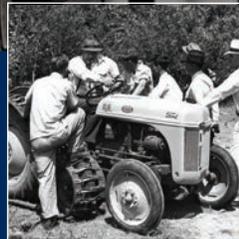




THE UNIVERSITY OF
MAINE
Cooperative Extension



Photos by Edwin Remsburg

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

University of Maine Cooperative Extension

Annual Report 2014

The University of Maine is an equal
opportunity/affirmative action institution.

Making a Difference

*For more than 100 years,
University of Maine Cooperative Extension
has worked with Maine volunteers
to offer community-driven,
research-based educational programs
in every county.*

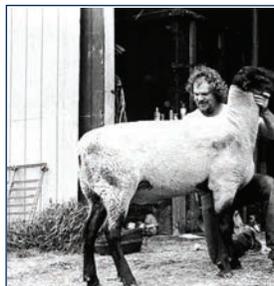
Our

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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Executive Summary

The University of Maine Cooperative Extension continues to focus primarily on the Maine Food System and Youth Development. Identifying these foci has made financial decisions easier, prioritized the allocation of resources toward these programs and resulted in more substantial impacts for the citizens of our state and beyond.

While we are proud of the success stories included in this report we are also very pleased to take this opportunity to share information about other activities and impacts we are achieving.

Food Insecurity Activities and Education

The USDA estimates that 200,000 Mainers (15 percent of Maine’s population) are food insecure. Maine is the most food insecure state in New England and the 9th most in the country. Mark Lapping, University of Southern Maine Muskie School professor reports, “As if that is not bad enough there’s more to the problem. Maine imports more food than any other state in the lower 48.” UMaine Extension is actively working on food insecurity by training Master Gardener Volunteers, farmers, members of the Maine Extension Homemakers Council and youth around the state who have devoted their efforts to making a difference on this issue. We also address food insecurity as it affects children in Maine by bringing local foods to Maine schools and assisting with school gardens. Extension volunteers donated 240,937 pounds of fresh produce to emergency food outlets. Our staff and volunteers provided starter plants and education to low income residents and coordinated Master Gardeners to support low income families who do not have transportation and would otherwise need to take a taxi to the grocery store by delivering fresh produce to their homes. We are helping low income senior housing residents to grow food, supporting disabled members of our community to garden and farm, and educating 4-H members about food insecurity and supporting their service learning projects to address this issue. Extension led a collaborative effort bringing together sixteen universities and colleges in Maine for the first ever Hunger Dialogue Conference. This event was successful in educating and involving other Maine colleges and college students in making a meaningful difference in the lives of those who experience food insecurity.



Extension volunteers donated **240,937** pounds of fresh produce to emergency food outlets.

4-H Youth Development in Maine

Last year more than 20,000 youth participated in the Maine 4-H program by attending 4-H camps and learning centers, participating in 4-H community clubs, and in afterschool and/or school enrichment programs. **UMaine Extension’s 4-H youth development program is the largest out-of-school educational program in Maine.**



Over the past three years, Extension's 4-H program has increasingly become a leader and innovator in the design and delivery of informal Science, Technology, Engineering and Mathematics (STEM) education throughout Maine. With its focus on STEM programming, 4-H is uniquely positioned to foster discovery and passion for STEM in young students, provide opportunities to explore the University of Maine campus, and encourage youth to continue their post secondary learning. In a recent study 4-H youth in Maine indicated that 74% of them would like a job related to science, 59% want to finish college, and 25% want more education after college. Nationally, girls in 4-H are two times as likely to pursue a career in science as their peers. More than 10,200 Maine youth participated in hands-on, experiential STEM-related learning by engaging in numerous projects such as robotics, animal science, alternative energies, plant science and environmental science.



In addition to STEM programming, more than 7,700 youth participated in our healthy lifestyles programming which includes our Eat Well Nutrition Education program funded through EFNEP. A third integrated program focus is citizenship, with approximately 4,000 youth involved in making a positive difference in their communities. Many of these youth are also participating in programs related to STEM and healthy lifestyles.

Civil Rights Accomplishments

The 2013 population estimate for Maine indicates that Maine is 95.2% white. According to the US News and World Report (October 22, 2014), "The USA is experiencing a "great wave" of immigration – call it a 'second great wave.' This second wave is dramatically increasing the diversity of counties, towns and states in much of the country. In fact by 2060 all states will have experienced greater diversity." In Maine the diversity index (the likelihood that two random people are different by race and ethnicity) in 2010 shows no change since 1960. In 2060 the diversity index increases from 0 – 25 to 26 – 40. Despite the lack of racial and ethnic diversity, our faculty member working in the community development program area has reached out and served 20% non-white audience members in her facilitation training by contacting refugee-serving organizations and tribal groups. We are proud of this reach and the special efforts by faculty and program staff in the most racially and ethnically diverse counties. In these counties program staff have made connections with refugee-serving organizations, non-profit organizations that advocate for minority groups, tribal groups on reservation, schools and libraries in diverse areas and with federally funded housing communities. In addition, the Senior Companion Program and the Maine AgrAbility program both have success stories in this report. [Senior Companion: umaine.edu/seniorcompanion; Maine AgrAbility: umaine.edu/agrability.]



Crops Yield and Pest Management

Maine's agriculturally-based food system is worth \$3 billion and encompasses agricultural production, processing, food safety, food security, commerce and consumption. UMaine Extension supported Maine's largest agricultural crop – potatoes – in many conventional ways and by placing a greater emphasis on rotation and alternative crop research. Soybean production, as a part of an extended three-year cropping system, has increased from 3,000 acres in 2013 to nearly 7,000 acres in 2014 as a result of our efforts. Beyond typical commodity crops, several area growers are now experimenting with small-scale, high-value crops such as hops and grapes. Extension faculty and staff also worked to support Maine's world famous wild blueberry industry by addressing issues with pollination and the spotted wing drosophila, among others. In the past 25 years the Maine blueberry industry has increased its yield from 20 to 104 million pounds. In addition, barley disease control education resulted in \$200,000 of increased revenue.

UMaine Extension Website

UMaine Extension extended its outreach in 2014 to over 2 million online visitors through its website at extension.umaine.edu. The site—a composite of 60+ interconnected websites—received more than 2.5 million pageviews from users in 220 countries. Nearly 90% of visitors came from the United States and 45% of those were from Maine. Nearly 30% used mobile devices (smartphones and tablets) to view our pages.

Over **2 million** visitors to UMaine Extension's website at extension.umaine.edu

Visitors searched for and found information on a wide variety of topics from plant propagation to tomato blight, guinea hens to spiders, and gardening in Maine to summer camps for kids. We offered educational slideshows, image galleries, and over 500 publications for free download. The most popular fact sheets received tens of thousands of pageviews each: "Best Ways to Wash Fruits and Vegetables," "Growing Raspberries and Blackberries," and "Facts on Fiddleheads."

More than 50 interactive forms allowed users to request assistance, presentations, workshops, newsletters, updates, and more; report volunteer hours; register for classes and events; and make donations. Users submitted tick samples to the Tick ID Lab for identification; entered photos of chicken coops in the annual Poultry Coop Contest; and posed vegetable gardening questions to our experts. Visitors also connected to us through Facebook, Twitter, and YouTube. More than 160 how-to videos were available to visitors on our YouTube channel and embedded in our web pages. Forty-five trackable QR Codes on posters, postcards, signage, and more, pointed visitors to additional information on our website. Online surveys and user analytics continue to help us tailor the website to meet users' needs.

