

2014 University of Wisconsin Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Wisconsin agriculture is an \$88.3 billion industry and provides 413,500 jobs. Despite combined effects of the drought of 2012 and lingering effects of the recent recession, agriculture has risen in importance for the Wisconsin economy -- accounting for 11.9% of employment, 10.9% of labor income, 10.9% of total income, and 16.1% of industrial sales (<http://wp.aae.wisc.edu/wfp/contribution-of-agriculture-to-the-wisconsin-economy>).

About one in nine state residents works in a job related to agriculture, including farmers, their employees and those providing them with goods and services -- veterinarians, nutritionists, crop and livestock consultants, feed, fuel and crop input suppliers, equipment dealers and lenders -- as well as those employed in equipment manufacturing and food processing. Here is how agriculture's impact increased since the 2007 Census of Agriculture:

- Sales from farm-related activity and food processing combined rose from \$59.2 billion in 2007 to \$88.3 billion in 2012, an increase of 49.3%.
- Sales related to on-farm activity increased 62.7%, from \$12.6 billion to \$20.5 billion.
- Sales from food processing industrial sales increased from just under \$50 billion to \$67.8 billion, an increase of 35.6%.

University of Wisconsin-Extension provides trusted research-based education and assistance, strengthening a robust agricultural economy, healthy and safe food systems and valued natural resources, while supporting colleagues and partners providing education transforming lives, organizations and communities. Multidisciplinary statewide teams are co-chaired by campus-based specialists and community-based educators. Structuring team leadership in this manner is intentional, building relationships and linkages among communities of research interest, communities of practice, and communities of locale. Teams develop plans focused on interests that cut across these communities. They do so from the point of issue identification and priority-setting, to resource commitment, plan implementation and evaluation. This same approach applies to multistate and joint research and extension activities.

The 2014 University of Wisconsin Annual Report of Accomplishments and Results highlights the following seven planned programs:

1. Global Food Security Food Availability: Crops and Agronomic Plants
2. Global Food Security Food Availability: Dairy and Livestock
3. Global Food Security and Hunger: Food Accessibility
4. Food Safety
5. Childhood Obesity and Nutrition
6. Climate Change and Energy Needs
7. Sustainable Energy and Use of Natural Resources

1. Global Food Security Food Availability: Crops and Agronomic Plants

University of Wisconsin-Extension and UW Agricultural Experiment Station collaboration among campus, county, tribal and regional colleagues and other agricultural professionals, volunteers and partners provide timely research-based education and assistance to improve food availability.

By enhancing economic and environmental sustainability of agribusinesses, about 15% of rented farmland acres are under written lease agreements created by farm operators or landowners who have used UW-Extension farmland rental rate factsheets, keeping cropland productive. With the USDA Farm Service Agency (FSA), integrated campus specialists and more than 30 trained county extension educators acted quickly to provide education on 2014 Farm Bill Title 1 programs -- Agriculture Risk Coverage and Price Loss Coverage (ARC/PLC) described here, and Margin Protection Program for Dairy described under Dairy and Livestock outcome 4. Through innovations and increased efficiencies in production, trained farmers updating payment yields and adjusting base acres for ARC/PLC sign up are supporting Wisconsin's \$88.3 billion agriculture industry providing 413,500 jobs for the next 5 years.

Creating written lease agreements: While renting cropland is an important corn belt transaction, most leases are verbal -- creating legal problems when disputes arise. Evaluation found that nearly 70% of 453 respondents had used county UW-Extension farmland rental rate factsheets in the past 3 years, reporting 43,580 acres as rental land. These results indicate that about 15% of rented acres are under written lease agreements created by farm operators or landowners who have used the farmland rental rate factsheets. Farmers who carefully budget their input costs to formulate rental rates help ensure that their farm businesses remain economically sustainable. Other benefits include ensuring fair rental rates, productive cropland, regulatory compliance, and more harmony among neighbors by easing tension between competing farm operators and improving landowner and tenant relations. Integrated campus specialists supporting this work help update the multistate resource and train colleagues to teach the curricula: <http://www.aglease101.org>

Improving commodity price and risk management: A 2014 Farm Bill safety net requires those growing farm commodities to choose between price and revenue-driven program options administered by FSA. They can reallocate their base program acres and update payment yields, but must do so by the end of March 2015. Around 100 regional workshops plus individual consultations were held in 2014 and planned through March 2015. Evaluations show that more than 1,500 farm owners and operators attending Agriculture Risk Coverage and Price Loss Coverage workshops in December increased their knowledge of ARC/PLC programs and options, and gained confidence in UW-Extension. Working with FSA, three core trained county extension educators engaged around 10 representatives of both the Ho Chunk Tribe and Oneida Nation with Farm Bill ARC/PLC direct education. Full evaluation of program impact will be determined after all educational programs are delivered in 2015.

2. Global Food Security Food Availability: Dairy and Livestock

Wisconsin dairy farming and processing contribute 78,900 jobs, \$3.9 billion to labor income, \$7.2 billion to total income, and \$43.4 billion to industrial sales (Deller, 2014). Each cow generates \$34,000 that circulates through local communities. University of Wisconsin research and extension campus, county, tribal and regional colleagues, veterinarians, nutritionists and other agricultural professionals, trained farmers, farm lenders and other advisers, agricultural input suppliers and service providers, volunteers and other educational partners provide timely research-based education and assistance to improve food availability. By enhancing economic and environmental sustainability of agribusinesses, 319 dairy farmers in 43 counties adopted practical solutions that improve working conditions, cow comfort and health, production and profitability. The 2014 Farm Bill ushered sweeping dairy policy changes -- farmers must sign up to be protected, and costs of insurance vary depending on the amount of milk and the margin each farm wants to protect. Decisions made during late 2014 would affect program payments for the next year, creating an urgent need for education. Through innovations and increased efficiencies in production, more

than half (54%) of dairy producers signed up to protect (insure) the margin they need to cover expenses, which could top \$100,000 in an adverse price and margin year.

Sustaining dairy production: As dairy farm numbers drop, a shortage of milk for cheese requires importing milk from other states. The remaining 8,277 farms milking fewer than 100 cows may need to modernize to stay competitive. Extension campus specialists, county dairy and livestock educators helped meet 319 producers' unique needs in 43 counties in 2014. Farmers made investments in milking, housing, feeding, and manure handling and storage systems design and management, and engaged in farmstead planning for the next generation. They adopted practical solutions that improve working conditions, cow comfort and health, production and profitability, and create a sustainable dairy production system. Leading state dairy production, Green County farmers reported expanding their herds by an average 63 cows with nearly 10% increase in milk per cow. This resulted in 55,292,337 more pounds of milk, keeping 12 cheese plants and 18 other processing plants operating at capacity -- providing 3,000 jobs and along with 60 specialty cheeses, \$1.29 billion in dairy product sales.

Improving margin risk management and sustainability: University of Wisconsin received funding to develop decision tools and provide education on 2014 Farm Bill Title 1 programs -- Margin Protection Program for Dairy (MPP-Dairy) described here, as well as Agriculture Risk Coverage and Price Loss Coverage described under Crops and Agronomic Plants outcome 4. Collaborating with 6 other Land Grant institutions, this became the national Program on Dairy Markets and Policy (DMaP). Integrated campus specialists and more than 30 county extension educators directly trained more than 6,210 participants through 33 meetings and 5 webinars co-hosted by Farm Service Agency (FSA) statewide. FSA enrollment statistics show that of 10,860 dairy farms licensed in 2013, 54% enrolled in MPP-Dairy (5,864), and 55% of those (3,225) elected buy-up coverage (Novakovic et al, DMaP BP 15-01: dairymarkets.org). Signing up for MPP-Dairy allows producers to protect (insure) the margin they need to cover expenses. On moderate-sized operations, returns could top \$100,000 in an adverse price and margin year.

3. Global Food Security and Hunger: Food Accessibility

University of Wisconsin research and extension collaboration among campus, county, tribal and regional colleagues, partners and trained volunteers is providing timely research-based education and assistance to improve food security by strengthening local food markets and systems, responding to growing consumer demand for sustainably produced local foods, building community capacity to increase access to healthy foods for vulnerable populations, and increasing household access to healthy foods for those in need. Farmers' markets offer seasonal local produce, and opportunities to teach nutrition and encourage healthier habits. By strengthening local food markets and systems, 116 farmers' markets and other direct-marketing farmers are accepting 46% more Supplemental Nutrition Assistance Program payments, providing seasonal healthy produce for low-income households. By building community capacity to increase access to healthy foods for vulnerable populations, 150 trained local planners and policy makers can now identify community strengths and gaps, inform local assessments, develop program plans, educate community members on food security, and access data to include in grant applications.

Increasing healthy local foods for SNAP participants: UW-Extension partnered with the Wisconsin Department of Health Services to provide statewide coordination and education supporting communities expanding access to healthy foods through farmers' markets for the 15% of low-income residents participating in the Supplemental Nutrition Assistance Program (SNAP). Chronic disease is prevalent among this population, 3 in 5 are overweight or obese and 1 in 10 has diabetes. A statewide network of 50 individuals internal and external to extension formed to expand SNAP participant access to farmers' markets. As a result, 116 farmers' markets and direct-marketing farmers accepted SNAP payments in 2014, accounting for \$249,282 in SNAP redemptions -- up 46% from 2012. Extension educators in 7 counties report that through support to their local farmers' markets: 3 added electronic benefits transfer (EBT) machines; 9 expanded access to SNAP participants through outreach efforts; 7 secured funding to support food product incentive programs for SNAP and/or WIC or Senior Farmers' Market Nutrition

Programs; \$117,650 of grant or private dollars were received or resources leveraged to support EBT programs, including fruit and vegetable incentive programs; and 10 markets increased EBT program evaluation capacity.

Mapping and improving community food security: Wisconsin's 11.6% of food insecure households masks local variations in food hardship and risks for food insecurity. The Wisconsin Food Security Project was developed collaboratively among UW-Extension Family Living Programs, UW-Madison School of Human Ecology and Applied Population Laboratory, building on the Wisconsin Food Security Consortium infrastructure framework. Eight workshops trained 150 individuals to use the web site. Trained community planners and policy makers use the interactive data and mapping tool to assess a multitude of household risk factors alongside local resources and supports to better grasp local food security infrastructure. They identify community strengths and gaps, inform local assessments, develop program plans, educate community members on food security, and access data for grant applications. For example, Second Harvest Foodbank of Southern Wisconsin conducted a child hunger needs and resources assessment for the 16 Wisconsin counties their foodbank reaches. Assessment results guided the child hunger strategies outlined in their 3-year strategic plan. The Wisconsin Food Security Project received 18,000 visits from nearly 8,000 unique visitors at: <http://www.foodsecurity.wisc.edu>

4. Food Safety

University of Wisconsin research and extension collaboration among campus and county faculty and staff, state, regional, tribal and national colleagues, emergency food service agencies, educational partners and trained volunteers is providing timely research-based food safety education and support to improve sustainable production, distribution, preservation and storage of safe, quality foods from farm and garden to the table. For improving the safety of the food supply, the UW-Extension and Wisconsin Community Action Program Safe and Healthy Food Pantries Project engaged 6 food pantries in assessing their food procurement, inventory and distribution practices, then developing action plans to improve the nutritional quality and safety of the foods they distribute. By developing and implementing behavioral interventions that improve consumer food safety practices, evaluation of 118 home food preservation workshops in 22 counties found that 657 consumers improved their confidence, understanding and behavioral intent -- preserving food safely at home using current, research-based information on safe food preservation.

