

# 2008 Michigan State University Combined Research and Extension Annual Report

## Executive Summary

### Report Overview

Michigan State University (MSU), the state's land grant institution, is charged with generating research based knowledge and educational programs people can access to make informed decisions to improve their lives.

The mission of the Michigan Agricultural Experiment Station (MAES) is to engage in innovative, leading edge research that ensures the wise use of agricultural, natural and community resources and enhances the quality of life in Michigan, the nation and the world. The MAES strives to maintain a balance between basic and applied research and relies heavily on the input of its constituents in identifying research priorities. The accomplishments and discoveries outlined in this report are reflective of the reason why MAES continues to be one of the most successful agricultural experiment stations in the country.

Michigan State University Extension (MSU Extension) helps people improve their lives through an educational process that applies knowledge to critical issues, needs and opportunities. One of the hallmarks of MSU Extension is its willingness and ability to adapt its programming to meet the current needs of Michigan residents, communities and businesses.

The success and accomplishments of the MAES and MSU Extension are fueled by close ties with each other as well as linkages to state agencies, commodity groups and other stakeholders, and outstanding legislative support.

### MAES/Research 2008 Quick Facts:

- 137 Hatch funded researchers representing 87 FTEs
- 245 active projects
- 25 patents awarded
- 21 patent applications submitted
- 255 peer reviewed publications

**Key research accomplishments for FY 2008 include:**

- **Creating Healthy Communities:** Michigan was recently ranked as the ninth heaviest state in the nation. MAES researchers collaborated with state and community partners to help improve the state's Promoting Active Communities (PAC) Program, a Web based assessment and award system. Since 1981, 88 communities from 43 counties have completed the PAC assessment at least once and 30 communities have earned more than one award.
- **Taking Aim at Wheat Disease:** In the past 15 years, Fusarium Head Blight has emerged as a significant threat to the long term viability of the wheat industry worldwide. Researchers have identified the genome sequence of this disease and are now working to develop new control approaches to safeguard the industry.
- **Forecasting the Fight Against Famine:** The devastating plant disease that triggered the Irish potato famine in the 19th century is being battled today by growers using 21st century technology. The MSU Web site -- [www.lateblight.org](http://www.lateblight.org) -- helps farmers monitor their crops' risk of developing late blight, an infection that destroys 15 percent of the worldwide potato crop each year. In 2007, more than 1,000 Michiganders visited the site.
- **Going Native to Protect Blueberries:** Michigan is the country's top producer of blueberries, with more than 500 growers harvesting berries valued at \$100 million on 20,000 acres. To ensure maximum pollination, MAES researchers have identified more than 170 species of native bees and are putting nesting boxes and native plants in fields to attract and keep bees where they're needed.
- **Finding Nemo: Climate Change and the Great Lakes:** To adapt successfully to changes in Michigan's climate, it is critical to understand the response of the Great Lakes water budget to common global warming scenarios. MAES researchers have developed a climate model to more accurately project water budget changes specific to the Great Lakes region.
- **Controlling Sea Lamprey:** Every year, the U.S. and Canadian governments spend about \$10 million to \$15 million on sea lamprey control, mainly relying on TFN, a larvae killing compound that's dumped into freshwater streams where lampreys

spawn. MAES researchers have identified the chemical that lampreys use to lure females and have developed a synthetic version that effectively controls the sea lamprey while maintaining a healthy Great Lakes ecosystem.