ME SEA Grant Collaboration Pays Many Benefits

Our ongoing collaboration with Maine Sea Grant leverages the funds we deploy and produces quality research, meaningful environmental and economic impacts while providing important educational and volunteer opportunities. Maine coastal towns survive and thrive due to tourism. The Healthy Coastal Beaches program utilizes volunteers to collect samples that are then tested to ensure visitors can access accurate and reliable information regarding ocean water quality conditions throughout the summer months. In addition Maine towns conducted stormwater management by utilizing the tools we have developed to prioritize culvert maintenance and repairs, update their ordinances to reflect current impact from extreme rain event data we provided, and have an educational program in place to educate and inform citizens.

As a result, towns have utilized the Municipal Guide to Clean Water to direct their property surveys to identify malfunctioning septic systems leading to removal of numerous grey and black water discharges throughout the watershed. This has also led to investigations and upgrades to sewer and stormwater infrastructure (approximately 30,000 linear feet collectively). In 2014, the towns posted supplemental signage at the mouth of a brook alerting the public of the potential risk of water contact by mouth. Additionally, the towns worked together to acquire grant funds in support of a Watershed Management Plan. The condition of the watershed will be assessed, stormwater retrofitting projects and watershed restoration planning will be launched, a suite of watershed health characteristics will be monitored and public outreach and involvement will be emphasized in 2015. UMaine Extension serves on the Steering Committee and will continue to support these and other important actions.

The voters of Maine endorsed the work of Extension by passing an \$8 million bond to fund the building of a new Animal and Plant Diagnostic Laboratory. This new facility, administered by Extension faculty and staff, will support the food based economy and much more.

Thank you for the partnership of the USDA-NIFA in bringing Extension education, applied research and services to the people of Maine. We look forward to your feedback to this report.

Total Maine Plan of Work Inputs – FY2014	
Total Reported effort:	
Days (FTEs)	56.21
Integrated research days (FTEs)	4.01
Multistate days (FTEs)	2.25
Aides and seasonal Number	372
Aides and seasonal Hours	140,598
Volunteer number	3,293
Volunteer hours	57,150

Totals	
Smith-Lever 3b & 3c	\$2,053,357
University of Maine	\$9,084,577
Other	\$2,327,375

Merit Review Process

External University Panel and External Non-University Panel

In an ongoing effort to maintain valuable and relevant programming, faculty and staff engaged in formal and informal review by discipline-specific review panels and advisory groups that help to provide focus. While this results in defined programming intentions for the near- and long-term, the process is dynamic and ongoing throughout the year and can result in new work to address emerging issues at any time.

Programming merit and success for faculty members is also reviewed by faculty peers and supervisors through reappointment, promotion, and post-tenure processes established by the faculty and administration and codified in employment contracts. A unique process exists for non-faculty programming professionals who undergo annual reviews by supervisors, and peer reviews every 4 years.

We partner with regional Extension programs in the Northeast Extension Consortium whose active vision is to coordinate translational research, education, outreach, and diversity programming to address problems, opportunities, and work force development in the Northeast region. Our primary mission is to enhance regional cooperation and improve coordination of regional Extension program initiatives for our region. Consortium partners are:

University of Connecticut	Maryland Eastern Shore
Cornell University	University of Massachusetts
University of Delaware	Penn State University
Delaware State University	University of Rhode Island
University of District of Columbia	University of Vermont
University of New Hampshire	Rutgers University
University of Maine	West Virginia University
University of Maryland	West Virginia State University

UMaine Extension is a member of the New England Planning and Reporting Consortium, a formalized partnership of Extension programs in Massachusetts, New Hampshire, Maine, and Vermont. Working in collaboration with three other states in developing and managing an online planning and reporting system results in ongoing discussions around state and regional priorities and programs, opportunities for multistate work, sharing staff resources, and a much better understanding of how each of our programs are unique from others in New England. As a result, the four states provide periodic informal merit review and feedback as a component of our partnership. Every faculty and programming professional has online

access to review the programming intentions and accomplishments of staff from other states, as does the public and important stakeholders. This capacity allows for collaborative planning, evaluation, and feedback that can communicate the value of multistate accomplishments.

- Internal University Panel
- External University Panel
- External Non-University Panel
- Combined Internal and External University Panel
- Combined Internal and External University and External Non-University Panel
- Expert Peer Review
- Other

Stakeholder Input

Actions taken to seek stakeholder input that encouraged their participation:

- ✓ Targeted invitation to traditional stakeholder groups
- ✓ Targeted invitation to traditional stakeholder individuals
- ✓ Targeted invitation to non-traditional stakeholder groups
- ✓ Targeted invitation to traditional stakeholder individuals
- ✓ Targeted invitation to selected individuals from general public
- ✓ Survey of traditional stakeholder groups
- ✓ Survey of traditional stakeholder individuals
- ✓ Other: Research using relevant current and first-source data

The University of Maine Cooperative Extension has learned from our constituents that high-quality engagement takes place best when the issue is current, and have therefore chosen to engage with stakeholders on an ongoing basis as needs and issues arise. Our matrix of County-based programs involves citizen and volunteer advisory group input as an inherent part of the work, and our statewide staff works closely with community, commodity, and professional stakeholders to guide their work. Selected examples include:

- Our partnership with County-based citizen executive committees who provide direction and advice to each local Extension program in Maine and help to prioritize regional programming efforts.
- Quarterly interactions with the UMaine Board of Agriculture, a diverse stakeholder group grounded in state legislation, advises UMaine on agricultural research and Extension priorities. The Wild Blueberry Commission of Maine who represents the industry growers and processors, and who administers a state tax fund of over \$1 million.

- The Maine Potato Board composed principally of Maine-based potato farmers who offer input and advice backed up with support for research through their education and research committees. The Board also administers a state tax fund. Potatoes are Maine's most valuable commodity.
- The Maine 4-H Foundation and its volunteer governing board who work as a close partner to enrich youth experiences through our 4-H Youth Development Program.
- A variety of advisory boards and councils who are formed with targeted intent to guide the work of some of our important programs. Examples include the Senior Companion Advisory Board, the Maine Sea Grant Policy Advisory Committee, Tanglewood 4-H Camp and Learning Center Board, and the Maine Board of Pesticides Control.
- We also work in partnership with discipline specific groups whose mission is to help achieve success in a given area or for a given group. Examples include the Maine Organic Farmers and Gardeners Association; Maine Science, Technology, Engineering and Math (STEM) Collaborative; Maine Math and Science Alliance; and the Sportsman's Alliance of Maine.
- We maintain an ongoing open dialogue with Maine Legislators and County Commissioners to communicate our program focus areas and to respond to the needs that have been identified through their constituents.