Improving food pantry food safety: For 1 in 9 Wisconsin households, food insecurity is related to negative health outcomes such as nutrient deficiencies, chronic stress, diabetes, overweight and obesity. And factors increasing risk for foodborne illness include stress, pregnancy, age less than 5 or 60 to 65 years old, nutritional deficiency and fatty foods. Not only is limited economic stability a top risk factor for food insecurity, but low-income individuals also lack access to preventative health care. Since the economic recession, they rely on food pantries, which may contribute greatly to the quality of foods they consume. Through their Safe and Healthy Food Pantries Project, UW-Extension and the Wisconsin Community Action Program developed a toolkit and training to support safe and healthy food environments in food pantries. As a result, 6 food pantries assessed current food procurement, inventory and distribution practices; identified specific actions to improve the nutritional quality and safety of foods they distribute; then developed action plans to improve nutritional quality and safety of those foods. All 6 plan to develop a nutrition and food safety policy, and 2 have posted food safety guidelines for staff, volunteers and clients.

Preserving food safety: Consumers need ready access to accurate information to ensure products they prepare are wholesome and safe. Resurgence of interest in home food preservation -- and growing concern about food safety -- is drawing increased numbers to UW-Extension's Family Living food safety and preservation classes and resources. In 2013 and 2014, 53 family living educators reached more than 11,000 individuals with education on how to preserve food safely. Around 7,500 of these (68%) received one-on-one assistance, with the rest receiving education through more than 450 group workshops, demonstrations or lunch-and-learn events. Extension educators in 22 counties evaluated learner outcomes for 118 best practices for food safety and home food preservation workshops. Of the 657 participants, 35%

reported they had little or no experience preserving food at home; 40% had been preserving food at home for 2 to 9 years; and 25% had been preserving food for over a decade. Evaluation results indicate a positive change in confidence, understanding and behavioral intent -- preserving food safely at home using current, research-based information on safe food preservation.

5. Childhood Obesity

This planned program is expanded to address Childhood Obesity and Nutrition, anticipating the 2015 combined research and extension joint report. University of Wisconsin-Extension and UW-Madison College of Agricultural and Life Sciences research and integrated projects range from assessing the causes and consequences of childhood obesity and nutritional aspects of diabetes to healthy eating campaigns and management of pancreatitis and other health risks. Effective research-based interventions that are practical to implement and sustain to prevent obesity among preschoolers are building community capacity to help parents and others help young children develop healthy behaviors. Diverse participants make informed, science-based decisions regarding nutrition, childhood obesity, health and physical activity and the inter-relationships that exist. By developing and implementing behavioral interventions that improve nutrition, 44% of low-income students now get breakfast at school and a healthy start to their day. By increasing the capacity of community partners to address issues related to nutrition and childhood obesity, 2 Wisconsin counties in a multistate project made physical activity fun and feasible for 4-year-olds and their families.

Helping low-income students get a healthy start: Wisconsin children miss breakfast daily due to lack of time, appetite or household income. While school breakfasts can ensure that children get a healthy start to their day, a decade ago Wisconsin ranked last nationally in the number of schools offering both breakfast and lunch (47%) as well as last in low-income student participation (25%). Since 2004, University of Wisconsin-Extension Family Living Programs and the Department of Public Instruction (DPI) joined forces to increase awareness of nutritional and academic benefits of eating a healthy breakfast; share evidence-based outreach materials statewide; and award Nutrition Enhancement Breakfast Grants to 49 school districts encouraging 33 schools to start breakfast programs and to 63 others for improvements or equipment. The latest data indicate 74% of schools that serve school lunch now also offer school breakfast and 44% of low-income students now participate. Studies show that both children and adults who eat breakfast are better able to maintain a healthy weight and have a healthier body mass index. Children who eat breakfast consistently demonstrate an increased ability to learn as well as improved behavior and performance in the classroom.

Creating healthier environments for preventing childhood obesity: Rural low-income children are at elevated risk of childhood obesity and high health costs due to lack of healthy food choices and reduced access to affordable physical activity. Two Wisconsin county extension offices are part of a unique 7-state project supporting and developing long-term plans for coalitions increasing physical activity as a way to prevent obesity among rural low-income children. Crawford County conducted a Family Fun Challenge to encourage families to visit 8 free parks in the summer, and launched a partnership with all 7 school districts that are at least 50% low-income and have 4-year-old programs, encouraging physical activity by securing playground equipment for families to use. Rural Iron County similarly worked closely with Head Start to encourage family bike riding and snowshoeing through family workshops, also providing equipment. Final project evaluation will be conducted in 2016, infusing Collective Impact into the work and the results. Both counties' coalitions are increasing their understanding of how to measure impact through the conditions of Collective Impact -- backbone organizations, mutually reinforcing activities, shared measures, and continuous communication.

6. Climate Change

This planned program is expanded to address Climate Change and Energy Needs, anticipating the 2015 combined research and extension joint report. University of Wisconsin-Extension and UW Agricultural Experiment Station campus specialists and county educators in both agriculture and community

development program areas are being called on to respond to questions about sustainable renewable energy as well as soil, water, air, and agricultural quality concerns in the Great Lakes and Mississippi River basins. Interdisciplinary regional and tribal collaborations are providing professionals and community leaders tailored, locally relevant, science-based climate change and energy needs information and strategies to incorporate into economic development and resource management planning processes. By developing, implementing and evaluating an effective outreach program to reduce the agricultural nitrogen footprint statewide, more than 5,360 farmers in 55 counties are adopting environmentally and economically sound nutrient management practices as described in the evaluation section. As 9 Land Grant universities build capacity to maximize carbon sequestration across the Corn Belt, project farmers are making informed management decisions based on scientific evidence and sharing best practices with their peers. Supporting this work is the Wisconsin Initiative on Climate Change Impacts: <http://www.wicci.wisc.edu>

Reducing the nitrogen footprint: Wisconsin farmers face increasing regulatory pressures due to agricultural nutrient contributions producing non-point source pollution to all water resources. Dairy and livestock owners increasingly need nutrient management plans for environmental and cost-sharing compliance, as well as for farmland preservation tax credits. The Nutrient Management Farmer Education (NMFE) curriculum combines classroom instruction, individual consultation, and on-farm field trials to engage farmers in designing nutrient management plans they can understand and follow. As of 2014, more than 5,360 NMFE-trained producers in 55 counties farm at least 1,554,390 acres of cropland and grazing land under nutrient management plans that meet all local, state and federal regulations. The farmer benefit values \$10.8 million for NM plans, and nearly another \$3.9 million for farmland preservation tax credits.

Maximizing carbon sequestration potential: Volatile weather threatens the \$80 billion U.S. corn crop and millions of jobs producing affordable food for people and livestock, fuel ethanol, and thousands of other non-food products. To increase resilience and adaptability to unpredictable cropping conditions, Land Grant researchers, extension educators and farmer leaders are assessing environmental, economic and social impacts of long-term climate variability on corn-based cropping systems across 9 states, identifying and sharing farmer practices and policies that increase sustainability while meeting crop demand. Extension scientists are describing affects of climate change in corn production systems to provide research-based recommendations for growers to address impacts and develop resiliency. Project farmers are making informed management decisions based on scientific evidence and sharing best practices with their peers in their neighborhoods, regionally and nationally at: <http://www.sustainablecorn.org>

7. Sustainable Energy

This planned program is expanded to address Sustainable Energy and Use of Natural Resources, anticipating the 2015 combined research and extension joint report. Communities are interested in developing renewable energy industries for energy independence, job creation, and economic development. Led by the Institute for Environmentally Integrated Dairy Management at the University of Wisconsin-Madison Marshfield Agricultural Research Station, UW Agricultural Experiment Station and extension campus and county faculty and staff are conducting integrated research and extension programs, building capacity for developing biomass for biofuels and scalable conversion technologies among extension colleagues, communities, farmers and industry partners. To develop biomass use for biofuels, the Lake Superior Woody Biomass Initiative is working toward a sustainable woody biomass supply chain. By building capacity to create, refine and implement scalable conversion technologies, trained biodigester owners and operators are improving their economic and environmental sustainability.

Evaluating and demonstrating commercially viable agroforestry: Increased interest in and funding for renewable energy sources may bring new economic opportunities to Northern Wisconsin. Companies have announced plans to establish or expand their use of woody biomass for energy production using locally sourced wood. Expanded use of wood for fuel has raised concerns about increased demand on

roundwood or harvest residues as this may distort pulpwood markets or reduce forest ecosystem function. Purpose-grown woody biomass crops have been proposed as a productive, reliable, and sustainable fuel supply. Jason Fischbach, extension agriculture educator for Ashland and Bayfield counties, convened stakeholders to form the Lake Superior Woody Biomass Initiative, outlining education, research and outreach necessary for developing a sustainable woody biomass supply chain. Lake Superior Woody Biomass Trials are evaluating and demonstrating how hybrid poplar, willow and native conifers perform in the climate and soils of Northern Wisconsin, as well as agronomic and management recommendations that will be shared with producers through research publications. With partners such as the Minnesota Natural Resources Research Institute, these trials have introduced woody biomass crops at a production scale, and have inspired collaborations for further research and development. Despite significant forest resources, harvest residues and mill waste, stakeholders recognize dedicated woody biomass crops as another important source of feedstock that could provide income.

Anaerobic digestion research and outreach: Wisconsin is the leading state for on-farm anaerobic digestion with more than 30 operational systems. Maintaining the economic viability of large-scale anaerobic digestion systems requires optimizing operation, assessing feedstocks, and managing manure systems in accordance with nutrient management plans. Research results are critical to provide additional guidance to operators, system owners, the industry and policy makers on decreasing system failures and downtime, increasing biogas production and profitability, and reducing environmental impacts. Feedstocks are identified and evaluated in extension biowaste specialist Rebecca Larson's lab, then implemented in the field. New tools allow operators to evaluate impacts to emissions, nutrient use efficiency, and economics. As a result, facilities are increasing biogas production and more importantly, avoiding highly toxic feedstocks that cause catastrophic failures. Her recommendations have led to more efficient systems with greater economic and environmental sustainability. And her evaluation of technology and economic constraints has been critical in guiding producers who are evaluating new anaerobic digestion projects.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	95.0	0.0	0.0	0.0
Actual	111.0	0.0	0.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

Merit review is ongoing as statewide self-directed teams develop specifics for the duration of planned programs. At the state level, program area administrators review and oversee team programming. Teams co-chaired by campus and county faculty set the direction for their initiatives, complete a statewide team plan of work, develop research-based educational resources, and report progress toward planned outcomes.

