

**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

Economics, Marketing and Policy

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
601	Economics of Agricultural Production and Farm Management	35%		12%	
602	Business Management, Finance, and Taxation	30%		10%	
603	Market Economics	8%		8%	
604	Marketing and Distribution Practices	5%		9%	
605	Natural Resource and Environmental Economics	5%		14%	
606	International Trade and Development Economics	2%		11%	
608	Community Resource Planning and Development	15%		10%	
609	Economic Theory and Methods	0%		12%	
610	Domestic Policy Analysis	0%		9%	
611	Foreign Policy and Programs	0%		5%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	20.7	0.0	7.0	0.0
<b>Actual Paid</b>	33.0	0.0	9.0	0.0
<b>Actual Volunteer</b>	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
1616092	0	878405	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1616092	0	888910	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	3192106	0

## V(D). Planned Program (Activity)

### 1. Brief description of the Activity

Research programs to:

- Identify current and emerging key public policy issues on trade, environmental, agricultural and food issues important to Michigan and analyze responses.
- Conduct research and education to improve the operations, business and financial management skills of Michigan producers so they can make decisions that are more sound financially and environmentally.
- Evaluate the competitiveness and marketing strategies of Michigan farm markets, greenhouses and other green industry retailers.
- Develop a framework to understand and analyze domestic and international trade policies and assess their impact on Michigan.
- Evaluate how Michigan citizens use the Internet when searching for information about a vacation destination or planning a vacation.
- Determine rationale for farmland preservation choices and how changes will affect the Michigan tax base.
- Develop models to estimate the demand for and value of recreational fisheries and wildlife resources.
- Identify and evaluate the policy, technology and marketing issues faced by Michigan organic growers and develop responses.

Extension program activities to:

- Teach financial management skills, business organization, estate planning, management information systems, strategic management, alternative sustainable production and marketing systems to agriculture and natural resources producers and businesses.
- Assist agencies, organizations, local governmental units and individuals in pursuing a cultural economic development strategy.
- Offer business retention and expansion support.
- Help people recognize, understand and appreciate multicultural differences.
- Provide entrepreneurship education to a broad audience, including individuals, business owners, youth and communities.
- Offer communities consultative, diagnostic and educational assistance in planning and zoning to meet community land use goals.

### 2. Brief description of the target audience

Agriculture and natural resources producers and industry representatives; tourism industry representatives; state agency representatives; private citizens; school administrators; local, state and federal elected officials and policymakers.

### 3. How was eXtension used?

All MSUE field educators and specialists are encourage to be involved in eXtension through both the Ask an Expert and Communities of Practice (CoP). A total 13.28 fte's were involved in this area of economics and marketing with 7.93 fte's funded through 3bc funds.

An example,

**Title of Question:** organic grain farming on hills and slopes; ability to cultivate effectively

**Question:** Farmer from flat Illinois moving to MI with some questions about the ability and risks with the weeding of organic grains on rolling hills (14C; 6-12 degree slopes). Questions about efficacy of tine weeding, blind cultivation, row cultivation. Thanks.

**Response:** Yes, cultivating will be difficult. On side hills you will have to be alert and will have to correct or compensate the side draft of the cultivator and also tractor tilt. It can be done but much more skill is required. Cultivating side slopes is not fun. A couple of areas might be tolerable but a whole farm with steep slopes would be discouraging. Six to twelve % slope is extreme for any type of farming. You may also have to be concerned about erosion. If you have a choice you may want to consider another site. Most of the organic farmers I work with are blessed to have nearly level fields.

Another example:

**Title of Question:** energy efficeint greenhouses

**Question:** Hello, I am looking for information on grants/ loans to build a hothouse using geothermal heat and solar power. I live in Grand Traverse county, but the structure would be built on my business partners property in rural Benzie county.

Response:

I know of two grant programs available for construction of high tunnels (hoophouses). They are as follows: Natural Resources Conservation Service (NRCS). Contact the NRCS office for the county where you wish to build the structure. There are specific criteria for the grant. One such criteria is that you own the property or have control of it. NRCS personnel can explain what would qualify. Typically, this grant usually pays around 70-75% of the cost of putting up a high tunnel. It is a reimbursement program in that the individual pays the money up front and then gets reimbursed once the structure is up and inspected by the NRCS personnel.

The Michigan Economic Development Corporation (MEDC) has a grant program for doing high tunnels. I'd say Google MEDC and see if you can find it on their web site for the details.

Most high tunnels are installed with no additional heat. On placing heat in a high tunnel information is usually supplied by the high tunnel dealer or a heating contractor. Also, check the requirements of the grants to see if placing heat in a high tunnel meets requirements of the granting agency.