Method to identify individuals and groups:

- ✓ Use Advisory Committees
- ✓ Needs assessments
- ✓ User Surveys
- ✓ Other: Identify and analyze current and emerging issues

Methods for collecting stakeholder input:

- ✓ Meeting with traditional stakeholder groups
- ✓ Survey of traditional stakeholder groups
- ✓ Meeting with traditional stakeholder individuals
- ✓ Survey of traditional stakeholder individuals
- ✓ Meeting specifically with non-traditional groups
- ✓ Other: Meetings with state government and agency leadership

How the input was considered:

- ✓ In the budget process
- ✓ To identify emerging issues
- ✓ To redirect Extension programs
- ✓ To redirect Research programs
- ✓ To set priorities

An example: A new programming direction came through our successful Maine Harvest for Hunger program that works with farmers, gardeners, and other volunteers across the state to donate surplus produce to those with limited access to fresh fruits and vegetables. The new initiative is the Maine Hunger Dialogues that mobilized national and international students and professionals from 17 Universities and many organizations to develop local and regional projects to actively address the issue of hunger.

Key Stakeholder Input Items for NIFA Attention: What did you learn from your Stakeholders?

Through our partnership with the UMaine College of Natural Sciences, Forestry, and Agriculture and the Maine Agricultural and Forest Experiment Station, we represent the Maine Agricultural Center which supports stakeholder-driven agricultural research and Extension education for Maine. Examples of recent projects include:

- *Effects of Cook Method and Time on the Safety and Quality of Maine Fiddleheads*
- *Survival of Streptococcus equi in Equine Compost*
- *Incidence of Endophyte Infected Forage in Maine Livestock Forage Success*
- *Evaluation of Garlic Clove/Bulb Distribution Relationship*
- *Exploratory study to identify business interest in local foods in the Somerset County region*
- *Preliminary Soil Test Calibration for High Tunnel Production*
- *ME Ag Weather Center Evaluation of Interpolated Weather Data for use in Agricultural Management Decisions*
- *Identifying Profitable Vegetable and Small Fruit Varieties for Maine*

Planned Program: The Maine Food System

The Maine food system is a vital component of the Maine economy. It is a complex system comprised of food production, processing, distribution and consumption. It provides employment opportunities across all sectors and contributes \$3 billion of dollars to the Maine economy. Currently, the Maine food system provides only 20% of the food consumed in the state. However, given the land area and market potential (70 million people live within a days drive), there is great potential to expand the depth and breath of our food system. UMaine Extension educators provide programming using research-based information to increase the efficiency, accessibility, safety and sustainability of all aspects of the Maine food system. We work closely with the public to improve access to healthful food and we promote USDA's Dietary Guidelines for Americans. We help farmers, businesses,



and individuals ensure food safety through current harvest and post-harvest handling and processing practices. Extension actively programs to improve the quality of food consumed by the public while reducing issues of food insecurity through the support of community and school gardens, home horticulture endeavors and the Expanded Food and Nutrition Education Program.

When you support Extension food system programs, Maine people will have better access to, and increase their ability to choose, healthy local food. This will lead to an expanded economy and healthier citizens.

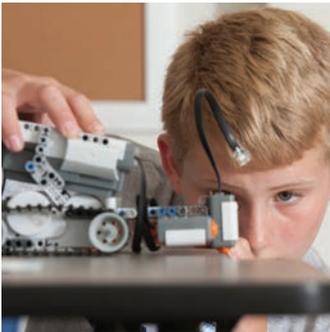
NIFA Knowledge Areas	
	Percentage
Nutrition Education and Behavior (703)	15
Integrated Pest Management Systems (216)	15
Nutrition and Hunger in the Population (704)	10
Economics of Agricultural Production and Farm Management (601)	10
Healthy Lifestyle (724)	9
Soil, Plant, Water, Nutrient Relationships (102)	6
New and Improved Food Processing Technologies (501)	5
New and Improved Food Products (502)	5
Soil, Plant, Water, and Nutrient Relationships (102)	4
Weeds Affecting Plants (213)	4
Waste Disposal, Recycling, and Reuse (403) DELETE	3
Plant Product Quality and Utility (Pre-harvest) (204) DELETE	3
Plant Management Systems (205)	3
Nutrient Utilization in Animals (302)DELETE	2
Animal Welfare/Well-Being and Protection (315)	2
Animal Management Systems (307)	1
Improved Animal Products (Before Harvest) (308) DELETE	1
Basic Plant Biology (206)	1
Reproductive Performance of Animals (301)	1

Total Reported effort	2014
Days (FTEs)	40.94
Integrated research days (FTEs)	4.16
Multistate days (FTEs)	2.91
Aides and seasonal Number	149
Aides and seasonal Hours	53,517
Volunteer number	1,250
Volunteer hours	23,595 11.3 FTEs

Totals	
Smith-Lever 3b & 3c	\$2,053,357
University of Maine	\$9,084,577
Other	\$2,327,375

Planned Program: Activities and Participation

- Crop Production Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Crop Production Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Eat Well (Expanded Food and Nutrition Education Program) - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Eat Well (Expanded Food and Nutrition Education Program) - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Farm Energy Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Farm Energy Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Food Safety - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Food Safety - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- General Activities in Support of the Maine Food System - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- General Activities in Support of the Maine Food System - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Home Horticulture Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Home Horticulture Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Livestock Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Livestock Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Nutrition Education - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Specialty Food Products - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)



Target Audience

- 4-H Volunteers (Adult)
- 4-H Youth (Youth)
- Agricultural Producers (Adult)
- Agricultural Service Providers
- Agricultural Workers (Adult)
- Apple Growers (Adult)
- Blueberry Growers (Adult)
- Business Assist Organization Staff (Adult)
- Commercial Fishermen (Adult)
- Community Leaders (Adult)
- County Executive Committee Members (Adult)
- Cranberry Growers (Adult)
- Dairy Producers (Adult)
- Disabled Adults (Adults)
- Eat Well Participants (Adult)
- Eat Well Participants (Youth)
- Eat Well Volunteers (Adult)
- Elders or Seniors (Adult)
- Families (Adult)
- Families (Youth)
- Food Stamp Recipients (Adult)
- Forestland Owner (Adult)
- General Public (Adult)
- General Public (Youth)
- Home Gardeners (Adult)
- Home Gardeners (Youth)
- Maple Producers (Adult)
- Master Gardener Volunteers (Adult)
- Ornamental Horticulture Industry (Adult)
- Parent Educators (Adult)
- Parents (Adult)
- Pesticide Applicators (Adult)
- Potato Growers (Adult)
- Resource Managers and Scientists (Adult)
- Small or Home-Based Business Owners - Current (Adult)
- Small or Home-Based Business Owners - Potential (Adult)
- Sweet Corn Growers (Adults)
- Teachers (Adult)
- Vegetable Growers (Adult)
- Veterinarians (Adult)
- Volunteers (Adult)

Selected Program Accomplishments – Impact Statements

Barley Disease Control...Increasing Barley Yields and Profits

Relevance – Barley is grown in Maine for livestock feed and, to a lesser extent, for malt production. It was planted on about 22,000 acres in Maine in 2013, and the acreage is increasing. The value of Maine’s barley crop in 2013 was \$3.7 million.

The cool climate and generally uniform rainfall favor spring barley production. However, the climate also means that fungal diseases such as Fusarium head blight and net blotch can limit grain yield and malting quality in Maine-grown barley.

Response – UMaine Extension ran barley trials aimed at improving grain yields and improving malting quality through disease control. In cooperation with local grain elevators, contractors, and growers, researchers sought to identify when, and if, fungicide was necessary to protect the crop, given interactions between weather and plant development stage.