Merit reviews are conducted jointly by team leaders, program directors, and multi-state and regional partners. Teams use reviewers' recommendations to improve program quality and relevance for the intended audience, and include review comments in annual accomplishment reports and plans of work.

University of Wisconsin-Extension curricula and publications are peer reviewed by research and extension faculty, government or industry colleagues and professionals as appropriate to the content, purpose and intended audience. Translations are also reviewed for cultural appropriateness and reading level. Scholarly peer review and cultural review assure the quality and relevance of educational materials and outreach scholarship.

At the county level, local programming addresses priority issues identified through strategic program planning and ongoing needs assessment. Local elected officials review county programs as part of their oversight of extension programming.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Other (Meeting specifically with non-traditional groups)

Brief explanation.

University of Wisconsin-Extension's program development model provides the overall framework for soliciting, analyzing, and summarizing stakeholder input. The model includes situation analysis, priority-setting, inputs, outputs, anticipated outcomes and evaluation planning.

UW-Extension campus and county faculty and staff participate in regular grower, producer, consumer, network, agency, school, local, state and tribal government, business and community coalition meetings to stay informed of key stakeholders' changing needs. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues.

2(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

Stakeholder identification and involvement are key components of UW-Extension's program development process. While county offices have latitude in tailoring their planning process to their unique needs, they are strongly encouraged to use methods that solicit feedback from their communities' diverse populations and from both internal and external stakeholders of extension. Ongoing county civil rights reviews examine the methods used during the stakeholder identification phase and formulate recommendations intended to strengthen this aspect in future planning initiatives.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

Brief explanation.

Input has been gathered from diverse and under-represented audiences statewide through focus groups, interviews, listening sessions and case studies. When appropriate, teams develop culturally sensitive educational strategies; translate or interpret materials into appropriate languages; and partner with agencies and groups representing the needs of under-served and underrepresented populations. In addition, statewide team efforts must be viewed in relation to the local context, where all 72 of University of Wisconsin-Extension county offices have civil rights plans designed to reach those traditionally under-served.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

Brief explanation.

Results from stakeholder input identify priority issues which inform the work of statewide program area teams and are incorporated in budget and staffing decisions.

Brief Explanation of what you learned from your Stakeholders

Stakeholders from three American Indian tribes and Wisconsin's 72 counties identified more than 400 issues. An analysis of these issues identified the following themes:

Economic and Financial Capital: Improve individual/family financial security; Increase business profitability; Improve conditions that support local economy.

Human and Cultural Capital: Life skills development; Optimal conditions for child development created; Family relationships enhanced; Physical needs met; Diverse populations gain social, economic power; Diverse perspectives positively influence community.

Natural Capital: Individual actions conserve, protect, and enhance natural environment; Healthier natural environment results from community action.

Social and Organizational Capital: Skills developed for community benefit; Organizations developed to benefit community; Citizens act to improve community.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
9090307	0	0	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	5358875	0	0	0
Actual Matching	5358875	0	0	0
Actual All Other	0	0	0	0
Total Actual Expended	10717750	0	0	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	5358875	0	0	0

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Global Food Security Food Availability: Crops and Agronomic Plants
2	Global Food Security Food Availability: Dairy and Livestock
3	Global Food Security and Hunger: Food Accessibility
4	Food Safety
5	Childhood Obesity
6	Climate Change
7	Sustainable Energy

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security Food Availability: Crops and Agronomic Plants

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	20%			
133	Pollution Prevention and Mitigation	10%			
202	Plant Genetic Resources	5%			
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%			
205	Plant Management Systems	10%			
216	Integrated Pest Management Systems	20%			
601	Economics of Agricultural Production and Farm Management	25%			
608	Community Resource Planning and Development	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	23.0	0.0	0.0	0.0
Actual Paid	28.3	0.0	0.0	0.0
Actual Volunteer	314.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1376426	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1376426	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

University of Wisconsin-Extension and UW Agricultural Experiment Station collaboration among campus, county, tribal and regional colleagues and other agricultural professionals, trained farmers, farm lenders and other advisers, agricultural input suppliers and service providers, volunteers and other educational partners is providing timely research-based education and assistance to improve food availability. By enhancing economic and environmental sustainability of agribusinesses, about 15% of rented farmland acres are under written lease agreements created by farm operators or landowners who have used UW-Extension farmland rental rate factsheets, keeping cropland productive. With the USDA Farm Service Agency (FSA), integrated campus specialists and more than 30 trained county extension educators acted quickly to provide education on 2014 Farm Bill Title 1 programs -- Agriculture Risk Coverage and Price Loss Coverage (ARC/PLC).

Creating written lease agreements: While renting cropland is an important Corn Belt transaction, most leases are verbal -- creating legal problems when disputes arise. Farmers who carefully budget their input costs to formulate rental rates help ensure that their farm businesses remain economically sustainable. Other benefits include ensuring fair rental rates, productive cropland, regulatory compliance, and more harmony among neighbors by easing tension between competing farm operators and improving landowner and tenant relations. Integrated campus specialists supporting this work help update the multistate resource and train colleagues to teach the curricula: <http://www.aglease101.org>

Improving commodity price and risk management: A 2014 Farm Bill safety net requires those growing farm commodities to choose between price and revenue-driven program options administered by FSA. They can reallocate their base program acres and update payment yields, but must do so by the end of March. Around 100 regional workshops plus individual consultations were held in 2014 and planned through March 2015.

2. Brief description of the target audience

Building regional capacity among agricultural professionals and service providers: Simply counting educational contacts does not capture the extent of a program's reach. For example, the 1,650 agricultural professionals who attended the 2014 Wisconsin Crop Management Conference from Wisconsin, Minnesota, Iowa, Illinois, Indiana and Michigan produce a large multiplier effect as Wisconsin extension research-based recommendations and new Farm Bill Agriculture Risk Coverage and Price Loss Coverage (ARC/PLC) education and resources ultimately reach an increasing portion of the Great Lakes Region crop production sector including farmers.

Expanding access to marginalized and vulnerable populations: A special effort was made to engage American Indian producers and growers with direct Farm Bill Title 1 education programming, led by the Wisconsin state Farm Service Agency (FSA) tribal liaison and Joanie Buckley with the Oneida Nation. Working with FSA, three core trained University of Wisconsin-Extension county educators engaged around 10 representatives of both the Ho Chunk Tribe and Oneida Nation with Agriculture Risk Coverage and Price Loss Coverage direct education.

Building relationships with the state Farm Service Agency and local FSA offices fosters the ground work for future collaborative trainings. Engaging local farm lenders and other advisers further allows extension to become a more integral part of the team approach to agriculture production and commodity price and risk management found throughout successful farming operations. Partnerships with input suppliers and farm service industries also lead to sponsorship of educational events and help offset costs.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Interdisciplinary colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls and Stevens Point campuses, working with 3 tribes, and at 11 agricultural research stations.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	54861	0	9622	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	10	30	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Manage and minimize the loss due to plant pests and/or diseases.
2	Enhance the economic and environmental sustainability of agribusiness.
3	Build the capacity of the agriculture service and support industry.
4	Innovations and increased efficiencies in production.

Outcome #1

1. Outcome Measures

Manage and minimize the loss due to plant pests and/or diseases.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Enhance the economic and environmental sustainability of agribusiness.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In many corn belt states, more than half of the cropland is rented. Renting cropland is an important transaction for both landowners and farmers providing needed income for rural elderly owners living on fixed incomes, yet a major expense for farmers without any assurance of return on their investment due to variables such as weather, market price and competition for farmland. As a result, landowners and farmers are constantly asking their county extension offices: "What is cropland renting for in my area?". Most farmland leases have been verbal, creating legal problems when disputes arise. High land values, commodity prices and input cost volatility that increase tension between landowners and farm operators have also renewed interest in negotiating equitable leasing arrangements and getting those agreements in writing.

What has been done

USDA's National Agricultural Statistics Service (NASS) conducts a cropland rental rate survey and provides county averages each year published in popular farmland rental rate factsheets distributed by University of Wisconsin-Extension offices and shared with county agency staff, agricultural professionals and in farm consultations via phone, email, web site download or in person. Dunn, Pierce and St. Croix County extension educators wanted to know: Are people using the factsheet, how are they using it, if they are not using it, why? Sharing an intern and

working with the UW-River Falls Survey Research Center, a survey evaluation tool was created, 2,183 evaluations were mailed, reminder postcards followed, and 453 responses were received (21% response rate).

Supporting this work, extension farm management specialist Arlin Brannstrom and farm law specialist Phil Harris conducted a statewide land rental webinar at more than 20 sites reaching 200 participants during 2014. They serve on the Ag Lease 101 Team of the North Central Farm Management Extension Committee updating the multistate resource web site, and training colleagues and other professionals to teach the curricula. In 2014, the new web site received more than 49,000 page views from more than 13,000 people at: <http://www.aglease101.org>

Results

Creating written lease agreements: Nearly 70% of the 453 respondents had used the UW-Extension farmland rental rate factsheet in the past 3 years, reporting 43,580 acres as rental land. According to 2012 USDA Census of Agriculture data, 281,304 acres were identified as rented farmland in Dunn, Pierce and St. Croix counties. Results indicate that about 15% of these total rented farmland acres are under written lease agreements created by farm operators or landowners who have used the farmland rental rate factsheets. Farmers who carefully budget their input costs to formulate rental rates help ensure that their farm businesses remain economically sustainable. Other benefits include ensuring fair rental rates, productive cropland, regulatory compliance, and more harmony among neighbors by easing tension between competing farm operators and improving landowner and tenant relations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Build the capacity of the agriculture service and support industry.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Innovations and increased efficiencies in production.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Wisconsin agriculture is an \$88.3 billion industry and provides 413,500 jobs (Deller, 2014: <http://wp.aae.wisc.edu/wfp/contribution-of-agriculture-to-the-wisconsin-economy>). The 2014 Farm Bill authorized a new safety net for those growing farm commodities, known as Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) combining provisions of support programs previously delivered by the USDA Farm Service Agency (FSA). Direct payments are no longer made. Farmers must now choose between these price and revenue driven program options administered by FSA. They can reallocate their base program acres and update payment yields, but must do so by the end of March 2015. These changes required immediate extensive training for farmers and their advisers because decisions made this winter are irrevocable-they stay with the farm for the duration of this 5-year Farm Bill and cannot be changed.

What has been done

Working with FSA, University of Wisconsin-Extension and the UW-Madison College of Agricultural and Life Sciences are providing education on 2014 Farm Bill Title 1 programs - Agriculture Risk Coverage and Price Loss Coverage (ARC/PLC). Though UW-Extension is not involved with administering these programs, county agriculture educators elected to provide educational support to assist farm owners and operators with analysis and options. Integrated campus specialists participated in national train-the-trainer meetings, developed decision-making software tools, delivered 12 webinars, trained a core of 10 county educators, and presented at major conferences including the Wisconsin Crop Management Conference reaching 1,650 Great Lakes agricultural professionals. As regional Title 1 program educational delivery specialists, trained county extension educators worked with coordinator Jenny Vanderlin and the state FSA public affairs/outreach coordinator to quickly plan, implement, promote, teach and evaluate ARC/PLC education programs and support for farmers and their advisers, American Indian tribes, input suppliers, service providers, FSA staff and other county extension educators statewide.