Another excellent resources on high tunnels is the MSU Hoophouse website. To find it, Google, MSU Hoophouse and it should come up. This website provides information from what MSU has learned at their student organic farm.

With regard to solar power, there may be grants with the Farm Service Agency (FSA) is usually located in the same building as NRCS.

If you think I can be of further help in accessing resources or finding educational information on growing in high tunnels, do not hesitate to get in contact with me. Hope this information helps.

### V(E). Planned Program (Outputs)

#### 1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	14942	44826	0	0

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

**Patent Applications Submitted**

Year: 2014  
 Actual: 16

**Patents listed**

MICL02276: Designing Sustainable Bioenergy Systems #2011348161 (11/18/13); #13/997,043 (8/20/13); #14/251,921 (4/4/14); #14/167,430 (1/29/14); #2650860 (9/17/13); #8,673,031 (3/18/14), #2010289797 (6/12/14), #2013205681 (4/24/14); #2010249409 (5/24/14); #2,762,985 (7/9/14); #320549 (5/28/14); #2,737,704 (11/19/13); #2011201768 (5/24/14); MICL02362: Agricultural Precision Technology Adoption, Diffusion and Impacts : #61/844,248 (7/9/13); #01PCT/US2014/045115 (7/1/14); MICL02298: Improving the Quality of Decision Making in Natural Resource Management: #62/008,673 (6/6/14)

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2014	Extension	Research	Total
<b>Actual</b>	2	37	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of research programs on economics, marketing and policy.

Year	Actual
2014	33

**Output #2**

**Output Measure**

- Number of adult participants trained in economics of agricultural production and farm management.

Year	Actual
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2014 5539

**Output #3**

**Output Measure**

- Number of adult participants trained in business management and finance.

<b>Year</b>	<b>Actual</b>
2014	654

**Output #4**

**Output Measure**

- Number of adult participants trained in community resource planning and development.

<b>Year</b>	<b>Actual</b>
2014	8749

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of adult participants with increased knowledge in economics of agricultural production and farm management.
2	Number of adult participants with increased knowledge in business management, finance and taxation.
3	Number of adult participants with increased knowledge in natural resource and environmental economics.
4	Number of adult participants with increased knowledge in community resource planning and development.
5	Number of research programs to identify current and emerging key public policy issues on trade, environmental, agricultural and food issues important to Michigan and analyze responses.
6	Number of research programs to improve the operations, business and financial management skills for Michigan producers so they can make decisions that are more sound financially and environmentally.
7	Number of research programs to evaluate the competitiveness and marketing strategies and human resources management practices of Michigan farm markets, greenhouses and other green industry retailers.
8	Number of research programs to develop a framework to understand and analyze domestic and international trade policies and assess their impact on Michigan.
9	Number of research programs to develop models to estimate the demand for and value of recreational fisheries and wildlife resources.

## **Outcome #1**

### **1. Outcome Measures**

Number of adult participants with increased knowledge in economics of agricultural production and farm management.

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2014	4708

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Rural communities benefit in many ways from the establishment, maintenance and success of economically and environmentally sustainable farm businesses. People interested in beginning new commercial farm businesses of any size benefit from basic information on production systems, marketing options, and business skill development.

#### **What has been done**

MSUE developed a program that provided a platform for MSUE educators to present to a new and diverse audience of beginning farmers using internet webinar technology. For several educators, this was an introduction to this kind educational delivery. Eleven 2-hour evening webinars were offered from January 20 through April 2, 2014 and a twelfth webinar was offered on October 22, 2014.

#### **Results**

Evaluation questions were included in each webinar during the series through Adobe Connect interactive ?poll pods?.

#### **Impacts of program**

Of 40 respondents, 15 (38%) indicated that the program resulted in, or contributed to , the creation of a new business

Of 38 responses, 13 (34%) indicated that the program resulted in, or contributed to, the expansion of an existing farm business.

Of the 39 respondents, 7 (18%) indicated that the program resulted in, or contributed to, the addition of a new enterprise to an existing farm business.

Of the 37 respondents, 5 (16%) indicated that the program resulted in, or contributed to, the creation of new jobs.

Of the 37 respondents, 19 (51%) indicated that the program resulted in, or contributed to, development of a new feasibility plan (formal or informal) for a farm enterprise.

Of 42 respondents, 15 (36%) indicated that the program resulted in them making more money, ranging from an increase of ?<\$100? to ?\$5,000+?. The median range of increase for these 15 respondents was ?\$101-\$500?, and the mean range of increase was ?\$501-\$1,000?.

What difference did it make - public value?

