

Portfolio Annual Report 2009: Sustainable Farm Enterprises

**United States Department of Agriculture
Cooperative State Research, Education, and Extension Service**

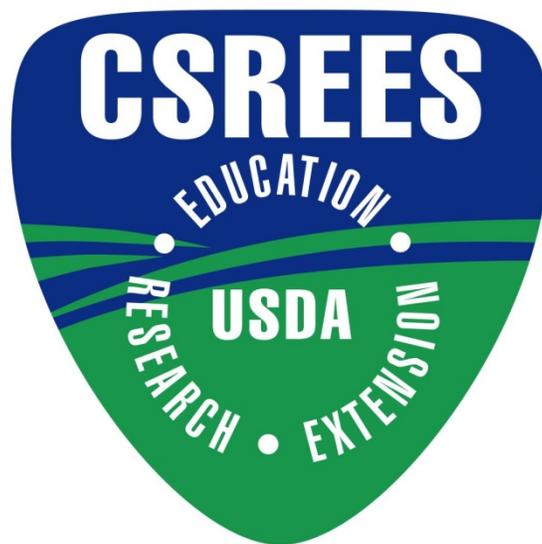


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Portfolio Annual Report

Executive Summary

This executive summary is subdivided into two short sections: A Special Note - literature based assessment on Economic Conditions that serves as a framework and Summary of the state of farming and the role played by this portfolio. The use of the time period FY2003 through FY2007 refers to financial data. Programs outcomes and impacts are reported up to current year.

Special Note: Economic Conditions and Outlook

According to Voice of America “The U.S. economy registered stronger than expected growth in the final three months of [2004], taking the 2004 growth rate to 4.4 percent, the best showing in five years.” In the midst of the current financial crisis, it’s difficult to believe that 5 years ago the US economy was growing so rapidly. In 2004, some analysts worried that oil priced in the \$50 per barrel range would trigger a recession. The Federal Reserve held the federal funds rate at 1% during the first half of 2004 in order to encourage continued economic expansion and guard against deflation.

In contrast, real gross domestic product decreased in the third quarter of 2008 to an annual rate of 0.5 percent. The year 2008 also saw record high oil prices. In July 2008, crude oil reached \$145 per barrel¹. The federal funds target rate was at 4.25 percent. In mid September, it hit 5.25 percent before concerns about the economy led to more rate cuts.

Concerns about the US economy have been growing since the housing market began to show signs of trouble starting with significant defaults on sub-prime mortgages in 2007. As mortgage defaults seeped into the prime market, major mortgage lenders collapsed. Subsequently, investors became alarmed at the rising foreclosure rates and the fact that many mortgage-backed securities were declining in value. The mortgage problems reached new heights as large commercial and investment banks who owned mortgage-backed securities saw their financial condition erode.

When these problems peaked in September 2008, signified by the collapse and necessary mergers of several large financial institutions, Congress responded quickly by authorizing the \$700 billion Troubled Asset Relief Program (TARP). However, the significant actions taken under TARP have not loosened the credit markets as expected.

What does all this mean for sustainable farm enterprises? In the years leading up to this Portfolio report, the farm economy has remained strong and agricultural economists and lenders have been optimistic even as the mainstream credit markets were showing serious signs of weakness. Farm income has been reaching record levels. The weak dollar and strong international demand have led to higher agricultural exports. In 2007, corn, wheat, and soybean prices were at or near record highs. But the farm economy, particularly with its close connection to the health of the off-farm economy, cannot go unscathed.

¹ FedPrimeRate.com

A January 2009 survey of agricultural professionals conducted by the Center for Farm Financial Management of the University of Minnesota found that of more than 2,200 respondents, 83% believes there is a probability that agricultural producers will experience financial stress in the next three years and are of the opinion that this probability is high or very high. Declining agricultural product prices and high input costs are resulting in negative profit margins and cash flow projections for many agricultural producers for 2009. Commodity prices for most grains have declined by over 50 percent since July 2008. Milk prices have declined by 25 percent in the past several months, and already stressed cow-calf operators have seen prices decline by over \$400 per animal. Input costs for crops, fruits and vegetables have increased by more than 80 percent in the past five years; and livestock producers have been struggling with extremely high feed prices for several years. In response to the difficulties in the world's credit markets, lenders are requiring higher levels of liquidity and increased documentation before extending credit to producers.

Farmers and ranchers will need to be more steadfast about recording and proving their creditworthiness. It is clear that the credit crisis has caused all lenders to follow more stringent underwriting standards and new banking regulations may be on the horizon. In the coming years, farmers and ranchers should expect lenders to demand more information on repayment ability. Additionally, farmers should expect higher interest rates as greater competition for all forms of credit will affect the interest rates paid by borrowers. In short, sustainability in the economic arena for farms and ranches must be carefully monitored.

There are several additional ways the current financial crisis may impact agriculture. First, if there is a worldwide recession, as many analysts now expect, export demand for US agricultural commodities is likely to decrease putting downward pressure on commodity prices. A worldwide recession is also likely to affect oil prices as demand for oil slows. Before the days of corn ethanol, lower oil prices would have benefited agricultural producers. However, now corn prices are tied to oil so declines in oil prices are also likely to put downward pressure on corn and other commodity prices.

Second, as financial institutions continue to confront the fallout from troubled assets, credit availability will continue to constrict. "Credit provided by some input suppliers could be affected by the lack of credit available in the commercial paper market. Consequently, producers should be especially careful in assuming that such sources of credit will be available²."

Third, the problems in the credit markets are also leading to decreases in the availability of export credit. Exporters are demanding greater evidence on the creditworthiness of import buyers and their financial institutions. A reduction in the availability of export credit, or an increase in its cost, would also be likely to put downward pressure on U.S. exports and commodity prices³. Finally, increasing unemployment rates have reduced

² David B. Schweikhardt is Professor in the Department of Agricultural, Food, and Resource Economics at Michigan State University.

³ Schweikhardt.

the opportunity for farm families to enhance their family finances with off-farm income. This is particularly troubling as the economic well-being of most US farm households depends on income from both on farm and off-farm activities.⁴

The current economic trouble the U.S. is facing is unprecedented. Agricultural researchers, economists, and extension professionals will be important conduits of information regarding the impact on farmers and ranchers and their families. Even though, much of the agricultural sector has remained strong through the start of this economic trouble, the whole sector will likely feel a delayed effect.

During the height of the agricultural credit crisis of 1980s, approximately two to three hundred thousand farmers had exhausted all of their options and failed financially.⁵ The effects were devastating for producers and their families. Farm financial losses can be particularly troublesome for agricultural producers that do not distinguish between their farm and family finances. However, financial educators, farm management specialists, and risk management educators can help farmers and ranchers prepare now and hopefully avoid the tragic consequences of the 1980s farm credit crisis.

The state of farming and the role played by this portfolio

The West Virginia University Extension Service observes that “farm management is not a series of canny, split second, or ‘heat of the battle’ maneuver skills that are innately personal.” Farm management is a learned set of skills that allows the manager to make informed decisions and to implement changes that will move the operation toward its goals, including the goal of sustainability. Management success can be measured by the quality and timeliness of decisions, which are likewise affected by the quality and timeliness of information.”

As this Portfolio was preparing for External Review, the 2007 Census for Agriculture was released showing that farms are continually exiting and entering agriculture in the United States. Since the 2002 Census of Agriculture, 291,329 new farms have begun operation. Farms beginning between 2003 and 2007 tend to be smaller and have lower sales and on average have 201 acres of land and \$71,000 in sales. By comparison, the average for all farms in the United States was 418 acres and \$135,000 in sales. New farms tend to be smaller and have younger operators who are also working off the farm. The average age of farmers on all farms is 57 while the average age of new farm operators is 48. Concentration of production in agriculture continued to increase between 2002 and 2007 with 125,000 farms producing 75% of the value of all U.S. production, down from 144,000 farms in 2002. In 2007, farms in the \$1M+ sales class produced 59% of all production, while in 2002 farms in that class produced 47% of all production.⁶

According to new Census of Agriculture data released in early 2009, the two largest groups of farms are residential/lifestyle farms (36%) and retirement farms (21%).

⁴ Economic Research Service

⁵ Peoples, Kenneth L., “Final Report to Congress: The Farm Credit System Assistance Board From Beginning to End Annual Report, 1992.”

⁶ www.agcensus.usda.gov. Released February 2009.

Residential/lifestyle farms produce less than \$250,000 in sales and the principal operator reports something other than farming as their primary occupation. Large family farms with sales between \$250,000 and \$500,000 and very large family farms with sales over \$500,000 make up only 9% of farms. Large family farms produced more than 63% of all value of agriculture products sold in the U.S. The 2007 Census counted 2,204,792 farms in the United States, a net increase of 75,810 farms. These new farms tend to have more diversified production, fewer acres, lower sales and younger operators. Thirty percent more women are counted as principal farm operators and Hispanic, Native American and Asian producers grew as well. The nonfarm economy remains important to operators of family farms since most households receive most of their income from off-farm work.

In 2008, the Farm Management and Agriculture Structures portfolio was restructured, realigned and renamed to incorporate and capture important efforts underway historically and currently within the land grant and extension system and CSREES partners in the public and private sector to strengthen United States farms, ranches and working lands. This new portfolio incorporates new Primary Knowledge Areas, Secondary Knowledge Areas, and Key Programs essential to the breadth and scope of research, education and extension activities related to farm management, farm safety and sustainability. Three key program areas (Beginning Farmers and Ranchers, Sustainable Agricultural Research Education, and Section 2501) receive mandated funding and their inclusion in the portfolio highlights the agency's commitment to those critical issues and to sustainability of the farm and ranch community. The portfolio is now better situated to capture the efforts underway to sustain and improve viability of the nation's farms and farm families. Two key performance measures (Risk Management Education and SARE) demonstrate the extent to which this portfolio has made significant progress in increasing producers' knowledge of principles and techniques of risk management as well as helping farmers and ranchers to adopt new techniques and production practices that helped them derive economic, environmental or quality-of-life benefit from a change in practice.

This portfolio supports the Agency's strategic goals 2 "Enhance the Competitiveness and Sustainability of Rural and Farm Economics", and 3 "Support Increased Economic Opportunities and Improved Quality of Life in Rural America". The portfolio represents a holistic approach to sustainable farm enterprises. The portfolio team intends to engage in more integrated and strategic planning in the near future. Since it was reconfigured, this portfolio team has worked together to prepare for internal and external reviews. The preparation and results of these evaluations offer valuable support to the strategic planning to be undertaken on at the conclusion of this review cycle.

It is an important time for this portfolio because agricultural producers, policy-makers, and consumers are more than ever interested in sustainability and the recent credit crisis has emphasized the need for good financial and risk management. Below are just a few examples highlighting the work supported in this portfolio and the newly added focus areas.

Risk Management Education (RME) and Sustainable Agriculture Research and Education (SARE) program have made significant progress in increasing producers' knowledge of principles and techniques of risk management as well as helping farmers and ranchers adopt new techniques and production practices that help them derive economic, environmental or quality-of-life benefit from a change in practice. Surveys of

farmers, extension educators, and researchers help quantify that SARE is achieving results on the ground. A 2005 survey of farmers and ranchers who received western SARE grants reveals that grant recipient experiences were overwhelmingly positive.

Participants gained significant amount of knowledge from those training activities in all critical areas identified by the project's evaluation. The project has gained national prominence and is being implemented in 28 states. Additional states are scheduled to join the network in 2010 and beyond.

The Agricultural Food and Research Initiative (AFRI) Agricultural Prosperity for Small and Medium Sized Farms (formerly National Research Initiative - NRI) is a multidisciplinary program that contributes to several KAs. It funds studies to improve our understanding of the interactions between the economic and environmental components important to the long-term viability, competitiveness and efficiency of small and medium-sized farms (including social, biological and other components, if necessary). The scope of this grant program includes sustainable production of crops, livestock and forestry, value added production and marketing, resource conservation, estate planning and other topics of importance to small and medium-sized farms.

The Small Business Innovation Research (SBIR) for Small and Mid Size Farms is a highly competitive federal grant program for American owned and independently operated for-profit businesses of 500 employees or less. USDA is one of 11 federal agencies required to reserve 2.5% of their extramural research and development dollars for small businesses. Since its inception in 1982, SBIR has funded thousand of research and development projects across these agencies.

SBIR focuses on the development of new technologies and information that will help improve the viability and profitability of small and mid-size farms and ranches. Emphasis is placed on 1) developing new agricultural enterprises that are focused on specialty farm products, both plant and animal, and how to market these products; 2) development of new management tools to enhance the efficiency and profitability of small farms; 3) development of farming methods appropriately scaled to small farms that are directed at more efficient use of natural resources, and 4) development of new educational tools to ensure that small farmers have the information they need to operate their farms on a sustainable and profitable basis.

Hazards to Human Health and Safety are supported through a variety of programs including the Youth Farm Safety Education and Certification Program (YFSEC), the AgrAbility Program, and the Pesticide Safety Education Program. Programs in knowledge area 723 involve efforts to reduce hazards to the health, safety and biosecurity of people involved in the production and distribution of agriculture and forest products. The AgrAbility Program works to assist agricultural and agribusiness workers who have physical and mental disabilities to adapt their homes and farms in order to allow them to continue to work in agriculture. The program benefits the farmer by utilizing families, communities, agriculture and disability professionals to ensure farmers can continue to be employed in production agriculture or a related occupation, have appropriate assistive technology accessibility for daily activities, and ensure proper education of treatment and rehabilitation options for their disabling conditions are explored and implemented. The project has grown from eight participating states in 1991 to 22 currently funded projects.

The AgrAbility program provides significant contributions to improving the quality of life for people with disabilities working in agriculture. An in-depth analysis and discussion of these and other programs are presented in the portfolio section below.

Section 2501: The 2501 program funded projects designed to address the unique challenges faced by farmers and/or ranchers who are socially disadvantaged farmers and ranchers. Georgia's Federation of Southern Cooperatives' 2501 project continues to build a Regional Marketing System that link socially disadvantaged producer cooperatives in Georgia, Alabama, Mississippi and South Carolina. This increases the producers' opportunities in both commercial and direct marketing. There was a 20% increase in acreage devoted to alternative crops including seedless watermelon and a variety of vegetables giving producers a broader market. There was a 38% increase in sales for participating producers through farmers' markets, retail grocers, farmer-owned processing operations and institutional buyers. For example, by moving to production of seedless watermelon (desired in high-end market), farmer prices once .05 per pound, went up to \$.30 per pound. The average income of farmers participating in the watermelon project has increased by 5%.

Newly added programs that reinforce and demonstrate commitments to farm related issues and sustainability

Specialty Crop Research Initiative (SCRI)

The Specialty Crop Research Initiative (SCRI) was established to solve critical industry issues through research and extension activities. SCRI will give priority to projects that are multistate, multi-institutional, or trans-disciplinary; and include explicit mechanisms to communicate results to producers and the public. Projects must address at least one of five focus areas: research in plant breeding, genetics, and genomics to improve crop characteristics; efforts to identify and address threats from pests and diseases, including threats to specialty crop pollinators; efforts to improve production efficiency, productivity, and profitability over the long term; new innovations and technology, including improved mechanization and technologies that delay or inhibit ripening; and methods to prevent, detect, monitor, control, and respond to potential food safety hazards in the production and processing of specialty crops. An estimated total program funding of \$47 million has been authorized. Requests for Applications (RFAs) were developed and reviews were held in March 2009. No award has been announced yet.

Beginning Farmer and Rancher Development Program

The U.S. agricultural population is poised to make a dramatic change - half of all current farmers are likely to retire in the next decade. According to the 2007 Census of Agriculture, the average age of farm operators was 57 years. Farmers over the age 55 own more than half the farmland in the U.S. But the number of new farmers and ranchers over the age of 35 is increasing, as does the number of smaller farms and ranches nationwide. To address the needs of this changing generation, Section 7410 of the Food, Conservation, and Energy Act of 2008 (Pub .L. No. 110-234) amended Section 7405 of the Farm Security and Rural Investment Act of 2002 and made available in Fiscal Year 2009, \$17.2 million to fund a Beginning Farmer and Rancher Development Program (BFRDP). According to these legislations, a beginning farm is considered to be one that

is operated by one or more operators who have 10 years or less of experience operating a farm or ranch. In 2007, approximately 21 percent of family farms met that definition.

Agriculture and Food Research Initiative - Enhancing Ecosystem Services from Agricultural Lands: Management, Quantification, and Developing Decision Support Tools

This program is offered in partnership with the Science to Achieve Results (STAR) program of the Environmental Protection Agency (EPA). Proposals must be submitted through EPA. The program will support research on the ecosystem services in agricultural settings, including both agroecosystems and ecosystems that are impacted by agriculture, with the goal of quantifying these services, identifying risks due to different stressors, and developing strategies to reduce negative environmental impacts while enhancing ecosystem services provided by working lands. Ecosystem services are the goods and services derived from natural and managed ecosystems upon which human welfare depends. Because of the global intensification of land use, these services are in decline, especially in agricultural ecosystems. Ecosystem services of interest will be related to climate change, water availability, reactive nitrogen, pests, weeds, invasive species, and soil and land degradation. An estimated funding of 4.5 million has been authorized.

This document provides additional examples and greater detail about the programs and projects supported in this portfolio. The results described within the document speak to seven themes that highlight the current thrusts of the work included in this portfolio. The themes are sustainability; risk management and decision support; next generation of farmers, ranchers, scientists, students & professionals; farm safety; new marketing opportunities and tools for success in those markets; legal & policy issues & concerns; and financial stability.

It is important to note that a major constraint on developing this portfolio document is the limited capacity of CSREES reporting systems. Results and funding amounts described here are taken from the Current Research Information System (CRIS) database and State Experiment Stations' Plans of Work. While there are limits to those data, intimate staff knowledge of the systems and programs enabled the team to report on projects and results. Upgrades to CSREES reporting systems are underway. When fully implemented, those systems will improve the availability and accuracy of research, education, and extension activities and outcomes.

Section I: Portfolio Overview

Portfolio Planning

Portfolio Vision

Sustainable, profitable, and viable farms, ranches and working lands owned by, operated, and worked on by resilient families. Progress towards this vision can be measured by accessing farm-turnover (sustainability/viability), farm profits, and the health and income of the families.

Portfolio Mission

To support the generation and application of knowledge through research, education and extension activities to ensure a sustainable health of the farming enterprise, health and safety of farm owner, operator or farm worker, the financial health and condition of the farm family, and other types of business enterprises associated with the farm or ranch.

Portfolio Goals

The portfolio team is in the process of developing goals to further guide the work of the portfolio. Seven goals that correspond to the portfolio themes are listed below. While these goals have not been fully developed yet, themes are used for the analysis and compilation of the document. The goals will be finalized during the portfolio team's strategic planning process.

Themes

- Sustainability: stewardship; holistic management; production system management; food systems; energy efficiency and bioenergy production in sustainable systems
- Risk Management and Decision Support: decision support tools and risk management (production, financial, marketing, legal and human resources) on the farm and ranch
- Next generation of farmers, ranchers, scientists, students & professionals: beginning and new farmers and ranchers; transitioning existing farms to new generation; changing demographics of agriculture; socially disadvantaged, limited resource, farm workers, immigrant producers; and diversity and Pluralism in domestic agriculture & education
- Farm safety: farm safety & creating safe work environments; accommodating disability on farms;

Proposed goals

Support and enhance the establishment of sustainable and profitable farming operations

Support the development and use of decision supports systems to reduce risks

Support training of new generation of farmers, ranchers, scientists, students and professionals to ensure successful farming operations

Support education and training to reduce farm related injuries and to accommodate disabilities on farms

- | | |
|--|--|
| <ul style="list-style-type: none"> • <u>New Marketing Opportunities and tools for success in those markets</u>: improving marketing skills; emerging markets; direct markets and niche markets; agri-tourism; outdoor recreation and recreational access to private lands; consumer connections; focus on specialty crops | <p>Develop and implement new tools to help farm operators become competitive in a world economy</p> |
| <ul style="list-style-type: none"> • <u>Legal & Policy Issues & Concerns</u>: land access, land tenure & issues related to property; legal and regulatory compliance; land, water and resource rights; contracts & understanding contractual relationships; domestic policy | <p>Support the development and use of legal and regulatory frameworks to enhance farm operations</p> |
| <ul style="list-style-type: none"> • <u>Financial stability</u>: farm/ranch and family financial management; farm success and estate planning | <p>Develop and implement training tools to help individuals and families increase savings</p> |

Portfolio Introduction

This portfolio concerns sustainable farm enterprises. The U.S. agricultural sector must be able to quickly respond to changing political, economic, technological, environmental, and consumer-driven market forces. Agricultural enterprises – regardless of their size or production methods - are constantly affected by external factors such as weather and growing conditions, diseases and pests, financial conditions, cultural practices, and consumer demand. New and emerging risks associated with domestic and international policy, genetic technology, exotic invasive species, and food safety considerations defy conventional means of identification, quantification, and management. Challenging economic times for the society at large translate into unique challenges for the farming or ranching operation.