Results – A disease control program for barley growers was developed and put in place on 13,000 acres of feed barley and 3,000 acres of seed and malting barley. More than 75 barley growers adopted the disease control program in 2014. Barley growers in Maine following this disease control program received over \$200,000 in increased revenue from greater barley yields and grain quality in 2014 compared to 2013. Growers, grain contractors, and elevators are planning to continue the disease control program, and in some cases, to make the practices mandatory.

Outcome Measure: Implement practices that improve efficiency, reduce inputs and negative impacts on the environment, increase profitability, or reduce energy consumption

Knowledge Areas:

- 601 Economics of Agricultural Production and Farm Management
- 602 Business Management, Finance, and Taxation



Eat Well ... Supporting the Health of Maine Citizens

Relevance – In Maine, almost two-thirds of adults are overweight or obese, a reality that has serious implications for the health of Mainers. In addition, USDA estimates that 206,000 Mainers don't have enough to eat. The contradiction between high rates of obesity and food insecurity in Maine demonstrates that poor food choice and lack of availability of nutrient-rich food significantly affect our population.

Response – UMaine Extension's Eat Well Program (funded by federal EFNEP dollars) provides limited-income families with free research-based, interactive education in homes and community groups. Participants learn to stretch food dollars, new ideas and recipes for healthy meals, healthy snacks options, meal planning for busy people, cooking skills, ways to make favorite recipes healthier, how to keep food safe, and tips for healthy living.

Results – Program graduates in 2014 (n=278) report these results:

- 62 percent plan meals in advance.
- 46 percent compare prices when shopping.
- 41 percent don't run out of food before the end of the month.
- 52 percent use a list for grocery shopping.
- 47 percent more often think about healthy food choices when deciding what to feed their families.
- 40 percent more often prepare foods without adding salt.
- 61 percent more often use the "Nutrition Facts" on food labels to make food choices.

Through pre- and post- 24-hour recalls, participants report an increase in consumption of whole grains, fruits, vegetables, dairy, and healthy oils. Survey data showed that program graduates (n=143) saved money on their monthly food bills as a result of their participation. The average monthly savings per household was \$36, for a total household cost savings of \$432 per year, with improved food quality. The total food cost savings for all graduated households was \$4,960 per month or \$59,520 per year.

Outcome Measure: Adopt healthy dietary practices (consume nutrient-rich foods, follow current Dietary Guidelines for Americans or DASH, etc)

Knowledge Areas:

- 703 Nutrition Education and Behavior
- 704 Nutrition and Hunger in the Population

Eat Well...Supporting Children's Learning and Health

Relevance – In Maine, more than a quarter of school-aged youth are overweight or obese. Additionally, more than 16 percent (206,000) of the state's people are food insecure, of whom about one-quarter are children. Food insecurity is harmful to children's physical and cognitive development. Inadequate nutrition can affect children's learning and ability to stay free from illness.

Response – UMaine Extension's Eat Well Program (funded by federal

EFNEP dollars) provides limited-income youth with research-based, interactive education on a variety of topics. Program participants learn new skills and practice behaviors that help them improve their eating habits, prepare food safely, and become more physically active.

Results – Participants included 5,026 Maine youth in grades K-12 (ages 5-18) reached through a variety of community, school, and after-school programs. As a result of participating in Eat Well nutrition classes:

- 80 percent (2,098 of 2,633) of youth improved their abilities to choose foods according to USDA MyPlate recommendations.
- 45 percent (1,191 of 2,622) of youth use safe food handling practices more often.
- 32 percent (841 of 2,626) of youth improved their physical activity practices.
- 26 percent (12 of 46) of youth improved their ability to prepare simple, nutritious, affordable food.
- 10 percent (6 of 60) of youth acquired skills to increase their food security.

Habits of healthy eating and regular physical activity are laid in childhood, so developing a solid foundation in these areas will help improve the health of Maine’s population long term.

Outcome Measure: Youth will consume more healthy foods

Knowledge Areas:

703 Nutrition Education and Behavior



Expanding Access to Local Foods...Bringing Local Foods to Maine Schools

Relevance – Public school students consume as much as 48 percent of their meals at school during the school year. This offers an opportunity to expand access to local foods and support Maine’s local food system that includes many nutrient-dense products: blueberries, potatoes, fresh vegetables, meats, seafood, and dairy. Research shows that long-lasting habits and attitudes toward food are formed early in childhood, and cultivating a taste for fresh, local foods can improve students’ health long-term.

Response – UMaine Extension established connections between the Portland Public School (PPS) food service and local farmers to encourage local food procurement by PPS. We created and implemented a research methodology to identify the students’ taste preferences and ultimately increase their consumption of local foods. This included conducting taste tests at PPS cafeterias of 5,110 students in grades 5 to 12.

Results – Taste test results indicate that the consumer base will support a menu featuring local procurement practices that could allow an increase in the percentage of PPS’s \$1.13 million budget that is spent on local foods. The PPS taste tests showed:

- 62 percent of students are willing to try featured Maine foods.
- 88 percent of students indicate that they would eat the featured Maine food again or more often.

Portland’s mayor wants to increase locally sourced foods in city schools from 30 percent to 50 percent by 2016. An increase of 20 percent in local foods spending would mean that \$226,000 more annually could go toward supporting the local food system. PPS’s efforts are helped by a nearly \$100,000 USDA Farm to School grant that supports the purchase of local foods, and encourages schoolyard gardens and the inclusion of nutrition and physical activity in the curriculum to encourage students to make healthy choices everyday.

Outcome Measure: Increase consumption and preservation of healthful, locally-grown and -produced food (farm to school program, food preservation, etc.)

Knowledge Areas:

703 Nutrition Education and Behavior

Helping Farmers Optimize Forage Production and Quality

Relevance – New England corn silage production is estimated at 162,000 acres, with an estimated value of \$178 million for 2012. This crop accounts for a substantial portion of the cropping expenses of Northeast dairy farms. Recent environmental rules and USDA incentive programs encourage the adoption of cover crops after silage harvest. New England’s short growing season and a long-standing emphasis on longer-season hybrid selection for maximum yield has hampered adoption of cover crop strategies.



Response – To help dairy farmers optimize overall forage production and quality, UMaine researchers organized field trials and demonstrations in three New England states. They sought to determine the benefits of cover crops, no-till, and shorter-season corn silage varieties. All three state teams conducted widespread outreach efforts throughout the region and internationally through traditional, online, and in-person methods.

Results – Farmers planting silage corn using no-till reduced fuel use on average by 5.7 gal/ac and time in the field by 2.75 hr/ac, for total savings of about \$50/ac. At \$30/ac, the cost of planting cover crops effectively replaced nitrogen fertilizer, both in cost and N availability. Shorter-season silage corn with no-till planting freed up time for farmers to incorporate cover crops into their rotation. The improvement in forage quality without sacrificing yield increased milk production and farm profitability.

Of 103 farmers who completed a post-project survey, 33 adopted no-till corn and cover cropping on almost 3,000 ac, primarily because of economic benefits. Shorter-season corn had similar yields but higher quality than longer-season varieties, according to variety trials in ME and MA. On one ME farm, researchers estimated that switching from a 94-day to an 85-day variety would increase income by \$670/ac (milk value of \$20/cwt), because milk production/ac increased by 3,350 lbs.