Results

Improving commodity price and risk management: Around 100 regional workshops plus individual consultations were held in 2014 and planned through March 2015. Evaluations show that more than 1,500 farm owners and operators attending Agriculture Risk Coverage and Price Loss Coverage workshops in December increased their knowledge of ARC/PLC programs and options. For example, of 75 Pierce and St. Croix County producers farming more than 14,000 acres of cropland, 90% reported they plan to update payment yields and adjust base acres following their training. Trained producers also gained greater confidence in UW-Extension as a whole, increasing calls and emails with specific questions. Working with FSA, three core trained county

extension educators engaged around 10 representatives of both the Ho Chunk Tribe and Oneida Nation with Farm Bill ARC/PLC direct education. Full evaluation of program impact will be determined after all educational programs are delivered in 2015.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

According to 2012 USDA Census of Agriculture data, 281,304 acres were identified as rented farmland in Dunn, Pierce and St. Croix counties. Results indicate that about 15% of these total rented farmland acres are under written lease agreements created by farm operators or landowners who have used the farmland rental rate factsheets. Farmers who carefully budget their input costs to formulate rental rates help ensure that their farm businesses remain economically sustainable. Other benefits include ensuring fair rental rates, productive cropland, regulatory compliance, and more harmony among neighbors by easing tension between competing farm operators and improving landowner and tenant relations.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security Food Availability: Dairy and Livestock

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
205	Plant Management Systems	5%			
301	Reproductive Performance of Animals	10%			
307	Animal Management Systems	20%			
308	Improved Animal Products (Before Harvest)	5%			
311	Animal Diseases	5%			
315	Animal Welfare/Well-Being and Protection	5%			
601	Economics of Agricultural Production and Farm Management	20%			
602	Business Management, Finance, and Taxation	15%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%			
806	Youth Development	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	33.0	0.0	0.0	0.0
Actual Paid	36.0	0.0	0.0	0.0
Actual Volunteer	2959.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1827216	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1827216	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Wisconsin dairy farming and processing contribute 78,900 jobs, \$3.9 billion to labor income, \$7.2 billion to total income, and \$43.4 billion to industrial sales (Deller, 2014). Each cow generates \$34,000 that circulates through local communities. University of Wisconsin research and extension campus, county, tribal and regional colleagues, veterinarians, nutritionists and other agricultural professionals, trained farmers, farm lenders and other advisers, agricultural input suppliers and service providers, volunteers and other educational partners provide timely research-based education and assistance to improve food availability. The 2014 Farm Bill ushered sweeping dairy policy changes -- farmers must sign up to be protected, and costs of insurance vary depending on the amount of milk and the margin each farm wants to protect. Decisions made during late 2014 would affect program payments for the next year, creating an urgent need for education.

Sustaining dairy production: As dairy farm numbers drop, a shortage of milk for cheese requires importing milk from other states. The remaining 8,277 farms milking fewer than 100 cows may need to modernize to stay competitive. Extension campus specialists, county dairy and livestock educators helped meet 319 producers' unique needs in 43 counties in 2014. Farmers made investments in milking, housing, feeding, and manure handling and storage systems design and management, and engaged in farmstead planning for the next generation. They adopted practical solutions that improve working conditions, cow comfort and health, production and profitability, and create a sustainable dairy production system.

Improving margin risk management and sustainability: University of Wisconsin received funding to develop decision tools and provide education on 2014 Farm Bill Title 1 programs -- Margin Protection Program for Dairy (MPP-Dairy) described here, as well as Agriculture Risk Coverage and Price Loss Coverage described under Crops and Agronomic Plants outcome 4. Collaborating with 6 other Land Grant institutions, this became the national Program on Dairy Markets and Policy (DMaP). Integrated campus specialists and more than 30 county extension educators directly trained more than 6,210 participants through 33 meetings and 5 webinars co-hosted by Farm Service Agency (FSA) statewide.

2. Brief description of the target audience

Expanding access to marginalized and vulnerable populations: More than 25% of Manitowoc County dairy farms employ Hispanic workers who milk more than 70% of the cows. This makes it critical for extension to continue to provide educational opportunities for all employees including those who do not speak English to ensure Wisconsin's \$43.4 billion dairy industry continues to thrive. English is still not used by most Hispanic employees, requiring use of a translator and easy-to-read bilingual newsletters for dairy modernization farm visits. Of those who have learned English as they work with farm owners, other

employees, farm service providers and extension educators, they have also increased their understanding of the dairy business and have become mid-level managers.

Adoption of milking parlor systems on smaller family dairy farms has been a challenge due to the large cost of building a parlor and freestall setup. Manitowoc County dairy farms use extension-facilitated on-farm teams such as the Grow Wisconsin Dairy Team (GWDT launched in 2009) and the Dairy 30x20 program (launched in 2012). The 27 dairy farm owners surveyed received around \$75,000 from the GWDT and Dairy 30x20 grant programs, which leveraged an estimated \$1 to \$1.5 million more funds from the dairy farm owners and lenders to improve their dairy cattle housing, milking center, milking equipment, and electrical, ventilation and feeding systems.

Building relationships: Individual county extension educators, farm lenders and other advisers, veterinarians and nutritionists are gaining knowledge in the complex issues regarding decisions being made at the farm level to invest in the dairy production system for future generations. Integrated campus specialists assisting with 319 farm visits in 43 counties and drawing up farmstead plans bolster dairy modernization programming efforts. Relationships developed with farmers who have modernized in the past by visiting other farms and learning from other farmers has been key to making the bi-annual dairy modernization tours a success. Farmers like extension open house dairy modernization tours because they learn from other farmers and can choose which farms to visit. These tours have also created an archive of different modernization improvements for both farmers looking for ideas as well as UW Short Course students.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls and Stevens Point campuses, at 11 agricultural research stations and the USDA Dairy Forage Research Center.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	163887	0	22699	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	6	4	10

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Manage and minimize the loss due to animal disease.
2	Enhance the economic and environmental sustainability of agribusinesses.
3	Build the capacity of the agriculture service and support industry.
4	Innovations and increased efficiencies in production.

Outcome #1

1. Outcome Measures

Manage and minimize the loss due to animal disease.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Enhance the economic and environmental sustainability of agribusinesses.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As Wisconsin dairy farm numbers drop, a shortage of milk for cheese production requires processing plants to import milk from other states. Of the 10,500 dairy farms at the end of 2014, three-fourths (75%) milk less than 100 cows. Given the difficulty in generating a living wage from such small herds, these 8,277 farms are the most likely to either expand their herd or leave the business. More dairy farms will need to modernize in the next 5 years to stay competitive. Modernizing does not always mean building a new barn or expanding, but can also be small-scale projects such as improving ventilation, remodeling calf and older heifer facilities, or installing automatic take-offs on milking units. Farmers are looking for ways to improve dry cow care, feeding and feed storage. Others need assistance in planning for the future as milk prices and input costs remain volatile.

What has been done

University of Wisconsin-Extension campus specialists, county dairy and livestock educators helped producers expanding and modernizing their dairy facilities by visiting 319 farms in 43 counties in 2014. They delivered reports and educational information to farms making decisions. To identify and meet each farm's unique needs, they document and follow up on 3 types of transitions occurring as farms decide their future:

1. Generational transition: The senior partner will retire, and the new generation is coming back to the farm to take over management and decision-making.
2. Business transition: The family decides how to transfer assets to the new farming generation, and the new generation builds equity into the dairy business.
3. System-wide farmstead facility change: The farm makes changes in housing, milking, feeding, and manure handling systems design and management.

Results

With extension assistance, farmers made decisions on investments in milking, housing, feeding, and manure handling and storage systems design and management. They adopted both conventional and alternative technologies, including low-cost parlors, rotational grazing, cattle-handling facilities, animal housing and ventilation, feed storage, manure storage, organic and bio-fuel production, and engaged in farmstead planning for the next generation.

Leading state dairy production, Green County farmers who recently modernized their operations reported expanding their herds by an average 63 cows with nearly 10% increase in milk per cow. Each cow adds another \$34,000 that circulates through local communities. This expansion of both cow numbers and increased production per cow resulted in 55,292,337 more pounds of milk, keeping 18 processing plants and 12 cheese plants operating at capacity. These 30 Green County plants provide 3,000 jobs and along with 60 specialty cheeses, \$1.29 billion in dairy product sales.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #3

1. Outcome Measures

Build the capacity of the agriculture service and support industry.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Innovations and increased efficiencies in production.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Dairy farming is Wisconsin's leading agricultural enterprise, valued at \$43.4 billion (Deller, 2014). When President Obama signed the Agricultural Act of 2014 into law last February, this Farm Bill ushered the most sweeping dairy policy changes in 50 years. The new voluntary Margin Protection Program for Dairy (MPP-Dairy) provides risk management coverage that will pay participating producers when the difference (the margin) between the national price for milk and the average cost of feed falls below the insured level each producer selects. Farmers must sign up to be covered, costs of insurance vary depending on the amount of milk and the margin each farm wants to protect, and enrolled producers can adjust coverage annually. Decisions made during late 2014 would affect program payments for the next year, creating an urgent need for education among dairy farmers and their advisers, service providers and other industry representatives.

What has been done

The Farm Bill made funding available to Land Grant institutions for development of web-based decision tools. The University of Wisconsin received about \$300,000 to develop the MPP-Dairy tool and provide education on Title 1 programs. This funding was used as a collaborative effort with 6 other Land Grant institutions, known as the Program on Dairy Markets and Policy (DMaP), to define the tool concept, develop a web site with the decision tool, printed materials, slide sets, streaming videos and other educational materials. These individuals also prepared and conducted 5 national train-the-trainer meetings across the country, and delivered additional training webinars. The USDA Farm Service Agency (FSA) is also hosting the decision tool on their web site and collectively, the tool was receiving around 1,000 unique visits per day from September to December at: <http://dairymarkets.org/mpp>

Results

Using farm radio and news video podcasts and local networks including other key professionals

working with dairy producers helped integrated campus specialists and more than 30 county extension educators directly train more than 6,210 participants through 33 meetings and 5 webinars co-hosted by FSA statewide. Based on what they learned, farmers made informed decisions regarding whether to enroll in the program, and at what level of participation to enroll. FSA enrollment statistics show that of the 10,860 Wisconsin dairy farms licensed in 2013, 54% enrolled in MPP-Dairy (5,864), and 55% of those (3,225) elected buy-up coverage (Novakovic et al, DMAP BP 15-01: dairymarkets.org). Signing up for MPP-Dairy allows producers to protect (insure) the margin they need to cover expenses. On moderate-sized operations, returns to participating farmers could top \$100,000 per year in adverse price and margin years, sustaining Wisconsin's \$43.4 billion dairy industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database Development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Margin Protection Program for Dairy (MPP-Dairy): University of Wisconsin Extension agricultural economists worked with 6 other Land Grant universities, collectively known as the Program on Dairy Markets and Policy (DMaP) to support 2014 Farm Bill education nationally. Farm Service Agency enrollment statistics show that of the 10,860 Wisconsin

dairy farms licensed in 2013, 54% enrolled in MPP-Dairy (5,864), and 55% of those (3,225) elected buy-up coverage (Novakovic et al, DMAP BP 15-01: dairymarkets.org). Signing up for MPP-Dairy allows producers protect (insure) the margin they need to cover expenses. On moderate-sized operations, returns to participating farmers could top \$100,000 per year in adverse price and margin years, sustaining Wisconsin's \$43.4 billion dairy industry.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security and Hunger: Food Accessibility

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
205	Plant Management Systems	5%			
601	Economics of Agricultural Production and Farm Management	5%			
602	Business Management, Finance, and Taxation	5%			
604	Marketing and Distribution Practices	15%			
607	Consumer Economics	10%			
608	Community Resource Planning and Development	30%			
703	Nutrition Education and Behavior	15%			
704	Nutrition and Hunger in the Population	15%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	0.0	0.0
Actual Paid	17.0	0.0	0.0	0.0
Actual Volunteer	39.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
757935	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
757935	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

University of Wisconsin research and extension collaboration among campus, county, tribal and regional colleagues, partners and trained volunteers is providing timely research-based education and assistance to improve food security by strengthening local food markets and systems, responding to growing consumer demand for sustainably produced local foods, building community capacity to increase access to healthy foods for vulnerable populations, and increasing household access to healthy foods for those in need. Farmers' markets offer seasonal local produce, and opportunities to teach nutrition and encourage healthier habits.