To address those challenges, CSREES provides funds to universities in the land grant system, other colleges and universities, community based organizations and individual businesses and producers to generate knowledge through research, education, and extension to contribute to the improvement and strengthening of dynamic agricultural systems. The application of this knowledge makes it possible to identify, assess, and manage risk and improve viability, providing relevant education, and extending information and practices. This in turn leads to improving production and market decision-making, as well as strengthening the families associated with farming and ranching through enhanced risk management. The overall objective of sustainable farm enterprises is to lend support to and ensure the examination of sustainability in farming and ranching practices, and generally improving the farmer or rancher’s ability to analyze and make informed decisions related to farm management and sustainability.

Portfolio’s Linkage to CSREES Strategic Plan

This portfolio supports the Agency’s strategic goals 2 “Enhance the Competitiveness and Sustainability of Rural and Farm Economics”, and 3 “Support Increased Economic Opportunities and Improved Quality of Life in Rural America”. The mission of the CSREES is to advance knowledge for agriculture, the environment, human health and well-being and communities, which CSREES pursues by leading the advancement of knowledge through its vital linkages with the components of a broad-based, national agricultural higher education, research, extension system, utilizing the partner resources of the USDA with land grant and other colleges and universities, and public and private

laboratories. CSREES sponsors research and education programs to protect our food and fiber supply from the farm to the consumer, and finding environmentally and economically sustainable ways to develop the most successful agricultural production system possible.

The 2008 Farm Bill transforms CSREES into reorganized a new National Institute of Food and Agriculture October 1, 2009. The Farm bill authorized research initiatives for specialty and organic crops, bioenergy, nutrition, and pollinators, and revises high-priority research areas and increases role of competitive funding for most programs, including Smith-Lever extension funds. Specifically related to CSREES Strategic Plan efforts, the Farm bill authorized specific efforts, which are currently underway to coordinate research efforts and duties across the following six areas:

- renewable energy, natural resources, and environment
- food safety, nutrition, and health
- plant health and production and plant products
- animal health and production and animal products
- agricultural systems and technology
- agricultural economics and rural communities

Upon reorganization, there may be changes in Portfolio alignment to specific Strategic Goals of the Department and the new National Institute for Food and Agriculture.

CSREES Supported Strategic Goal:

This portfolio supports strategic goal 2, entitled “Enhance the Competitiveness and Sustainability of Rural and Farm Economics” and strategic goal 3 entitled “Support Increased Economic Opportunities and Improved Quality of Life in Rural America” CSREES supports activities to enhance competitiveness and sustainability of rural and farm economies, ranging from the development of new products to improvements in productivity and financial management. Education programs strengthen the foundation for this goal by building capacity in the agricultural research and extension system and training the next generation of scientists and educators.

CSREES Supported Strategic Objective:

This portfolio supports objective 2.3 entitled, “Provide Risk Management and Financial Tools to Farmers and Ranchers”, and objective 3.1 entitled, “Expand Economic Opportunities in Rural America by Providing Research, Education, and Extension to Create Opportunities for Growth.”

CSREES’ Objective 2.3 focuses on providing risk management and financial tools for farmers and ranchers. Agricultural producers are subject to a wide array of natural, financial and market risks. Farming in the 21st century requires substantial resources and extensive management skills. USDA helps agricultural producers manage the risks associated with agricultural production, improve good farming practices and become good stewards of the land, and recover economically and structurally when natural disaster strikes. CSREES contributes to the improvement and strengthening of this dynamic agricultural system through sponsored research into alternative methods to identify, assess, and manage risk, providing relevant education, and extending

information and practices to improve production and market decision making through enhanced risk management.

Strategic objective 3.1 supports the generation, dissemination, and use of research-based information and knowledge to support new and innovative economic opportunities for communities and to assist public and private sector leaders in their decision making related to rural issues.

To help agricultural producers address those challenges, CSREES provides funds to the land grant system and other partners to generate knowledge through research, education, and extension in an effort to improve and strengthening agricultural systems. This knowledge is transferred through education and extension, improving production and market decision-making, as well as strengthens farm families through enhanced risk management and technology. The overall objective of sustainable farm enterprises is to lend support to and ensure the examination of sustainability in farming and ranching practices, and generally improving the farmer or rancher's ability to analyze and make informed decisions to sustain a decent and successful livelihood from farming operations. This portfolio includes four primary KAs and three secondary KAs.

The Four primary KAs:

- KA 601 Economics of Agricultural Production and Farm Management
- KA 602 Business Management, Finance, Taxation, and Estate Planning
- KA 723 Hazards to Human Health and Safety
- KA 902 Sustainable Agriculture

The three secondary KAs:

- KA 605 Natural Resources and Environmental Economics
- KA 607 Consumer Economics
- KA 801 Family Resource Management

This portfolio also includes several key programs related to prosperity for small and mid-size farms, small farms, beginning farmers and ranchers and socially disadvantaged farmers and ranchers.

CSREES Strategic Plan Key Long-Term Outcomes Table

| |
|--|
| <p>Key Long-Term Outcome: Increased producers' knowledge of principles and techniques of risk management</p> |
| <p>Performance Measure: Benefits to farmers changing their risk management behavior per the net dollar cost of the risk management education program.</p> |
| <p>Performance Criteria (Objective 2.3):</p> <ul style="list-style-type: none"> • Improve the economic choices farmers and ranchers make to access and allocate resources for the production of commodities, services and products (KA 601). • Reduce hazards to the health, safety and biosecurity of people involved in the production, processing and distribution of agricultural and forest products (KA 723). |
| <p>Actionable Strategies (Objective 2.3):</p> <ul style="list-style-type: none"> • Encourage agricultural producers in the use of good farming practices • Continue to work aggressively to increase farm program participation rates among underserved populations and communities • Continue risk education initiatives to help farmers and ranchers develop production, marketing and risk management skills • Encourage producers to utilize computer-based record-keeping systems and other financial planning and risk-management tools • Focus outreach efforts on minority producers beginning farmers, and women by or through: <ul style="list-style-type: none"> ○ expanding efforts to partner with other Federal, State and local agencies, and non-Governmental organizations that serve these targeted populations of agricultural producers; and • Enhancing existing partnerships with land-grant universities and other educational organizations to identify and sponsor research, education and extension on the adequacy and efficacy of risk assessment, management and abatement tools and techniques • Provide outreach, education and extension to help producers, processors and distributors adapt to changing foreign and domestic market structures and consumer preferences • Sponsor academic and public outreach programs to deliver science-based information, education, training and continuing professional development to agricultural producers on risk management • Support the recruitment, retention, training, graduation, and placement of the next generation of research scientists, educators, and practitioners in the food and agricultural sciences • Sponsor development of knowledge to inform public and private decision makers on strategies for reducing risk in the management of natural resources |

Performance Measures Progress Table

| Risk Management | | |
|---|---------------|----------------------------------|
| Performance Measure Description: Benefits of farmers changing their risk management behavior per the net dollar cost of the Risk Management Education program | | |
| Explanation of Measure: The measure indicates the Risk Management Education program's effectiveness in convincing farmers to adopt insurance and marketing practices designed to increase their profitability and reduce the variability of their income. Notes: (a) the actual values given below were calculated for extension efforts in Minnesota, Wisconsin, Iowa and North Dakota. (b) Dividing the financial benefits by the program dollar is designed to control for changes in funding. (c) The indicator may still be affected to some extent by weather and financial markets. | | |
| Baseline (FY 2004): 156 | Target | Actual |
| Fiscal Year 2005 | 200 | 229 |
| Fiscal Year 2006 | 220 | 251 |
| Fiscal Year 2007 | 262 | 284 |
| Fiscal Year 2008 | 274 | 295 |
| Fiscal Year 2009 | 300 | <i>will be available in 2010</i> |
| Fiscal Year 2010 | 322 | <i>will be available in 2011</i> |

| SARE | | |
|---|---|---|
| Performance Measure Description: The number of farmers and ranchers that gained an economic, environmental or quality-of-life benefit from a change in practice learned by participating in a SARE project | | |
| Explanation of Measure: This measure assesses the SARE program's progress toward helping farmers and ranchers improve their knowledge of sustainable agriculture production and marketing practices that ultimately leads to improved profitability, environmental stewardship and quality of life. Notes: (a) As part of the program's requirements, this measure is calculated from periodic program impact studies. Similar statistics, however, can be estimated every year. | | |
| Baseline (FY 2004): 8,100 (Number of farmers and ranchers) | Target (Number of farmers and ranchers) | Actual (Number of farmers and ranchers) |
| Fiscal Year 2005 | 8,800 | 8,870 |
| Fiscal Year 2006 | 9,600 | 9,610 |
| Fiscal Year 2007 | 10,200 | 10,240 |
| Fiscal Year 2008 | 10,800 | 10,840 |
| Fiscal Year 2009 | 11,300 | <i>will be available in 2010</i> |
| Fiscal Year 2010 | 11,800 | <i>will be available in 2011</i> |
| Fiscal Year 2011 | 12,300 | <i>will be available in 2012</i> |
| Fiscal Year 2012 | 12,800 | <i>will be available in 2013</i> |

Portfolio Level Logic Model: Sustainable Farm Enterprises

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|---|--|---|--|---|---|---|
| | | | | Knowledge | Actions | Conditions |
| <p>- Need for advanced design, construction, and cost effectiveness of physical facilities for agriculture- Need for technological advance of mechanization including nanotechnology to increase efficiency and decrease labor in agricultural and forestry production - Need for improved economic choices and decision making to access and allocate resources- Need improved technology for individuals with disabilities and their families, to improve production of agriculture</p> | <p>Financial Resources Millions from 2001-2006 - CSREES formula funding - CSREES competitive funding - CSREES special funding - Other Federal funding - State funding - Other funding Human Capital - CSREES NPLs - CSREES Administrative - CSREES Support Staff - Faculty - Researchers - Extension practitioners - Teachers - Para-professionals - Stake holders</p> | <p>- Educate workforce - Expand education capacity - Expand diversity in disciplinary area - Share knowledge - Enhance experiences among producers - Increase science and education capacity - Identify gaps in youth farm safety education curricula and activities -Design educational curricula to bridge informational gaps in youth farm safety education - Provide onsite farm workplace & home assistance to identify needs & develop plans of action.</p> | <p>- Research, education and extension outputs: - Vetted by scientists and educators - Submitted to CSREES - Adopted and adapted by partners - Findings disseminated - Publications - Citations - Disclosures - Patents - Marketing tools and practices - Curricula - Undergraduate and graduate education - Training provided to producers</p> | <p>Changes in: Knowledge, Attitudes, -Skills, Motivation, and Decisions Regarding: - Facilities design and construction - Mechanization - Instrumentation - Management - Farming practices & culture -Assistive technologies -Sources of assistance -Safety awareness to prevent secondary occurrences</p> | <p>Changes in: Behavior, Practices, Management That: - Improve production efficiency - Reduce labor cost - Improve control of production - Increase adoption of assistive technologies -Reduce incidence rates of secondary conditions -Improve farm management operations</p> | <p>- Improved economic opportunity for producers - Increased production and labor efficiency - Increased net value added by agriculture - Increased independence and productivity for farmers with disabilities -Reduced non-fatal agricultural injuries and illnesses -Reduced number of deaths among farmers</p> |

| | |
|--|---|
| <p>Assumptions - Risk is obviously an important aspect of the farming business. Producers must choose among numerous alternatives that reduce the financial effects of the uncertainties of weather, yields, prices, costs, government policies, global markets, and other factors and influences that can cause wide fluctuations in farm profitability and net farm income. Education of youth and adults may reduce the number of agricultural injuries and promote accident prevention.</p> | <p>External Factors - Domestic and international long-term demand conditions; economic conditions; scientific advancements; changing priorities; producers' attitudes; public policy; coordination and cooperation with government entities and industry</p> |
|--|---|

Portfolio InputsPortfolio Level Funding Table and Bar Chart

Tables 1a and 1b provides information regarding CSREES specific funding and other non-CSREES funding for this portfolio for primary KAs as reported in the Current Research Information System (CRIS) and Plan of Work (POW) Annual Report. Table 1a is in actual dollars. Smith Lever 3(b) & (c) and 1890 Extension funding data were first reported through the new Plan of Work Annual Report system in 2007, those dollars were not reported in years prior to 2007.

| Table 1a: Portfolio: Sustainable Farm Enterprises Summary Funding Table for Primary Knowledge Areas for | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|--------------------|
| Fiscal Year 2003-2007 | | | | | | |
| (\$ in the Thousands) | | | | | | |
| Funding Sources | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | Grand Total |
| Total CSREES Funding Reported in CRIS | 24,177 | 19,402 | 27,311 | 29,521 | 25,857 | 126,268 |
| Total CSREES Funding Reported in POW Annual Report* | NA | NA | NA | NA | 11,536 | 11,536 |
| Total non-CSREES Funding | 38,087 | 41,511 | 43,666 | 48,545 | 49,718 | 221,527 |
| Total Funding | 62,264 | 60,913 | 70,977 | 78,066 | 87,111 | 359,331 |
| Percentage of CSREES Funding | 39% | 32% | 38% | 38% | 43% | 38% |

Source: Current Research Information System (CRIS) and Plan of Work (POW) Annual Review

(*Note: NA means data for that fiscal year are not available)

Table 1b shows portfolio funding data in constant dollars. The funding figures were recalculated controlling for inflation using the Consumer Price Index (CPI) calculator, which is located at <http://data.bls.gov/cgi-bin/cpicalc.pl>. For table 1b calculations, the inflation calculator uses the average Consumer Price Index for 2007. This data represents changes in prices of all goods and services purchased for consumption by urban households.

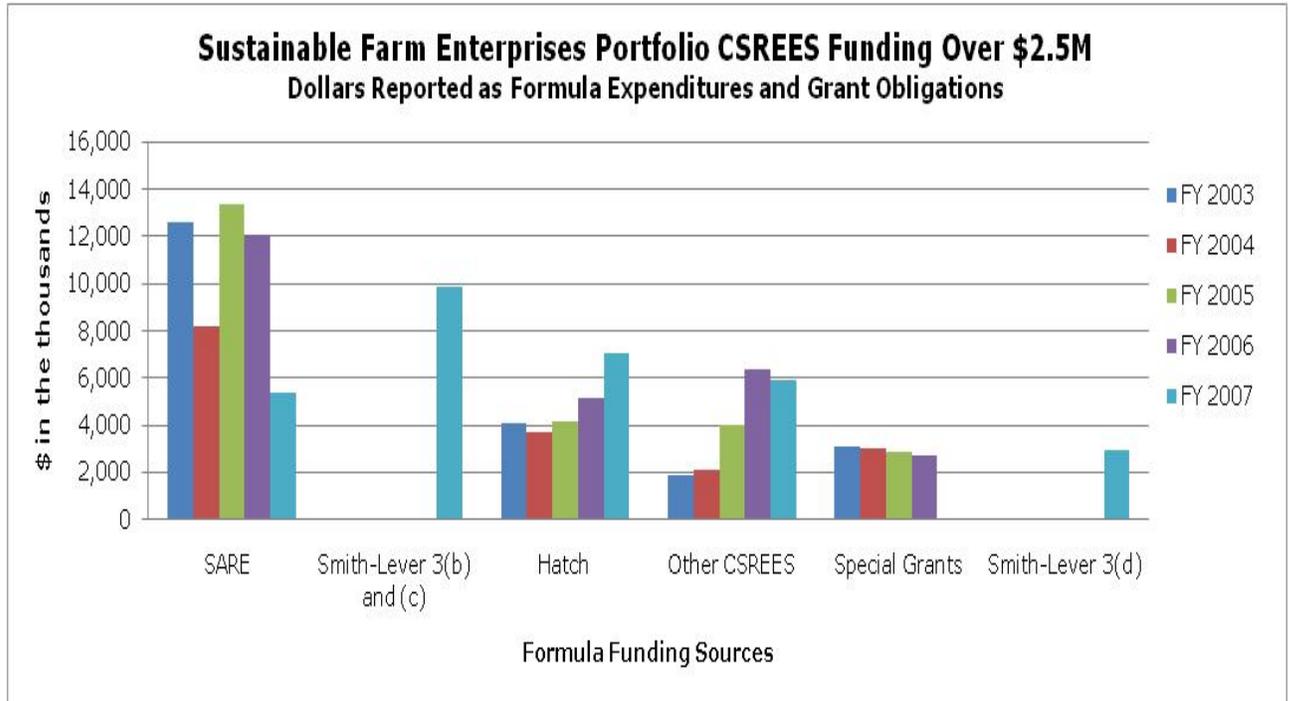
| Table 1b: Portfolio: Sustainable Farm Enterprises Summary Funding Table for Primary Knowledge Areas in Constant Dollars | | | | | | |
|--|----------------|----------------|----------------|----------------|----------------|--------------------|
| Fiscal Year 2003-2007 | | | | | | |
| (\$ in the Thousands) | | | | | | |
| Funding Sources | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | Grand Total |
| Total CSREES Funding Reported in CRIS | 27,244 | 21,297 | 28,995 | 30,362 | 25,857 | 133,754 |
| Total CSREES Funding Reported in POW Annual Report* | NA | NA | NA | NA | 11,536 | 11,536 |
| Total non-CSREES Funding | 42,919 | 45,564 | 46,358 | 49,927 | 49,718 | 234,486 |
| Total Funding | 70,163 | 66,860 | 75,353 | 80,289 | 87,111 | 379,776 |

(*Note: NA means data for that fiscal year are not available)

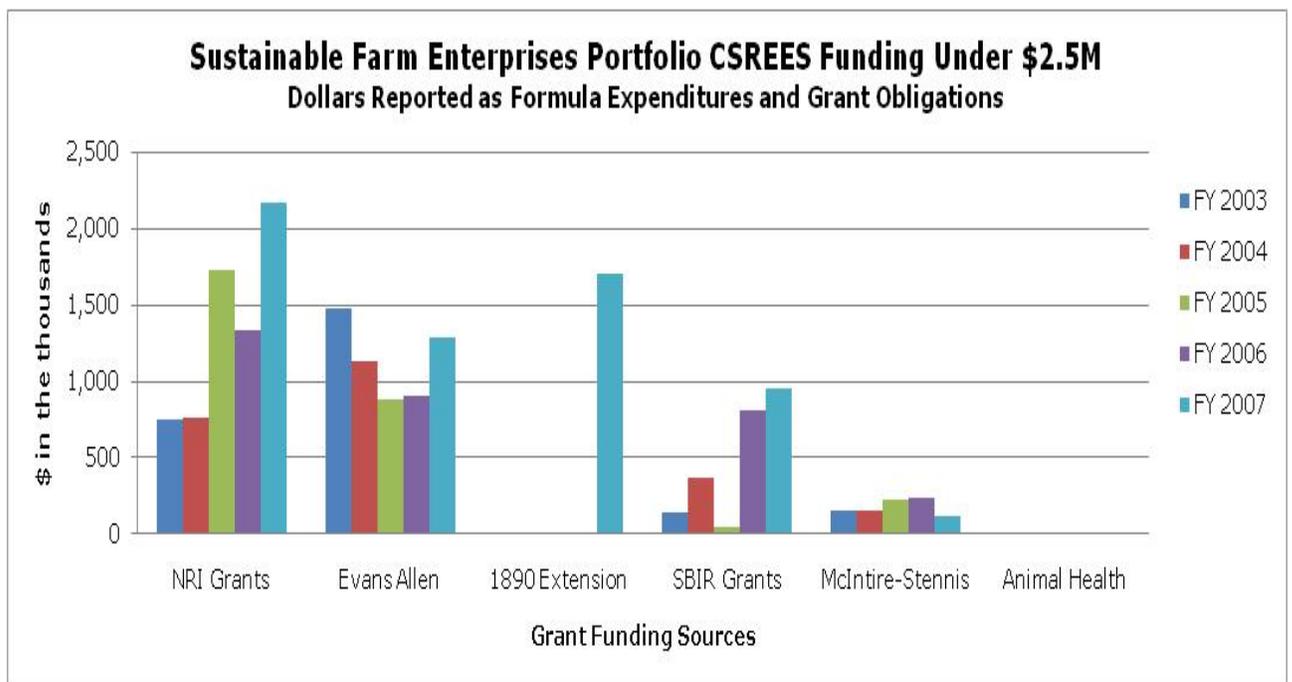
Tables 1a and 1b are summary tables; detailed funding tables (in actual dollars only) by KA are part of Appendices C and D.