The program contributed to the development of new and expanded farm businesses and new jobs. People used information from the program to develop feasibility plans for proposed new farm businesses or expansions. Many participants made increased income from their farm businesses as a result of the program.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

#### Outcome #2

##### 1. Outcome Measures

Number of adult participants with increased knowledge in business management, finance and taxation.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2014	648

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Farm women have diverse backgrounds, some which prepare women well for the responsibilities of running a farm business. Other women come into farming operations when they marry men

who are farmers, or when their husband or family members die and leave them in charge. Being married to a farmer or being a woman in a male dominated business has its challenges.

Becoming an effective farm business partner is the focus of Annie's Project. The course takes the real life experiences of an Illinois farm wife and shares them with other farm women who want to learn more about a crucial and complex business environment, their own farms. Farm women find answers, strength, and friendship in Annie's Project. They grow in confidence, business skills, and community prestige.

#### **What has been done**

Becoming an effective farm business partner is the focus of Annie's Project. The course takes the real life experiences of an Illinois farm wife and shares them with other farm women who want to learn more about a crucial and complex business environment, their own farms. Farm women find answers, strength, and friendship in Annie's Project. They grow in confidence, business skills, and community prestige.

Topics covered were: (1) Balance sheets, profit and loss statements, partial budgeting, (2) Crop and business insurance (3) Business planning, (4) Price risk management, (5) Property ownership alternatives, lease agreements, (6) Estate planning and business succession, (7) USDA Farm Services Agency programs, and (8) Personality assessment and family communications. Learning sessions included presentations by business professionals and MSU Extension educators and time for discussion.

Sponsorship was provided by Chemical Bank, ChoiceOne Bank, Farm Bureau Insurance-Landheer Agency, GreenStone Farm Credit Services, North Central Co-op, and Shelby State Bank.

#### **Results**

All attendees completed pre- and post-class written surveys to measure their risk management knowledge in the areas of financial, human resource, legal and production. All of these factors are directly related to BM-A3-5 Farmers/entrepreneurs utilize additional risk management tools from the AABI plan of work.

Depending on the topic, knowledge level increased 37.5% to 76.5% during their participation in the Annie's Project.

Top areas changed:

- 44.7% increased their knowledge on finances
- 43.5% increased their knowledge on components of a balance sheet
- 59.5% increased their knowledge on how a lender evaluates a borrower
- 49.3% increased their knowledge on their insurance needs
- 65.4% increased their knowledge regarding forms of property ownership
- 76.5% increased their knowledge regarding estate plans
- 37.5% increased their knowledge regarding how production insurance works
- 46.7% increased their knowledge regarding how revenue insurance works

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

### **Outcome #3**

#### **1. Outcome Measures**

Number of adult participants with increased knowledge in natural resource and environmental economics.

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2014	0

#### **3c. Qualitative Outcome or Impact Statement**

##### **Issue (Who cares and Why)**

One example, is water quality is a major issue in Michigan. One of the causes of pollutions failing septic systems. Most homeowners do not know to maintain and care their septic system if they even know they have one. Needed to help both commercial and home owners address this issue through septic system education. In addition, property values in Michigan has dropped significantly and water quality issues can have major impact on values, businesses and communities.

##### **What has been done**

MSUE facilitated first Commercial Onsite Wastewater System training for installers, designers and managers in Michigan. Septic system presentation was given at Inland Lakes Conference. In addition, partnered with Macomb Health Dept. to conduct homeowner septic and well use and maintenance workshops.

##### **Results**

Through these commercial and homeowner educational programs gained knowledgeable about how to use and safeguard their system, what the trouble signs are and steps to correct a problem. As more people understand and take steps to safeguard their wastewater systems, water quality will continue to improve throughout the state. In turn healthier communities will help economic growth.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

#### Outcome #4

##### 1. Outcome Measures

Number of adult participants with increased knowledge in community resource planning and development.

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2014	7437

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

One example in this area, cooperative are needed to expand the dwindling network of family-owned farmers that contribute to a healthy and economically viable local farming community making up an important part of Michigan's agricultural industry.

###### **What has been done**

With the help of Michigan State University Extension and the MSU Product Center this targeted need was addressed through Farmers on the Move (FOTM). This cooperative consists of Hispanic farmers that incorporated in June of 2009 to create a quality retail brand of fresh blueberries and vegetables for the Michigan and Midwest markets. The objectives are to provide a reliable supply of quality products year after year. The members work collectively to produce and package blueberries and vegetables. Together they process, package, deliver and share marketing expenses. Working together enables them to supply their product more efficiently and competitively, so as to realize greater profitability. Sales began in 2011.