- **Rising from the Ashes:** Since it was identified in Detroit in 2002, the emerald ash borer has killed about 30 million ash trees in southeastern Michigan and has cost municipalities, property owners, nursery operators and forest product industries tens of millions of dollars. Researchers have recently discovered that emamectin benzoate is remarkably effective in controlling the EAB -- it killed adult beetles and reduced the number of larvae by 99 percent compared to untreated trees. The Michigan Department of Agriculture approved a special registration to begin using it to control the EAB.
- **Making the Mark with a New Black Bean Variety:** A new black bean variety, aptly named Zorro, is available for bean growers nationwide to plant in 2009. The high yielding bean's upright growth makes it easy to harvest directly. Zorro also has excellent processing quality. Along with Zorro, two additional bean varieties will be released this year -- Sante Fe, a pinto that has tolerance to white mold, an upright architecture and excellent yield; and Fuji, a tebo bean variety with resistance to viral diseases.
- **Foraging Ahead in Dairy Cow Nutrition:** Finding the right balance between forages and concentrates (e.g., corn and soybean meal) in dairy cow diets is essential to sustain the milk yield and profitability of dairy operations and ensure animal health. Tools such as Corn Picker for Silage ([www.msu.edu/~mdr/cornpicker1.05.xls](http://www.msu.edu/~mdr/cornpicker1.05.xls)); and Michigan Corn Hybrids Compared ([www.css.msu.edu/varietytrials/corn/Corntrials.htm](http://www.css.msu.edu/varietytrials/corn/Corntrials.htm)) were developed to more precisely determine ration balancing and its effect on the input output process to optimize profit.
- **Revolutionizing the Michigan Juice Grape Industry:** Advances in vineyard mechanization technology mean a job that previously took up to 40 hours per acre can now be completed in one fourth of the time, lowering the costly expense of hand pruning and improving grower profitability. Twenty years ago, Michigan's vast juice

grape vineyards were all pruned by hand. Today, more than half are mechanically pruned.

- **Designing Biosensors for Safety and Security:** Researchers have developed various biosensor designs that will quickly detect in less than an hour high priority select agents of concern to homeland security and the healthcare field. Patenting and licensing of the devices is underway and interest in commercializing the devices is increasing.
- **Developing Environmentally Sustainable Plastics:** Each year, plastic mulch covers 30 million acres of cropland worldwide. Getting rid of the used plastic is a big annual expense for growers and adds nearly 2 million pounds of waste plastic to landfills. MAES scientists have developed a plastic film that degrades and integrates into the soil. Once commercialized, the film could save growers about \$100 per acre and reduce pesticide and herbicide use.
- **Breathing Easier:** According to the Asthma Initiative in Michigan, 233,894 children under the age of 18 have asthma in Michigan. And approximately 9 percent of Michigan's adult population has asthma -- 1 percent higher than the national average. An MAES researcher is studying chronic respiratory diseases caused by air pollutants to better understand how nasal tissues and cells may respond to inhaled toxicants. The results will be used to better protect the public, especially children and other susceptible individuals -- asthmatics and the elderly -- who are most sensitive to the damaging effects of air pollution.
- **Saving Money with Renewable Fuels:** A patented Michigan State University process to pretreat crop waste before its conversion into ethanol means extra nutrients don't have to be added and so cuts the costs of making biofuels from cellulose. The AFEX (ammonia fiber expansion) pretreatment process, developed by Bruce Dale, MAES chemical engineering and materials science researcher, uses ammonia to make the breakdown of cellulose and hemicellulose in plants 75 percent more efficient than when conventional enzymes alone are used.
- **Experimenting with Wiki:** MAES information and technology researcher Cliff Lampe is experimenting in electronic environmental reporting to help rural

communities keep pace with the ever increasing digital exchange of information through the use of a 'wiki' -- a new form of electronic citizen journalism (<http://greatlakeswiki.org>). Launched in 2006, the hope is that persons living in the less densely populated Upper Peninsula and northern Lower Peninsula will eventually blog about the lakes as enthusiastically as those living in more densely populated parts of the state.

**MSU Extension 2008 Quick Facts:**

- 262 educators/specialists representing 171 FTEs of MSUE's total FTEs of 721 were funded by federal formula funds or match.
- 180,697 adults were educated with approximately 25% represented in this report.
- 236,435 youth were educated with approximately 25% represented in this report.