The following funding graphs detail portfolio funding received between fiscal years 2003 and 2007, and provide insight on the largest sources of funding for this portfolio. SARE, overall, is the largest source of funding for years 2003-2004. Animal Health contributed the least amount of funding to this portfolio, a total of \$23,000 dollars were contributed to the portfolio overall by this funding source for fiscal years 2003-2007. Graph 1 shows those sources of funding that contributed over \$2.5 million dollars to the portfolio, Smith-Lever 3(b) & (c) and 1890 Extension dollars were first reported in fiscal year 2007. Graph 2 shows funding sources that contributed less than \$2.5 million dollars for fiscal years 2003-2007. Sustainable Agriculture Research and Education Program obligations are reported in Knowledge Area 902, no other sources of funding are reported in KA 902 because only SARE activities and achievements are discussed in this KA. Graph 3 is a depiction of all portfolio funding; Agency and non-Agency funding sources are included in this graph. Funding from other USDA agencies other than CSREES is reported under the "Other USDA" funding source. Funding from other federal agencies, not including USDA, are reported under the "Other Federal" funding source. Funding from non federal sources is reported under "State Appropriations" and "Other Non-Federal" funding sources.

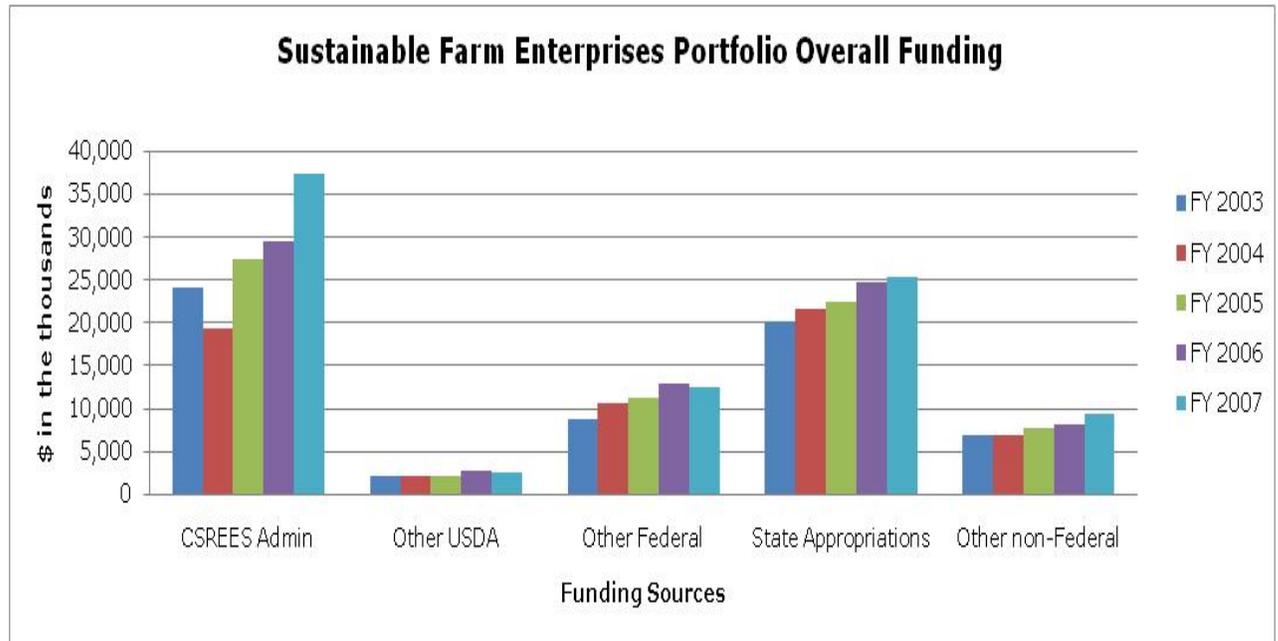
Graph 1: Sustainable Farm Enterprises CSREES Funding Over \$2.5M



Graph 2: Sustainable Farm Enterprises CSREES Funding Under \$2.5M



Graph 3: Overall Research and Extension Portfolio Dollars



Total funding for this portfolio increased steadily from FY 2004 to FY 2007. In FY 2007, total portfolio funding reached \$41 million. The largest increases in FY 07 were in ⁷AFRI and Hatch funding. AFRI funding increased by \$899 thousand and Hatch increased by \$1.7 million. This may be reflective of a general trend within the agency to move more funds through these funding lines. It also reflects increased competitive funding opportunities for some of the program areas covered in this portfolio. Even with the overall increase in funding for FY 07, funding in the Other CSREES and Special Grants categories declined. Other CSREES funding was down more than \$8 million for this portfolio in FY 07. The other CSREES funding category includes outreach for disadvantaged farmers and ranchers and sustainable agriculture programs as well as some other extension and SERD grants. There was no Special Grant funding because “earmarks” were eliminated from the federal budget in FY 07. It is important to note that 2007 is the first year that CSREES was able to report on Smith Lever 3 (b) & (c) funding.

In FY06, NRI funding for this portfolio decreased by \$400,000. There were also decreases in McIntire-Stennis and Evans Allen funding for this portfolio. However, there were noteworthy increases in the SBIR, Special Grants, and Other CSREES funding. These changes may be attributable to how project directors choose to code their projects

⁷ Section 7406 of the Food, Conservation, and Energy Act of 2008 (Pub. L. 110-246) (i.e., the 2008 Farm Bill) amends subsection (b) of the Competitive, Special, and Facilities Research Grant Act (7 U.S.C. 450i(b)) to authorize the Secretary of Agriculture to establish a new competitive grant program to provide funding for fundamental and applied research, extension, and education to address food and agricultural sciences. AFRI supersedes the National Research Initiative. AFRI Grants shall be awarded to address priorities in United States agriculture.

as opposed to loss of funding in particular areas, as there was no change in funding amounts to specific programs during the period.

It is difficult to identify clear funding trends for this portfolio as broader changes in agency policy and Congressional directives have impacted the agency's overall funding strategies and priorities. However the continued increase in overall funding for this portfolio demonstrates the relevance of the portfolio to the agency and its stakeholders.

Many of the activities involved in this portfolio are conducted within the agricultural economics, farm management and related professions working within the land grant and extension system and other partners. Farm safety and SARE activities captured within the portfolio also involve a mix of professionals in the physical, social and biological sciences.

The economics and management profession has been encouraged to participate more aggressively in CSREES and other competitively funded programs, especially in AFRI arenas beyond those traditionally sought – Agribusiness Markets and Trade, Rural Development, and Agricultural Prosperity for Small and Medium-Sized Farms. These three sources, two of which are key programs in this portfolio, annually provide about \$10 million; but an additional \$50 million in annual funding that encourages economics-related proposals is included in programs like Managed Ecosystems, Water and Watersheds, Air Quality, Human Nutrition and Obesity, Food Safety and Epidemiology and Biology of Weedy and Invasive Species. While not exclusively farm management specific, these offerings reflect the highly integrated and multidisciplinary philosophy of the NRI, and, indeed, the Agency.

CSREES NPLs have successfully increased the awareness of the economics and farm management profession about opportunities available to them. Targeting department heads and young faculty, increased interest by the profession and led them to become more actively engaged in the competitive grants process.

Changes mandated by the new Farm Bill include development of research road maps for major areas of USDA research focus (including agricultural economics) and the submission of a single, integrated budget line item for research to Congress. Active participation of economics and economics-related NPLs is required to ensure balanced integration of the physical, biological and social science portfolios to accomplish the USDA mission to provide leadership on food, agriculture, natural resources, and related issues based on sound public policy, the best available science, and efficient management.

Portfolio Results

Introduction

Although the programs described here have been in place for some time, this portfolio was configured in 2008. In addition to being a new portfolio, there are several external factors that are changing the policy and economic environments in which this portfolio operates. The Federal government is adjusting to the new priorities and changing directions of a new administration. The 2008 Farm Bill created the National Institute for Food and Agriculture (NIFA) for which a director appointed by the President will be named. NIFA will maintain all the funding authorities and programs of CSREES. The law requires that all duties and functions of CSREES be transferred to NIFA by October 1, 2009. Furthermore, the US economy is in recession and the financial crisis and subsequent government intervention have left many institutions, programs, and farm families operating in an environment of shrinking financial resources.

Therefore, this review is taking place in an era of increased challenges and opportunities for farms both US-based and abroad. Not only has farming become an increasingly complex operation, it is also facing unprecedented socio-political and technological challenges. To become more successful, farm operators need science-based knowledge that enables them to become efficient, effective and sufficiently knowledgeable about events beyond their immediate borders.

This new portfolio brings together key components that identify needs and provide resources to our land grant partners to generate and use science-based knowledge to solve issues and challenges facing producers. The various components that make up this portfolio represent CSREES's best attempt to address sustainable farm enterprises in the near, medium and long term.

This document includes four distinct segments: portfolio outcomes, which highlight a handful of significant program achievements by the portfolio themes; a more in depth analysis of each KA, self-assessment, and strategic direction for the future. The self-assessment is based on Office of Management and Budget (OMB R&D) Criteria and is reported in Section IV.

Portfolio Outcomes

This section highlights outcomes for specific KAs and programs and presents them by theme.

Major Accomplishments and Trends

Sustainability

The Sustainable Agriculture Research and Education (SARE) program is the major program contributing to the theme of farm sustainability -- although sustainable concepts and practices are spreading across all programs in the agency. SARE has been funded since 1988 in order to "...encourage research and education designed to increase knowledge and extend information about Sustainable Agricultural production systems that:

- maintain and enhance the quality and productivity of the soil;
- conserve soil, water, energy, natural resources, and fish and wildlife habitat;
- maintain and enhance the quality of surface and ground water;
- protect the health and safety of persons involved in the food and farm/ranch system;
- promote the well being of animals;
- increase employment opportunities in agriculture."

About \$44 million was invested by SARE on enhancing farm sustainability during the FY 2003-FY2007. Nearly all of SARE's work aims to "support the establishment of sustainable and profitable farming operations," a primary goal of this portfolio. Two major accomplishments of the SARE program for the sustainability theme are listed below.

The SARE program has awarded grants to more than 4,300 projects in its 21-year lifetime. The impacts of those projects have made a real difference to the lives of farmers, ranchers, and to the agricultural community nationwide. Surveys of farmers, extension educators, and researchers help quantify that SARE is achieving results on the ground. For example, farmers and ranchers report higher sales, increased net income and improved soil quality as a result of their participation in SARE-funded projects. They credit SARE-generated information with inspiring them to try new production practices, explore new marketing ideas, or better understand a particular sustainable agriculture practice. More than 75% of educators, meanwhile, developed and implemented at least one educational program as a result of their interaction with SARE.

SARE has made great progress in the past five years addressing the needs of underserved and minority farmers and educators, including Hispanic/Latino, African American, Native American and Pacific Island groups. Whether funded through SARE research and education grants, professional development grants, farmer/rancher grants, or directly through efforts by SARE state coordinators or by the national outreach office, this work has improved the sustainability of numerous farms and ranches across the U.S. with documented impacts. Educators have received training in cultural awareness, curricula have been developed, publications have been translated into Spanish, and SARE results have been shared at conferences and used by educators in their Extension programming.

Following the success of the SARE program, a new program under the National Research Initiative (now the Agriculture and Food Research Initiative (AFRI)) called the Agricultural Prosperity for Small and Medium-Sized Farms was started in 2005. The scope of the program is very broad and includes sustainable production of crops, livestock and forestry; value added production and marketing, resource conservation, estate planning and other topics. This program also contributes to several of the themes of this portfolio, such as Risk Management and Decision Support; next generation of farmers, ranchers, students and professionals; and new marketing opportunities.

AFRI's Agricultural Prosperity for Small and Medium Sized Farms funded several projects that enhance water use efficiency and sustainability. For example, an integrated and interdisciplinary project funded at Colorado State University, will help small and medium sized farms identify sustainable cropping strategies in the face of limited water resources, while demonstrating best management practices. In the West, economic sustainability of small farms is tightly woven with water availability. Preliminary results from the project have been discussed at 18 outreach meetings and viewed by more than 200 small and medium sized farmers and agricultural stakeholders in a variety of settings. The Project Directors also encouraged land owners to contact the research team about participating in research on their own operation. As a result of this NRI project, the Parker Water and Sanitation District signed a cooperative agreement with the research team to perform similar work and demonstration on their farms in the lower South Platte River Basin. Dialogue between small and medium sized farms and municipal water providers has increased, especially at the Arkansas, South Platte and Colorado River Basin water roundtables. Another impact of the AFRI grant has led the Arkansas River Basin roundtable to draft guidelines for water sharing/transfers between irrigated agriculture and municipalities to minimize third party economic impacts. This is a significant change in behavior. Co principal investigators (Co-PIs) have been invited to share their results at more than 20 stakeholder meetings in the next year indicating the extent to which knowledge has changed as a result of this project

The goal of the CSREES program for small farms is to improve the income levels and the economic viability of small farm enterprises through a partnership effort with the land-grant university system, public and private sectors, by encouraging research, extension, and education programs that meet the specific needs of small farmers and ranchers. Most of the funds are formula based (Smith-Lever 3 (b) and (c)).

Risk Management and Decision Support

The major program for the Risk management and Decision Support is the Risk Management Education program. The goal of the Agricultural Risk Management Education (RME) program is to help U.S. farmers and ranchers enhance their profitability by providing the knowledge, skills, and tools they need to make informed risk management decisions. Two major accomplishments of the RME program for the risk management and decision support theme are described below.

Annie's project, which is designed to empower farm women to be better business partners through networks and by managing and organizing critical information, contributes significantly to the sustainability theme. Over 5000 women were served in 2008. Participants gained significant amount of knowledge from those training activities

in all critical areas identified by the project's evaluation. The project has gained national prominence and is being implemented in 28 states. Additional states are scheduled to join the network in 2010 and beyond.

The National Farm Extension Income Tax Committee conducted over 100 tax clinics during the reporting period, as it has been doing for the past 50 years. The tax clinics assisted farmers, ranchers, and their financial and legal advisors in understanding the tax provisions important to creating viable farm operations and applying sometimes rapidly changing tax code provisions to their operation. The Committee met in May 2008 with the Internal Revenue Service to craft Publication 225, which is the Farm and Ranch Tax Guide, and meets annually with the Internal Revenue Service (IRS) to improve the IRS understanding of farm and ranch issues.

Another program with major contribution to the risk management and decision support theme is the Pesticide Safety Education Program. The fundamental goal of the Pesticide Safety Education Program (PSEP) program is to develop educational programs for applicators that promote pesticide safety and risk management. PSEP programs develop safe and environmentally sound methods of application and educate all types of applicators who use pesticides. The PSEP program effectively links researchers and governmental regulatory agencies to a national network of state and territory Extension land-grant university professionals who develop and conduct educational certification programs for private and commercial pesticide applicators. The program also addresses pesticide issues of interest to the general public.

Currently, several hundred thousand pesticide applicators are certified through PSEP every year and another several million attend educational programs on pesticide safety. National leadership and coordination of the PSEP program is provided by CSREES. Federal funds to support state / territory PSEP programs are provided by the U.S. Environmental Protection Agency (EPA) and are distributed by CSREES through a formula-based allocation to 57 states and territories.

Next generation of farmers, ranchers, scientists, students & professionals

The current economic recession has generated new challenges and opportunities for farming. Some of the work conducted under SARE, Section 2501, and Beginning Farmers and Ranchers is highlighted here.

The Northern New Mexico Outreach Project (NNMOP), which is funded under the Section 2501: Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers program (OASDFR) is developing a practical approach to meeting the outreach needs of the USDA for the socially disadvantaged farmers and ranchers of northern New Mexico. These farmers and ranchers are predominantly Native American (Pueblo and Navajo) and Hispanic in ancestry. In the thirteen county region of the project, there are over 8,000 farms and ranches owned and operated by Hispanic small-scale producers (based on project developed data base), most of whom can trace their roots and individual farms to Oñate's settlement of northern New Mexico. Over 70% of these Hispanic and Native American farmers and ranchers had not ever been involved in any USDA program due to a lack of effective USDA outreach efforts in the region prior to the inception of the project. Agriculture is the core of culture, custom, tradition and language by both the

Native American and Hispanic people of the region and continues to be a vital economic component to the region. Loss of agriculture in the region will directly affect the loss of culture, custom and create/add to economic and social hardship.

Through a coordinated effort led by the New Mexico State University Cooperative Extension Service, the traditionally underserved farmers and ranchers of the target region are made aware of the USDA programs that can benefit from their ability to own and operate their farms and ranches; are individually assisted in obtaining participation in USDA programs; and through research-based educational and technical programs specifically developed for the individual cultural audience, are becoming a vital and participating entity in U.S. agriculture. This work is accomplished through a holistic approach to outreach. A team of outreach specialists has been coordinated by the project director and given specific duties and responsibilities in providing one-on-one technical and educational assistance to the target audience in relation to their area of expertise and the need in the community. In addition, the outreach specialists draw technical and educational support from extension specialists, agency specialists, and other technical and academic specialists who share outreach responsibilities within the realm of USDA and the Department of Interior Bureau of Indian Affairs.

Through the various outreach efforts the project has completed to date, the project has identified a very important issue. The Native American farmers and ranchers in New Mexico have been undercounted by as much as 90% and the Hispanic farmers and ranchers in northern New Mexico by as much as 25% according to the 2002 USDA National Agricultural Statistics Service (NASS) Agriculture Census. If these indications are correct, the total number of farmers and ranchers in New Mexico are undercounted by as much as 40%. This means the minority farmers and ranchers in New Mexico have been deprived of millions of USDA formula funding dollars in the past several years! USDA NASS has been directed through National Advisory Committee resolution to rectify the minority farmer/rancher count in New Mexico through the 2007 Agriculture Census. True to their word, NASS conducted area frame counts on fifteen Native American Reservations these past two summers, assisted by project specialists. This activity by NASS verified the project's claim of severe undercounting of minority farmers/ranchers in New Mexico. By rectifying this situation in the near future (2007 Agriculture census), the socially disadvantaged farmers and ranchers affected would have a better chance of achieving economic success. In addition, the Project sponsored 22 Agriculture Census workshops in December 2007, January 2008 and February 2008 assisting over 600 minority farmers/ranchers in completing their Agriculture Census forms; most had never completed a form in the past.

Over 700 clients have been assisted in the past seven years with direct one-on-one assistance in developing business plans, marketing, income tax, overall farm/ranch business education and agriculture programs.