Outcome Measure: Cross Cutting

Knowledge Areas:

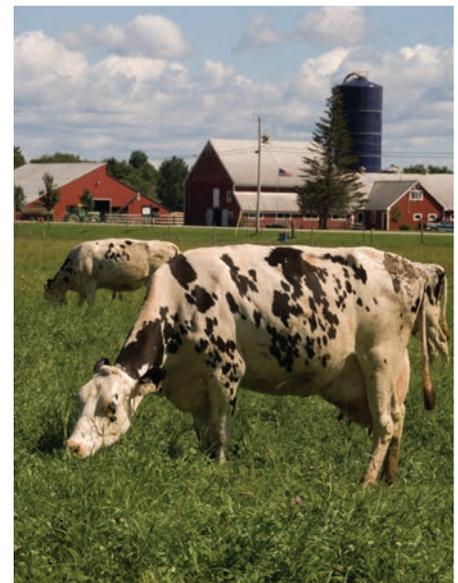
- 205 Plant Management Systems
- 213 Weeds Affecting Plants

Maine Colleges Addressing Food Insecurity

Relevance – Maine ranks number one in New England in food insecurity among its residents, even though a host of public and private groups provide emergency food to those in need. The rate of food insecurity among Maine school-age students is 24 percent. But there is no organized effort among Maine's college campuses to address hunger in their communities or statewide. The potential for harnessing this human and intellectual resource is limitless.

Response – UMaine Extension collaborated with the Maine Campus Compact to develop the first Maine Hunger Dialogue. Nearly 100 students and faculty from 17 Maine campuses gathered in Orono to learn about hunger and to generate action plans for ending hunger in their regions. UMaine Extension faculty secured over \$33,000 in corporate sponsorships for the event. Community groups attended to support student action planning and assist students in packing 10,000 emergency food packets for Maine food pantries.

Results – To date, eight proposals have been funded. One project will raise funds for a local food bank and host a competition among eight high schools to see which school can collect and donate the most food to local pantries. Another project will analyze the extent of hunger on a community college



campus and the feasibility of hosting a food bank for nontraditional students. Another proposal will establish an edible park in Bangor, where residents would work with college students to grow food with and for those in need.

Through this initiative, UMaine Extension has developed new partnerships with Maine Campus Compact, UMaine System campuses, eight corporations, and the Good Shepherd Food Bank.

Extension staff, community groups and students packaged **10,000** emergency food packets for Maine food pantries.

The foundation is now in place for student action among campuses in Maine to address hunger in more coordinated ways and to share best practices.

UMaine Extension will convene a 2015 mid-year rally for the campus teams with funding from SYSCO as the major sponsor of this initiative.

Outcome Measure: Number of participants who learn about food system through community forums

Knowledge Areas:

703 Nutrition Education and Behavior

Maine Grass Farmers Network...Increasing Profitability and Environmental Soundness of Dairy Farms

Relevance – Growing and effectively using pasture resources for livestock production can improve profitability and also reduce erosion, protect water resources, sequester carbon, and maintain open space. More than 274,000 acres of hay and/or pasture are grown in Maine. Organic dairy farmers must pasture their animals during grazing season. The demand for grass-fed livestock products continues to increase, but these operations need to improve profitability and environmental sustainability.

Response – The Maine Grass Farmers Network, with UMaine Extension, produces a newsletter and videos; maintains a website; and holds an annual conference. Forage production and pasture management talks, walks, and webinars are delivered around the state and region for various clients, including beginning farmers, USDA, commodity groups, and commercial agriculture support industries. Perennial rye grass cultivar trials evaluate grazing and harvest management response, among other traits.

Results – The network's 2014 grazing conference saw the highest attendance yet (110 graziers). Membership is now over 250 producers. Improving forage and pasture management to ensure quality nutrients in terms of crude protein (CP) and digestibility improves animal performance and farm profitability. As plants mature, the concentration of CP declines in harvested material and digestibility drops. Increasing forage quality from 14 percent to 17 percent CP through more timely harvest can substantially improve farm profit. For example, if organic protein is valued at \$1.10 per pound, the change of 3 percentage points in CP would yield about 60 additional pounds of protein per ton of feed. Assuming a yield of 4 tons

per acre, that represents about \$240 in protein from forage per acre, or \$24,000 on a farm that harvests 100 acres of grass and legumes for hay, pasture, or silage. Building efficiencies such as this into grass-based feeding systems can make a huge difference in profitability and animal performance.

Outcome Measure: Increase profitability

Knowledge Areas:

601 Economics of Agricultural Production and Farm Management

Preventing Greenhouse Pest Diseases

Relevance – Greenhouse pest management is of concern to both growers and their customers. Many growers seek to establish biological control protocols in their production, but the learning curve is steep, and hands-on experience is critical for success.

Response – UMaine Extension collaborated with colleagues from the Maine Department of Agriculture, Conservation, and Forestry to produce the Best Greenhouse Practices Workshop in March. The program was presented at the greenhouse of a grower who uses biocontrols very effectively. The program, which featured extensive hands-on activities related to greenhouse biocontrol systems, was attended by 34 people, including 26 commercial growers, as well as horticulture students and university and MDACF personnel.

Results – Of the 12 respondents to the post-workshop survey, participants highly ranked the greenhouse tour (4.08 avg/5.0 possible), hands-on activities (4.0 avg/5.0), chance to earn pesticide credits (4.15 avg/5.0), and opportunity for networking (4.23 avg/5.0). Of the 12 respondents, 100 percent indicated that as a result of this workshop, they: (i) instituted better pest monitoring; (ii) implemented aphid banker plants; (iii) used potato cubes as a scouting method for fungus gnats; (iv) improved their pest scouting methods; and (v) cleaned their greenhouses better as a pest preventive measure. Of the 12 respondents, 75 percent implemented better recordkeeping and a higher level of scouting and planted habitat plants for beneficial Orius bugs. The total reported impact of this workshop on the businesses of the 11 people who responded was \$2,925. If just 10 percent (55, including these 11) of the approximately 550 commercial greenhouses in the state adopted these measures, it could save at least \$14,625.

Outcome Measure: Utilize Cooperative Extension to identify pest problems and determine research-based management strategies

Knowledge Areas:

205 Plant Management Systems

Wild Blueberries...Allowing Maine to Remain Competitive in the Global Market

Relevance – About 100 million pounds of wild blueberries are produced on over 60,000 acres in Maine by 575 growers. The industry contributes over \$250 million to Maine's economy. Understanding production costs and returns is critical in determining the appropriate level of insect pest management and pollination inputs needed to remain competitive as production increases worldwide. Invasive pests and increasing prices for honeybee colonies threaten the economic viability of small growers.



Response – In 2009 we began research to provide growers with information on how pollination strategies for different management systems determine pest pressures on blueberry crops. Growers must optimize increasingly expensive inputs to achieve sustainable yields. Research-based field management and yield information helps current blueberry growers define the risk and returns on investment and assists new growers in understanding the inputs needed for optimal production.

Results – Growers who sample to determine pollinator density in their fields can decide if they should change their investment in rented honeybees, or if they should enhance native bee populations by planting pollinator pastures. Previously, growers invested in pollination without any factual basis.