###### **Results**

FOTM provided sustainable business growth by continuing to build a framework that fueled farmer's entrepreneurial spirit. Additionally, the cooperative provided and coordinated trainings and educational resources to the Southwest Michigan Hispanic agricultural community. Some of the areas covered include; cultural techniques, pesticide application license class room work, generally accepted agricultural practices, and cooperative procedural activities. The number of

Hispanic farms continued to increase. FOTM currently has 14 members with farms from 5 to 50 acres. Expansion of the member base with additional market knowledge should allow for sales numbers to grow. New marketing opportunities include ready to serve portion packing of blueberries and hoop houses to extend the seasonal offerings. FOTM worked closely with the Michigan State University Product Center during its formation and growth and utilized resources through the USDA Rural Cooperative Development Program.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

#### Outcome #5

##### 1. Outcome Measures

Number of research programs to identify current and emerging key public policy issues on trade, environmental, agricultural and food issues important to Michigan and analyze responses.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2014	16

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Public policy has taken on considerable importance to the future of agriculture. The farmer's historic struggle was with the forces of nature and the marketplace, and government policy played a minor role. Government policy at all levels now is a major player in agriculture, especially related to agriculture as an important economic asset - the sustainability of a productive agricultural sector balanced with the preservation of environmental quality and the importance of prime farmland with respect to the continued viability of the rural economy and of rural lifestyles.

In general, Michigan is becoming warmer (1 degree warmer on average in the past 120 years) and wetter (a 10 to 15 percent increase in precipitation over the same period). And the growing season has lengthened by about 1.5 weeks in the past 30 years, resulting overall in new challenges and opportunities for the state's agriculture industry.

### **What has been done**

Research to: develop a dynamic model to analyze the long-run impacts of renewable energy development on fossil fuel supply; provide a more comprehensive understanding of tourist preferences for tourism management and development; provide information that can contribute to better design and better use incentive-based conservation; develop rural Latino communities in Michigan; develop environmentally benign bioprocesses to effectively utilize various renewable resources; visually characterize changes in food and agricultural systems examine the implications of sustainability principles for U.S. agriculture; elucidate the role of economics and law on environmental management; develop, extend and apply economic and ecological theory to analyze economic and ecological trade-offs associated with ecological problems; and to better understand impacts of climate change on crops; and sustainable bioenergy systems.

### **Results**

researchers who are utilizing three process based crop simulation models to identify and examine the impacts of climate on corn production in the Midwest over the past century. The 12-state region accounts for more than 80 percent of U.S. corn production and 25 percent of global output. It is part of the Useful to Useable (U2U) Project, a U.S. Department of Agriculture National Institute of Food and Agriculture project seeking to improve the resilience and profitability of farming operations in the region amid climate variability and change.

In the work carried out at MSU, the process-based CERES (Crop Environment Resource Synthesis) -Maize crop model was used to simulate the impacts of weather and climate on corn production systems. Model validation was carried out with individual plot and county observations. The model was run with weather data for representative soils and cultivars from 1981 to 2012 to examine spatial and temporal yield variability within the region.

Another project has positively impacted decisionmaking concerning water resources, land use, and ecosystem management. These impacts will help resource beneficiaries and managers in the US and abroad improve the use, conservation, and quality of water and water-related resources.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development
610	Domestic Policy Analysis

## **Outcome #6**

### **1. Outcome Measures**

Number of research programs to improve the operations, business and financial management skills for Michigan producers so they can make decisions that are more sound financially and environmentally.

### **2. Associated Institution Types**

- 1862 Extension
- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2014	10

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Research that enhances knowledge and informs risk analysis and management strategies and tactics related to the causes and effects of price, yield, and revenue risk in production agriculture and the costs of alternative strategies is critical to the long-term sustainability of the agrifood industry.

#### **What has been done**

Research to: explore, analyze and evaluate the dynamics and economic impact of entrepreneurial activity within the context of MI and global agrifood systems; further the understanding of coupled human and natural systems and sustainability; more broadly develop conceptual and analytically frameworks for understanding, assessing and empirically studying effective innovation in the agriculture, food and natural resource sectors; examine the causes and consequences of Michigan state and local government fiscal challenges; to discern the relationship between entrepreneurship and the Michigan agrifood sector; to develop sustainable energy and business systems; understand agricultural production economics in an environmentally conscious manner; and to improve the quality of natural resource management.

#### **Results**

A project evaluating the farm capital structure investment choices was completed (paper published). This research developed a unified theoretical framework that explains farm capital structure choice. The framework accommodates different credit access scenarios and heterogeneous risk profiles of farm borrowers. It recognizes that the costs of capital are

endogenously determined, reflecting the degree of credit risk and accessibility to credit markets. Based on the proposed model and predicted outcomes the paper empirically tests the impacts of different factors on capital structure choice. Results show that the determinants of capital structure have varying effects at different ranges of leverage. The analysis integrates credit risk models and accommodates endogenous cost of capital, providing a comprehensive framework for studying farm capital structure choice and its determinants. The results provide insights that could help policy makers and lenders develop effective instruments to manage, monitor, and influence the financial leverage of farms at different quantities of debt ratio. Another project focused on the risks associated with growth in biofuels (paper published). Recent expansions in biofuel production have led to concerns about an emerging new relationship between energy prices and the prices of agricultural feedstock for biofuel. This research provides new econometric evidence on this relationship using common trend-common cycle decompositions to estimate long-run and short-run co-movement across various energy and agricultural prices. The paper also tests for the presence of regime changes that may alter the relationship between energy and agricultural feedstock prices under certain conditions. We find that co-movements between energy and agricultural feedstock prices tend to dissipate in the long-run, which has important risk implications for biofuel and food policy.