The Acoma Pueblo, Laguna Pueblo, Jicarilla Apache and the Eastern Navajo Wool Growers Associations were assisted in marketing their wool as a cooperative and by providing educational programs in herd health, management, nutrition as well as in grading/sorting their wool prior to bagging, resulted in a very beneficial economic boost of several thousand dollars for the groups. Ranchers were at the mercy of local trading

posts receiving only 10 to 19 cents/pound for their wool, in 2005, the ranchers received an average of 75 cents/pound by utilizing the methods taught by the Project. In 2006 the ranchers received an average of 95 cents/pound, in 2007 over \$1.00 /pound, and in 2008 \$1.25/pound. The project sold over 80,000 pounds of graded and sorted wool to a major warehouse thus increasing previous wool sales by over 1000%. In addition, in 2006-2007 a sheep health program was conducted through USDA Risk Management grants at the Acoma Reservation during the sheep shearing season. Vaccinations for health and parasite control were conducted. We achieved a 20 to 30% increase in lamb weaning weights when sold in December, thus increasing sale per unit by 25% or \$25 /lamb. The healthier ewe population also breeds faster and healthier with more twins born in the spring. The Project has assisted a local small scale livestock processing facility to expand and we are now targeting lamb sales through local restaurants, casinos and other retail and wholesale (Sysco Enterprise) outlets resulting in a 20 % increase in live wt. sales for our producers.

On November 9, 2008 the Project was awarded the 2008 National Diversity Award sponsored by USDA CSREES and National Association of State Universities and Land-Grant Colleges (NASULGC) at the NASULGC 121st Annual Meeting for the work we have achieved by serving our socially disadvantaged farmers and ranchers, and as a direct result of resources granted from the 2501 OASDFR Program. In addition, the Project also received the USDA NASS 2008 National Partners Award for our service to the 2007 Agriculture Census. The 2501 OASDFR Program does work and our producers can testify to its success.

In 2007, CSREES /Economic and Community Systems and the Sustainable Agriculture Research and Education Program (SARE) funded an investigation into the needs of small-scale Hispanic-Latino farmers and ranchers in the United States, led by Dr. M Swisher, University of Florida's Department of Family, Youth and Community Sciences Department.

The study population consisted of 72 small-scale Hispanic-Latino producers and 35 Extension professionals, from California, New Mexico, Texas, Florida, Puerto Rico and Missouri. All participants completed a questionnaire and were then interviewed by phone or in-person.

Specific topics researched included production resources, marketing strategies and opportunities, financial management, access to information, culturally specific issues, and primary enterprises on Hispanic-Latino farms and ranches. A key finding is that small scale Hispanic-Latino farmer and ranchers' constraints are best identified by six farm goal groups, as opposed to enterprise type or farm location.

The investigation was guided by an advisory board consisting of Extension personnel, representatives from state and federal agencies, and representatives of non-governmental organizations serving this population.

Ten products were produced during this research. 1) National Annotated Bibliography 2) Description of organizations and resources providing services to or about Hispanic-Latino farmer and ranchers 3) List of agencies/organizations serving the population,

categorized by the needs areas they address 4) Contact information of agencies/organizations working with the population 5) A total of four research instruments: two self-completion questionnaires and two open-response interviews for participating farmers/ranchers and Cooperative Extension faculty in English or Spanish 6) Six models, based on the primary goals of the participating Hispanic-Latino farmers and ranchers, which identify the participants' primary and secondary constraints 7) Two priority menus that consist of recommendation to USDA important to improving the quality of life and livelihood of Latino-Hispanic farmers and ranchers 8) Project progress and final reports 9) List of individuals interested in resources relevant to the population of study 10) PowerPoint presentation developed for the audience at the National Association of County Agriculture Agents Annual Meeting.

The SARE program is committed to reaching out to underserved audiences, including Hispanic/Latino, African American and Native American and Pacific Island groups. SARE made significant funding allocations to this commitment over the past five years, with documented impacts.

SARE has translated a bulletin and a book into Spanish. One translation has consistently been downloaded more times than any other SARE publication over the past 3 years, averaging more than 20,000 downloads *per month*.

The SARE Outreach office is working with Midwest Association of Farmworker Organizations (MAFO), a national partnership of rural and farm worker organizations, to incorporate sustainable agriculture information into their annual conferences. We have also sponsored attendees to several other Hispanic/Latino-oriented conferences, such as the New Mexico Outreach Project conference. SARE also sponsored the CSREES National Small Farm Conference. At its 20th Anniversary conference, SARE included a track on underserved audiences, including a panel on reaching minority farmers.

Several SARE Professional Development projects aimed to enhance the capacity of educators and farm leaders to work with Latino farmers. One project an Experiential Learning Curriculum focused on Mexican cultural values and sustainable farming systems. The curriculum is described at <http://www.sare-exchange.info/ELP-EM.html>. The program impacted the participants in several ways: Extension educators increased their consciousness of barriers faced by individuals who belong to this demographic farming group, in an environment where the language, values, and traditions are different from their own. The participants increased their knowledge of Mexican culture, social structure, social networks, and Mexican sustainable agricultural practices. This cross-cultural learning experience enhanced and promoted a positive view of Latino and/or immigrant farmers within the participants.

Western SARE Professional Development Program aimed help educators better reach Native American farmers and ranchers through a series of very small grants to state groups. Several projects worked with Extension Indian Reservation Program (EIRP) agents and other agency personnel. Projects in several states are working with Hopi, Hualapai, Blackfeet, Navajo and other tribal groups.

In Alaska, SARE funds to enrich the EIRP were used to enhance sustainable agriculture within rural communities. On-site workshops had a great influence in the communities, with 42% of the 38 villages establishing some sort of sustained agricultural program by the end of the 2006 season.

A survey and selective in-depth interviews of ten years (1996-2006) of graduates from the Wisconsin School for Beginning Dairy and Livestock Farmers (WSBDF) showed that the vast majority had entered farming careers, over a third of farmer graduates owned their own farms, and satisfaction with the quality and value of the WSBDF training program was very high. Farmer graduates overcame obstacles such as little equity and difficulty finding a farm to lease or purchase in order to be successful.

A Western SARE project resulted in a curriculum *called People of the Land: Sustaining American Indian Agriculture in Idaho, Nevada, Oregon and Washington*. The project aimed to teach agriculture professionals the importance of the influential role(s) that the local tribal political structure plays within Indian tribes and natural resource management decisions. The 8-chapter curriculum was piloted in two sessions in Las Vegas. The curriculum was unveiled in the 4 states in 2008.

Supporting the Environment and Healthy Food for the Latino Market: This project looks at raising chemical-free produce and herbs outside and in a greenhouse environment using hydroponics, aquaponics, and experimental insect deterrent methods and red worm composting. The market is the Latino community. Margarito visited Growing Power and is using some of Will Allen's techniques on his farm. Alma Edelia Ramos and her brother, Margarito Ramos are leading this group project. The Ramos's grew up in Mexico. Alma is the project coordinator and she is a permanent resident alien. Margarito is in the process of becoming a permanent resident alien.

Numerous farmer/rancher projects in the Western region's island protectorates have addressed the issues of those stakeholders, including rat control and crab ranching in the Mariannas, greenhouses and aquaculture in Guam and other protectorates, and banana production in Badeldaob Island in Palau, the second Largest island in Micronesia.

The Small Farmer Agricultural Leadership Program: On March 22, 2007, 21 farmers held a graduation ceremony from a leadership course at the Department of Agriculture. The CSREES Small Farm Program coordinated this effort for the Department in partnership with the CSREES Competitive Unit's 2501 Program, which provided initial funding for the leadership program activities.

Half of all current farmers in the U.S. are likely to retire in the next decade. Enlisting and supporting new farmers is therefore becoming essential to the future of family farms, the farm economy and healthy rural communities. In 2002, Congress authorized the creation of the Beginning Farmers and Ranchers Development Program, but no appropriations were secured to begin the program. In the 2008 Farm Bill, Congress provided \$18M mandatory funding (FY 09) and \$19M mandatory funding (FY 10 and years thereafter) to launch the Beginning Farmers and Ranchers Development Program. Congress defined a beginning farmer and rancher as anyone new to farming or ranching or who has been involved in farming or ranching for 10 years or less. The Secretary delegated authority to

CSREES to provide leadership for the BFRDP. CSREES assumed leadership and published the first RFA for program funding in early 2009. NPLs in leadership in the Sustainable Farm Enterprises portfolio are also leading the new BFRDP leadership team. Future portfolio discussions and the development of program measures and impact will continue to focus on this new program and the implementation of its funded projects to achieve meaningful outcomes.

Farm safety

Farm safety & creating safe work environments; support of education and training to reduce farm related injuries and accommodate disabilities on farms.

Managing risks to human health and safety are critical to risk management for sustainability of farming operations. A New York state study showed that 7 out of 10 farms failed when the primary operator was fatally injured. An Iowa state study indicated approximately 80 percent of farmers with disabilities incur secondary injuries when continuing to farm. These risks are address in the “Hazards to Human Health and Safety” knowledge area through the Youth Farm Safety Education and Certification Program and the AgrAbility Program According to the Bureau of Labor Statistics Census of Fatal Occupational Injuries, total agricultural fatalities declined from 669 fatalities in 2004 to 573 fatalities in 2007. While research cannot directly link agricultural safety education to reductions in fatalities, survey studies have linked extension education to increase in knowledge of hazards and changes in practices that will reduce risk of exposure to the hazards.

AgrAbility is a national program that works to assist agricultural and agribusiness workers who have physical and mental disabilities to adapt their homes and farms in order to allow them to continue to work in agriculture. The goal of AgrAbility is to provide assistance and resources to farmers with disabilities to allow them to continue farming. AgrAbility provided individualized services, both on and off the farm to 2,287 new clients from 2003-2007, helping creative comprehensive, individualized plans to allow the farmer to continue in his/her profession and enhance the quality of life. The projects provided education and assistance to farmers and ranchers with disabilities and to their family members with disabilities. The scope of this program reaches farmers, families, communities, agricultural and medical professionals and farm implement manufacturers. For one State and Regional AgrAbility Project, the total cost of purchased assistive technology during 2007 exceeded \$3 million which was provided by the state vocational rehabilitation services for 126 farmers. Without this program, a majority of these farmers/ranchers would have increased risk of secondary injuries if they continued in their profession or would seek employment outside of their profession.

The Youth Farm Safety Education and Certification program has critical ties to the current regulations for youth employment in agriculture in addition to addressing gaps in youth farm safety extension education programs. The safe operation of agricultural equipment on public roads is included in curriculum designed to meet training and certification requirements for the U.S. Department of Labor’s Agricultural Hazardous Occupations Orders (Ag HOs). The Gearing Up 4 Safety Program is appropriate for a much broader audience than the 14-15 year olds required by law to receive the training to be hired to operate tractors over 20 horsepower and powered machinery on non-family

owned farms. The Gearing Up curriculum, designed for use by 4-H and agricultural education educators, is divided into eleven informational chapters and one skills chapter. 170 core educational competencies were identified by a panel of experts over a two year period to incorporate into the curriculum, and pilot tested with 700 youth in Indiana, Kentucky, and Tennessee to validate the testing process. Over 50 agricultural education students at Purdue received training in this curriculum and were provided a version of the material for use in student teaching and over 350 curriculum CD-based student instructional materials have been distributed nationwide. It is estimated that part or the entire curriculum has been presented to over 1,500 students.

New Marketing Opportunities and tools for success in those markets

Within KA 902 -- Sustainable Agriculture -- SARE has made marketing a primary focus of its work with farmers, ranchers and agricultural professionals. Research and education into farmers markets, community supported agriculture (CSA), and on-farm value-added products, farmers and ranchers were able to increase sales to local outlets. Work in the areas of farm-to-institution sales, web-based marketing and cooperatives helped open marketing opportunities to producers too far from urban centers to benefit from local sales.

SARE publications like *Marketing Strategies for Farmers and Ranchers*, and *How to Direct Market Your Beef* detail innovative marketing strategies that return more of the farm dollar onto the farm. More than 60% of producers reported that their SARE project helped them achieve higher sales.

As part of a Northeast SARE research and education grant, training was provided to farmers, chefs, and consumers in order to increase sales of local food. Over 65,000 copies of the Farm Fresh Guide were printed and distributed in Western Pennsylvania and a buy local website was developed with over 70,000 consumer hits in one year. Fifty farms actively engaged in the project and collectively had new sales of \$646,000 to local restaurants, an average of \$12,900 per farm.

The farms around McAllen, Texas, produce the biggest variety of fruits and vegetables in the state, but until two years ago, it was all trucked away by the big packing houses. SARE state coordinator and Extension agent Barbara Storz organized a group of low-income families, mostly women, into the Grow'n Growers of San Juan, Texas. Now they raise about 50 varieties of crops including bok choy, collards, eggplant, tomatoes, spinach, colored Swiss chard, grapefruit, limes, oranges, herbs, broccoli, cauliflower, Chinese and Indian vegetables. Working with Heifer International, the Grow'n Growers now sell their organic produce to eager customers just north of the Mexican border. The women credit the program with helping them fight depression as well as poverty.

One SBIR funded project builds on earlier work that introduced seaweed aquaculture to the island of Molokai and provides an economic opportunity for Hawaiian coastal residents that is compatible with their rural lifestyle. They are working with two species of Gracilaria. They have developed techniques for harvesting and processing seaweed and are developing a number of value-added products derived from seaweed such as agar. They are using solar dryers to refine the drying process for seaweed and agar. They are working to improve the gel yield and quality by fine tuning the extraction

process. They are developing marketing strategies for various agar-based products, especially in the health food and sports nutrition sectors.

The AFRI program provided funds to Alabama A&M University, for a project entitled, “Promoting Value Added Enterprises Among Small and Medium-Sized Farms in Alabama”, in which the university assessed the potential for small and medium sized farmers in Alabama to produce value added specialty products; identifying the impact of producing these crops and the profitability of these value-chains; and developing and implementing an operational outreach and technical assistance program to enhance participation by small and medium-sized farmers.

In Montana, the Undaunted Land Steward Certification program educates landowners to make better resource management decisions as they develop or refine ranch management plans. Interpretive displays at historical sites, news features on radio or television, camp sites, workshops, magazines and newspapers are methods used to inform city dwellers about the compatibility of agriculture and the environment. Producers could do business plans for developing or expanding a tourist-based component to their ranch, which diversify income sources and increase the vitality of ranch operations.

Legal, Policy Issues and Concerns

Land access, land tenure & issues related to property; legal and regulatory compliance; land, water and resource rights; contracts & understanding contractual relationships; domestic policy

Knowledge Area 610 Domestic Policy Analysis focuses on the economic and social impacts of domestic programs and policies, including the effect of government actions on the U.S. The Domestic Policy 2501 Program – Outreach to Socially Disadvantaged Farmers and Ranchers provided a Regional Marketing System which links socially disadvantaged producers in Georgia, Alabama, Mississippi and South Carolina. This interaction has resulted in increased commercial and direct marketing opportunities. There was a 38% increase in producers participating in sales through farmers’ markets, retail grocers, farmer-owned processing operations and institutional buyers.

Rangeland monitoring has been used as tool by federal land managers and producers alike in order to determine rangeland trend as well as to make short and long term management decisions based on predetermined goals and objectives. For federal land managers, this monitoring comes as a mandate, as dictated by the National Environmental Policy Act (NEPA). Due to the lack of personnel and financial resources, there has been a movement by predominantly Native Hispanic livestock producers to monitor federal allotment rangeland conditions in partnership with the Northern NM Outreach Project and the Forest Service. It is within this partnership that New Mexico State University protocol is used to jointly monitor rangeland condition, in order to sustain ecologic and hydrologic function, forage production, and biological diversity. In addition, as part of the NEPA process, proposed management changes or alternatives can be appealed or challenged. Grazing management plans and grazing permits come up for renewal on a 10 year cycle. It is during this renewal process that the managing agency gathers the data taken over the previous years and uses that data to either support the renewal of existing numbers and time or make proposed changes in number or time to a

permit. If the data is not available, then it is difficult for the agency to go through a renewal process without appeal. This shows the potential importance of the data collected through this program. If the managing agency lacked the appropriate data to support the permit renewal process, then the scientifically based, collaboratively collected data, from the producers would be used to support proposed actions.

Through funding secured from the CESREES 2501 OASDFR Program and a partnership with the Northern New Mexico Stockman's Association (Hispanic Rancher Organization in New Mexico who's ancestors have been ranching in this region over a hundred years prior to the United States occupation of the region) this program has been made available to the ranchers in Northern New Mexico. Since 2002, 41 US Forest Service (Carson and Santa Fe National Forests) allotments have been exposed to this program via one-on-one contact with producers, presentations at Association meetings, and intensive ½ day monitoring workshops in the field, and have developed their own range monitoring programs. If those allotments were to go through the permit renewal process and lack the appropriate data then come under appeal, those producers would be forced to find alternative pasture for their livestock. Most of those allotments are permitted for 6 months, grazing from May to October.

If those 41 allotments, representing 279 families were to lease private lands for one season (of 6 months, however 4 allotments are authorized for year round use), at approximately \$20/AUM, where one AUM is the amount of forage required by an animal unit (AU) for one month. In general, the number of animal units, multiplied by the number of months they are on the range equals the number of AUMs used. \$25/AUM is considered to be a conservative estimate for leased land. If all 297 families had to lease private land for their cattle for one season, conservatively, they would have to pay \$1,919,550 (41 allotments, 76,782 AUMs, \$25/AUM).

As a result of the range monitoring education program, 279 families are able to graze on federal allotments, raise quality New Mexico beef, and actively manage the rangeland ecosystem within the Carson and Santa Fe National Forests. Also as a result of this program, in the context of demographics, a request was made to compile and summarize demographic data regarding allotment ranchers who utilize resources within New Mexico Congressional District 3 on the Carson and Santa Fe National Forests. This demographic data includes number, gender, and ethnic composition of individuals listed on the permits. From a directory containing 731 individuals obtained and updated between 2002 and 2007 from the USDA Forest Service, the following demographic information is summarized below and highlights the importance of Hispanic men and women to these Forests.

Financial Stability

Additionally, with leadership from KA 607 and 801, eXtension launched the Managing in Tough Times Network (MiTTNet), which is a directory of existing educational programs and materials relevant to managing in these difficult times. With economic challenges facing Americans every day, the Cooperative Extension System is providing this new source of relevant, community-based educational programs from across the nation to complement what is available at www.extension.org and in every state. The directory is

available through eXtension for use by Extension educators across the country. MiTTNet includes content for individual and family financial and stress management, farm and ranch financial and risk management, community economic development, and youth stress management and positive actions. Farm/ranch and family financial management; farm success and estate planning Financial management for farmer and ranchers are addressed in the Family Resource Management KA 607 and Consumer Economics KA 801.

A North Carolina multi-state research project provided an opportunity to review the drop in number of financial institutions providing capital and financial services to agribusinesses. Collaborations between the Economic Research Service, Federal Reserve Bank, and lending regulators provided insight into the needs of agricultural and rural financial markets. These efforts included, seeking to determine the effects of changes in federal and state policies affecting agriculture on the financial and economic performance of farms, agribusinesses and rural financial markets, as well as, evaluation of management strategies, capital needs and financial performance for long-term sustainability of the agribusiness sector.

These efforts resulted in a strengthened international network of economists capable of examining specific financial market policies affecting rural areas. Participants discerned local impacts of transition and change in financial markets. Also, a standardized set of investigative methodologies and assessment tools for analyzing the social, economic and fiscal impacts of transition and change in rural financial markets was presented.

Portfolio Leadership and Management:

This portfolio has changed considerably over time. In the past it benefitted from the services of multiple NPLs (including those in related Markets and Trade areas such as livestock marketing, grain marketing, agricultural policy, and trade). With attrition and retirements, the CSREES human capital has changed just as the focus from commodities and products has expanded toward concepts of decision making as constrained by economic, policy and regulatory and legal realities and achieving greater stability, sustainability and safety in farming and ranching operations.

The Land Grant and Extension system still has an appreciable number of professionals engaged in farm management activities; these professionals are predominated by those with agricultural economics training. In sustainable agriculture, higher education and research are becoming more innovative and responsive to the growing concerns regarding long-term environmental health of our working lands. New higher education programs are being launched to meet the needs and desires of a new generation of students to engage in a systems and sustainability approach to their careers.