Increasing healthy local foods for SNAP participants: UW-Extension partnered with the Wisconsin Department of Health Services to provide statewide coordination and education supporting communities expanding access to healthy foods through farmers' markets for the 15% of low-income residents participating in the Supplemental Nutrition Assistance Program (SNAP). Chronic disease is prevalent among this population, 3 in 5 are overweight or obese and 1 in 10 has diabetes. A statewide network of 50 individuals internal and external to extension formed to expand SNAP participant access to farmers' markets.

Mapping and improving community food security: Wisconsin's 11.6% of food insecure households masks local variations in food hardship and risks for food insecurity. The Wisconsin Food Security Project was developed collaboratively among UW-Extension Family Living Programs, UW-Madison School of Human Ecology and Applied Population Laboratory, building on the Wisconsin Food Security Consortium infrastructure framework. Eight workshops trained 150 individuals to use the web site. Trained community planners and policy makers use the interactive data and mapping tool to assess a multitude of household risk factors alongside local resources and supports to better grasp local food security infrastructure. They identify community strengths and gaps, inform local assessments, develop program plans, educate community members on food security, and access data for grant applications.

2. Brief description of the target audience

The audience includes state, regional, tribal and national colleagues, other professionals and educational partners, growers and grower associations, small-scale producers, producer associations, Midwest food processors, 4-H youth and trained volunteer leaders, urban farmers, their employees and community volunteers, gardeners and Master Gardener volunteers, community gardens and farmers' markets, regional farmers' market associations, regional economic development initiatives, food coalitions and cooperatives, hunger coalitions and task forces, food pantries and other community service providers, school boards, school food service directors, teachers and parents of school-age children, low-income

women with infants and young children, low-income older adults, local and tribal governments, planners and policy makers, state and federal agency personnel, and others.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs, community engagement projects and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Interdisciplinary colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls, Stevens Point and Superior campuses, working with 3 tribes, and at 11 agricultural research stations.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	102415	0	68343	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	24	8	32

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Strengthen local food markets and systems.
2	Increase household access to healthy foods for vulnerable populations

Outcome #1

1. Outcome Measures

Strengthen local food markets and systems.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Approximately 15% of the state's population participates in the Supplemental Nutrition Assistance Program (SNAP) and chronic disease is prevalent among Wisconsin's low-income population. Three in five low-income Wisconsinites are overweight or obese and one in ten has been diagnosed with diabetes. Farmers' markets offer great opportunities to buy seasonal, local and healthy produce, and provide opportunities to teach people about nutrition and encourage healthier habits. In 2013, only 68 of 287 Wisconsin farmers' markets accepted payments from the SNAP, accounting for approximately \$216,000 sales. When placed alongside other states in the Midwest Region, Wisconsin ranks fifth of six in SNAP redemptions at farmers' market and other direct marketing farmers, leaving room for Wisconsin to grow farmers' market access to SNAP users.

What has been done

UW-Extension partnered with the Wisconsin Department of Health Services to provide statewide coordination and education for communities interested in expanding access to healthy foods through farmers' markets for SNAP users. The partnership resulted in the creation of a statewide networking group encompassing over 50 individuals (internal and external to Extension) dedicated to expanding SNAP participant access to farmers' market. Specific outputs of this group include the creation of an infographic highlighting the current state of farmers' markets set up to accept payments by SNAP in the state, interviews and press release articles shared with traditional and social media, development of standardized evaluation tools to measure outcomes of farmers' markets accepting SNAP payments (to be applied in 2015), creation of a resource blog for communities interested in creating and sustaining farmers' markets that accept SNAP payments, including outreach and marketing manuals, and receipt of a 2014 Farmers' Market Promotion Program Grant.

Results

At the time of writing, the infographic was downloaded 546 times in 2014. Generally, statewide education and coordination efforts supported an increase in farmers' markets and direct marketing farmers accepting SNAP benefits in 2014. In 2014, 116 farmers' markets and direct marketing farmers' accepted SNAP payments accounting for \$249,282 in SNAP redemptions, a 46% increase from 2012. Data received from educators in 7 counties indicate that through support to their local farmers' markets: 3 markets newly implemented electronic benefits transfer machines; 9 markets expanded access to SNAP participants through outreach efforts; 7 markets secured funding to support food product incentive programs for SNAP and/or WIC or Senior Farmers' Market Nutrition Programs; \$117,650 of grant or private dollars were received or resources leveraged to support electronic benefits transfers programs, including fruit and vegetable incentive programs; and 10 markets increased EBT program evaluation capacity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

Outcome #2

1. Outcome Measures

Increase household access to healthy foods for vulnerable populations

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The rate of food insecure households in Wisconsin (11.6%) fares better than the nation as a whole (14.6%) and yet masks considerable intrastate variation in food hardship and risks for food insecurity. In absence of sub-state estimates of food security, communities are left to assess a multitude of household risk factors alongside local resources and supports to better grasp the local food security infrastructure.

What has been done

To assist local planners and policy makers in assessing food security in their communities, an interactive data and mapping tool, The Wisconsin Food Security Project (www.foodsecurity.wisc.edu) was developed collaboratively between the UW-Extension Cooperative Extension Family Living Programs, UW-Madison School of Human Ecology, and UW-Madison Applied Population Laboratory. A framework developed by the Wisconsin Food Security Consortium was used to conceptualize relevant dimensions of the local food security infrastructure including economic security, extent of federal nutrition programs, emergency food, and the retail food environment. Secondary data were gathered to characterize these dimensions, as well as health outcomes, at the sub-state level. Food-related resources (food retailers accepting SNAP, food pantries, farmers markets, schools offering breakfast, etc.) were identified and geocoded. A cutting-edge interactive mapping and charting data portal was developed. Trainings on the use of the site occurred 2013-2014.

Results

At the time of writing, the site received nearly 8,000 unique visitors in 2014 accounting for 18,000 visits. Eight interactive workshops reaching approximately 150 individuals were conducted to introduce and train on the use of the site. Post-workshop evaluation results overwhelmingly indicate that participants agree or strongly agree that they achieved an understanding of food security trends and patterns in Wisconsin and understand how to use the site to explore and/or inform their own programming interests. Feedback received from participants suggests that users of the Wisconsin Food Security Project utilized the site to identify community strengths and gaps with regards to food security, inform local community assessments, develop program plans, and educate community members on food security, and access data to include in grant applications. As an example, Second Harvest Foodbank of Southern Wisconsin utilized the data on the site to conduct their child hunger needs and resources assessment for the 16 Wisconsin counties reached by their Foodbank. The results of this assessment guided the child hunger strategies outlined in their latest 3-year strategic plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In 2014, 116 farmers' markets and direct marketing farmers' accepted SNAP payments accounting for \$249,282 in SNAP redemptions, a 46% increase from 2012. Data received from educators in 7 counties indicate that through support to their local farmers' markets: 3 markets newly implemented electronic benefits transfer machines; 9 markets expanded access to SNAP participants through outreach efforts; 7 markets secured funding to support food product incentive programs for SNAP and/or WIC or Senior Farmers' Market Nutrition Programs; \$117,650 of grant or private dollars were received or resources leveraged to support electronic benefits transfers programs, including fruit and vegetable incentive programs; and 10 markets increased EBT program evaluation capacity.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Food Safety

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	45%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	50%			
806	Youth Development	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid	5.6	0.0	0.0	0.0
Actual Volunteer	145.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
252970	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
252970	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

University of Wisconsin research and extension collaboration among campus and county faculty and staff, state, regional, tribal and national colleagues, emergency food service agencies, educational partners and trained volunteers is providing timely research-based food safety education and support to improve sustainable production, distribution, preservation and storage of safe, quality foods from farm and garden to the table. For improving the safety of the food supply, the UW-Extension and Wisconsin Community Action Program Safe and Healthy Food Pantries Project engaged 6 food pantries in assessing their food procurement, inventory and distribution practices, then developing action plans to improve the nutritional quality and safety of the foods they distribute.

Preserving food safely: Consumers need ready access to accurate information to ensure products they prepare are wholesome and safe. Resurgence of interest in home food preservation -- and growing concern about food safety -- is drawing increased numbers to UW-Extension's Family Living food safety and preservation classes and resources. In 2013 and 2014, 53 family living educators reached more than 11,000 individuals with education on how to preserve food safely.

2. Brief description of the target audience

The audience includes interdisciplinary colleagues and partners nationwide, trained Master Food Preserver volunteers, individuals preserving food at home, family decision-makers, 4-H youth and trained volunteer leaders, school-age children and preschoolers, low-income women with infants and young children, fresh market vegetable and fruit growers, sellers and entrepreneurs, crop, dairy and livestock producers, producer associations, artisan cheesemakers, meat processors and Master Meat Crafters, large and small-scale processors of acidified foods, farmers' markets, food pantries and other emergency food services, community service agencies, local and tribal governments, state and federal regulatory agencies, and others preserving food safely and assuring safe, wholesome local foods.

Preserving food safely: In 2013 and 2014, 53 family living educators provided pressure canner testing and reached more than 11,000 individuals with education on how to preserve food safely. Around 7,500 of these (68%) received one-on-one assistance, with the rest receiving education through more than 450 group workshops, demonstrations or lunch-and-learn events. Extension educators also reach Wisconsin residents around-the-clock through web-based resources and print publications. The UW-Extension Learning Store reports that the two top-selling publications are a guide to safe tomato canning and another on canning salsa safely.