**Key educational accomplishments for FY 2008 include:**

- In Oakland County, home to 6,900 of the state's 115,500 equines, MSU Extension has helped horse lovers band together to recycle the manure encrusted wood chips they use for bedding into electricity. To date, Flint based Mid Michigan Recycling has collected more than 20,000 tons of bedding to produce electricity for more than 28,000 southeastern Michigan homes.
- MSU Extension sponsored a bioenergy bus tour to Iowa in August 2008. Twenty five participants, including farmers, the Michigan departments of agriculture and environmental quality, USDA Rural Development, Extension, several resource conservation and development programs and local conservation districts visited several public and private projects to learn about bioenergy. The primary purpose of the trip was to provide an in depth, first hand look at a variety of bioenergy topics, including ethanol and biodiesel production, wind energy, sustainability of new energy crops, cellulosic conversion technologies, methane digestion and rural economic development. Following its completion, participants reported an average increase in their knowledge of bioenergy topics of about 70 percent.
- More than 10,000 acres of Michigan land are defined as brownfields, but new research shows the potential these polluted sites offer to Michigan's growing

bioeconomy. Researcher Kurt Thelen recently concluded that while food can't be grown on brownfields, bioenergy crops grow productively and do not transfer contaminants to the crop or the fuel, making them a prime location for switchgrass, canola and other non consumable plants. The Land Policy Institute, a MAES and MSUE supported program, released a 2009 study that estimates the renewable energy potential of brownfield sites in Michigan could power almost half of Michigan homes (1.8 million) and stimulate the creation of more than 17,500 jobs and \$15 billion in new investments.

- In early 2008, MSU Extension partnered with the MSU Product Center and the Kellogg Biological Station to help advance development of the bioeconomy. We have re tooled the positions of two educators to ensure we are helping Michigan residents prepare for the expanding bioeconomy. Our new bioeconomy innovations counselor is charged with helping develop businesses that will help replace or reformulate current petroleum based products, including ethanol, biodiesel, plastics, textiles, nutraceuticals and pharmaceuticals. In addition, we now have a biofuels educator who field tests new crops, carries new information and technologies to the farm level, and helps inform the public about energy use and opportunities for the bioeconomy.
- Since 2000, the MSU Small Town and Community Design Initiatives (STDI/CDI) have completed or are currently working on 57 projects, in 69 communities, across 31 Michigan counties. In each case, MSUE, has been an integral and significant partner. Projects have included downtown revitalization, streetscapes, park design, county fairgrounds master plans, community image develop, beautification, waterfront development, neighborhood renewal, transportation systems and community branding. In almost all cases, there has been a direct relationship to community economic development. Communities have used the STDI/CDI documents to work with their consultants, local and regional planning agencies, downtown development authorities, volunteer groups, and state agencies such as MDOT. Communities have also applied for and received grants totaling about \$4 million to make improvements recommended by the STDI/CDI.
- Project FRESH gave 435 Ottawa County senior citizens \$25,900 worth of Project FRESH coupons, which they used to support the local economy by redeeming them

at local farm markets. In sparsely populated Ontonagon County, local gardeners earned \$2,800 when MSU Extension established the county's first farmers' market; low income seniors purchased \$1,200 of locally grown vegetables through Project FRESH. In Wayne County alone, local farmers received nearly \$25,000 through Project FRESH, as families in the W.I.C. program redeemed coupons for locally grown fruits and vegetables, improving their nutrition and overall health. In 2007, approximately 44,000 WIC clients and low income seniors received coupons through the Project FRESH and Senior Project FRESH programs. They redeemed those coupons at farm markets to purchase fresh, locally grown produce, pumping \$656,072 into the hands of Michigan farmers while simultaneously improving their nutrition by eating more fruits and vegetables.

- 4 H started 12 Future Entrepreneurs clubs in eight counties in 2008. Club participants learn to create business and marketing plans, develop products, set pricing, create packaging and actually sell their products for a profit. 4 H is training Michigan's future small business owners. Fifteen 4 H youth who raised animals for market sale in Ontonagon County earned over \$10,000 in profits, which they use toward raising more market animals, money for college, and money to put back into Michigan's economy. In Iosco County alone, two 4 H programs have brought \$55,000 into the county. The 4 H Peer Mentoring Learn and Serve program received a \$25,000 grant and created one new job; the 4 H Market Livestock Sale generated \$30,000 for participating youth, money that goes back into the local and state economy. Every county in the state has similar (and often larger) outcomes.
- Tribal leaders from 11 of the 12 federally recognized tribes in Michigan attended the first Building Strong Sovereign Nations (BSSN) Conference, Feb. 4 5, 2009 near Traverse City. The first tribal governance training of its kind that was held on Indian land in conjunction with a university, the program drew about 50 people, including a representative from the National Congress of American Indians. The conference provided training on strengthening tribal governance and access to resources available to tribal leaders through MSU Extension, the MSU Native American Institute and the MSU Indigenous Law and Policy Center.
- The MSU Extension community and economic development educator worked with 12 community organizations in the Genesee County Land Bank's Clean and Green