NPLs within CSREES lead in a number of ways throughout the system:

- NPLs develop and participate in a wide variety of professional opportunities for partners to dialogue about current and emerging issues related to the portfolio in a variety of settings.

- Since the inception of the NPL Liaison Program, NPLs are in contact with their assigned state land-grant universities, dialoguing with administrators, faculty and staff to assess climate and gauge stakeholder challenges and opportunities.
- At the programmatic level, NPLs continuously interact with partnership colleagues, external partners, professional organizations, and each other to assess and integrate stakeholder input into their programs.

CSREES also recognizes its role as a conduit of current research information. CSREES works closely with other agencies, organizations and land-grant universities and provides a mechanism to distribute information to stakeholders and partners. Outlets include multiple CSREES listservs, dedicated web pages, newsletters, teleconferences, trainings and conferences, all facilitated, monitored and moderated by NPLs managing them.

Programmatic or Management Shortcomings:

The major shortcoming of this portfolio is limited human capital for enhanced leadership. However, current NPLs are highly active within their professions. The hiring of a new NPL for Farm Financial Risk Management (an agricultural lawyer) in 2007 has considerably broadened the scope and scale of our leadership in management, marketing and policy. The inclusion of legal aspects of production, entrepreneurship, and marketing is a substantial benefit to the ECS unit and to the support of the Agency and USDA missions.

NPLs have worked hard to maintain considerable visibility within their professions. Evidence of the latter is apparent in requested presentations and symposiums, service to professional organizations, regional associations, and to USDA. Portfolio management has not been verified as a problem, as there is no evidence of any policy, procedural or programmatic deficiencies in the competitively funded, formula based, or special programs.

Portfolio leaders engaged in this newly reconfigured portfolio will continue to meet, exchange ideas and continue enhancing the interconnections within the portfolio. The portfolio team was finalized just months before reporting for 2008 and as such the team has had limited opportunities to engage in strategic planning across the portfolio funded activities. It is anticipated these coordination activities will improve and increase as the team coalesces. A strategic planning session will be conducted in the near future.

Key Future Activities and Changes in Direction:

Passage of the 2008 Farm Bill influences the scope of farm management and related policies, subject to the appropriation of funds by Congress and the outcome of the CSREES transition to the National Institute for Food and Agriculture. Within the 2008 Farm Bill funding for sustainable agriculture programs continues; special emphasis for risk management education has emerged; many new provisions relating to beginning farmers and ranchers, socially and geographically disadvantaged farmers and ranchers and others relevant to Key Programs of the portfolio have emerged. Financial security for rural farm families is expected to continue as a national focus.

Additional focus areas can be identified:

- Policy impacts of the 2008 Farm Bill
- Continued funding of the Risk Management Education program with special emphasis on five different population groups
- Continued funding for the Sustainable Agriculture Research and Education program
- Continued focus on farm safety issues related to the farming population
- Acknowledgment of the changes in the specialty crop sector
- Market based environmental services
- Increased work in experimental and behavioral economics
- Creation of a new benchmarking and focus activities for a national center for farm financial management (appropriations yet to be determined)
- Continued funding under the Stimulus Package for the Trade Adjustment Assistance for Farmers and Fishermen program

What are Others Doing:

Recognizing that improving viability and sustainability of farming and ranching operations and the families involved in those operations takes a major coordination of resources, national organizations all seeking to strategically collaborate to maximize limited resources and reduce duplicative efforts. The following are a few examples representing what others are doing in the areas of interest within the portfolio. See Appendix K for examples of “what others are doing” in organizations in close relationship to key programs of the portfolio.

National Institute for Occupational Safety and Health (NIOSH). The Centers for Agricultural Disease and Injury Research, Education, and Prevention represent a major NIOSH effort to protect the health and safety of agricultural workers and their families. The NIOSH Agricultural Centers were established as part of Centers for Disease Control and Prevention (CDC) / NIOSH Agricultural Health and Safety Initiative in 1990. The Centers were established by cooperative agreement to conduct research, education, and prevention projects to address the nation’s pressing agricultural health and safety problems. Geographically, the Centers are distributed throughout the nation to be responsive to the agricultural health and safety issues unique to the different regions. CSREES has worked with the Center Directors to link Extension Safety Specialists with Center projects.

The National Agricultural Safety Database (NASD) is a national central repository of agricultural health, safety, and injury prevention materials for the agricultural community and especially for agricultural safety specialists. CSREES has provided some funding and State Extension Specialists contribute materials to the database. NASD is maintained by the Southern Coastal Agromedicine Center under a grant from the National Institute for Occupational Safety and Health (NIOSH). NASD is made available through the NIOSH Web site to enhance public access to workplace safety and health information.

Risk Management Agency. The Risk Management Agency (RMA) of USDA is a full and active partner to those involved in this portfolio work. RMA is the central agency working to strengthen and establish the nation's crop insurance system and it provides funding in five grant opportunities to also bring resources to the risk education arena. RMA has provided joint or additional funding for several activities reported on within the RME and SARE areas of this portfolio. The Targeted States risk management education program, FCIA Section 524(a)(2), administered by the RMA, is also covered by Sec. 12026 of the 2008 Farm Bill and will expend \$5 million in 15 states, 12 in the NE US and 3 in the West. RMA has also, through Cooperative Agreement, provided approximately \$300k to the Intertribal Agriculture Council to work with CSREES and RMA in preparation of a Tribal Farm Tax Guide designed to address critical tax-related issues concerning Tribal producers who derive income from the land and may engage in tax exempt and tax implicated conservation and income-production activities related to Tribal lands, individual titled lands, trust lands and other lands associated with unique land tenure status. This project is in the early stages but is designed to provide a tax guide, like the Publication 225 published by the IRS (Farm and Ranch Tax Guide) with input from the National Extension Farm Income Tax Committee, a committee unique to the land grant and extension committee. The Committee is serving as an advisor to the Tribal Tax Guide project.

Farm Service Agency. The Farm Service Agency (FSA) of USDA also requires the many borrowers in direct or operating loans as well as guaranteed loans, engage in some degree of financial education training to improve performance in servicing. Many professionals within the CSREES and partners of the system serve as educators for those programs and the Annie's Project reported on in this portfolio is discussing ways in which Annie's Project can qualify as approved financial education training for women borrowers.

Farm Credit System. The Farm Credit System is involved in a comprehensive, national Beginning Farmer and Rancher training program and has a strong portfolio of loans for new and beginning farmers and ranchers. The Farm Service Agency likewise maintains a large loan portfolio providing startup direct and guaranteed operating and ownership loans for beginning farmers and ranchers. A key component of their borrower relationship is the requirement for borrowing financial training; many professionals linked to the CSREES and its partners are critical instructors for those programs.

Natural Resources Conservation Service Outreach. The USDA Natural Resources Conservation Service (NRCS) is actively engaged in outreach activities among producers throughout the country, particularly on issues related to conservation and protection of working lands. The NRCS is working among the women in agriculture community by sponsoring a program called "Women, Land and Legacy" and in some states these NRCS-based activities are working with other annual women in agriculture conference events and Annie's Project workshops in creating a web of support for women assuming primary responsibility for the nation's farms, ranches and/or working lands.

Financial Literacy. The National Strategy for Financial Literacy published in 2006 entitled "Taking Ownership of the Future" identified several key concerns relating to the nation's level of financial literacy. It identified serious concerns which have since been

amplified during the nation's current financial crisis which is hitting farms, families, businesses and communities at unprecedented levels. The Commission identified that improving financial literacy has the potential to improve the lives of millions of Americans. Congress passed the Fair and Accurate Credit Transactions (FACT) Act in 2003 and included Title V which established the Financial Literacy and Education Commission, twenty federal agencies began meeting under the charge to "improve the financial literacy and education of persons in the United States through development of a national strategy". The NPL involved with the Secondary KA relating to Financial Security was a member of the Commission publishing this important report.

The Commission identified and recommended several "calls to action" to further develop financial education infrastructure, including: 1) implementation of public awareness campaigns to encourage general saving; 2) encouraging homeownership financial education information; 3) encouraging financial education in the workplace to encourage retirement savings and options; 4) implementing campaigns about managing consumer credit, credit management tools, credit education and credit counseling; 5) improving knowledge of, prevention and recovering from identity theft; 6) improving knowledge of IRS's Voluntary Income Tax Assistance program, encouraging direct payments and encouraging enrollment in the Medicare drug benefit program; 7) improvement of educational information for investor protection; 8) sharing best practices on banking of the unbanked; 9) discussing financial education topics relevant to multilingual populations; 10) discussing the integration of financial education into the core school curriculum; and 11) hosting, along with CSREES, a symposium of researchers specializing in financial education to raise awareness of existing academic research concerning financial education; 12) continuation of the web resources (www.mymoney.gov) to promote awareness; and 13) discussing and raising awareness of the international needs for financial literacy. Many of these initiatives, highlighted in the 2006 report, have been implemented. Continuing these efforts and embedding these concerns into all CSREES-funded projects is an important next step.

International Farm Management. Dramatic changes are also taking place in farming worldwide as a result of globalization, liberalization and rapid urbanization. As noted by the Food and Agriculture Organization of the United Nations, farmers are intensifying existing patterns of production and diversifying their farm enterprises in an attempt to improve livelihoods. FAO notes that technical "know-how" is not enough and that in order to be competitive; farmers have to adapt their farm businesses to market changes and improve efficiency, profitability and income. These efforts require farmers to become better decision makers and better at competing in a rapidly evolving environment. FAO recognizes that farm management is critical to meeting those needs.

Farm management assists farmers in making the right choice between enterprises, analyze their financial, labor and land constraints and needs, and determine their risks and respond to those risks. FAO is sponsoring improvement of farm management skills at the international level, much the same way the US is providing resources for improvement of farm management and sustainability domestically. Farm business schools to improve beginning farmers and small scale producers in understanding and adapting farm businesses, improving entrepreneurship and "learning and doing" show

success among farmers. Planning and coordination on the farm as the farm engages in new or diversified markets is important as are understanding relationships with the market and understanding how decisions on farm impact short and long-term viability and sustainability are critical. FAO also recognizes that aiding producers in understanding safety risks inherent in farming and associated with machinery, tools and inputs are critical. FAO recognizes that the tools necessary to improve farm management include: participatory budgets, scored causal diagrams, resource allocation maps, resource flow diagrams; needs assessments; assessing the suitability of on farm changes; conducting on-farm participatory research in planning, recording and analyzing results; introduction of new practices and considering how they compare to existing activities; studying farmers' practices and systems; and analyzing short and long-term sustainability of decisions.

FAO notes, as we do, that adequately trained extension personnel in farm management are a worldwide problem. This shortage of personnel is so obvious that www.aol.com in late 2008 cited that farm management is one of the top 10 professions that will be searching for skilled persons in the future. Building appropriate training materials and building technical capacity for extension staff and farmers in farm business management is important⁸

Farm management decisions are underpinned by good information. To make good decisions, farmers need information from different sources and timely and appropriate information at every stage in the farm management decision-making process. Information is needed to diagnose the farm, to set objectives, to plan, implement and control farm activities, and to make more efficient use of limited resources. Information can have a direct impact on improved farm management providing extension workers and farmers with information on what, how and when products are produced, and what type and quantity of inputs should be used.

⁸ <http://www.fao.org/ag/ags/subjects/en/farmMgmt/index.html>

Section II: Primary Knowledge Areas

Primary Knowledge Areas Introduction

The newly configured portfolio brings together primary Knowledge Areas (KAs) that support sustainable and profitable farm practices to strengthen farms and farm families. These KAs, along with funding resources allocated are listed and discussed below.

KA 601: Economics of Agricultural Production and Farm Management and KA 602: Business Management, Finance, Taxation, and Estate Planning

A total of \$187 million has been invested from 2003 – 2007. Research, education and extension activities and accomplishments in KAs 601 and 602 support efforts in the Risk Management and Decision Support and the Financial Stability themes. Knowledge Area 601 focuses on economic choices farmers and ranchers make to access and allocate resources for the production of crops, livestock, services and products. These resources help farmers minimize production risk and maximize farm income. Areas of work in KA 601 include but are not limited to: farm production economics; farm management; sustainable agriculture; farm and firm growth, including economies of size and scale; and agricultural profitability. Knowledge Area 602 focuses on the management and administrative techniques applied to farming, agricultural businesses, and other businesses and enterprises to enhance planning, decision making and resource use. Making effective decisions, staying in the marketplace over the long term, and increasing profitability are key to this KA. Analysis of the effects of taxation on profitability are also included, as are: business administration; business skills for entrepreneurs; managerial economics; capital and investment markets; household assets as business capital; decision analysis including expert systems; financial risk management; insurance, human risk management; business transfer and succession planning; economics of financial markets, financial management and lending institutions; real estate value and prices; and taxation. Because many of the projects funded by CSREES specifically relating to one of these knowledge areas are inextricably intertwined with issues related to the other knowledge area, KA 601 and 602 are reported together.

Decision-making in the areas of Business Management, Finance and Taxation involve some of the most important aspects of expanding economic opportunities in rural America. There are substantial benefits to be gained from the improvements in the decision-making by farmers, agricultural business and related enterprise owners while they plan and manage a large number of financial and operational risks. The research activities involved the investigation of risk behavior in financial markets; the improvement of lending protocols; how farms and agribusiness owners handle crop risk and insurance decisions. The educational activities were aimed at improving the incentives for doctoral and masters candidates to develop experience and knowledge in agricultural arenas that have been deemed to be national priorities, such as agribusiness management, markets and trade policy, and information systems specific to agricultural challenges. Many extension activities were also directed toward outreach to minority groups and underserved/entrepreneurs and sought to help them reduce financial risk when they developed business plans, especially when these plans involved the development of easier credit, or the use of crop and livestock insurance products.

Many important components and several funded programs within the agency related to this nexus of activity related to KA 601 and KA 602: the Risk Management Education (RME) program (receiving mandatory funding); the Farm Financial Management Program (FFM – funded primarily through federal formula funds); and the AFRI Agricultural Prosperity for Small and Mid-Sized Farms and SBIR Small and Mid-Sized Farms programs. Beginning in late FY 09, there will also be a new body of projects funded through the Beginning Farmer and Rancher Development Program (receiving mandatory \$18M funding each year). Each of these important programs focuses on the economic choices farmers and ranchers make to access and allocate resources for the production of commodities, services, and products. These resources help farmers and ranchers optimize production, improve management, apply technology, and address other forms of risk thereby assisting them to optimize farm income and sustainability. CSREES' role involves program operational responsibilities, administrative oversight of projects funded by various sources of funds, and the interaction with various stakeholder groups involved and interested in this problem area.

Economics of Agricultural Production and Farm Management cuts across several major programs within CSREES. The Risk Management Education (RME) Program and the Farm Financial Management (FFM) Programs are housed within the Economics and Community Systems (ECS) Unit. The RME Program is funded directly by the Congress (\$5 million annually); with additional work being conducted on various projects funded through Hatch, Smith-Lever, Special Research Grants and Federally Administered Grants projects. The Farm Management Program is not directly funded by Congress, but receives support through Hatch funding, Smith-Lever funding, Special Research grants, and Federally Administered grants. The RME and FFM program have a dedicated National Program Leader (NPL). One NPL in the Competitive Programs Unit administers the AFRI Agricultural Prosperity for Small and Mid size Farms; one NPL administers the SBIR partner program for that area; and two NPLs (one in the Competitive Programs Unit and one with the ECS Unit) co-administer, along with a team of professionals in the agency, the new Beginning Farmer and Rancher Development Program.

Risk Management Education (RME) Program:

In 1996, Government Accountability Office (GAO) examined USDA's efforts to educate farmers about risk management. GAO found that in 1996 in its published report: "Farmers' Use of Risk Management Strategies,"⁹ that about 42% of the nation's 2 million farmers used one or more risk management tools to limit potential income losses resulting from falling market prices or production failures. In fiscal year 1998, USDA obligated \$5million for four educational initiatives to prepare farmers to manage risks. GAO found that the use of tools during the late 1990s varied by farmers' level of sales and primary commodity and that their use of crop insurance and forward contracts to reduce risk were more prevalent among farmers with at least \$100,000 in annual sales and whose primary crops were corn, wheat, and cotton, and had some use of forward

⁹ RCED-99-90 April 7, 1999

contracts or hedging use. When USDA obligated the \$5 Million for four educational initiatives to foster risk management education, the initial efforts were to sponsor a series of risk management education conferences targeted at bankers, agricultural educators, crop insurance agents, commodity brokers, and grain elevator operators. Original conference efforts reached only a small percentage of target groups of the broader farmer and rancher community. Thereafter, USDA through Risk Management Agency (RMA) continued awarding risk management education and research grants to continue broadening efforts and Congress continued providing funding through the CSREES RME program to amplify the work being done at RMA. The RME program through CSREES was created as early as 2000, the online agriculture risk education library (www.agrisk.umn.edu) contained over 700 publications and materials relevant to agricultural risk education content. As of 2009, the online library contained over 3000 materials and tools appropriate for use by a wide range of producers and their educators and advisors.

The purpose of the RME program is to develop educational and training program specific to five areas of risk management (production, financial, marketing, and legal and human resources risk). Funding is authorized by the Agriculture Risk Protection Act (ARPA) of 2000) (P.L. 106-224, June 20, 2000). Legislation directed Commodity Credit Corporation (CCC) to allocate \$5 million specifically to CSREES to begin a Risk Management Education competitive grants program. The program began in 2001 with national focus, but by 2003 (FY 2004) had implemented a regionally based grant program. The overall program goal is: to enhance the profitability of farmers and ranchers by a decentralized program delivered through four risk management education centers and a digital center with fair, equitable distribution of funds and efficient management of funds. Beginning in FY 2004, all funds (\$4.8) were distributed to four regional centers and digital center on a competitive basis. By 2008 over 700 projects had been funded by the regional centers.

CRIS Projects Reporting Risk Management: Many projects reported into CRIS carry identification and relationship with both KA 601 and KA 602. Of 2049 CRIS projects funded in KA 601, 1779 were funded by CSREES (2004). 391 contained “Risk Management” either in their title or in key words. CSREES funded approximately 286 of the 391 projects with risk management and 97 of these incorporated economics as a major emphasis. The RME program, since its inception at the regional level in FY 2004, has funded over 700 projects. In FY 2001, only \$3M was made available; in FY 2002, 03, 04 \$5.0M was made available with \$4.8M distributed to the states. The same amounts (\$4.8) were distributed in 2005, 2006 and 2007. The RME program was reauthorized in the 2008 Farm Bill at the same \$5M level. Total state and federal funds captured in CRIS for the 601 KA ranged from \$14.3 million in 1998 to \$22.8 million in 2002.

Risk Management topics include: production (insurance products, product and enterprise diversification, economic risks of new technologies, transition to new production systems, and water use decisions); price or market (analysis of market fundamentals, cash and futures pricing tools, marketing plans and strategies, branded, certified, or identity preserved marketing, direct marketing, and contract production); financial (business and strategic planning, financial records and analysis, cost of production and

benchmarking, asset management including leasing and renting, economics of input decisions, returns to alternative energy investments, value-added enterprises, agri-tourism and alternative use of resources); legal (environmental regulations, labor regulations, food safety liability, contracts and leases, personal and business liability); and human (employee management and communication, labor supply, recruitment and retention, interpersonal, family and business relationships, transition and estate planning, and health, stress and well being).

Special Emphasis: Section 12026 of the 2008 Farm Bill requires the RME program (funded through CSREES, in addition to the risk management education program funded through the Risk Management Agency), place special emphasis on risk management strategies, education, and outreach specifically targeted at: 1) beginning farmers or ranchers; 2) legal immigrant farmers or ranchers that are attempting to become established producers in the United States; 3) socially disadvantaged farmers or ranchers; 4) farmers or Ranchers that (a) are preparing to retire; and (b) are using transition strategies to help new farmers or ranchers get started; and 5) new or established farmers or ranchers that are converting production and marketing systems to pursue new markets.