This past year, effort and resource were spent to develop and maintain the State of Michigan local government web portal and fiscal data management system. The portal also offers open access data downloading, which has improved access to information and therefore accountability and transparency of local government in Michigan. The portal has been an effective tool in helping meet Governor's initiative to increase accessibility of government information for citizens. The portal is now used to download detailed financial information into an Excel-based Citizen's Guide report developed by the Governor's office. The database facilitates transparency, and does it in a way that saves hundreds of hours of time in local government offices throughout the state every year. The portal also saves Treasury officials hundreds of hours every year by streamlining the data management process. It is now much easier for Treasury to respond to information/data requests by administration and legislators. In 2014, Treasury granted MSU another \$15,000 contract to further develop the portal. This research hit both the outreach and research aspects of the MSU mission: An article on the topic is forthcoming in Public Finance Review.

Research continues to receive attention from the media and peers as evidence of being cited in prominent media outlets such as the Detroit News, the Christian Science Monitor, and Colorado Public Radio. According to Google Scholar this research has now been cited more than 1,600 times in the academic literature.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices

## **Outcome #7**

### **1. Outcome Measures**

Number of research programs to evaluate the competitiveness and marketing strategies and human resources management practices of Michigan farm markets, greenhouses and other green industry retailers.

### **2. Associated Institution Types**

- 1862 Extension
- 1862 Research

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2014	1

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Management of personnel and human resources has changed over the past three decades, partially due to increasing employment legislation, education issues, employee awareness and changes in demographics. As competitors strive to win the war for talent, effective human resource management is necessary to gain true competitive advantage in the marketplace.

#### **What has been done**

Research to: study issues related to the management of human resources and "green" business practices in commercial recreation and tourism; profile and characterize consumers and markets for eco-friendly products.

#### **Results**

In 2014, researchers predict tourism spending, as measured by hotel and motel tax receipts, will increase 4.5 percent over 2013 levels. Nationally, leisure travel is growing at a higher rate than business travel, and tourists are increasingly searching for one-of-a-kind experiences instead of chain restaurants and hotels.

Tourism spending was strong in 2013 despite temperatures 9 percent cooler than in 2012. Helping the cause were lower gas prices (down 3 percent from 2012) and positive news coverage, such as Mackinaw City ranking as the top tourist town for families and Grand Rapids being voted Beer City USA for the second consecutive year in 2013.

Researchers see many benefits to the Pure Michigan travel campaign, including attracting out-of-

state visitors, who tend to stay longer and spend more than Michiganders. A national trend showing an increase in people wanting to do multi-destination vacations also bodes well for Michigan.

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
602	Business Management, Finance, and Taxation
603	Market Economics
604	Marketing and Distribution Practices
608	Community Resource Planning and Development
609	Economic Theory and Methods

#### Outcome #8

##### 1. Outcome Measures

Number of research programs to develop a framework to understand and analyze domestic and international trade policies and assess their impact on Michigan.

##### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

<b>Year</b>	<b>Actual</b>
2014	5

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

The ability to understand the economic, cultural and political factors of domestic and international trade policies in order to determine the likely changes in these policies and their consequent market is essential to a competitive, sustainable Michigan economy. Research in this arena will provide information and resources that are critical to Michigan businesses, either directly or indirectly, as the balance of power within the marketplace shifts. As globalization of food industries continues, an assessment of such power requires analysis of world trends and the institutional structures that govern national and international actions.

###### **What has been done**

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Research to: provide economic analysis of agricultural production technologies and management practices related to the many agricultural enterprises important to Michigan farmers; better understand the supply chains of various horticultural products; and identify ethical issues in agriculture.

### **Results**

During the reporting period, researchers worked on potato value chains in China, Indonesia, India, and Myanmar, mango value chains in Indonesia, watermelon value chain in Myanmar, and changes in food consumption pertaining to fruits and vegetables compared with other products in Vietnam, Indonesia, and Bangladesh. The findings from these studies are in reports and articles drafted and under preparation for submission to journals in late 2014 and early 2015.