Program and assisted in revising the program's planning, implementation and evaluation processes. The Clean and Green Program participants maintain about 600 vacant properties; the Land Bank currently has more than 2,000 vacant properties.

- Of the 537 Macomb County residents who attended MSU Extension sponsored foreclosure prevention or counseling seminars in 2008, 148 were able to avoid foreclosure, which saved \$3.2 million to the homeowners, neighbors and local government.
- During the 2008 programming year, Washtenaw MSUE provided business planning services to 102 clients. Thirty three of these clients launched new ventures or expanded existing businesses. Estimated gross revenue of business planning clients is \$1,084,000. It is estimated that 115 jobs were created or retained as a result of this work.
- Members of the MSU Extension Farm Management Team met with managers of 254 farm operations during 2007 to help them complete farm business analyses. During the analyses the farm owners generated end of year net worth statements and accrual adjusted income statements and learned about many other important financial data pieces and trend information. The total net worth of these farms was \$676,150,000 or \$2.6 million per farm. The MSU Extension Farm Management Team offers farmers instruction in estate planning and business succession. Team members worked with 253 family members who manage 67 farm businesses during 2007. Those businesses controlled 84,170 acres of land, and by implementing the suggestions team members offered, they will save more than \$25,683,000 or \$383,000 per farm in future estate taxes.
- The MSU Extension Farm Management Team offers income tax planning education to Michigan farmers. In 2007, family members representing more than 172 operations requested assistants. These growers were able to delay \$3,886,000 \$22,500 per farm—in federal and state income and self employment taxes.
- Many MAES projects and partnerships have a goal of making Michigan agricultural and natural resources industries more profitable. To ensure that these sectors continue to receive critical competitiveness data, the MAES and MSU Extension

signed a cooperative agreement with the Michigan Department of Agriculture and the U.S. Department of Agriculture to fund the state statistician position within the Michigan field office. Collaborative relationships resulted in services being continued by leveraging resources.

- Washtenaw County has more than 1,000 farm businesses. Of the 150 farms that provide primary income for local farm owners, 80 percent of full time farmers report using MSUE on farm research and other MSU educational information to adjust production systems. Farmers utilizing MSUE research information report improving farm net income by \$17 per acre. Local farm businesses have realized an annual benefit from MSUE research and information of more than \$2.4 million.
- More than 360,000 of Michigan's most vulnerable citizens received education on how to eat healthier and spend their food dollars more wisely through Supplemental Nutrition Assistance Program Education provided by MSU Extension in all 83 Michigan counties.
- More than 460 participants in the Breastfeeding Initiative (BFI) exclusively breastfed their infants for at least six months, saving the state an estimated \$335,000 in WIC costs and Medicaid expenditures in FY 2008 as well as reducing the possibility of childhood obesity among these infants. Pre and post program evaluations show that MSUE's youth nutrition programs in 2008 caused significant increases healthy behaviors, including hand washing, choosing healthy snacks, being physically active every day and eating vegetables every day.
- MSUE's Youth Farm Stand projects resulted in a 70 percent increase in children eating fruits and vegetables and a 62 percent increase in children choosing healthier snacks. These outcomes directly address Michigan's crisis level youth obesity issue.
- In 2007, Michigan 4 H Youth Development helped nearly 90,000 youth improve their knowledge of health related issues such as nutrition, physical fitness, tobacco use, food safety and personal safety.
- MSUE is Washtenaw County's only provider of pre-purchase homebuyer education, which has been shown to be the most effective foreclosure prevention intervention.

During 2008, MSUE housing counselors met with 160 clients and helped 47 of them avoid foreclosure. These efforts saved \$9.2 million worth of primary residencies and retained an estimated \$200,000 in tax revenues.