The Farm Financial Management (FFM) Program:

The Farm Financial Management Program is concerned with issues such as: managing land, labor and capital so as to obtain the highest possible return consistent with the farm and/or farm family goals and values. It too reports effort under primarily the 601 and 602 KAs. The structure of agriculture has changed significantly over the past two decades: industrialization or concentration in the livestock sector; international trade and globalization; new emphasis on homeland security; financial institutions becoming more concentrated with impacts on credit costs and availability.

There is no separately funded “farm management” program at USDA, per se. Rather, projects exist throughout the system keyed to KA relevant to farm management, specifically 601 and 602. Knowledge Area 601 - \$14.3 million spent in 1998; \$15 million in 1999; \$18.4 million in 2000; \$22.5 million in 2001; \$22.8 million in 2002. Inputs from CRIS for farm management include: \$3.5 million spent in 1998; \$3.4 million in 1999; \$5.6 million in 2000; \$8.2 million in 2001; \$5.5 million in 2002.

Outputs are numerous and broad – publications in peer-reviewed journals; university publications; popular publications; popular press, books, radio and television shows, development of financial, marketing, production, resource management, business and strategic and tactical plans for farm managers. Development of new formal and informal farm management curricula and preparation of technical information and advice specific to approved commodities under the Trade Adjustment Assistance (TAA) for Farmers and Fishermen program have also been developed.

Finally, in FY 2007 and 2008, the Risk Management and CSREES joined in a competitively awarded cooperative agreement to fund the research needs which will culminate in a “Native American Tax Guide”. This guide will build on the firmly established tax education activities funded through federal formula funds throughout the Land Grant and Extension system which are carried out through the National Extension Farm Income Tax Committee. This committee works alongside the Internal Revenue

Service to prepare Publication 225, which is the only specialized publication by IRS focusing on the unique tax issues related to farming and ranching operations. The Native American Tax Guide will examine the unique tax-related issues faced by Native American producers who derive income from the land; these unique issues relate to the land tenure status of Tribal lands, specifically trust, restricted, allotted and other unique tenure status applicable only to Native producers. With the increase in numbers of Native American producers shown in the 2007 Ag Census data, the tax guide publication and ensuing education and extension to the publication will be a unique educational guide to Native producers which will lead to greater profitability and financial security for these producers.

KA 601: Economics of Agricultural Production and Farm Management's Logic Model:

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|--|--|---|--|---|--|
| | | | | Knowledge | Actions | Conditions |
| <p>Economic choices farmers and ranchers make to access and allocate resources for the production of commodities, services and products impact production and farm income. In order to minimize risk and maximize net income farmers need to be able to understand risk and management issues and act accordingly.</p> | <p>Financial Resources:</p> <ul style="list-style-type: none"> - CSREES Formula - CSREES <p>Competitive</p> <ul style="list-style-type: none"> - CSREES Special - Other Federal - State - Other <p>Human Resources:</p> <ul style="list-style-type: none"> - CSREES NPLs - Administrative Support - Faculty - Researchers - Extension practitioners - Teachers - Para-professionals - Stake holders (Industry, etc.) - Volunteers | <ul style="list-style-type: none"> - Identify aspects of risk management farmers and ranchers require assistance. - Develop educational and training tools to assist farmers and ranchers in achieving adequate or acceptable risk management knowledge. - Identify research, education and extension needs of producers in the risk management area. - Electronic support center archives funded projects and makes available risk management material. - Develop communication strategies to meet stakeholders various needs. - Courses and areas of studies designed to provide students with the ability to develop better risk management protocol are developed. Emerging issues are recognized and addressed in the classroom. - Instructions on risk management and farm management are presented to farmers. | <ul style="list-style-type: none"> - Proposals and Plans of work submitted - Proposals reviewed - Successful proposals funded - Work successfully completed - Expanded knowledge base - Developed new methods - Improved products - Trained workforce | <ul style="list-style-type: none"> - Change in knowledge of farmers and managers in regards to targeted aspects of risk management. | <ul style="list-style-type: none"> - Development of new formal and informal curricula to teach risk management and farm management. - Research identifies emerging issues in risk and farm management. - Farmers and ranchers change behavior in accordance with learned risk management material. - Curricula developed and delivered in response to changing/emerging issues in farm and risk management. | <ul style="list-style-type: none"> - Improved economic opportunity for producers - Increased production and labor efficiency - Increased net value added by agriculture |

Assumptions - Educational and training programs that emphasize improving the ability of producers and their families to more effectively manage risk associated with farming and ranching improve farm profitability, net income and family well being.

External Factors - Domestic and international long-term demand conditions; economic conditions; scientific advancements; changing priorities; producers' attitudes; public policy; coordination and cooperation with government entities and industry

KA 602: Business Management, Finance, Taxation, and Estate Planning Logic Model

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|---|---|--|--|---|---|
| | | | | Knowledge | Actions | Conditions |
| <ul style="list-style-type: none"> - Farmers and agribusinesses face significant challenges to their decision-making from: - The globalization of agriculture - The growing influence of WTO and multi-national trade agreements - Agri-business consolidation - Increasingly complex tax codes, labor safety, and health reforms - Increased concentration of the banking industry. | <p>Financial Resources Over \$50.5M from 2000-2005</p> <ul style="list-style-type: none"> - Federal - State - CSREES - Private Sector --financial services - Other sources <p>Human Capital:</p> <ul style="list-style-type: none"> - CSREES NPLs - Administrative Support - Faculty - Researchers - Extension Practitioners - Teachers - Para-Professionals - Stakeholders - Volunteers | <ul style="list-style-type: none"> - Investigate the relationship of financial markets, risk rating tools and lending protocols. - Identify critical management factors that influence farm profitability and farm financial performance. - Explore better tools to analyze the impacts of changes in taxes and the tax code - Offer opportunities for graduate students to develop expertise in national need areas. - Produce faculty trained to educate agribusiness employees in competitive skills. - Help minority and underserved farmers reduce financial risk with business plans utilizing alternative insurance products. - Educate producers about human risk issues to increase safety and reliability of the labor force. - Teach lenders about financial risks facing farms to enhance the availability of affordable credit to producers. | <ul style="list-style-type: none"> - New fundamental or applied knowledge - Publications - New methods & technology - Practical knowledge for policy and decision-makers - Information, skills & technology for individuals, communities and programs - Participants reached | <ul style="list-style-type: none"> - Developed models and other tools to better understand the behavior of farmers and lenders under various financial and operations risk conditions. - Increased # of qualified applicants for Ag. jobs Improved mgmt. skills for diverse labor force. Updated Ag-Econ curricula - Better understanding & selection of crop & livestock insurance products - Increased understanding of policy-makers about labor force. | <ul style="list-style-type: none"> - Adoption of tools for enhancing credit availability - Distribution of equitable insurance subsidies - Implementation of appropriate operating & financial mgmt. strategies. - Producers & business persons adopted new ways of examining and making finance and credit decisions. - Minority farmers implemented sounder risk mgmt plans - Enhanced farm safety practices. | <p>Increased profitability of farms and agribusinesses due to:</p> <ul style="list-style-type: none"> - Greater understanding of financial and operating risk behavior, concepts & tools - Greater availability of affordable credit to producers and rural businesses. - Better identification of critical mgmt factors affecting farm firm performance - Improvements in the ability of agribusiness and its labor force to take advantage of opportunities |

Assumptions - Globalization of agriculture will put pricing pressure on domestic agricultural commodities. Consolidation of agribusinesses will increase domestic cost competition. Consolidation or financial industry will reduce the availability of credit. Changes in the tax codes will add managerial challenges to farm firms.

External Factors - The impact from the globalization of agriculture, the concentration of the financial industry; and the extent of laws, codes and regulations. Weather is an indirect external factor.

KA 601 and KA 602: Economics of Agricultural Production and Farm Management's Key Activities:

Women and Working Lands: Recent USDA Forest Service, Forest Inventory and Analysis, National Woodland Owner Survey, 2004 Preliminary Results (7.27.2005) (Butler & Leatherbery) cite family forests in the US as being in the range of 261,639,000 acres in 10.7 million ownerships, representing 42% of all forests in the U.S. Future plans for those forests reflect intention to transfer to heirs (43.2 Million acres or 16.5%) and 913,000 ownerships. Age of these forest landowners fall roughly in the same categories as agricultural landowners: 62.8% are in the 55-65+ age category; 39.2% are over 65; representing 49% of all ownerships. Of landowners, female owners account for 30.2 Million of all acres or 11.5% with 1.7 million owners or 15% of all forest landownership. (2008 RME)

Iowa: Farm Transition and Estate Planning: Build your Exit Strategy

A study conducted by Iowa State University faculty found more than 50% of Iowa farmers had no estate plan and 70% had not named a farm business successor (Duffy, Baker, and Lamberti, 2000). A Successful Farming magazine survey found that 30% of farmers nationwide had not discussed transfer of their farm business with their family (Tevis, 2003).

Post-meeting evaluative data from participants attending a 2005-06 Farm Transition Estate Planning program was conducted in 2007. Workshops showed that 88.9% of those attending did not have a farm business transfer plan and 57.8% did not have an up-to-date estate plan.

Minnesota: Family Farm Businesses

Of the total 524 Minnesota farm family members, representing 301 farm business units, from 191 communities, and ranging in age from 22-89 years of age and 33.1% female and 66.9% males audience, 49.3% of the audiences were over the age of 55. Participants were surveyed during 2007 over six months after the initial project participation began. Of respondents, 59.4% had started to develop/update their farm business transfer plan with 57.1% being 25% complete; 17.9% at 50% complete; 12.5% at 75% complete and 12.5% at 100% completion. Of those responding, 57.3% had started to develop/update their personal estate plan with 54.5% being 25% complete; 20% being 50% complete; 18.2% being 75% complete and 7.3% being 100% complete.

The average balance sheet for a Minnesota family farm business owner lists total farm assets of \$1,125,335 including owned land, livestock, equipment and machinery and total non-farm assets of \$177,156 (FINBIN 2006). Total cost for delivering the program was \$25,879. Utilizing the FINBIN balance sheet value for total farm assets of \$1.125 million multiplied by the 178 farm units that had started or completed their farm transition plan, the total financial impact is \$200.3 million or \$382,251.90 per program participant. Focusing only on those 37 farm units that stated they had completed their farm transition plan multiplied by the FINBIN farm balance sheet asset value of \$1.125 million, the total financial impact is \$41.6 million or \$79,460.67 per program participant.

Utilizing FINBIN balance sheet value for non-farm (personal) assets of \$177,156 multiplied by the 172 farm units that had started or completed their farm personal estate plan, the total financial impact is \$20.2 million or \$38,455.78 per participant. Focusing only on those 22 farm units that had completed their personal estate plan multiplied by the FINBIN non-farm balance sheet asset value of \$177,156, the total financial impact is \$2.6 million or \$4,918.76 per participant.

Total financial impact of the program, combining the farm transition and estate planning asset portions from the 178 survey respondents, is \$220.5 million or \$420,726.07 per the 524 program participants. (2007-2008 RME)

Annie's Project Goes Nationwide: Women in Agriculture

According to the US Census of Agriculture, the number of women farmers and ranchers rose 13.36% from 209 to 237k from 1997 – 2002, with the acres they controlled rising from 50M to 59M in the same period, a 16.5% increase.

Annie's Project: Education for Farm Women is an educational program launched by the Risk Management Education Centers. It allows a safe harbor, connection between women in agriculture, discovery and guided intelligence; participants cover all five areas of risk management – financial, production, marketing, legal and human resources.

Women participating in Annie's Project have a strong need for information related to: tax, insurance, input decisions, marketing decisions, knowledge of program deadlines; government program reporting requirements; landowner communications; loan preparation documents; business planning; understanding cash flow; understanding income statements; understanding profitability and benchmarking for the operation; balance sheets; transition and retirement issues; legal issues; estate planning and settlement of estate issues. The program is administered through a multi-week platform. It includes guided classroom exercise incorporating local experts such as tax preparers, loan officers, attorneys, insurance providers, accountants, and financial planners and representative of relevant government agencies.

Over 4,835 women who have participated in various states' Annie's Project efforts. Of those participants, 30% have operations with gross revenue of less than \$50k; 32% have operations with gross revenue of \$50k - \$150k; 14% have gross revenue of \$150k - \$300k; 19% have operations with gross revenue of \$300k or above. In addition, 39% of participants owned the acreages they farmed, representing \$1.7 million in value; 42% operated cash-leased farms averaging \$67,000 in value; 17% were crop shared and 2% were custom farmed lands. Of the participants, 80% were married; 3% were single; 3% were divorced and 14% were widowed.

Outcomes: 252 classes of Annie's project were conducted in over 20 states from 2003-2008. In 2006-07, 63 classes were conducted; in 2007-08, 82 classes were conducted and from 2008-09, 131 classes were either underway or scheduled.

Within the five areas of risk (production, marketing, financial, legal and human resources) incorporated in Annie's Project delivery, and incorporating pre- and post-test risk assessment surveys in all classes in all states, all participants showed an increase in knowledge in each of the key five areas of risk: 19.2% of participants reported an increase in production risk knowledge; 34.6% of participants reported an increase in marketing risk knowledge; 32.2% of participants

reported an increase in financial risk knowledge; 33.3% of participants reported an increase in legal risk knowledge and 42.31% of participants reported an increase in human resources risk knowledge. In Illinois 10% of participants had a marketing plan before participating in Annie's Project; 22.8% of participants reported having a plan in place before their full Annie's Project classes ended. These same increases held across the following areas: balance sheets, income statements, next generation plan, life insurance, wills, and comfort with debt level. In other words, those participating in Annie's Project all experienced increases in the numbers of tools in place post-educational sessions in each of the key indicator areas for business success. (2004-2008 RME)

Forestry and Community: Creating Local Markets For Local Resources - Alabama: Success with construction of a home using local timber resources has encouraged the Rural Studio to build all of their projects in the coming year with local timber. The Rural Studio is a high visibility program in the field of architecture and attracts national attention.

Sustaining Small Farms and Rural Communities: The Role Of Women Farmers - Pennsylvania: The major output of the project is the formation and growth of the Pennsylvania Women's Agricultural Network (PAWAgn). The network had fewer than 100 members when the project started and currently has over 1,000 members. The overarching goal of the project is to assess and improve sustainable agricultural production efforts of women farmers, while ensuring their ability to make ends meet financially so that they can continue to farm.

Increasing Value-Added Profits For Small & Medium-Scale Growers: The Institutional Market – California: As a result of this project a national food service company asked to work with the project staff in implementing a local sourcing vendor relationship at three of its Bay Area sites. This project has become a resource to develop sustainable procurement indicators funded by the Packard Foundation. The two-page "How To Build Local Food Program at Institutions" has been requested by the Prevention Institution's online toolkit.

Extension Risk Management Education (RME) Programs: Extension RME programs have funded more than 700 educational projects reaching producers in all 50 states. Producer results are the core of Extensions RME. In the past, the success of programs was measured by the number of people attending workshops or the amount of materials distributed. That approach is no longer enough. The globalization of world agriculture markets is forcing our producers to make tremendous changes in how they manage their farm businesses. To receive funding, the RME program requires grant applicants to identify the targeted results for producers and to then explain how they will measure those targeted results. The results/targets sought are those the participants will learn, achieve or apply about using risk management tools, strategies or actions. The projects noted below are just a sample of what has been and is being funded to assist producers in becoming more knowledgeable in managing the multitude of risks associated with the agricultural enterprise. Immediate and intermediate changes are taking place, and new opportunities are being identified.

In Texas, producers and commodity group representatives met to evaluate how they might improve the "Master Marketer" series of risk management training sessions. The group identified the need for an advanced topic series (ATS), and prioritized a list of 10 topics on which they need additional risk management knowledge. More than 250 producers are expected to participate in the 10 2-day short courses on topics ranging from advanced hedging futures and

options strategies, to helping producers be more disciplined in executing their marketing plans. Producers will also be provided the opportunity to develop their own unique commodity-specific plan in future short courses (2008, RME)

The dairy sector has been evolving and moving toward market-oriented sector in Pennsylvania. Two projects were funded. 130 dairy producers learned how to better manage the financial risks of their business by implementing Best Management Practices in Business & Information Management. The other program is designed to assist dairy farmers in improving their forward contracting and hedging abilities to enable them to protect their milk revenue and farm equity. (2008, RME)

Eighty-seven producers, agriculturalists and educators in Montana and northern Wyoming, learned a number of things, among them are the importance of choosing insurable units wisely, the details of how to calculate approved production histories (necessary for many insurance programs), information on specific insurance products, the process for requesting actuarial changes, and details on the Non-Insured Crop Disaster Program. (2008, RME)

From a human risk mitigation perspective, more than 70 farmers, managers and farm labor supervisors representing a number of agricultural operations in Southern California, took part in a series of interactive labor management training seminars using Spanish. Over 90 percent of the work force and their supervisors in the four counties (Orange, Riverside, Imperial, and San Diego) working for approximately 10,000 agricultural enterprises are Hispanic. As a result of the success of this program, the San Diego Farm Bureau, USDA's North Central Regional Administrators (NRCA) and Farm Service Agency (FSA) in Riverside County, have stepped forward to sponsor similar workshops in the future. (2008, RME)

A number of partners representing extension at the universities of New Hampshire, Vermont and Main together with the Connecticut department of Agriculture, the New England Small Farm Institute, Maine Farm Link, Land Link Vermont, and the University of Vermont's Center for Sustainable Agriculture came together to develop workshops on the intergeneration transfer of the farm. The workshops are designed for producers throughout the region dealing with estate tax provision, legal methods to protect assets from taxation, individual goals related to farm estates, tools to use to transfer farm assets, and business structure that fit the farm family's estate planning goals. Each workshop will be tailored to the geographical area in which it is being presented to ensure relevance and immediate usefulness. (2008, RME)

Workshops: Several workshops aimed at educating framers and their families have been conducted. Activities below are just a sample of workshops conducted within these KAs and their impact on participants.

In the North Central region, 23 workshops on "Pilot Livestock Revenue Insurance Producer Education" were held across the region with over 600 pork producers attending. (2008, RME)

The Pennsylvania Department of Agriculture with Penn State University developed a new insurance idea that emphasized whole-farm insurance coverage. Many farms, particularly in the Northeast and South have a multitude of crops, some of which have insurance programs, but many more that do not. An insurance product was developed and piloted in Pennsylvania in 2001. In 2002 it was expanded to the entire Northeast, and it continues to expand throughout the

country. The Risk Management Education centers played a critical role in the development and application of such knowledge that benefited those producers. (2008, RME).

Empowering Latino Producers through Risk Management Education & Networking – Missouri: From 1992 to 2002 Missouri experienced a 90% increase in Latino producers. These producers often feel isolated and uninformed on government services and programs. Over 100 Latino producers took part in five bilingual workshops making risk management tools available to them and establishing a networking opportunity in Missouri. (2007, RME)

Regional Women in Agriculture Conference – Delaware: This annual conference is a unique vehicle where women learn new skills and improve existing management skills. Over 150 participants, involved in many areas of agriculture, have an opportunity to meet in an educational environment geared specifically for women, while addressing risk management issues. (2006, RME)

Developing Farm Plans for Environmental Certification – Alaska, California, Oregon and Washington: This project provided assistance to shellfish growers to develop farm plans that incorporate best management practices, as detailed in the Pacific Coast Shellfish Growers Association's Environmental Codes of Practice. The Farm Plan will serve a two-fold purpose. First, by adopting best management practices, growers are eligible to participate in an environmental certification program for farmed Pacific Coast shellfish, part of a larger strategic marketing program. Secondly the individual farm plans serve as a foundation to help growers assure they are in compliance with and covered under required permits and regulations, including new Army Corps of Engineers permits. Growers were provided assistance in development farm plans through workshops held in 8 regions along the West Coast – Alaska to California – which culminated in a ninth workshop at the annual Pacific Coast Shellfish Growers Association (PCSGA) conference, with participating growers forum all states. In addition, individual, one-on-one technical assistance was made available. A total of 122 growers participated in workshops, with at least 26 successfully completing their individual arm plans. Topics covered included marketing strategies and plans; tools for managing legal liability; business and strategic planning; ability to manage changes in policy and regulation. (2007, RME)

Risk Reduction Training in Four Farming Systems for Southern Producers – Kentucky: Small and moderate scale producers and beginning farmers interested in alternative farming enterprises not generally covered by crop insurance were targeted in this project. Participants learned from experienced producers, the methods to reduce risk based on their own successful strategies and experiences. Alternative farming enterprises the participants are involved in include organic vegetables and fruits, management intensive grazing of beef, cut flowers, and pastured turkeys. Over the course of the project, approximately 675 producers participated in a variety of workshops, field trips and short sessions. Among the areas of risk covered were: product and enterprise diversification; marketing strategies; direct, wholesale and processing markets; contract production and financial records and benchmarking. After completion of the program 70% of the participants learned to identify and address those critical risks associated with alternative enterprises. They also indicated a greater understanding of new production technologies as well as business and strategic planning. 675 producers were involved. (2007, RME)

The Trade Adjustment Assistance for Farmers and Fishermen Program. Until 2002, the Trade Adjustment Assistance program did not allow access by farmers and fishermen. In 2002, Congress amended the TAA program to create ability for farmers and fishermen to access resources (financial cash payments of up to \$10,000 per year, in addition to training and technical assistance and access to Department of Labor training and reemployment services) to lessen the impact of rising imports on their business operation by significant price declines in their products. (Cooperative Agreement funding provided through the USDA Foreign Agricultural Service).