Wild blueberry production in Maine has increased from 20 to 104 million pounds over the past 25 years. Part of this increase came from better pest management and financial information on which to base pollination decision-making. Total attributable net pollination income is \$2.2 million for rented honeybees and \$1.5 million for native bees. The attributable net income for wild blueberry is \$257 for rented honeybees and \$171 for native bees. Therefore, the decision-making tools that we have provided growers so that they can determine how much to rely on honeybees versus native bees are very important. The economic impact of native bees is significant and can replace that of honeybees.

Outcome Measure: Demonstrate how to develop integrated farming systems

Knowledge Areas:

205 Plant Management Systems



Dining with Diabetes Down East

Relevance – Washington County has high rates of diabetes-related hospitalizations, lower extremity amputations, and the highest diabetes-related death rate in the state. Few Washington County residents participate in diabetes self-management education programs. Barriers to participation include cost, lack of insurance, complexity of education programs available through the health care system, and the time, cost, and inconvenience of traveling to the closest programs, all of which are outside of the county.

Response – A free program of four 2-hour sessions was presented in four communities. Each session included a presentation, cooking demonstrations, and facilitated discussion. The first session presented a general overview. In each of sessions 2–4, how to select foods and prepare meals that favorably affect one of the “ABCs” of diabetes were addressed: A1C, Blood pressure, and Cholesterol. Fifty-five adults with type 2 diabetes, pre-diabetes, and family members participated.

Results – Participants indicated that the information presented was easy to understand, the food tasted very good, and the printed materials were helpful. Six-month follow-up evaluation showed:

- 94 percent reported using the Plate Method to plan meals
- 78 percent reported using recipes
- 83 percent reported lost weight
- 56 percent reported lower A1C (blood sugar)
- 61 percent reported lower blood pressure
- 50 percent reported lower LDL cholesterol
- 94 percent reported lower weight, A1C, blood pressure, or LDL cholesterol
- 89 percent reported lower values for at least 2 measures
- 44 percent reported lower values for at least 3 measures
- 22 percent reported lower values for all 4 measures

Based on published research, the program will likely result in decreased disability, death, and health care costs. For example, approximately \$96,000 is saved in Medicare costs for each year hemodialysis is postponed due to improved diabetes control. Reported participant influence on children and grandchildren may positively impact their elevated lifetime risk for diabetes.

Outcome Measure: Adopt healthy dietary practices (consume nutrient-rich foods, follow current Dietary Guidelines for Americans or DASH, etc)

Knowledge Areas:

703 Nutrition Education and Behavior

\$96,000 is saved in Medicare costs for each year hemodialysis is postponed due to improved diabetes control.

AgrAbility...Supporting Farmers of All Abilities To Remain Active on the Farm

Relevance – The average U.S. farmer is 57 years old, and farming is the seventh most dangerous job. An estimated 5,700 farmers, farm family members or workers in Maine have a chronic health condition or disability—arthritis is most common. The Maine AgrAbility Project provides no-cost aid to those facing physical or cognitive challenges in an industry that typically requires an “able body.” The team also educates service providers about AgrAbility, links farmers to resources, and promotes farm safety.

Response – UMaine Extension partners with Goodwill Industries of Northern New England, Alpha One, and collaborating state agencies to support Maine farmers in maintaining independent living, an enhanced quality of life, and farm financial sustainability. Since 2010, Maine AgrAbility has conducted over 70 customized and confidential on-farm assessments to suggest ways to adapt tools or work sites to allow farmers with disabilities to continue working.

Results – Our AgrAbility specialists offer recommendations to clients, such as changing to a field-model wheelchair, adopting assistive technologies, implementing universal design for ease of use, and urging safe work methods. More than half of participants surveyed up to four years after receiving our services reported some increase in quality of life from their participation and were able to remain productive in their agriculture business. Some reported increased business opportunities, operations productivity, and revenue as a result of participating.

It takes an average of about 18 hours to complete one assessment. At \$65/hour and \$0.44/mile for an average travel distance of 300 miles, the average assessment costs about \$1,300. The team assesses about 17 farms per year, so the total annual value of the free assessment service alone is about \$22,100. The renewed grant allows Maine AgrAbility to provide assessments, advice, and aid to forestry and fisheries workers, as well as farmers.

Outcome Measure: Improve Efficiency

Knowledge Areas:

601 Economics of Agricultural Production and Farm Management

Maine Compost School

Relevance – Maine’s compost industry has grown from three or four operations in the 90’s to over 50 commercial operations in 2015. The many reasons why composting is so essential are more deeply understood these days, in part because of the increased awareness of global environmental issues, and also as a result of people’s more frequent practice of recycling and reusing. In the early stages of the industry development, there were limited educational opportunities to learn about commercial scale composting. As a result the Maine Compost School was developed. The Maine Compost School provides a mechanism for individuals to learn about compost technology and the business of composting.

Response – The Maine Compost School is a collaborative program among UMaine Extension, the Maine Department of Environmental Protection and the Maine Department of Agriculture, Conservation and Forestry, and is the longest continuously running compost program in the United States. Located at the University of Maine Forest and Experimental Station at Highmoor Farm, it includes a full-scale commercial compost site constructed as a center of excellence for education and research. The facility provides opportunities for hands-on learning and field experiences along with traditional classroom activities. The semi-annual five-day school attracts a wide range of participants from for-profit businesses and non-profits such as schools and government agencies.

Results – Since 1997 the school has served 792 U.S. and international participants. In 2014 participants from 2009-2014 were surveyed. Respondents (n=68) reported increased knowledge (100 percent), improved product quality (47 percent), and improved operational efficiency (39 percent). 124 respondents increased sales an average of \$8,500 per year. Participants started 55 new compost businesses. 134 participants increased employment, hiring a total of 8 full-time and 7 part-time workers with a total estimated annual payroll of \$305,002. Business respondents (n=30) produced a total of 82,000 cubic yards of compost with an estimated retail value of \$2.5 million. The average business employed 23 full-time and 14 part-time workers with a total estimated annual payroll of \$796,500. The school has had a positive economic impact on participants, businesses and communities, and has been an effective economic development program helping entrepreneurs successfully create and grow viable businesses in Maine and beyond.



Standard Output Measures	
Direct Contacts Adult	217,452
Indirect Contacts Adult	1,064,625
Direct Contacts Youth	10,304
Indirect Contacts Youth	600,123

Outcome Measure: Expand a Business

Knowledge Areas:

601 Economics of Agricultural Production and Farm Management

Planned Program: Sustainable Community & Economic Development

Community Development

Those who benefit from UMaine Extension’s educational initiatives in community development learn how to be effectively engaged in their communities through volunteerism, public service, becoming involved in and improving their skills with public organizations, and group process skills. This contributes to more effective public organizations, and more effective use of limited public resources as trained citizens are increasingly involved in process and decision-making.

Economic Development

Those who benefit from UMaine Extension’s educational initiatives in economic development learn how to effectively manage and sustain small and home-based businesses, household resources and community assets. This contributes to viable businesses, households, and communities that will benefit other community members by contributing to gainful employment, quality of place, and municipal tax revenues that support community services.