Researchers have distributed widely to individuals from the target audiences the drafts of these works in progress. Researchers have also made two horticulture-product related publications (articles) in the period, one on Asian food system transformation (including fruits and vegetables), and one on potato cold storage in India.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics
606	International Trade and Development Economics
610	Domestic Policy Analysis
611	Foreign Policy and Programs

### **Outcome #9**

#### **1. Outcome Measures**

Number of research programs to develop models to estimate the demand for and value of recreational fisheries and wildlife resources.

#### **2. Associated Institution Types**

- 1862 Extension
- 1862 Research

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2014	2

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The natural beauty and outstanding recreational opportunities provided by Michigan draw more than one million visitors a year. Improving ecological conditions and fisheries has the potential to enhance economic and recreational benefits. For this reason, it is important for natural resources and wildlife managers to understand the recreational demands and economic benefits stemming from these important resources in order to wisely protect, sustain and market them.

#### What has been done

Research to: develop and extend economic models for estimating consumer preferences and the demand for, and value of, recreational fisheries and wildlife resources; and to study issues related to the management of human resources in a commercial recreation and tourism context.

#### Results

Activities include economic analyses and ongoing implementation of surveys of fishing site choices by anglers holding Michigan licenses, the development of travel cost valuation models for fishing sites and quality throughout Michigan and the Great Lakes; analyses of surveys of location choices of hunters; analysis of a survey of the public's willingness to pay to supply enhanced ecosystem services from agricultural lands through the adoption of low-input practices; the development and implementation of travel cost valuation models for valuing beaches, beach access, and the damages from beach closures on the Great Lakes.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
605	Natural Resource and Environmental Economics

### 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
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

#### Brief Explanation

During the 2013-2014 fiscal year, ABR and MSUE was able to start rebuilding some of its resources after several years of either flat or funding cuts at both the state and federal levels. ABR was able to **fill voids in its research and support teams by hiring quality,**

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**skilled people for a variety of positions ranging from farm managers and grant coordinators to faculty and research technicians. Much needed equipment and infrastructure updates were also conducted at many on-campus and outlying research facilities**, helping to keep operations to full capacity. In 2014, ABR and Project GREEN funds helped bridge operating budget gaps at five of the 13 outlying research centers, enabling the repairs of equipment and several buildings. Together, the organizations look to re-invigorate the MSUE presence at the 13 outlying research centers throughout the state.

The **ongoing economic challenges** faced by Michigan continue to affect this planned program area. Consequences have included fewer new hires, delaying the award of new financial obligations, reducing levels of continued funding, and renegotiating or reducing the current scope of assistance through formula funds or block grants. Specifically, a 15 percent decrease in state funding FY2011-2012 coupled with a flat federal funding line for the following two years resulted in the elimination of 72 Extension educator positions across 83 counties, 22 academic and faculty positions on campus and 15 support staff. Administrative positions were reduced from 45 to 19 FTEs. Impacts on ABR came largely in the form of reductions in research infrastructure support. Investments in facility maintenance and equipment were postponed in an effort to avoid eliminating more than 45 research positions (faculty, support staff and graduate assistants) and one research facility had to be closed in light of the reductions. There were also fewer funds to seed research on emerging issues.

Recent **extreme weather events** also caused extensive hardship to the agriculture industry. The spring 2012 ranks among the most destructive weather periods in Michigan fruit production history, with crop losses valued at more than \$500 million. Peach production suffered a 95 percent loss; tart cherry, a 90 percent crop loss; apple production, an 88 percent loss; and grapes, an 85 percent loss. The summer 2012 brought the worst drought in Michigan since 1988 with many crops suffering substantial losses.

And the winter of 2013-14 brought a series of bitterly cold air masses rolled down from the Arctic, through Canada and into Michigan. The period between November 2013 and February 2014 was the coldest in Michigan since 1911 and among the five coldest periods on record in the state.

Together, MSUE and ABR continue to serve as the primary research and development arm for the agriculture and food industries in Michigan, valued at more than \$100 billion annually.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

#### **Research**

As Hatch dollars are base funding for faculty salaries, there is a built-in evaluation mechanism through annual reviews of overall performance, research productivity and the leveraging of additional research dollars. In addition, many of the research projects have an evaluative element that is required by state and federal-level funding sources that provides documentation related to project assumptions, goals and outcomes. This information is used to determine the overall success of the research initiatives; their contribution to providing practical, real-world solutions and resources to address challenges and

problems; and whether continuation funding and/or new dollars are appropriate and necessary as funds are available.

**Extension**

An example,

**Issue (who cares and why)?** The Michigan winery industry is making a significant impact and is still growing. The production of wine grapes is a key feature of the industry and is complicated and costly.

**What has been done?**

A Wine Grape Establishment Conference and optional Informational Pre-conference was held January 21 and 22, 2014, at locations in Novi and Traverse City, Michigan by Michigan State University Extension using a hybrid video conference format. Viticulture Enology Science Technology Alliance was a co-sponsor.