GAO report number GAO-07-201 entitled: “*Trade Adjustment Assistance: New Program for Farmers Provides Some Assistance, but has had Limited Participation and Low Program Expenditures*”, released January 2007, recapped the first five years of the TAA program. The program was delivered by and through the regional RME Centers and the Center for Farm Financial Management at University of Minnesota.

Of 101 petitions filed under the previously authorized law, only 64 were complete, appropriate and filed ; an per timelines d only 30 met the strict eligibility standards. Producers of Concord grapes, lychees, olives, wild blueberries, fresh potatoes, Florida avocados, snapdragons, shrimp, salmon, and catfish were among those certified under the program. Cash payments made by FSA to the certified and approved producers were relatively small in amount.

About 13,000 producers received technical assistance with only about 8,000 receiving cash payments. Only 3 percent took advantage of the Department of Labor’s training and reemployment services.

CSREES provided technical assistance through in person, online and training materials to producers nationwide and implemented a basic and intensive training program.

Producers were generally satisfied with the technical assistance and thought applying for the cash payment was worthwhile, according to a USDA survey of producers who applied for benefits in fiscal years 2004 and 2005. Overall, at least half of the respondents found that the basic technical assistance training was worthwhile, and about a quarter of the respondents reported making changes to their business as a result of the assistance. (2004-2008 TAA)

The Economic Stimulus bill passed in early 2009, reauthorized the TAA for Farmers and Fishermen program and efforts are underway to implement that program for a period of two and one-half years.

The National Farm Extension Income Tax Committee: This unique Committee has conducted over 100 tax clinics during the reporting period of 2004-2008, as it has been doing for the past 50 years. The tax clinics assist farmers, ranchers, and their financial and legal advisors in understanding the tax provisions important to creating viable farm operations. The Committee meets every May with the Internal Revenue Service to craft Publication 225, which is the Farm and Ranch Tax Guide and is used throughout the nation as the primary tax guidance tool for critical tax provisions of the Internal Revenue Code. (Formula funds)

Multi-State Activities:

North Central Region: Researchers, educators and extension practitioners came together to address risk management topics such as: Energy-Efficient & Money Saving Decisions; 2007 Farm Bill; and Noxious Weed Management. Through this project, attendees filled their risk management “toolbox” with new communication skills, 2007 Farm Bill considerations, financial analysis tools for their operations, health tips, noxious weed management tools, a new understanding for noxious weed laws and regulations, and a larger network of peers to sustain the viability of our rural families, communities, and region. Producers made more informed decisions in 2007 Farm Bill programs. Participants developed new personal and business legal documents. Participants improved their bottom line by incorporating skills learned at the conferences and adopted new technologies at their operation. Participants checked their credit report and made more informed decisions regarding their use of credit. (Multi-state project outcomes)

Western Region: Workshops focusing on farm energy use tools and alternatives were conducted. Upon completion of the three workshops, many participants had tested at least one new energy scenario using their own farm data or a model farm. Assessments focused on farm energy use in cropping systems, alternative fuel production or use and equipment changes were conducted. Six months after the workshop many participants had continued to use workshop information, some participants used the Farm “Energy Estimator” tool. Other participants attended field tours to learn about and test tools and were introduced to energy use evaluation tools. (Multi-state project outcomes)

Northeast Region: Farmers received training in project workshops, which were designed to identify and foster understanding bottlenecks in the profitability of their dairy businesses. Over 100 farmers received training in how to detect and correct limiting bottlenecks in their dairy businesses and training in use of the PA Dairy Tool, and over 40 consultants to dairy producers received specialized training in the PA Dairy Tool. Most participants learned how to use key financial and production benchmarks to understand dairy operations. Over 50% of participants learned how to drill-down through performance indicators for specific management areas such as nutrition, feeding management, forage quality, reproduction, udder health and milk quality and culling and replacement and to identify the core management and some participants developed tactical plans to correct limiting bottlenecks of their operation. (Special funding)

KA 723: Hazards to Human Health and Safety

KA 723 Introduction

Agriculture is one of the most dangerous occupations in the United States in terms of illnesses, unintentional injury and death. Given the high percentage of farms that fail when the primary operator is fatally injured, identification and management of occupational hazards is critical to managing risk in farming operations. Illnesses and debilitating injuries greatly reduce the ability for producers to continue farming.

CSREES emphasizes identifying immediate hazards to humans, researching effective ways to reduce agricultural injuries, illnesses, and deaths, and disseminating research findings into education and extension programs to make sure that new knowledge leads quickly to better health and earning power for workers. The emphasis is reflective of the CSREES appropriations under Extension 3(d) Youth Farm Safety Education and Certification and appropriations for the AgrAbility program. Since fiscal year 2004 Congress has directed that all appropriations under the Extension 3(d) Farm Safety line item support the AgrAbility program.

Research, education and extension activities and accomplishments in KA 723 support efforts in the Farm Safety theme. Knowledge Area 723 involves efforts to reduce hazards to the health, safety, and biosecurity of people involved in the production and distribution of agricultural and forest products by educating youth and adults to help reduce the number of agricultural injuries and promote accident prevention. This KA also covers safety aspects of agricultural injuries and illnesses and methods for effective intervention.

AgrAbility

AgrAbility is a national program that works to assist agricultural and agribusiness workers who have physical and mental disabilities to adapt their homes and farms in order to allow them to continue to work in agriculture. The goal of AgrAbility is to provide assistance and resources to farmers with disabilities that allow them to continue farming. AgrAbility provides individualized services, both on and off the farm, to help create a comprehensive, individualized plan to allow the disabled farmer to continue farming. AgrAbility involves not only the farmer, but the family, community, agricultural professionals, medical professions and farm implement manufacturers. Safety is still a key area of concern on the farm or ranch as agriculture remains among the nation's most dangerous professions or activities.

State Example: Indiana AgrAbility Project. The Indiana AgrAbility Project uses a multifaceted approach to maximize employment opportunities for agricultural workers with disabilities and assist in improving overall quality of life. The Indiana AgrAbility Project utilizes services of three former AgrAbility customers as peer consultants, partners with three other state and regional AgrAbility Projects in achieving parallel goals, and continues its long history of collaborating with disability organizations and agencies statewide while reaching out to new audiences and stakeholders.

A change in knowledge occurred among the Project team in creating educational activities that would target Hispanic/Latino populations. Through their discussion and research concerning photonovelas, a picture-based educational publication style, it was determined that this format

would work well for a brochure addressing arthritis among migrant and seasonal farm workers that may have low literacy levels.

The 2007 caregiver survey produced a significant change in knowledge among the Project team and other professionals. While staff members had been aware of the major issues caregivers face, the survey helped to measure the relative importance of major care giving issues and gauge caregiver preferences for training modes used in future outreach efforts.

The Toolbox, a CD-Rom version of *The Toolbox: Agricultural Tools, Equipment, Machinery, and Buildings for Farmers and Ranchers with Disabilities* was released in early 2004. The toolbox contained farm and disability related publications for assistive devices, fact sheets, video clips, and technical articles that could help farmers with disabilities. In partnering with the NEC Foundation of America and the 21 AgrAbility projects in 22 other states, the toolbox CD was distributed to approximately 3060 USDA county extension offices in the U.S. in 2007 to increase the acceptance of the CD at the local level and raise awareness of local resources provided through the AgrAbility project. One documented change in condition that resulted from this effort was the case of an Ohio farmer. The farmer suffered bilateral above-the-knee amputations when he was entangled in a power take-off (PTO) shaft. He was later able to access The Toolbox CD from his county Extension educator, and through information found on the CD, the Breaking New Ground (BNG) Worksite Assessment Tool, and other sources, he and a community committee were able to prepare a proposal to Vocational Rehabilitation (VR) services that resulted in the purchase of assistive technology modifications to help him continue farming.

Twenty assessments completed by project staff in 2007 resulted in approximately \$130,000 in product and modifications recommendations to the Indiana Vocational Rehabilitation Services. While it is currently uncertain how many of these recommendations have or will be funded, the project staff is confident that their efforts will result in significant changes in condition for AgrAbility customers. The following changes in condition resulting from of the project's work were confirmed through follow-up assessments by Breaking New Ground's (BNG) rural rehabilitation specialist during the project period: a bathroom-remodeling job valued at approximately \$20,000 and a ramp valued at approximately \$1000.

As a result of the Project's extensive work in the area of self-employment and business planning services, one business plan for an AgrAbility customer was approved by Indiana VR during the grant period. The approximate amount to be provided by VR is \$26,000 for the customer's tree trimming business.

Youth Farm Safety Education and Certification

The Youth Farm Safety Education and Certification (YFSEC) program supports national efforts to deliver timely, pertinent, and appropriate training to youth actively working in agricultural production. The YFSEC program goals include:

- (1) Support existing Hazardous Occupation (HO) orders by updating and assessing curricula, testing, procedures, and certification means and to determine resources required to maintain a national certification program.
- (2) Conduct studies to support policy and program development, including conducting research into the effectiveness of current HOs, and studying employment trends in

employment of youth and skills needed in agriculture that would impact the education and certification needs of these youth.

- (3) Develop programs for special needs, including identifying and developing educational program needs to mitigate agricultural hazards to young workers, regardless of knowledge, experience, ability, ethnicity, or culture.

Since the program's inception in fiscal year 2001, sixteen awards have been made, ranging from two to four years of funding per award. Projects have focused on eliminating regional differences in certification curricula and testing procedures; curriculum development; development of a national tracking and certification database; development of materials and training methods to address knowledge, ethnic, and cultural differences of youth; identification of skills required for agriculturally related tasks; development and implementation of model certification standards; instructor training; and programs for minority or underserved populations.

Building upon the updated Gearing Up for Safety curriculum developed by Purdue University, the Graphics-based Youth Farm Safety Education and Certification Curriculum project focused on the development of visually based-training methods and materials for the Youth Farm Safety Education and Certification program. The project translated written instructional material for critical operator and worker safety competencies into visual or pictorial formats for youth and adults with limited reading and reading comprehension skills or use English as a second language.

Materials developed through this project will continue to assist many instructors working with individuals with lower reading and reading comprehension skills to participate fully in the training and achieve comparable knowledge gains as their hard copy or electronic based curriculum counterparts.

Pesticide Safety Education Program

Pesticide Safety Education Programs (PSEP) focus on safe and environmentally sound methods of application educate all types of applicators who use pesticides. The PSEP program effectively links researchers and governmental regulatory agencies to a national network of state and territory Extension land-grant university professionals who develop and conduct educational certification programs for private and commercial pesticide applicators. The program also addresses pesticide issues of interest to the general public. National leadership and coordination of the PSEP program is provided by Cooperative State Research, Education and Extension Service (CSREES). Federal funds to support state / territory PSEP programs are provided by the U.S. Environmental Protection Agency (EPA) and are distributed by CSREES through a formula-based allocation to 57 states and territories.

Ohio Farm Fatality Database

Results of the Farm Fatality Database in Ohio (FFIDO) surveillance efforts are being used to guide current and future research and outreach initiatives in Ohio State Agricultural Safety Office. It is necessary for this office of researchers and Extension educators to monitor trends and understand the scope of the problem in order to design and deliver appropriate injury prevention programs.

The Ohio State University State Safety Team offered many research-based safety education programs, demonstrations, and publications aimed at teaching life-saving information. Using Ohio's agricultural surveillance data as the cornerstone of this process enabled the strategies to be accurate and relevant in addressing the true problem. The primary goal of this on-going initiative is to reach a stable, long-term reduction in farm injuries and fatalities in Ohio. Fatalities in agriculture have decreased from recent years, with 2007 reporting the least number of agricultural deaths in the last 8 years. Death rates on Ohio farms have dropped from 27 to 17 in 2008. Fatalities in Ohio youth populations have shown a decrease from 60 youth fatalities in the ten years prior to the day camp programs, to 37 deaths during the years 1998 - 2007.

In 2007, Ohio CRASH statistics collected by the Ohio Department of Public Safety have reported zero buggy-motor vehicle crashes in the areas the Sharing the Road signs were posted. To date, there are zero documented injuries related to high-speed tractors operating on Ohio roadways. As the first state in the nation to adopt legislation for unique marking of these agricultural vehicles, the Speed Identification Symbol (SIS) is now required on all tractors traveling greater than 25 m.p.h. This symbol does not replace the standard Slow Moving Vehicle emblem, but is required to inform the public of the potential tractor speed. This legislation will increase Ohio farmers' efficiency in that they can utilize higher speeds when transporting from farm to field, or field to market. Non-farm motorists sharing the roads with agricultural equipment appreciate the new legislation in that it reduces traffic congestion in areas of high rural-urban interface.

Agriculture Appropriations Report

The fiscal year 2008 Agricultural Appropriations House Report 110-258 included a Congressional Directive regarding injuries and fatalities to minors: *The committee directs the Secretary of USDA, in collaboration with the Secretary of Labor, to develop a plan to address injuries and deaths of minors in agriculture.* United States Department of Agriculture (USDA) and United States Department of Labor (USDOL) continue to collaborate on training and certification programs addressing farm machinery and tractors deemed to be the most prevalent causes of farm-related youth fatalities.

New training curriculum has been developed and implemented as a result of these efforts. Significant changes in agricultural production and in the agricultural workforce, as well as the high number of incidents of injuries and deaths associated with agriculture employment, have resulted in USDA and USDOL collaboration to revitalize the certification process, and to develop appropriate training, and review the restrictions concerning youth employment in hazardous agricultural jobs. Federal funds were appropriated to USDA beginning in fiscal year 2001 to develop new curriculum and instructor training for youth farm safety education and certification. A joint plan between USDA and USDOL has been prepared and is in the final stages of Office of Management and Budget (OMB) clearance.

Multi-state Activities

In 2000, the North Central Regional Administrators (NRCA) established the NCR-197 Committee on Agricultural Safety and Health Research and Extension. The goal of this committee is to develop and support action groups for each of the 12 agricultural safety and health priority areas identified in the National Land Grant research and Extension Agenda for

Agricultural Safety and Health, develop assessment tools to measure impact, and to create a supportive environment for the exchange of ideas, partnering, and involvement of stakeholders. Each of the 12 priority areas is broad-based and multi-faceted.

The decision was made to focus on one area and develop an action plan model that could be used for other priorities. The end product would be a white paper on the topic to be shared and distributed to researchers and interested parties. The priority area selected was Operating Agricultural Equipment on Public Roads. The white paper was disseminated in spring and summer 2009.

The North Central Regional Association considers that NCERA 197 is a very effective NCERA committee, exhibiting good interaction and excellent ties to Department of Health and Human Services (DHHS) and the national safety programs for agriculture and other areas. During their midterm review, they approved continuation of the NCERA 197 committee. The National Institute for Occupational Safety and Health's (NIOSH) AgFF Sector Council was tasked to identify the most salient safety and health needs and develop a strategic plan to address them. The AgFF Sector Council seeks to identify important research questions, recognize priority safety and health concerns, understand effective intervention strategies, and disseminate information on strategies to improve safety and health workplace practice. The National Land Grant Research and Extension Agenda for Agricultural Safety and Health served as a key resource document in development of the AgFF Sector Council's strategic plan.

KA 723: Hazards to Human Health and Safety’s Logic Model:

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|--|--|---|---|---|---|
| | | | | Knowledge | Actions | Conditions |
| <p>Agriculture is one of the most dangerous occupations in the US in terms of unintentional injury and death.</p> <p>Debilitating injuries among farmers reduce their ability to continue farming.</p> <p>Individuals with disabilities and their families engaged in production agriculture can become more productive with assistance.</p> | <p>Financial Resources:</p> <ul style="list-style-type: none"> -Federal -State -CSREES -Other sources <p>Human Capital:</p> <ul style="list-style-type: none"> -CSREES NPLs -Administrative Support -Faculty & Researchers - Extension practitioners -Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers | <ul style="list-style-type: none"> -Conduct studies to support policy & program development - Use research-based assessments to provide youth, adult & farm safety education programs via regional & local extension programs - Identify gaps in youth farm safety education curricula and activities -Design educational curricula to bridge informational gaps in youth farm safety education - Provide onsite farm workplace & home assistance to identify needs & develop plans of action | <p>Research, education and extension outputs:</p> <ul style="list-style-type: none"> -Vetted by scientists and educators -Submitted to CSREES -Adopted and adapted by partners -Findings disseminated - Publications -Citations -Disclosures -Patents -Marketing tools and practices -Curricula -Undergraduate and graduate education -Training provided to producers | <ul style="list-style-type: none"> -Increased knowledge & awareness of farming practices & culture, of relevant activity plans for disabled farmers, & increased availability of educational programming on farmers with disabilities -Increased knowledge of assistive technologies, sources of assistance, increase safety awareness to prevent secondary occurrences | <ul style="list-style-type: none"> -Increased self-referrals to AgrAbility, increased adoption of assistive technologies & reduced incidence rates of secondary conditions - Disabled farmers received more timely & appropriate treatments & assistance options - Developed intervention & educational materials to help prevent injury & illness in rural agricultural areas | <ul style="list-style-type: none"> -Farmers with disabilities have implemented workplace modifications & adopted assistive technologies to increase their independence & productivity, & are better able to safely & effectively perform farming duties. -Reduction in non-fatal agricultural injuries & illnesses. -Reduction in the number of deaths among farmers |

Assumptions - Farm safety specialists, stakeholders and educators work towards supporting current standards, conduct studies to support policy and program development and develop program to address special needs. Producers and workers act to reduce incidences of agricultural injuries, promote accident prevention, and facilitate safe, productive farming.

External Factors - Changes in levels of farm labor demand and supply, demand and regulations; changes in Farm Labor standards and enforcement; advancements in safety equipment; advancements in programs and/or social supports for individuals with disabilities and their families.

KA 723 Key Activities

National AgrAbility Project

National AgrAbility Project. The National AgrAbility Project (NAP) provides support to twenty-one State and Regional AgrAbility Projects (SRAP). These projects provide education and assistance to farmers and ranchers with disabilities and to their family members with disabilities. This project is designed to increase the capacity of the State and Regional AgrAbility programs through education, networking, and assistance.

A comprehensive volunteer manual was developed to assist SRAP's staffs in developing volunteer networks. To further build capacity NAP staff shared information and developed strategic initiatives with national healthcare organizations and associations. Increased awareness about AgrAbility services among members of agriculture and health-related organizations was achieved through marketing activities increasing the number of individuals who seek assistance from SRAP's and NAP. Assistance was provided that enhanced the professional competencies of SRAP's staff in providing direct education and assistance to farmers and ranchers. This was provided through a national training workshop, regional worksite assessment training, listserv information dissemination and the National AgrAbility web site (www.agrabilityproject.org).