- Several counties offered hundreds of free classes and individual counseling sessions on bankruptcy, foreclosure prevention, mortgage management, family budgeting and several other topics related to family financial management. Based on the charges other agencies typically charge for such services, MSUE saved Michigan families nearly \$61,000.
- Michigan's childcare providers are required to receive training each year to maintain their licenses. Most agencies provide this training at approximately \$10 per hour per participant. MSUE's Better Kid Care training is free, saving its 15,886 participants \$417,000 in 2008 for 41,700 hours of training. Nearly 16,000 childcare providers would not have received the training they need without MSU Extension's Better Kid Care program.
- In St. Clair County, 49 families with a total of 70 children received in home parenting education through MSUE. Many were referred from DHS, Head Start, county hospitals and other agencies dealing with at risk families. Extensive research has shown that in home parenting education results in a 78 percent decline in verified reports of child abuse, 30 fewer months on welfare and a 56 percent decline in arrests of the children as they grow older. (Pennsylvania Partnership for Children, 2002)
- The 20,000 Michigan youth in foster care cost the state more than \$123 million. MSUE's in home parenting education programs not only help keep kids from entering the foster care system, they also teach parents anger management, how to use discipline, home safety and how to ask for help.
- The MSU Beef Team and the College of Veterinary Medicine conducted bull breeding soundness examinations (BSE) in early 2008 on 272 bulls owned by 86 Michigan cattle producers. Of these bulls, 74 percent were judged to be satisfactory potential breeders, while 19 percent faced deferred judgment and 7 percent failed the exam

because of major problems. Using these failed bulls in their breeding operations could have potentially cost producers \$120,500.

- MSU Research and Extension support led to the formation of the Michigan Turkey Producers Cooperative, helping to salvage Michigan's turkey industry 10 years ago when the state's major live turkey processor, Sara Lee, announced that it would no longer process live birds from Michigan growers. The cooperative has evolved from a single product line—selling live turkeys – to selling a wide array of turkey based products. Buyers include companies such as Sysco, Gordon Foods and Superior Seafoods. Their cooperative created 550 jobs in their two Wyoming, Mich. based plants, and the growers who were able to save their farms employee a total of more than 200 family members, service workers and farm managers.
- Fertilizer costs are projected at more than 50 percent of cash costs at planting time for corn and 25 percent of the total direct costs of corn production for the entire season. Fertilizer prices have quadrupled since 2002 and peaked in 2008. Over the same time period commodity prices also hit record high peaks but have now fallen disproportionately lower than fertilizer prices. To help farmers get the greatest return on their investments, the MSU Extension Field Crop Team developed a new comprehensive fertilizer planning guide, published in February 2009. This promotes the new Economic Optimum Nitrogen Rate, which is also available electronically at a regional Web site that estimates the N rate for corn based on fertilizer prices and expected price per bushel.
- The soybean aphid is the most important insect pest of soybean in the North Central U.S. Outbreaks cost farmers millions of dollars per year in lost yield and increased costs of control. The insecticides used to control soybean aphid can have non target effects on pollinating insects. MAES researchers discovered that naturally occurring predators slow or prevent soybean aphid outbreaks, saving Michigan farmers \$138 million per year in averted yield losses and pesticide application costs. Reducing the need for pesticides has the additional benefit of improving the environment for pollinators and other wildlife. The findings suggest further savings can be realized by improved management of crop and non crop habitats increasing the sustainability of rural landscapes.