Training the next generation: In 2013, 150 trained extension volunteer leaders provided direct instruction for 1,710 youth ages 8 to 19 in food preservation projects, requiring extension food science safety specialist Barbara Ingham's Safe Food Preservation series publications for county and state fair exhibition. Extension livestock specialists, county educators and trained 4-H volunteer leaders train both certified 4-H youth and new volunteer leaders in Meat Animal Quality Assurance (MAQA) required for participation in state and most county fair beef, swine, sheep and goat projects and auctions. Around 4,500 4-H youth are MAQA-certified each year with the goal of producing a quality meat animal. Extension campus and county faculty and trained volunteer advisers address animal care and carcass quality issues through species-specific programs. Twenty county extension educators and state specialists are Beef Quality Assurance trainers, Swine Team members are certified Transport Quality Assurance trainers and Pork Quality Assurance (PQA) Plus Advisers who also help train certified 4-H youth and volunteer leaders in MAQA. MAQA training meets all PQA requirements.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Interdisciplinary colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls and Stevens Point campuses, working with 3 tribes, and at 11 agricultural research stations.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	12283	0	13478	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	3	18	21

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improve the safety of the food supply.
2	Develop and implement behavioral interventions that improve consumer food safety practices.

Outcome #1

1. Outcome Measures

Improve the safety of the food supply.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

One in nine Wisconsin households is food insecure. Food insecurity is related to a number of negative health outcomes, including but not limited to: nutrient deficiencies, low birth weight and premature birth, chronic stress, chronic disease such as diabetes and in some studies has been linked to overweight and obesity. To exacerbate the risk for poor health, a recent study reports that factors increasing the risk for foodborne illness include stress, pregnancy, age <5 and between 60-65 years, nutritional deficiency, and the ingestion of fatty foods. Despite public health efforts, three in five low-income Wisconsinites are overweight or obese. Food pantries are a key component of the food environment of low-income individuals and may make a significant contribution to the overall quality of foods they consume. Reliance on food pantries has increased dramatically in recent years as a result of the economic recession, however has not returned to pre-recession levels.

What has been done

UW-Extension alongside the Wisconsin Community Action Program (WISCAP) received a \$50,000 pilot grant from the UW-Madison School of Medicine and Public Health to address the need of supporting safe and healthy food environments in food pantries throughout the state of Wisconsin. A toolkit and training regimen was developed and piloted with six food pantries. The focus of these materials is to engage food pantries in a self-assessment of current food procurement, inventory and distribution practices and subsequently develop action plans to improve the nutritional quality and safety of the foods distributed. The range in number of individuals served monthly across these six pantries varied greatly from 178-5400.

Results

Six food pantries completed a self-assessment of current food procurement, inventory and distribution practices. All participating pantries identified specific action items to improve the

nutritional quality and safety of foods distributed at the pantry as a result of the self-assessments and subsequently utilized assessments to develop action plans unique to the individual food pantry. Implementation of action plans began in the final quarter of 2014 and will continue into 2015. Initial review of action plan implementation suggests that 100% of participating food pantries intend to develop a nutrition and food safety policy; 33% of pantries have posted food safety guidelines for staff/volunteers and clients; 33% of pantries completed a reorganization of the food pantry layout in order to highlight healthier food pantry items and make the healthy choice the easy choice for food pantry patrons; 33% of pantries prioritized healthy food items (such as: fruits, vegetables, low-sodium canned goods, canned goods with no added sugar, whole wheat products, low fat or no-fat dairy) in food drive donation requests by changing donor education materials; 33% of pantries established a food purchasing policy that prioritizes healthier food items; 17% of pantries surveyed clientele to better understand dietary restrictions due to allergies and/or disease; 17% of pantries implemented a point of selection prompt to highlight healthier food items in the pantry inventory.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Develop and implement behavioral interventions that improve consumer food safety practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many Wisconsin residents turn to food preservation as a way to save money and ensure healthy, wholesome food for their families. For some, food preservation is a new activity, while others are

returning to the practice after years away. A national survey conducted by the National Center for Home Preservation at the University of Georgia identified a critical need for education and increased awareness of safety-related concerns in the area of home food preservation. Consumers too often used out-of-date recipes or methods that could fail to control harmful bacteria, causing illness or even death. Consumers need ready access to accurate information to ensure the products they prepare are wholesome and safe. The resurgence of interest in home food preservation and the growing awareness and concern about food safety is drawing increased numbers of Wisconsin residents to University of Wisconsin-Extension's Family Living food safety and preservation classes and resources.

What has been done

Family Living Programs reach Wisconsin residents with current, research-based information on safe food preservation. Educators train and educate consumers through one-on-one assistance, pressure canner testing, and workshops. In 2013 and 2014, 53 Family Living educators reached more than 11,000 individuals across the state with educational programs on how to preserve food safely. Approximately 7,500 of these (68%) represented one-on-one consumer contacts, with the balance (32%) receiving education through more than 450 group learning events, such as hands-on workshops or demonstrations, or lunch-and-learn events. UW-Extension educators also reached Wisconsin residents round-the-clock through web-based materials and print publications. The Extension Learning Store reports that the two top selling publications are a guide to safe tomato canning and another on canning salsa safely.

Results

In the past 2 years, Extension educators in 22 Wisconsin counties evaluated learner outcomes in conjunction with 118 workshops focusing on best practices for food safety and home food preservation. Of the 657 participants in these workshops, approximately 35% reported they had little or no experience preserving food at home; 40% had been preserving food at home for 2-9 years; and 25% had been preserving food for over a decade. Evaluation results indicated a positive change in confidence, understanding and behavioral intent with respect to home food preservation impact indicators. After a workshop:

- o 91% of learners reported confidence in their ability to safely preserve food at home as compared to 46% of learners before the workshop.
- o 93% reported understanding the importance of following up-to-date, research-tested recipes as compared to 52% before.
- o 89% stated they would contact the Extension office with questions about safely preserving food at home as compared to 49% before.
- o 84% reported confidence in their ability to share safe food preservation recommendations with friends and family as compared to 40% before.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Six food pantries completed a self-assessment of current food procurement, inventory and distribution practices. All participating pantries identified specific action items to improve the nutritional quality and safety of foods distributed at the pantry as a result of the self-assessments and subsequently utilized assessments to develop action plans unique to the individual food pantry. Implementation of action plans began in the final quarter of 2014 and will continue into 2015. Initial review of action plan implementation suggests that 100% of participating food pantries intend to develop a nutrition and food safety policy; 33% of pantries have posted food safety guidelines for staff/volunteers and clients.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Childhood Obesity

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	75%			
704	Nutrition and Hunger in the Population	10%			
724	Healthy Lifestyle	15%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	0.0	0.0
Actual Paid	2.9	0.0	0.0	0.0
Actual Volunteer	881.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
125519	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
125519	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This planned program is expanded to address Childhood Obesity and Nutrition, anticipating the 2015 combined research and extension joint report. University of Wisconsin-Extension and UW-Madison College of Agricultural and Life Sciences research and integrated projects range from assessing the causes and consequences of childhood obesity and nutritional aspects of diabetes to healthy eating campaigns and management of pancreatitis and other health risks. Effective research-based interventions that are practical to implement and sustain to prevent obesity among preschoolers are building community capacity to help parents and others help young children develop healthy behaviors. By developing and implementing behavioral interventions that improve nutrition, 44% of low-income students now get breakfast at school and a healthy start to their day. By increasing the capacity of community partners to address issues related to nutrition and childhood obesity, 2 Wisconsin counties in a multistate project made physical activity fun and feasible for 4-year-olds and their families.

Helping low-income students get a healthy start: Wisconsin children miss breakfast daily due to lack of time, appetite or household income. While school breakfasts can ensure that children get a healthy start to their day, a decade ago Wisconsin ranked last nationally in the number of schools offering both breakfast and lunch (47.2%) as well as last in low-income student participation (24.8%). Since 2004, University of Wisconsin-Extension Family Living Programs and the Department of Public Instruction (DPI) joined forces to increase awareness of nutritional and academic benefits of eating a healthy breakfast; share evidence-based outreach materials statewide; and award Nutrition Enhancement Breakfast Grants to 49 school districts encouraging 33 schools to start breakfast programs and to 63 others for improvements or equipment.

Rural low-income children are at elevated risk of childhood obesity and high health costs due to lack of healthy food choices and reduced access to affordable physical activity. Two Wisconsin county extension offices are part of a unique 7-state project supporting and developing long-term plans for coalitions increasing physical activity as a way to prevent obesity among rural low-income children.

2. Brief description of the target audience

Preventing obesity in children is important to society due to the high health care costs due to diabetes, high blood pressure, asthma and sleep apnea. Schools, health care providers and families are all working together to address this crucial issue. The audience includes state, regional, tribal and national colleagues, trained 4-H volunteer leaders, health professionals and other educational partners, diverse children and youth, caregivers, parents and family members, school boards, school food service directors, teachers, low-income women with infants and young children, local and tribal governments, planners and policy makers, state and federal agency personnel, public and private collaborating and community agencies and others in a variety of educational settings. Primary emphasis is placed on expanding access to marginalized and vulnerable populations including low-income; Latino/a, African American, American Indian and Hmong children, youth and their families.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences, webinars and eXtension Communities of Practice to efficiently and effectively address critical and emerging issues.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	86337	0	81444	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Develop and implement behavioral interventions that improve nutrition and increase physical activity.
2	Build capacity among community partners to address issues related to nutrition and childhood obesity.

Outcome #1

1. Outcome Measures

Develop and implement behavioral interventions that improve nutrition and increase physical activity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Studies show that both children and adults who eat breakfast are better able to maintain a healthy weight and have a healthier body mass index. Children who eat breakfast consistently demonstrate an increased ability to learn as well as improved behavior and performance in the classroom. Despite these benefits, many Wisconsin children miss breakfast daily due to lack of time, appetite or limited household income. One way to ensure that children have a healthy start to their day is through participation in school breakfast. In the 2003-04 school year, Wisconsin ranked last nationally in the number of schools offering breakfast, with only 47.2% offering both school breakfast and lunch. That year Wisconsin also ranked last on measures of student participation, only 24.8% of low-income students participated in school breakfast programs.

What has been done

University of Wisconsin-Extension Family Living Programs and the Wisconsin Department of Public Instruction (DPI) joined forces in 2004 to increase awareness of the research-supported nutritional and academic benefits of eating a healthy breakfast, as well as develop and share evidence-based school breakfast outreach materials to increase implementation and participation in school breakfast statewide. UW-Extension and DPI also collaborated on awarding small Nutrition Enhancement Breakfast Grants to encourage more schools to start new or to improve existing School Breakfast Programs. Nearly 200 people attended the 2014 extension-hosted conference Healthy Food for All, connecting food service directors enhancing food security and health for children through school breakfast programs with the broader health and wellness community - networking with diverse stakeholders, linking work to other opportunities, and addressing food insecurity issues.