NIFA Knowledge Areas	
	Percentage
Business Management, Finance, and Taxation (602)	25
Marketing and Distribution Practices (604)	20
Individual and Family Resource Management (801)	20
Consumer Economics (607)	15
Community Resource Planning and Development (608)	15
Community Institutions, Health, and Social Services (805)	5

Total Reported effort	2014
Days (FTEs)	6.58
Integrated research days (FTEs)	1.15
Multistate days (FTEs)	0.27
Aides and Seasonal Number	5
Aides and Seasonal Hours	944
Volunteer number	589
Volunteer hours	4,214

Totals	
USDA Formula Funds	\$240,334
University of Maine	\$1,743,537
Other	\$262,902



Planned Program: Activities and Participation

- Community Development - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Community Development - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Economic Development - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Economic Development - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- General Community and Economic Development Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- General Community and Economic Development Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Small and home based business education - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)

Target Audience

- 4-H Volunteers (Adult)
- 4-H Youth (Youth)
- Agricultural Producers (Adult)
- Business Assist Organization Staff (Adult)
- Community Leaders (Adult)
- County Executive Committee Members (Adult)
- Elders or Seniors (Adult)
- Extension - staff (Adult)
- Extension Staff (Adult)
- Families (Adult)
- Forestland Owner (Adult)
- General Public (Adult)
- General Public (Youth)
- Home Gardeners (Adult)
- Resource Managers and Scientists (Adult)
- Small or Home-Based Business Owners - Current (Adult)
- Small or Home-Based Business Owners - Potential (Adult)
- Teachers (Adult)
- Vegetable Growers (Adult)
- Volunteers (Adult)

Selected Program Accomplishments – Impact Statements

Access to Capital

Relevance – Aspiring and existing entrepreneurs need capital to start, improve, and expand their businesses to create high quality jobs for Mainers. 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 such as banks are able to increase access to capital for Maine businesses that otherwise would not be eligible for financing.



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

Results – In fiscal year 2014 the Loan Review Committee approved 42 loans totaling \$6.2 million. An additional \$12 million in private funds were leveraged. A total of \$18.2 million was invested in local communities as a result of this loan program, 77 percent more than in 2013. One hundred forty-two jobs were created or retained, an increase of 94.5 percent over last year. Seven of Maine’s sixteen counties benefited from the program. Sixteen percent of the loans were for start-ups, 6 percent were for acquisitions, and 79 percent were for business expansions.

The large increase in impact over last year is due to greater awareness and promotion of the program to loan officers and officials at banks and other financial institutions. Loan applications are up, as are the amount and number of loans approved and the number of jobs created and retained.

Outcome Measure: Assess community needs and assets

Knowledge Areas:

608 Community Resource Planning and Development



Homemaker Program Supports Maine Communities

Relevance – UMaine Extension Homemaker group members help to extend the resources of UMaine Extension into their communities through educational opportunities and service projects. In the past year, more than 800 UMaine Extension Homemakers have had the opportunity to learn with others, make friends, and contribute to their community and county. Members gain leadership skills and can share their interests and talents with others.

Response – Members help to meet many different community needs, such as providing food to food pantries, quilts and afghans to nursing home residents, toys for children, and transportation to medical appointments, among other things. Groups raise money for causes such as these through bake sales, quilt raffles, craft fairs, auctions, plant sales, refreshment booths, community dinners, and yard sales.

Results – Multiple county groups provided funds for scholarships to 4-H camps in Maine, higher education scholarships to graduating seniors, homeless shelters, animal shelters, and municipal projects. UMaine Extension Homemakers contributed 19,618 hours in volunteer time statewide in the last program year.

If we use the value of volunteer time in Maine from Independent Sector (independentsector.org/volunteer_time)--\$20.10 per hour—the value of those volunteer hours was \$394,322.

In addition, the program garnered donations worth \$20,535. The total value of statewide materials and goods was \$12,060. Finally, the Coins for Caring program raised \$1,400 for the 4-H Bryant Pond Camp program in 2013. Therefore, the total value of the goods and services provided by UMaine Extension Homemakers was \$428,317 in 2013–2014.

Outcome Measure: Engage positively in their community

Knowledge Areas:

805 Community Institutions and Social Service

Protecting Maine's Coastal Tourism Industry...and Coastal Beaches

Relevance – Unsafe bacteria levels degrade ecosystems, threatening public health and local tourism economies. Tourist spending in York County is estimated at over \$500 million annually. Goosefare Brook empties near popular swimming beaches between the towns of Saco and Old Orchard Beach. Routine monitoring has indicated chronic bacterial pollution discharging from the brook. Pollutants are transported from upland areas and sources are difficult to identify, often requiring intensive investigations.

Response – UMaine Extension brought together local, state, and federal partners in a collaborative process focused on sharing resources and solving problems. A Municipal Guide to Clean Water was developed to build local capacity to address pollution issues. Since 2010, over 1,000 water samples have been collected from the brook. Pollution source tracking expanded to include optical brighteners, nutrients, pharmaceutical, and personal care products as potentially indicative of human-sourced fecal contamination.

Result – The towns have used the Municipal Guide to Clean Water to direct their property surveys to identify malfunctioning septic systems, leading to removal of numerous grey and black water discharges in the watershed. This has also led to investigations and upgrades to sewer and stormwater infrastructure (total of ~30,000 linear feet). In 2014, the towns posted supplemental signage at the mouth of the brook alerting the public of the potential risk of oral water contact. The towns worked together to acquire grant funds in support of a watershed management plan. The condition of the watershed will be assessed, stormwater retrofitting projects and watershed restoration planning will be launched, a suite of watershed health characteristics will be monitored, and public outreach and involvement will be emphasized in 2015. UMaine Extension personnel serve on the steering committee and will continue to support these and other important actions to address the health of Goosefare Brook.

Outcome Measure: Mobilize community capacities, assets, or resources

Knowledge Areas:

608 Community Resource Planning and Development



Senior Companion; Supporting Maine’s Seniors and Saving over \$4 Million in Costs of Long-term Care

Relevance –Maine is the oldest state in the nation (U.S. Census Bureau). The median age is five years older than the U.S. median. About 16 percent of Maine’s population is age 65 or older. As the population ages and baby boomers reach age 65, the number of seniors needing extra assistance to live independently rises. Without help, many older adults would have to move into costly assisted living facilities. There is an increasing need for education and training to help seniors to remain in their own homes.

Response – For 33 years, the Senior Companion Program has provided a cost-effective way for Maine’s seniors to remain in their homes. Volunteers aged 55+ with limited incomes (Senior Companions) provide companionship and nonmedical support to homebound and/or isolated older adults. Senior Companions attend monthly regional trainings. Senior Companions receive an hourly stipend, insurance, and reimbursement for transportation. In 2013-14, 121 Senior Companions served 469 clients in 24,856 visits.

Result – This program encourages the independence of Maine’s seniors and increases their likelihood of remaining in their homes. The cost to operate the program in 2013-14 was approximately \$477,000 (72 percent-federal, 23 percent-state, 5 percent-local nonprofits). For every \$1.00 of state funding, \$3.35 of federal and nonprofit funding supported this program. Of all our clients, 43 would likely need to live in long-term care facilities if they were not receiving our assistance. All are at least 85 years old and have at least one chronic health condition.

The estimated per person annual cost for nursing home care in Maine in 2013 was \$98,550. Therefore, these 43 clients would have paid \$4.2 million for long-term care. This represents a substantial savings to Maine’s seniors, families, and the state. The 121 Senior Companions worked an average of 53 hours per month for a total of 76,776 hours in 2013-14. Using an hourly wage of \$20.10, the economic value of these trained volunteers during 2013-14 was \$1.5 million.