- More than 5,000 samples were processed in 2008 by MSU Diagnostic Services, which specializes in diagnosing disease, weed, insect and nematode issues for the agriculture community and home gardeners.
- Corn and Soybean prices have declined sharply and are projected to remain near or below the cost of production in 2009. MSUE and the Michigan corn and soybean check off programs sponsored four Corn and Soybean Research and Pest Management Updates in early 2009 for nearly 300 farmers and agribusiness representatives. An evaluation of participants at three of the locations showed that 73 percent plan to use what they learned to make management decisions or implement new practices in 2009 and 61 percent expect that what they learned will help them earn or save them money in 2009. The average amount of money they plan to earn or save is \$7.60 per acre. Since the participants plan to apply their new knowledge and practices to 45,055 acres, the projected financial impact of this educational program will be more than \$342,000 in 2009.
- In 2008 Michigan's blueberry crop hit a record, leapfrogging from 62 million pounds in 2003 to 110 million pounds in 2008. Per acre blueberry yields increased from 3,900 pounds in 2003 to 5,950 pounds in 2008. The MSU Extension Fruit Team and Ottawa County Extension Small Fruit Education program have played an important role in this success. The MSUE Small Fruit program has contributed to elevate the level of technical knowledge among blueberry growers and farm laborers by bringing educational programs and technical assistance to help this community to overcome environmental, regulatory and market challenges.
- More than 16,000 users review weekly research and Extension information publicized through MSU Integrated Pest Management (IPM) program's Crop Advisory Team Alerts. IPM promotes applied research and Extension to guide growers in making responsible pesticide decisions, such as a codling moth project that has decreased the overall amount of pesticides applied to Michigan apples by almost 6,000 pounds a year.
- Ten years ago, the Michigan sugar beet industry was dying, with declining yields and global competition closing in on more than 1,000 Michigan sugar beet growers. Now, Michigan sugar producers have increased their yield 30 percent, a trend they

attribute to the research and education partnership between the MAES, MSUE, the Michigan Sugar Company and the Sugar Beet Advancement Program, an industry organization.

- More than 1,200 Michigan residents enrolled in Master Gardener volunteer training programs in 2008, joining more than 6,900 existing volunteers. More than 3,300 of these volunteers across Michigan performed nearly 197,000 volunteer hours for their communities that were valued at \$3,842,631.07.
- In 2007 the MSU Extension Forestry Team conducted a series of information sessions to alert landowners to the opportunity to enroll in the newly established Qualified Forest Program. Nearly 175 participants took part in the program, representing more than 2,500 acres.
- Michigan's 4 H Great Lakes and Natural Resources Camp has given more than 1,000 participants a greater appreciation of the outdoors and greater understanding of natural resource ecology and management, as well creating the next generation of natural resource stewards. The program was recently named the top conservation/environmental 4 H Program of Distinction in the country and earned a \$10,000 prize.

### **Merit Review Process**

The challenges facing Michigan agriculture and natural resources are increasingly complex and diverse. MAES research programs are continuously evaluated for relevance and progress. A strategic visioning process, linked to those of MAES affiliated colleges at MSU -- Agriculture and Natural Resources, Communication Arts and Sciences, Engineering, Natural and Social Sciences, and Veterinary Medicine -- identified five strategic priority areas in 2006 that will drive the MAES research agenda over the next decade. This process also involves industry experts, university faculty members, MSU Extension and MAES Council members, and includes scientific review by peers (local, national and international). These target areas address the research priorities of Michigan agriculture and natural resources industries, but are also linked to national and global goals and new initiatives. The target areas are: Food and Health, Environmental Stewardship and Natural Resources Policy and

Management, Enhancing Profitability in Agriculture and Natural Resources, Secure Food and Fiber Systems, and Families and Community Vitality.

MSU Extension uses several continuous processes that assist in setting priorities and evaluating program goals and plans. At the county level, the public, local government officials, advisory group members, Extension and council members, staff members and industry experts are involved in both the stakeholder process and review of the county and individual agents' plans. Each Area of Expertise (AoE) team reviews the county needs, agents' plans and research to support these programs as well as others that reflect emerging trends. In addition, the AoE goals are reviewed by state leaders and industry experts for quality and relevance. Collectively, these plans are reviewed by MSU Extension and MAES directors who not only evaluate them, but use them in their regional and statewide presentations to describe future plans.

Jointly, the MAES and MSU Extension address issues of concern in local communities with research and teaching by using a network of citizen advisory groups at the local and state levels. County Extension councils identify and prioritize issues, seek collaborations and resource, and communicate to others the importance of MSU Extension educational programming. Citizen Advisory Councils help establish research priorities at the 15 MAES field research stations. The MSU Extension and MAES Council serves as a liaison among county councils, field station advisory groups and state agencies and organizations.