Results

Extension partnerships with other state agencies increase awareness of the benefits of breakfast and the number of schools that offer school breakfast in Wisconsin:

o Data from the 2012-13 school year indicate that 74% of Wisconsin schools that serve school lunch now offer the school breakfast program, compared to 47% a decade ago. Participation is up as well, 44% of Wisconsin's low-income students participate in the program now compared to 25% a decade ago.

o In the 2010-11 school year, the state achieved double-digit growth in the number of low-income students participating in the program (11%) and was in the top two performing states for showing the greatest percent change in the number of schools participating in the school breakfast program.

o In the 2009-10 school year, Wisconsin was in the top six states in the nation to show greatest percent change in the number of schools with a school breakfast program.

o Nutrition Enhancement Breakfast Grants awarded to 49 school districts were distributed to 33 schools for breakfast program startup and 63 schools for breakfast program improvements or equipment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Build capacity among community partners to address issues related to nutrition and childhood obesity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

More than one-third of adults and 17% of youth in the United States are obese resulting in increased health concerns including diabetes and hypertension. In Wisconsin, the adult obesity rate is 29.8%, ranking 22/51 amongst states and the childhood obesity rate is 14%, 21/41 states reporting. Preventing obesity in children is important to society due to the high health costs treating diabetes, high blood pressure, asthma and sleep apnea. Rural low-income children are at elevated risk due to lack of healthy food choices and reduced access to affordable physical activity.

What has been done

Two Wisconsin County Extension offices are part of a 7-state AFRI project that supports coalitions in developing plans and conducting activities to prevent obesity in rural, low-income children. The purpose of the project is to examine the effectiveness of community coalitions in creating healthier environments for rural, low-income children. Both counties have received informational and financial resources to support the work of the coalitions. One county received the support of a Community Coach to assist them in planning and implementation. Ongoing data collection instruments have measured coalition effectiveness (annually), parent perceptions of the supports and barriers to healthy activity and eating (Year 1 and 5), community resources (1 and 5) and Ripple Effect Mapping in the final year to determine improvements in the socio-ecological environments.

Results

In addition to developing long term plans and work plans for coalition activity, both counties are focusing on increasing opportunities for physical activity as a way to prevent childhood obesity. Crawford County conducted a Family Fun Challenge to encourage families to visit free local parks in the summer. Fifteen families visited 8 parks, receiving prizes. Crawford County also launched a partnership with all seven school districts that are at least 50% low income and have 4 year old programs to encourage physical activity through securing playground equipment for families to use.

Iron County is also focusing on increasing physical activity and worked closely with Head Start to encourage family bike riding and snowshoeing through family workshops and providing equipment. In 2016, the final evaluation of the project will be conducted. One of the key learning experiences for the project is the infusion of the notion of Collective Impact into the work and the results. Both county's coalitions are increasing their understanding of how to collectively measure impact through the conditions of Collective Impact: backbone organizations, mutually reinforcing activities, shared measures, and continuous communication.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Helping low-income students get a healthy start: Since 2004, University of Wisconsin Extension Family Living Programs and the Department of Public Instruction (DPI) joined forces to increase awareness of nutritional and academic benefits of eating a healthy breakfast. The latest data indicate that 74% of Wisconsin schools that serve school lunch now offer the school breakfast program, compared to 47% a decade ago. Participation is up as well: 44% of Wisconsin's low income students participate in the program now compared to 25% a decade ago.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Climate Change

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
133	Pollution Prevention and Mitigation	20%			
205	Plant Management Systems	10%			
601	Economics of Agricultural Production and Farm Management	10%			
605	Natural Resource and Environmental Economics	20%			
608	Community Resource Planning and Development	30%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	0.0	0.0
Actual Paid	16.0	0.0	0.0	0.0
Actual Volunteer	53.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
789314	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
789314	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This planned program is expanded to address Climate Change and Energy Needs, anticipating the 2015 combined research and extension joint report. University of Wisconsin-Extension and UW Agricultural Experiment Station campus specialists and county educators in both agriculture and community development program areas are being called on to respond to questions about sustainable renewable energy as well as soil, water, air, and agricultural quality concerns in the Great Lakes and Mississippi River basins. Interdisciplinary regional and tribal collaborations are providing professionals and community leaders tailored, locally relevant, science-based climate change and energy needs information and strategies to incorporate into economic development and resource management planning processes.

2. Brief description of the target audience

The audience includes state, tribal, Great Lakes Region and national colleagues, other professionals and educational partners, youth and adult dairy and livestock producers and workers, producer associations, growers and grower associations, agronomists, crop consultants, professional nutrient applicators, coalitions and cooperatives, composters and recyclers, coastal and other community leaders, business owners and executives, town, city, county and tribal governments, elected officials, planning and emergency management departments, planning commissions, economic development practitioners, natural resource managers, public health officials, school districts, 4-H youth and trained volunteer leaders, and others adapting to and mitigating effects of the region's changing climate.

Serving under-represented communities: As climate changes, tribal place-based culture and economies must adapt to changing conditions. The Changing Climate, Changing Culture Teacher Institute and the Gikinoo'wizhiwe Onji Wabaan (G-WOW, Guiding for Tomorrow) educational exhibit at the Northern Great Lakes Visitor Center trained 57 tribal members to recognize climate impacts and adaptation strategies, and raised the awareness of around 3,300 other visitors about the effects of climate change on tribal lifeways. UW-Extension's role in planning and delivering the Institute for Tribal Environmental Professionals Climate Adaptation Planning Workshop in Oneida, Wisconsin, resulted in 21 representatives of 12 tribal nations building capacity to develop plans leading to climate adaptation and mitigation by the tribes: <http://www.g-wow.org/en-us/default.aspx>

Wisconsin Initiative on Climate Change Impacts (WICCI): This statewide collaboration brings scientists and stakeholders together to find adaptation strategies to reduce potential negative impacts of climate change in Wisconsin. WICCI issued its first comprehensive report in February 2011, Wisconsin's Changing Climate: Impacts and Adaptation. Wisconsin extension statewide climate specialist David S. Liebl leads the WICCI outreach effort, chairing the WICCI Outreach Committee and serving on the WICCI Science

Council. WICCI's outreach program focuses on building capacity among regional decision makers to integrate climate projections into resource management decisions as they take strategic steps to preserve jobs, invest resources wisely, build resiliency, and protect built and natural environments in the face of a changing climate: <http://www.wicci.wisc.edu>

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs, community engagement projects and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Interdisciplinary colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls, Stevens Point and Superior campuses and centers, working with 3 tribes, and at 11 agricultural research stations.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	46953	0	1309	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	11	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Develop, implement and evaluate outreach programs that reduce carbon, nitrogen, energy and water footprints in their communities.
2	Reduce atmospheric greenhouse gas emissions.
3	Maximize carbon sequestration potential in agriculture and forests.

Outcome #1

1. Outcome Measures

Develop, implement and evaluate outreach programs that reduce carbon, nitrogen, energy and water footprints in their communities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	14700000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Even as agricultural lenders are looking harder at farm financial performance, Wisconsin farmers face increasing regulatory pressures due to agricultural nutrient contributions producing non-point source pollution to all water resources. Dairy and livestock owners increasingly need nutrient management plans for environmental and cost-sharing compliance. Government agricultural programs, zoning, large farm licenses, state animal feeding operation permits, and farmland preservation tax credits as of 2010 all require farms to have nutrient management plans. Regulations aside, improving nutrient management practices can also improve farm profitability and water quality.

What has been done

The University of Wisconsin-Extension Nutrient Management Team researches and updates guidelines and software to help farmers credit nitrogen from legumes and manure to save fertilizer cost and prevent loss of nutrients from fertilizers and manure to groundwater, lakes, streams, the Gulf of Mexico and the atmosphere. The Nutrient Management Farmer Education (NMFE) curriculum combines classroom instruction, individual consultation, and on-farm field trials to engage farmers in designing nutrient management plans they can understand and follow. Funding, local delivery and collaboration among extension faculty and staff, agency partners, trained agricultural educators and consultants reach farmers most at risk who can benefit the most.

Results

Reducing the nitrogen footprint improves sustainability: Since 2000, an estimated 1,554,390 acres farmed in 55 counties by the 5,360 producers trained by University of Wisconsin-Extension Nutrient Management Farmer Education (NMFE) are now covered by a qualified nutrient management (NM) plan. So as of 2014, at least 1,554,390 acres of cropland and grazing land are covered under an NM plan that meets all local, state and federal regulations. NM plans cost about

\$7 per acre for farmer time and effort. Thus, with 1,554,390 acres under NM plans as of 2014 due to NMFE, the farmer benefit values at least \$10.8 million. As an added benefit, farmland preservation tax credits starting in 2010 range from \$5 to \$10 per acre and require compliance with state soil and water conservation standards, including filing NM plans. Conservatively assuming only half of the acres under NM plans as of 2014 due to NMFE claim this tax credit at the minimum \$5 per acre, the farmer benefit values nearly another \$3.9 million.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Reduce atmospheric greenhouse gas emissions.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Maximize carbon sequestration potential in agriculture and forests.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

As of the 2012 U.S. Census of Agriculture, 87 million acres of corn were harvested, valued at \$79.8 billion. This highly versatile crop employs millions and produces affordable food for people

and livestock, fuel ethanol, and thousands of other non-food products. Global and domestic demand for corn continues to rise. However, there is increasing uncertainty about how long-term climate trends are impacting corn-based cropping systems and agricultural investments. Farmers are seeking new ways to ensure continued productivity of corn and other crops grown in rotation while protecting the land and water quality. Given increasingly extreme weather such as the Corn Belt's record flooding in 2008 and severe drought in 2012, climate change threatens sustainability of corn systems unless mitigation and adaptation strategies are identified and implemented.

What has been done

Coordinated by Iowa State University, the 9-state Climate Change, Mitigation, and Adaptation in Corn-Based Cropping Systems (CSCAP) project is assessing and communicating environmental, economic and social impacts of long-term climate variability on corn-based cropping systems and productivity, creating a suite of practices that:

- o Retain and enhance soil organic matter, nutrient and carbon stocks.
- o Reduce off-field nitrogen losses that contribute to greenhouse gas emissions and water pollution.
- o Better withstand droughts and floods.
- o Ensure productivity under different climatic conditions.
- o Are shared among all stakeholders at: <http://sustainablecorn.org>

Richard Wolkowski trained as the Wisconsin extension educator with the project network, working with 22 selected farmers in learning the science behind climate change, providing feedback for management changes and keys for developing resiliency. From these farmers, he solicited annual cropping information for two of their corn production fields. Project modeling and socio-economic groups use these data. He presented his research locally, regionally and nationally, comparing and evaluating no-till, strip-till and chisel system management (A3883) with how these systems vary in different climatic conditions, and what management changes are needed to keep each system at peak production levels. This work draws from 8 Wisconsin and 20 network colleagues, the 12-state Useful to Useable (U2U) resources and the Wisconsin Initiative on Climate Change Impacts: <http://www.wicci.wisc.edu>

Results

Maximizing carbon sequestration potential: Extension scientists are describing affects of climate change in corn production systems and creating recommendations for growers to develop resiliency. Corn Belt growers are making informed management decisions based on scientific evidence. As Wisconsin extension educator for the 9-state Sustainable Corn Project, Dick Wolkowski is building relationships between 22 locally respected growers and University of Wisconsin-Extension. Project farmers understand climate change impacts on agriculture, test and evaluate adaptation strategies, and engage in public dialog with their peers about climate change impacts on agricultural systems and adaptation strategies. Participating in this group, a recent president of the Wisconsin Soybean Association shared his views on climate change and the project's efforts on a panel with selected producers from other states at the 2014 project conference.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation

205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Nutrient Management Farmer Education curriculum annual survey results: The Nutrient Management Farmer Education (NMFE) curriculum is produced, evaluated and updated jointly by interdisciplinary Wisconsin Discovery Farms and Nutrient and Pest Management Program integrated campus and county extension faculty and staff. The NMFE curriculum combines classroom instruction, individual consultation, and on-farm field trials to educate farmers on methods for improving NM practices from both an economic and environmental perspective. Once this is accomplished, the next step is to involve farmers in the design of their own NM plans. To measure results, NMFE curriculum coordinators complete an annual survey. These coordinators are county extension agriculture educators, land conservation department staff, and Wisconsin Technical College instructors.