Outcome Measure: Adopt effective community strategies

Knowledge Areas:

608 Community Resource Planning and Development

The economic value of trained Senior Companion volunteers during 2013-14 was **\$1.5 million.**

Standard Output Measures	
Direct Contacts Adult	5,296
Indirect Contacts Adult	11,447
Direct Contacts Youth	372
Indirect Contacts Youth	15



Positive Youth Development

The mission of 4-H is to provide meaningful opportunities for youth and adults to work together to create sustainable community change. This is accomplished within three primary content areas, or mission mandates - citizenship, healthy living, and science. The educational foundation of 4-H lies in these three mission mandates. These mandates reiterate the founding purposes of Extension (e.g., community leadership, quality of life, and technology transfer) in the context of 21st century challenges and opportunities.

Maine has a population of about 1.25 million people, but we live in a large, rural state. Within our borders there are 16 counties that contain over 430 diverse communities, each governed by a collection of citizen councils, boards, and committees that are challenged to address a broad range of issues unique to their communities.

Maine is home to over 269,218 (census 2011) youth between the ages of 5 and 17. The Guiding Principles of the Maine Learning Results (1997) require that each student leave school as a “clear and effective communicator, a self-directed and life-long learner, a creative and practical problem solver, a responsible and involved citizen, a collaborative and quality worker, and an integrative and informed thinker.”

When Extension’s educational initiatives in youth development are supported, youth learn skills that help build positive relationships, increase knowledge, promote career aspirations and encourage community engagement. As a result, the public benefits by a more informed, involved, and self-reliant citizenry, increased community engagement, and a state that values its youth.

NIFA Knowledge Areas	
	Percentage
Youth Development (806)	50
Healthy Lifestyle (724)	30
Human Development and Family Well-Being (802)	20

Total Reported effort	2014
Days (FTEs)	12.08
Integrated research days (FTEs)	0.3
Multistate days (FTEs)	0.19
Aides and Seasonal Number	218
Aides and Seasonal Hours	86,137
Volunteer number	1454
Volunteer hours	29,341

Totals	
USDA Formula Funds	\$367,967
University of Maine	\$2,394,772
Other	\$375,599

Activities and Participation

- General Activities in Support of Youth - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- General Activities in Support of Youth - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)
- Youth Development Activities - Direct (Club, Conference, Program, Consultation, Scholarship, or Training)
- Youth Development Activities - Indirect (Applied Research, Media, Internet, Publication, Resulting from Training)

Target Audience

- 4-H Volunteers (Adult)
- 4-H Youth (Youth)
- Community Leaders (Adult)
- Disabled Youth (Youth)
- Elders or Seniors (Adult)
- Extension - staff (Adult)
- Extension Staff (Adult)
- Families (Adult)
- Families (Youth)
- General Public (Adult)
- General Public (Youth)
- Master Gardener Volunteers (Adult)
- Parents (Adult)
- Resource Managers and Scientists (Adult)
- Teachers (Adult)
- Volunteers (Adult)

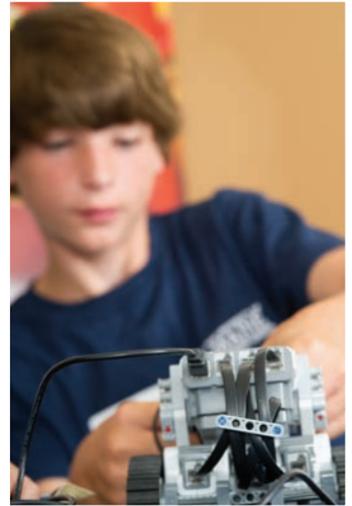
Selected Program Accomplishments – Impact Statements

STEM Ambassadors – Sparking Student Interest in STEM Careers

Relevance – 4-H can be a conduit for youth to higher education and successful careers, especially in the STEM (science, technology, engineering, and math) fields. STEM careers typically require a B.S. degree or higher. Of the 25,000 youth that Maine 4-H engages annually, 52 percent engage in a STEM program; 83 percent want to finish college, 25 percent want postgraduate education, and 73 percent want science-related jobs.

Nationally, girls involved in 4-H are twice as likely to pursue science careers.

Response – We developed a STEM Ambassadors program consisting of trained undergraduate and graduate students facilitating STEM activities for youth in schools and in after-school programs, clubs, libraries, and camps throughout Maine. Three students led activities based on four of the Maine EPSCoR SSI research themes and the 4-H Summer of Science aerospace engineering topic. We also provided on-campus experiences to connect youth with top faculty, staff, and students eager to share their knowledge.



Results – From our short-term pilot, we found an increase in student leaders’ knowledge of STEM teaching best practices, and their ability and comfort level with facilitating STEM activities. The program took one ambassador from being “on the edge” about teaching to giving her the confidence to pursue a career in education.

We saw an increase in university engagement in local communities where UMaine has not traditionally reached. Youth were extremely excited that someone from the University of Maine came to share STEM activities. Teachers are asking that the ambassadors return this academic year. Because of our success, the UMaine System Chancellor and Board of Trustees are supporting our efforts to develop a statewide network of STEM Ambassadors. We will be able to connect more youth around the state to local higher education institutions, in an effort to increase the future STEM workforce in Maine.

Outcome Measure: Youth will see science in their futures and recognize the relevance of science

Knowledge Areas:

724 Healthy Lifestyles

Summer of Science: Sparking an Interest in Science, and Reducing Summer Learning Loss

Relevance – The United States must improve student proficiency in science, technology, engineering and math (STEM). In Maine, testing (2012-13) showed that more than 33 percent of 5th graders and 45 percent of 11th graders were not proficient in science. The achievement gap widens in summer for low-income students, who lose more grade equivalency due to lack of out-of-school learning opportunities. STEM education can lead to better job opportunities and increase the likelihood of youth furthering their education.

Response – To increase science proficiency in underserved communities, UMaine Extension volunteers and staff created and delivered 4-H Summer of Science curricula to youth in grades 3–8 at 14 free- or reduced-lunch sites, 3 libraries, and 5 summer camps in 4 Maine counties. Participants included 617 youth, of whom ~25 percent were minorities and more than 50 percent were girls. At 8 sites, UMaine Extension staff recruited, trained, and supervised 18 teens to deliver the curriculum. The teens offered a total of 162 hours of programs.

Result – All youth participated in at least one science experiment and 75 percent participated in at least 4 experiments. This positioned them well to return to school with reduced summer learning loss and increased interest in science. Also, it has been shown that youth involved in 4-H are more likely to pursue future courses or a career in STEM, which can improve job opportunities.

This program fostered career development, leadership, and responsibility in the 18 teens trained to deliver programs. A post-teaching survey (n=13) yielded these results:

- 100 percent are now more likely to volunteer in their community and feel that they can make a difference through community service.
- 92 percent would return to teach again.
- 77 percent had never belonged to 4-H or participated in a 4-H activity before.
- 62 percent were born in Africa or the Middle East and came to the U.S. as immigrants.

The value of the work conducted by volunteers at the 22 sites was \$10,009 (\$20.10/hour based on 2013 Independent Sector research).

Outcome Measure: Youth will see science in their futures and recognize the relevance of science

Knowledge Areas:

724 Healthy Lifestyles