**Results/Impact?**

There were 32 participants in the main conference and 21 in the pre-conference. There were 23 in-class evaluations completed (72% rate).

When queried as to why they participated, 100% wanted to understand the technical aspects of starting a winery. Other reasons for attending the conference included networking with other growers, research for a possible vineyard, understanding the Michigan industry, understand business and financial planning, obtain take-home resources, and find out about marketing wine grapes were indicated by at least 78% of respondents. Wine grape-growing expertise was cited as a severe challenge by 39%.

At least 78% agreed or strongly agreed that the conference content helped them: 1) with a decision to start a vineyard; 2) better understand the Michigan grape and wine industry; 3) take advantage of educational resources; 4) decide which grape varieties to grow; 5) understand the importance of vine training; 6) understand how to purchase sound planting stock; 7) utilize the site preparation, and planting guidelines; 8) plan the vineyard layout; and 9) increase knowledge of pest management.

As the result of the conference, participants indicated they will (open-ended question): 1) take their time, rethink, or slow down (5); 2) manage pests (2); 3) get more education (3); and 4) prepare. Future investments of \$400,000-1.850 MIL are planned by 18 respondents.

Another example:

**Issue and Situation:** The Affordable Care Act (ACA) of 2010 included an individual shared responsibility mandate that went into effect January 1, 2014. In 2012, there were more than 1.2 million uninsured residents in Michigan, most of whom had never purchased health insurance in the past. The overall goal of this project was to facilitate and coordinate Extension outreach efforts in Michigan to disseminate information and provide community education and enrollment information to targeted groups of people who were underinsured or lacked insurance; as well as people with Medicare, Medicaid, Healthy Michigan Plan or MiChild to increase their capability and access to health insurance. Due to the ACA deadline, the task of getting information to consumers in a short period of time was essential. Health insurance capability is the empowerment of individuals to choose and purchase health insurance plans appropriate for them with respect to coverage and costs, given their financial situations and external circumstances. The ACA will affect a number of farms and business. They will need to determine if they are affected by the act and if they are, then determine options and costs to the business.

**Evidence of Scholarship:** Our objective was to increase consumer knowledge, understanding, and confidence in the ability to purchase health insurance in the Marketplace Exchange by strategically disseminating key messages widely and broadly through a variety of educational and communication strategies. These efforts were supported by MSU's ANR Communications, Graceful Communications and county Extension Educators in Michigan. The ABBI Extension educators researched the Affordable Care Act regulations, developed a curriculum and four fact sheet publications since none existed for their small business, self-employed and farm family audiences. The GMI and HNI educators focused on individuals and families. After reviewing curriculum options these educators chose to be trained in and use the Smart Choice Health Insurance curriculum developed by the University of Maryland Extension. This curriculum is research-based and has been used exclusively by Extension in multiple states during 2013 to 2014. It includes research-based evaluation questions to measure the objectives.

Michigan was also one of twelve states chosen to receive a \$90,000 NIFA USDA grant through the Center for Medicare and Medicaid in the Department of Health and Human Services (HHS) for the "Extension Outreach on the Marketplace Exchanges of the Affordable Care Act" project in fall 2013 to 2014. The objectives were:

1. Work with a collaborative network of up to 12 states to disseminate information and provide Extension outreach, education and enrollment activities on health insurance, its terminology, and new provisions for health insurance and existing programs (Medicare, Medicaid, or CHIP) and to reach 2-5% of the targeted population in each participating state.
2. Increase the percentage of individuals among targeted groups of people who demonstrate an understanding of health insurance, its terminology, and new provisions for health insurance and existing programs (Medicare, Medicaid, or CHIP) by 15-20% in Michigan.
3. Increase the percentage of individuals among the targeted population whose confidence in purchasing health insurance through the Marketplace Exchange increase by 15-20% in Michigan.
4. Increase the number of uninsured and underinsured individuals who plan to purchase health insurance through the Marketplace Exchange by 15-20% in Michigan.

**Collaboration effect on outcomes:** Delivery methods included in-person group presentations, multiple weekly webinars, and posting numerous news articles and educational information on two MSUE websites: ACA Roadmap and FIRM. Educators coordinated with Michigan's HHS Navigators and Certified Enrollment Counselors (CEC) to recommend residents asking for enrollment assistance to first attend an MSUE educational presentation and complete the curriculum worksheets prior to their appointment with a CEC; results were a more time efficient and effective CEC appointment. Print, social media, and other marketing efforts were directed toward MSUE staff and potential health insurance enrollees as well as state and local partners and stakeholders to drive consumer and small business participants to the presentations. Partners included Farm Bureau, chambers of commerce, local libraries, VITA sites, Michigan Works! unemployment offices, Michigan Credit Union League, AARP, primary care physicians, local health departments, county and township government associations, and American Indian- and Arab American-serving organizations. From November, 2013 to April, 2014, reports showed the following Outputs by MSU Extension staff:

- 59 direct education activities reaching 987 consumers.