### **Stakeholder Input**

During 2005-2006, the MAES and MSUE completed a comprehensive statewide process – Strengthening Michigan's Economy: Roles for MAES and MSUE. Nearly 10,000 people took part in this issues identification process to help define future research and educational priorities for the two organizations. The five strategic priorities that emerged were: developing entrepreneurs, promoting healthy lifestyles, preparing for the expanding economy, educating and supporting decision makers, and building leaders for today and tomorrow.

In 2008, a variety of activities added to the leveraging of this process. The five strategic priorities continued to be discussed with the joint MAES/MSUE state council at its spring and fall meetings.

The entire 2008 MSUE Fall conference was organized around the five priority areas. On opening night, members of an expert panel detailed how their organizations have worked to develop the five priority areas identified in the Strengthening Michigan's Economy process in urban neighborhoods, as well as how Extension staff members might be able to identify needs and develop methods to carry these concepts and efforts out to communities. During the conference, off site workshops with targeted site visits based on each priority area were held, as well as concurrent priority area based research sessions so attendees could participate in sessions for at least two of the priority areas. The research sessions were: Promoting Healthy Lifestyles -- "The Housing Crisis: History, Policy and Problem Solving," "Building Leaders for Today and Tomorrow -- Connecting with Fathers for Better Child Outcomes," Preparing for the Bioeconomy -- "Michigan's Bioeconomy Future," Developing Entrepreneurs -- "Women and Minority Businesses," and Educating and Supporting Decision Makers -- "Decision Making Models for Stakeholders."

Progress and revisions based on the five priorities are updated also on a continuous basis at the county level. An aggregate county report for the past year is being prepared and will be presented to the state coalition in spring 2009. County staff also submits two partner reports a year to highlight partnership efforts. These are used to customize information provided to county commissioners, state legislators or others who use MAES/MSUE information resources.

As mentioned in last year's Plan of Work, MSUE has contracted with the Institute for Public Policy and Social Research (IPPSR) to include questions related to the five priorities on its State of the State Survey (SOSS) for three years (2007 to 2009). In 2008, survey questions were posed related to home foreclosure in Michigan and Michiganders' perspectives on locally grown food:

#### Locally grown food

How important is locally grown food to Michiganders? And what do Michiganders think of as locally grown? These were questions answered in part by devoting several questions in MSU's fall 2008 State of the State Survey to the issue of locally grown food.

Survey result highlights (survey conducted in September 2008): About three quarters (74.8%) of respondents said that they had purchased or were given some locally grown food during the month of September 2008. Of these, 83.2% said that they got their fresh

fruits and vegetables from farm stands, roadside stands or CSAs; 65.2 % got them from gardens (their own or others); 54.7% from supermarkets, conveniences stores, grocery stores or food cooperatives; and 53.5% got their fruits and vegetables from farmers' markets. Factors that discouraged people from purchasing locally grown food included cost. About one quarter (27.8%) of Michiganders perceive the cost of locally grown foods to be too high; nearly a third of Michiganders (31.8%) perceive that locally grown foods are not readily available to them; a large majority of Michiganders (87.1%) are limited in their purchase of locally grown foods because they cannot identify them; and over one third (36.3%) of Michiganders lack at least some food preparation skills needed to purchase and use more locally grown foods.

### Home Foreclosure in Michigan

Home foreclosures are happening in record numbers across Michigan and affect people from all different backgrounds and income groups. In a fall 2008 survey, participants were asked a variety of questions related to foreclosures such as, "In the past two years, have you missed multiple mortgage payments? Did you lose your home to foreclosure? Do you think you will lose your home to foreclosure in the coming year? How many neighbors, friends and families living in Michigan have faced foreclosure in the last two years? Do you think the U.S. housing legislation is good for the state of Michigan?"

Survey result highlights (taken in September 2008): Although only 7.3% of respondents indicated that they had missed multiple payments and/or that their mortgage company had begun foreclosure proceedings, almost a quarter of these respondents (22.5%) lost their homes to foreclosure; 8.2% percent of respondents think they will have difficulty making their house payments and 2.3% think they will lose their home to foreclosure in the coming year; more than half of respondents (53.7%) indicated they had neighbors, friends or family living in Michigan that have faced foreclosure in the past two years or are currently facing foreclosure; and roughly three quarters think that the U.S. housing legislation is good for the nation as a whole (72.9%) and for the state of Michigan (75.9%).

