remote and diverse communities to which Maine youth belong, informal education can help minimize inequities in rural youth STEM education and career pipelines.

In 2015, with the support of the UMaine System, UMaine Extension created the 4-H STEM Ambassador program, which trains college students as caring mentors to youth, and who facilitate STEM activities with them, and help them learn about college and careers.

Through this program, youth ages 8-14 come to view these Ambassadors as mentors and leaders in their community while also developing skills in STEM through hands-on activities. The program increases student leaders knowledge, and ability with facilitating STEM activities. It also increases university engagement in local communities that UMaine has not traditionally reached.

Youth were excited that someone from UMaine came to share STEM activities. Student participants reported that without this program their instructional time with STEM would be reduced. As a result of this program participating youth have demonstrated positive attitudes, increased knowledge, and expanded interest in STEM and STEM careers.
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.¹

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

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