Survey results show continued increases in the number of Wisconsin NMFE-trained farmers and acreages among participants over the 2004-2008 five-year annual average. During 2014, around 173,630 additional acres of Wisconsin cropland were planned by NMFE-trained producers whose major agricultural enterprise was dairy. Data from 2000 to 2014 show that as a result of local delivery of NMFE workshops, more than 5,360 producers farming around 1,554,900 acres in 55 counties have received in-depth education on nutrient management planning based on University of Wisconsin research and extension field-tested recommendations.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%			
133	Pollution Prevention and Mitigation	10%			
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%			
403	Waste Disposal, Recycling, and Reuse	10%			
601	Economics of Agricultural Production and Farm Management	10%			
602	Business Management, Finance, and Taxation	10%			
605	Natural Resource and Environmental Economics	20%			
608	Community Resource Planning and Development	20%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid	5.2	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
229495	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
229495	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This planned program is expanded to address Sustainable Energy and Use of Natural Resources, anticipating the 2015 combined research and extension joint report. Communities are interested in developing renewable energy industries for energy independence, job creation, and economic development. Led by the Institute for Environmentally Integrated Dairy Management at the University of Wisconsin-Madison Marshfield Agricultural Research Station, UW Agricultural Experiment Station and extension campus and county faculty and staff are conducting integrated research and extension programs, building capacity for developing biomass for biofuels and scalable conversion technologies among extension colleagues, communities, farmers and industry partners.

Lake Superior Woody Biomass Initiative: Increased interest in and funding for renewable energy sources may bring new economic opportunities to Northern Wisconsin. Companies have announced plans to establish or expand their use of woody biomass for energy production using locally sourced wood. Expanded use of wood for fuel has raised concerns about increased demand on roundwood or harvest residues as this may distort pulpwood markets or reduce forest ecosystem function. Purpose-grown woody biomass crops have been proposed as a productive, reliable, and sustainable fuel supply.

Anaerobic digestion research and outreach: Wisconsin is the leading state for on-farm anaerobic digestion with more than 30 operational systems. Maintaining the economic viability of large-scale anaerobic digestion systems requires optimizing operation, assessing feedstocks, and managing manure systems in accordance with nutrient management plans. Research results are critical to provide additional guidance to operators, system owners, the industry and policy makers on decreasing system failures and downtime, increasing biogas production and profitability, and reducing environmental impacts. Feedstocks are identified and evaluated in extension biowaste specialist Rebecca Larson's lab, then implemented in the field. New tools allow operators to evaluate impacts to emissions, nutrient use efficiency, and economics. As a result, facilities are increasing biogas production and more importantly, avoiding highly toxic feedstocks that cause catastrophic failures. Her recommendations have led to more efficient systems with greater economic and environmental sustainability. And her evaluation of technology and economic constraints has been critical in guiding producers who are evaluating new anaerobic digestion projects.

2. Brief description of the target audience

Farmers and foresters are interested in supplying feedstocks to the bioenergy industry as a potential alternative market and source of revenue. Communities are interested in developing renewable energy industries for energy independence, job creation, and economic development. Given Wisconsin's wealth of resources in forests and agricultural production, there is interest among state businesses and communities in producing alternative fuels and feedstocks from biomass. The audience includes municipalities, regional

planning commissions, regional economic development initiatives, regulated and unregulated utilities, liquid biofuels, anaerobic digester and biomass conversion technology firms, biomass producers and aggregators, food processors, food services, school districts, loggers, procurement foresters, wood products professionals, haulers, farmers and their advisers, business owners, woodland owners, recycling volunteers, public and private agencies, local and tribal government officials, community leaders and policy makers, and others addressing statewide emerging bioenergy education needs.

3. How was eXtension used?

University of Wisconsin-Extension campus and county faculty and staff participate in various communities of practice, engaging with colleagues around the country to improve the educational content of research-based programs and assistance delivered to residents across the state and region. Extension colleagues are connected by email ListServ, blogs and online newsletters, and shared resources such as teleconferences and webinars, eXtension Communities of Practice, and the national Extension Disaster Education Network (EDEN) to quickly address critical and emerging issues such as responding to extreme weather. Interdisciplinary colleagues and other professionals in this network include University of Wisconsin researchers on the Madison, Platteville, River Falls, Stevens Point and Superior campuses and centers, working with 3 tribes, the Institute for Environmentally Integrated Dairy Management at the UW-Madison Marshfield Agricultural Research Station, 10 other agricultural research stations and the USDA Dairy Forage Research Center.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4341	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2014
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Develop biomass use for biofuels.
2	Build capacity to create, refine and implement scalable conversion technologies.

Outcome #1

1. Outcome Measures

Develop biomass use for biofuels.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increased interest in and funding for renewable energy sources may bring new economic opportunities to Ashland and Bayfield counties. The region's forests and farmlands offer a rich supply of herbaceous and woody biomass for use in the emerging bioeconomy. A number of companies have announced plans to establish or expand their use of woody biomass for energy production. This includes Xcel Energy, which has renewed their commitment to fueling the Bayfront Power Plant in Ashland with locally-sourced wood. Expanded use of wood for fuel has raised concerns about increased demand on roundwood or harvest residues as this may distort pulpwood markets or reduce ecosystem function. Purpose-grown woody biomass crops have been proposed as a productive, reliable, and sustainable fuel supply. Little is known about how woody biomass crops such as hybrid poplar, larch or willow will perform in the climate and soils of Ashland and Bayfield counties, nor are there agronomic or management recommendations for producers.

What has been done

Jason Fischbach, Wisconsin Cooperative Extension agriculture agent for Ashland and Bayfield counties, convened stakeholders in 2009 to develop the Lake Superior Woody Biomass Initiative, which outlines education, research, and outreach efforts necessary to develop a sustainable woody biomass supply chain. Despite significant forest resources in the region and a considerable supply of harvest residues and mill waste, stakeholders recognize dedicated woody biomass crops as another important source of feedstock that could provide income opportunities for area farmers. Fischbach has secured \$55,000 in funding from Xcel Energy and the Wisconsin Office of Energy Independence to implement the Lake Superior Woody Biomass Trials. The trials consist of 25 acres of woody biomass plantings with a series of formal research projects and demonstration plantings. The trials include work on hybrid poplar, hybrid willow, and native conifers. The trials were established in 2010 and data collection and outreach education has been occurring ever since.

Results

Evaluating and demonstrating commercially viable agroforestry: The primary focus of the Lake Superior Woody Biomass Trials is to evaluate and demonstrate production scenarios for potential biomass producers. In the first year (2010), the trials introduced people throughout Wisconsin to woody biomass crops at a production scale, and have inspired collaborations for further research and development work. Funding from the Focus on Energy program was obtained to conduct a nitrogen fertilization trial with hybrid willow. The Natural Resources Research Institute in Duluth, MN, has provided hybrid poplar clones for a replicated performance trial of their select hybrid poplar accessions. The USFS recently funded a trial planting at the Northern Great Lakes Visitor Center to demonstrate the use of woody biomass crops in commercially viable agroforestry plantings. Northland College has conducted bird habitat surveys to quantify the wildlife habitat value of the plantings. Phase 2 of the trials began in 2014 with a series of harvests. 1st generation willow yields have been measured from the clone trials. Top-performing clones from the hybrid poplar clone trials have been selected and will be established in expanded yield trials in 2015. Annual field days have been held to communicate results to area producers and stakeholders. A series of Research Bulletins are being produced to report the research results to area producers and stakeholders.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Build capacity to create, refine and implement scalable conversion technologies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Anaerobic digestion is a proven waste-to-energy technology. Wisconsin is the leading state for on-farm anaerobic digestion with more than 30 operational systems. The last decade created demand for knowledge of system components, processes and mechanisms, operation skills, safe production and use of biogas. Maintaining the economic viability of large-scale anaerobic digestion systems requires optimizing operation, assessing feedstocks, and managing manure systems in accordance with nutrient management plans.

What has been done

University of Wisconsin-Extension biowaste specialist Rebecca Larson works with USDA, OSHA, campus, county and national colleagues, industry partners and farmers developing and sustaining safe, practical and economical anaerobic digestion. Throughout 2014, Larson and colleagues conducted research on operational trouble-shooting at on-farm anaerobic digesters as well as laboratory systems. Anaerobic digestion systems were investigated for biogas production optimization, feedstock degradation, co-digestates, use of end products, and other operational issues. Results were shared around the state to increase digester owner and operator efficiency, encourage advancement of the technology, and educate the public and other educators on basic digestion function and feasibility. Research was also conducted to develop a life cycle assessment at the farm scale to evaluate the environmental factors over the life of the system such as GHG emissions and nutrient fate. Field and lab scale testing was also completed to assess the GHG and ammonia emissions from various digestate streams. These results were used to inform policy makers and producers on technology and management options to reduce environmental impacts. Larson has also updated the Anaerobic Digester Operator Training Program curriculum for a one day course prior to the Manure Summit to be held in February 2015.

Results

Anaerobic digestion research and outreach: Research results are critical to provide additional guidance to operators, system owners and the industry on decreasing system failures and downtime, increasing biogas production and profitability, and reducing environmental impacts. In addition, evaluation of technology and economic constraints has been critical in guiding producers in the state who are evaluating new anaerobic digestion projects. Feedstocks are identified and various blends evaluated in Rebecca Larson's lab, then implemented in the field. As a result, many facilities are increasing biogas production and more importantly, avoiding feedstocks with high toxicity that cause catastrophic failures. Her recommendations have led to more efficient systems with greater economic sustainability. For example, when a scalable system constructed for 200 milking cows was producing much lower biogas than predicted, she worked with the operator and company owner to double biogas production. New tools developed in the last year allow operators to evaluate the impacts to emissions, nutrient use efficiency, and economics.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Database development)

Brief Explanation

Database development: University of Wisconsin-Extension is in the process of replacing the legacy planning and reporting database, which was closed in 2012. For this report, the 2014 direct contacts for adults reported are the 4-year average of past performance of relevant statewide teams in 2008-2011. Program participation is in alignment with previous years.

The 2014 trained volunteers participating and direct contacts for youth reported are from the 2013-14 ES-237 form.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
0	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes with climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
0	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.