This surveying will be a continuing source of information to help update and refine how critical issues are approached.

The results of Strengthening Michigan's Economy, SOSS survey results and ongoing input from a variety of sources have also helped MAES and MSUE's Area of Expertise (AoE) teams

do a better job of reporting what they've done and to inform future programming. As demonstrated above, the five priority areas are being used to better clarify and drive the organizations' programs and resources. This has also translated into asking those seeking internal resources to explain how their proposed project or program fits into one or more of the five priority areas. For 2009, AoEs are being asked to use logic models to report on the impacts of their programs.

In 2008, MSUE initiated a major restructure with the establishment of a new unit that combines its 4 H Youth and Family and Child Sciences programs. The major aim of the restructure is to better equip MSUE to determine how its education programs interact with citizens throughout their lifespan. This more consolidated approach is organized around the priority areas within the broad unit of children, youth, families and communities.

In a related initiative, MSU secured \$57 million in funding in October 2008 from the National Institutes of Health to expand its role in the largest research project ever to study children's health and the causes of ailments such as autism, cerebral palsy and asthma. By studying children's environment, By following children from before birth and studying their environment, researchers and health care professionals will be able to seek out ways to prevent many of the diseases children now suffer from. As part of an alliance with Michigan's top research universities, health care systems and state and local health agencies, MSU is leading the state's role in the National Children's study, which will monitor more than 1,000 children. Funding will allow MSU to study children in Genesee, Grand Traverse, Lenawee and Macomb counties. That money is in addition to the \$18.5 million announced last fall for study work in Wayne County. Project collaborators include MSU (including MSUE and MAES), University of Michigan, Henry Ford Health System, Michigan Department of Community Health, and health departments in each of the five participating counties.

Plans are underway to conduct another Strengthening Michigan's Economy survey in 2010.

The Strengthening Michigan's Economy process and ongoing efforts offer multiple ways for people in various roles and locations to help identify the issues and opportunities for MAES research and MSU Extension educational programming during the years ahead.

Statewide telephone surveys for the State of the State Survey (SOSS) and citizen focus groups are used to identify the major issues and opportunities in Michigan and assign a priority ranking to each. The use of SOSS quarterly surveys to gain insight and input into programming is being continued for at least the next two years.

An initial Web-based survey asked what people saw as the role for MAES and MSU Extension related to key issues and opportunities. Similar surveys may be developed and disseminated to seek additional input.

Community based discussions in all Michigan counties, involving the local MAES advisory committees, MSU Extension councils and others are held to discern what issues and opportunities stakeholders believe should be addressed by MAES research and MSU Extension educational programming.

Area of Expertise (AoE) teams conduct subject specific focus groups comprising a variety of stakeholders and continue to assess and revise their reporting and work.

Community groups, commodity and producer groups and other state and local partners are periodically asked what specific issues and opportunities should be addressed by MAES research and MSU Extension educational programming.

The MAES/ MSU Extension State Council respond to the question: "Looking at the results of the SOSS survey, what are the implications for MAES and MSU Extension research and educational programming in the future?" as the results of the quarterly surveys are released.

AoE chairs representing 29 teams have identified emerging issues and opportunities. Each team conducts stakeholder/constituent input sessions as needed. This input is reflected the results in their respective plans of work.

Faculty focus groups, with representatives from all MSU colleges and units, are held as needed to glean faculty perceptions of emerging Michigan issues and opportunities and identify ways that MSU science might be used to address those issues and opportunities.

MSU faculty and MAES/MSU Extension staff surveys are used as needed to develop a better understanding of the university's ability to respond to the issues and opportunities identified in the faculty focus groups.

County teams, including MAES field station managers, synthesize and submit local priorities identified by local MSU Extension councils and MAES advisory committees.

AoE teams synthesize and prioritize content specific program and research needs generated from the input of their advisory bodies and continue to fine tune these needs based on additional input moving forward.