- 328 one-on-one contacts by emails and phone calls to answer questions
- 7,241 materials distributed including information tables at community events
- 14,467 indirect education activities including social media posts, ACA Roadmap web page views, news articles, e-blasts, and other media.
- 854 referrals to local health insurance enrollment counselors

**Demonstrated Impacts:**

Smart Choice participants (n=150) pre and post surveys showed the following behavioral changes:

- Michigan consumers are confident they
  - understand health insurance terms
  - know how to estimate costs for health care
  - what questions to ask, and can find information to choose a plan
- Michigan consumers are likely to
  - Determine which doctors and hospitals are covered
  - Understand what they would have to pay for prescription drugs, emergency department visits, and specialist visits
  - Find out if they have to meet a deductible and if unexpected costs are covered.

Farms that attended presentations were chosen for a follow-up call/email to determine any mode of action due to attending the program. All that were contacted have stated they began to institute administrative measures to collect data/information that will be needed for ACA reporting purposes. Those that have determined that they are "large" employers have begun to work to determine the cost of providing health insurance to employees vs. penalties as well as institute some general human resource management changes.

**Team Impact Resulting from Working Collaboratively:** The issue of health insurance literacy affected various and diverse MSUE existing audiences differently, and reached new audiences and stakeholders not familiar with MSUE. The collaborative team reached small businesses as well as consumers with messages each needed to hear. Much confusion around health insurance plans, enrollment, and the Affordable Care Act provisions was evident during the Marketplace Open Enrollment period from October 2013 to March 2014. Small and large businesses assessed their plans and costs for employee coverage. Consumers better understood options before enrolling. Through bi-monthly conference calls and periodic email updates, Extension Educators kept in touch, shared successes and barriers, and strategized project plans. We also learned to work collaboratively with the multi-state team.

**Key Items of Evaluation**

**Research**

Weather and climate affect all facets of agriculture, and they can do so in dramatically different fashion -- what's good for one commodity can be detrimental to another. In Michigan, which boasts the second most diverse agricultural production in the United States, this conundrum translates into lots of opportunities for research. On the flip side, even experienced meteorologists such as Jeff Andresen acknowledge that there are certain limitations in the science.

"On one hand, we all know that meteorologists are the brunt of jokes, and some of them are probably justified," he said. "However, it's also important to note that the science is

getting better. For example, weather forecasts are significantly more accurate than they were in past decades. There is also more known about how weather and climate influence agriculture. That's where Michigan State University (MSU) comes into play. We have a role to provide new science and other information that help reduce weather-related risk for farmers."

Andresen, a MSU geography professor and Extension specialist, has been helping Michigan farmers prepare for Mother Nature's wrath since coming to work at MSU in 1991. At that time, he was the only MSU faculty member providing meteorology expertise to agricultural producers. Faced with a steep learning curve, Andresen recalls the advice of a colleague that provided the Illinois native more familiar with corn and soybean production one of his most valuable lessons.

### **Extension**

MSUE utilizes the Institute Work Teams for planning, evaluating and reporting. Work Teams in this area found:

#### **Institute of Agriculture and Agri-Business**

- \$54,927,530 - value of product protected
- \$10,112,000 - value of product gained
- \$15,746,712 - value of product saved
- \$19,980,560 - dollars (\$) in net farm income maintained or increased
- \$5,784,283 change due to yield/productivity change
- \$51,989 change in \$ expended on water withdrawal
- \$49,049 change in \$ expended on energy
- \$28,660,800 - value of retained payroll

#### **Institute of Greening**

- 101 participants showed increase understanding of relevant laws and the practical impacts of those laws on their boards
- 215 participants increased their knowledge of their board's structure, functions and duties, and/or operational best practices
- 185 participants were able to identify and locate resources for quality information and/or apply that information to the solution of problems
- 66 new diversifying/expanded agri-food businesses developed as result of MSUE efforts.
- 34 GM-4-EM-A2-I1: Number of producers that report selling at local/regional markets as a result of MSUE efforts.
- 716 new vendors, farm markets, road side stands that accept Bridge Cards, Project Fresh, and participate in Double Up Food Bucks as a result of MSUE efforts.

### **Product Center (research and extension)**

The Product Center's assistance in launching 396 known new businesses and business expansions has had the following estimated economic impacts:

- Increased annual sales: \$321.9million (cumulative first year sales only)
- Value of increased investment: \$322.1million
- Jobs created: 1,147; Jobs retained: 644