Education efforts focused on the development of a training curriculum that provided strategies to better serve the needs of farmers/ranchers with disabilities. Occupational and physical therapists were the first groups identified for this training. One of the curriculum topics included creating an awareness of AgrAbility resources and potential funding sources. Using this national curriculum, staff from nine SRAP's conducted training in their states; evaluations from four states indicated that participants achieved significant gains in understanding and knowledge. The curriculum is being used in pre-service courses at two four-year colleges and a community college and an online course is being developed.

Example Activities:

Utah AgrAbility Project. AgrAbility of Utah, a partnership between Utah State University and three Independent Living Centers, is designed to help agriculturalists with disabilities remain in agriculture. Expansion and increased effectiveness of the program are addressed through education, networking, assistance, and marketing activities.

AgrAbility of Utah focused efforts on building and strengthening relationships with disability agencies and organizations. As a result of these relationships AgrAbility educated vocational rehabilitation (VR) counselors and began participating in monthly Utah Assistive Technology Program (UATP) staff meetings. Working with UATP has provided greater access to a statewide equipment loan program, which lets clients try assistive technology before buying it. This ensures that assistive technology that meets the clients' needs is being purchased. As a result of the new relationship with Vocational Rehabilitation, funding increased from \$3,000 to \$5,000 in single cases. Much of this success is based on VR training events, and professional service and follow-up.

AgrAbility has worked closely with the Center for Persons with Disabilities (CPD) in areas such as modern technological advances. In turn, staff was able to serve clients with programs such as Jaws, Dragon Naturally Speaking, and close captioned television. The CPD helped four

AgrAbility clients in 2007 with technological and mechanical assistive technology. AgrAbility and the Utah Assistive Technology Program (UATP) continue to work together to help serve the disability population. Many AgrAbility clients took advantage of items from a loan bank with money supplied by the UATP. The loan bank is agriculture specific and assists with obtaining agricultural technology devices. By making use of the AgrAbility loan bank, as well as the loan banks currently offered by the Independent Living Centers, AgrAbility clients have a great variety of assistive devices to choose from to ensure their ability to farm effectively.

Several individuals are currently involved in the application process awaiting equipment awards which exceed \$15,000. Through the Utah Assistive Technology Foundation, which provided \$649,569 for assistive technology equipment in 2006, AgrAbility clients received small grants and low-interest loans. Within the past year, the board has increased the interest buy-down program to approve loans up to \$10,000 for agricultural equipment (previously capped at \$7,000). This opens new opportunities to AgrAbility clients in Utah.

AgrAbility for Pennsylvanians. AgrAbility for Pennsylvanians, funded since 1991, is a partnership between Pennsylvania Cooperative Extension (PSU) and Easter Seals Central Pennsylvania (ES). AgrAbility staff continues to expand its volunteer opportunities to keep with the growing demand of clients and requests. AgrAbility staff continues to build upon their relationships with student groups and volunteer organization such as the Engineering Project in the Community Services (EPICS) Project at Pennsylvania State University and Bridging Horizons offered through FFA programs to educate students about various aspects of farming with a disability. In turn, students were encouraged to identify and develop assistive technology solutions for persons with disabilities. Increased involvement by the Pennsylvania Office of Vocational Rehabilitation (OVR) is beneficial to the AgrAbility project in Pennsylvania. The two worked with farm families to apply for Independence Capital Access Network (ICAN) grants through the PA Department of Labor and Industry and Community and Economic Development. The grants were for small businesses to purchase or modify equipment in order to hire or maintain employment for a person with a disability. Because of this partnership, a father and son are benefitting after suffering debilitating injuries on their dairy farm in two separate incidents. Improved steps on tractor, automatic hitching systems, comfort mats in the milking parlor and a feed bin and conveyor system installation have helped them overcome their injuries and continue to farm.

AgrAbility of Wisconsin. AgrAbility of Wisconsin is a partnership between University of Wisconsin-Extension Cooperative Extension and the Easter Seals Wisconsin Farm Assessment and Rehabilitation Methods program (FARM). Since 2003, Easter Seals and FARM program staff entered into an agreement with the Wisconsin Department of Vocational Rehabilitation (DVR) to provide training to DVR staff, outreach to potential consumers, and services to DVR consumers. The partnership has led to increase in clients, a decrease in the amount of waiting time experienced by new clients, and a joint increase in available collaborative resources. In working directly with their clientele, AgrAbility of Wisconsin has been able to conduct surveys with their clients following the development of a worksite assessment plan. 140 surveys have been completed since 2005 and have included the following results: 1) Eighty-six percent of the respondents indicated it was easier for them to complete their chores and tasks around the farm because of the equipment and assistance they received as a result of the program, 2) ninety-five percent of the respondents agree or strongly agree the AgrAbility of Wisconsin staff understood

their disability issues as they relate to farming, 3) eighty-six percent of the respondents indicated they had complete or some control in adding or changing information in the plan for employment that was developed, and 4) eighty-three percent indicated they had complete or some control in making purchasing decisions. In addition many respondents provided written comments indicating they greatly appreciated the assistance they received. One respondent wrote: "For the first time in years I really feel good about eventually being able to become self-sustaining by not being impaired all the time from simple choices." Another one wrote: "Without your help I would have been forced to quit farming."

Missouri AgrAbility Project. The Missouri AgrAbility project, funded since 1994, is a partnership between the University of Missouri Extension, Services for Independent Living, and Midland Empire Resources for Independent Living. Through this partnership, Missouri AgrAbility is able to provide services such as farmhouse accessibility surveys, agricultural worksite assessments, assistive technology resources and technical support for their clientele. In utilizing their partnership, other resources have been tapped to help the Missouri AgrAbility project successfully develop and deliver a variety of resources to their clientele and educate stakeholders. According to a 2007 training survey, over 85% of Missouri Department of Vocational Rehabilitation case managers who received training make and receive AgrAbility related referrals coupled with 95% of those same case managers having a better understanding of the importance and need for appropriate and safe placement of assistive technology or adapted devices in the rural work environment. Six farmers benefitted from no cost, short term loans made possible through the Equipment Technology Consortium program, while another six received free adapted telephone equipment through the Telecommunications Access Program (TAP) for telephone program. As a result of the Missouri AgrAbility project, Missouri producers reported that they installed machinery, equipment, or home modifications to improve efficiency. In addition, farmers and ranchers also installed equipment such as steps for better access, hand clutch levels, and power assist devices that permit safe and efficient machinery operation.

Youth Farm Safety Education and Certification Activities

Establishing a Pilot Program to Bring Farm Safety Training to Hispanic Youth. Building upon the National Safe Tractor and Machinery Operation Certification Program, educators and extension specialists at The Pennsylvania State University identified and detailed the need to support safety education for Hispanic youth workers involved in agricultural production and other industries. The project serves to involve Hispanic youth in agricultural safety training by transforming existing youth training curriculum task sheets based upon the North American Guidelines for Children's Agricultural Tasks (NAGCAT) into Spanish and introducing short video clips to augment the traditional text material. This project is being piloted through a Natural Resource Conservation Service district office in conjunction with the Latino Agricultural Resource Center.

Youth Farm Safety Educational and Certification Program: Development and Management of Instructor Training. The goal of this project is to improve the quality of the tractor and machinery safety certification programs nationwide through the development and implementation of effective evidence-based instructor recruitment, training and validation program for current and future instructors of programs leading to the certification of eligible youth under the provisions of the Agricultural Hazardous Occupations Order (AgHOs). Several

strategies have been identified to accomplish this project: 1. Establish a nationally representative project advisory committee for the purpose of assisting with the drafting and implementation of a strategic plan for a national AgHOs instructor recruitment, training and validation program and to provide continuing external validation of project activities; 2. Facilitate a national AgHOs instructor focus group during the first year of the project consisting of current instructors and key stakeholders to identify critical components needed to develop an effective, outcome-based AgHOs instructor recruitment, training and validation program; 3. Develop a strategic plan for implementation and assessment of a national AgHOs instructor recruitment, training and validation program; 4. Implement and evaluate the components of the strategic plan on a national basis; 5. Maintain a national, up-to-date database of trained and validated instructors equipped to offer AgHOs certification at the local and state level; 6. Provide for the duration of the project continued training/learning opportunities on a national basis for AgHOs instructors via Internet based and face to face formats; 7. Develop recommendations for USDA concerning strategies for continuity of the instructor recruitment, training and validation program, and needed changes to the AgHOs to reflect recent changes in program management and education delivery strategies.

Implementation and Evaluation of Gearing up for Safety Curriculum for use with Black Youth Seeking AgHOS Certification. The Gearing Up for Safety Curriculum was developed to provide training for youth seeking employment in agricultural settings but has not been used with an audience of predominately African-American youth to assess the efficacy and cultural relevance. Consequently, African-American youth may potentially be at a disadvantage in completing the certification program due to cultural, geographic, or work practice biases contained in the current curricula. The goal of this project is to determine whether the performance of African-American youth participating in the training may be influenced by factors specific to group membership (i.e. cultural relevance). This project focuses on a traditionally underrepresented population and begins to meet basic agricultural safety educational needs for African-American youth. Research with this minority population will provide resources for African-American youth considering employment in agriculture and potentially reduce risk of injury and increase capability to successfully pursue a career in agriculture production and related fields. Fourteen African-American agricultural education teachers have received training on AgHOs instructional resources and entered into the national database. Half of these instructors have introduced the Gearing Up curriculum into their classrooms impacting several hundred African-American students.

Anabaptist Youth Farm Safety Program. The Anabaptist culture has remained an active and unique agricultural minority within the United States since the 1600's. Because of their agrarian lifestyle and frequent exposure to agricultural hazards, there is a documented need to provide farm safety awareness and educational programs to Anabaptist communities. The overall purpose of the project is to identify development, implement and evaluate an educational program suitable for Anabaptist youth that mitigates the rural and agricultural hazards to which they are exposed. By involving community stakeholders in the planning, implementation, and evaluation process, the intended outcome is to determine the effectiveness of this program in influencing safety knowledge, attitudes, and behavior practices with the long-term impact of preventing future agricultural injuries among Anabaptist youth. Project staff sought to identify hazards and exposure risks of Amish youth on farms and rural areas. Through focus group data, participants identified the following topics as areas for safety programming: skid loaders, pond/water, fire,

manure/silo gases, insects, chainsaws, string trimmers, horse/pony hitching, workhorse safety, tree stand (hunter) safety, pedestrian/rollerblading safety, and general first aid. Fifty percent or more of the parents reported their children were exposed to the following more than one day a week: lawn mowers, generators, horse-drawn equipment, hand tools, wood working tools, ponds/water, livestock, horses, chemicals, bicycles, and All-Terrain Vehicles (ATV)/skid loaders.

The Youth Livestock Safety Education Project

The Youth Livestock Safety Education Project is an educational program development activity focusing on injury prevention for young people who are enrolled in 4-H livestock projects designed to increase knowledge of safety hazards when working with and showing livestock. The project has reviewed, revised, and finalized written material for beef and dairy safety lessons and filmed video footage and written video voice-over narration scripts for beef and dairy safety lessons - two of the six proposed lessons. Information contained in these lessons includes strategies for personal protection, basic animal behavior information, and safety guidelines for animal handling and holding facilities. Each specie-specific lesson is followed by guidance for volunteer leaders, including group activity suggestions, a review of age-appropriate activities using the North American Guidelines for Children's Agricultural Tasks as a resource, and advice for including youth with disabilities into livestock project activities. Increasing knowledge of safety practices will help change attitudes and actions to ultimately make youth and their volunteer leaders safer when working around show animals. While the lessons are still in developmental stages, project activities have already increased awareness and changed attitudes toward safety practices regarding youth working with beef and dairy project animals among the groups and individuals who participated or assisted with filming activities. More specifically, knowledge, skills, and awareness of safety issues was increased among exhibitors, volunteers, and parents at the Kansas All Breeds Junior Dairy Show (90 exhibitors plus parents and volunteers), the Riley County 4-H Fair Beef Show (41 exhibitors plus parents and volunteers), 4-H families that allowed K-State Extension personnel to film safe livestock handling on their farms (2 youth, 2 adults).

Summary and Future Directions

Beginning in 2008, Purdue University was awarded the National AgrAbility Project (NAP), formerly housed at the University of Wisconsin, to enhance the service capacity of state and regional AgrAbility Projects and serve states without existing projects. In addition to utilizing the Breaking New Ground Resource Center, Purdue University has developed a partnership with Goodwill Industries and its 161 affiliates in conjunction with the Arthritis Foundation's Indiana Chapter to enable a high quality lifestyle for farmers, ranchers, and other agricultural workers with disabilities. Furthermore, several unfunded collaborators have agreed to partner with the National AgrAbility Project to strengthen state and regional project outreach such as: Rehabilitation Engineering and Assistive Technology Society of North America (RESNA), the Association of Programs for Rural Independent Living (APRIL), (Future Farmers of America (FFA), and 4-H youth organizations. In utilizing additional partners, the National AgrAbility Project serves a model for state and regional AgrAbility projects to expand their outreach in partnering with a variety of non-profit entities to build capacity for reaching new clientele.

The National AgrAbility Project is exploring the possible formation of two eXtension community of practices with the first related to AgrAbility/Assistive Technology and utilizing the Arthritis Foundation for the second to explore forming a rural arthritis issue community of practice that could provide web-based resources to consumers. If approved by eXtension administration, the community of practice portal will allow the national project the ability to share data among the state and regional projects.

The National Project will use multiple avenues to provide outreach to veterans as many with disabilities come from rural, farm and ranch backgrounds. Opportunities will be created to ensure veterans have accessibility to service through vocational rehabilitation and employment services and Goodwill's exiting program. One state is currently working with the Veteran's Return to Work Program for dually diagnosed veterans and their Supported Employment Program. These two programs specifically work with veterans who want to return to work but will need guidance, support and directions from the VA in order for them to be safely placed within an appropriate working environment in accordance with their dual diagnosis. The VA is asking this state project to help recommend safe and appropriate agriculture specific supported employment, job skills training necessary for agriculture specific employment and assistive technology or adapted devices for agriculture specific supported employment. Two other states are interested in pursuing similar activities to build capacity for this program.

AgrAbility State and Regional projects have been given the charge of submitting specific, measurable accomplishments for each project year of a multi-year funding cycle to CSREES which may be adjusted pending a technical review of accomplishments and outcomes. State and regional projects will also be accountable to the national project in providing activity data and to comply with national operating, documenting and reporting procedures to further evaluate and chart program success.

The Congressional Directive for Minors report was filed in fall of 2008 to support the following goals objectives: Support national efforts to deliver timely, pertinent, and appropriate training to youth actively working in agricultural production; encourage stakeholder involvement and conduct studies to support policy and program development of AgHO; develop programs to mitigate agricultural hazards to young workers, regardless of knowledge, ability, ethnicity, or culture; review, revise, and enforce agricultural youth employment Federal regulations. Continued collaboration with the Department of Labor, the National Institute of Occupational Safety and Health, and the National Children's Center for Rural and Agricultural Health will result in further identification of research priorities and promotion of intervention and outreach activities.

Establishing a Pilot Program to Bring Farm Safety Training to Hispanic Youth. Building upon the National Safe Tractor and Machinery Operation Certification Program, educators and extension specialists at The Pennsylvania State University identified and detailed the need to support safety education for Hispanic youth workers involved in agricultural production and other industries. The project will serve to involve Hispanic youth in agricultural safety training by transforming existing youth training curriculum task sheets based upon the North American Guidelines for Children's Agricultural Tasks (NAGCAT) into Spanish and introducing short video clips to augment the traditional text material. This project will be piloted through a Natural Resource Conservation Service district office and completed in conjunction with the Latino Agricultural Resource Center.

Youth Safe Farm. This Youth Safe Farm program is a community based effort to educate and empower underserved Appalachian farm families to reduce farm injuries to youth. Appalachian farms are typically small, hilly, economically marginal, and poorly served by educational institutions. Geographic isolation and low educational attainment contribute to the persistence of high rates of injuries to youth. This innovative program is based on a social ecological model of health promotion. This model understands behaviors in the context of the interactions between the individual, the physical environment, and the social environment. The program is strongly rooted in research based youth development principles. Youth Safe Farm will recruit at least 13 families in each of 5 underserved West Virginia farm communities to learn and work together to identify and control hazards for youth on their farms. At regularly scheduled community meetings, youth and adults will learn and be empowered to employ graphic risk mapping to identify hazards to youth and propose controls and practices that will abate these hazards. Subsequent meetings will be organized to report on hazard identification and control, to exchange successes and problems, and to provide motivation to continue to monitor and improve safety conditions. Farms that complete the work of seven meetings in a two year period will receive a plaque suitable for outdoor mounting that designates the farm as West Virginia University Youth Safe Farm. Families will conduct audits of farm conditions to monitor their progress against their planned hazard control goals.

KA 902: Sustainable Agriculture

Introduction

Sustainable agriculture first came to general awareness in the early 1980s because of concerns with rising costs and falling prices, impacts of agricultural chemicals on the environment and the effects of agricultural industrialization on farm families and rural communities.

Congressional directives: Congress defines sustainable agriculture as “...an integrated system of plant and animal production practices having a site-specific application that will, over the long-term: satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agriculture economy depends; make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life for farmers and society as a whole.” SARE has been funded since 1988 in order to “...encourage research and education designed to increase knowledge and extend information about Sustainable Agricultural production systems that:

- maintain and enhance the quality and productivity of the soil;
- conserve soil, water, energy, natural resources, and fish and wildlife habitat;
- maintain and enhance the quality of surface and ground water;
- protect the health and safety of persons involved in the food and farm/ranch system;
- promote the well being of animals;
- increase employment opportunities in agriculture.”

SARE’s diverse investments in sustainable agriculture advance the goals of this portfolio in several areas, including the establishment of profitable farming operations, the training of the next generation of farmers, ranchers, scientists, students and agricultural professionals, as well as the development of tools to keep farm operators competitive and to increase financial stability.

SARE’s Research and Education (Chapter 1) funding supports projects that “...should be conducted to obtain data, develop conclusions, demonstrate technologies and conduct educational programs that promote agricultural production systems that reduce, to the extent feasible and practicable, the use of chemical pesticides, fertilizer, and toxic natural materials, improve farm management to enhance agricultural productivity, profitability, and competitiveness, and promote crop, livestock, and enterprise diversification.”

SARE’s Professional Development Program (Chapter 3) is designed to “...develop specific training and education activities to facilitate adoption of sustainable agriculture production systems and practices, as researched and developed under SARE, water quality, and other appropriate research programs at the USDA.” SARE’s priorities are to facilitate and increase the scientific investigation and education of sustainable agricultural production systems.

SARE’s Farmer/Rancher grants foster on-farm innovation and encourage producers to seek solutions to their specific problems. Graduate Student grants train future scientists, while Community Innovation grants encompass the role of agriculture in rural communities.

SARE's priorities are to facilitate and increase the scientific investigation and education of sustainable agricultural production systems. SARE focuses on the following objectives:

- Promote good stewardship of the nation's natural resources by providing site specific and profitable sustainable farming and ranching methods that strengthen agricultural competitiveness; satisfy human food and fiber needs; maintain and enhance the quality and productivity of the soil; conserve soil, water, energy, natural resources, and fish and wildlife habitat; protect endangered species; and maintain and improve the quality of surface and groundwater;
- Protect the health and safety of persons involved in the food/farm system;
- Enhance the quality of life for farmers/ranchers and society as a whole, in part by increasing income and employment – especially profitable self-employment opportunities in agriculture and rural communities. Specifically, a major goal is to strengthen the family farm system of agriculture, a system characterized by small-and moderate-sized farms that are principally owner operated;
- Promote crops, livestock, and enterprise diversification and the well-being of animals, and
- Strengthen rural communities by creating economic conditions, including value-added products that foster locally owned business and employment opportunities

SARE celebrated its 20th anniversary in 2008. In anticipation of this anniversary, the program reviewed its work of its first 20 years and developed a new mission and vision for the next 20 years. At the conference, past results were presented and participants provided input into next steps for the program. Looking forward, SARE will strive “to advance – to the whole of American agriculture, innovations that improve profitability, stewardship and quality of life by investing in groundbreaking research and education.”

KA 902: Sustainable Agriculture’s Logic Models

Research and Education Grants, Farmer/Producer Grants, On-Farm/Partnership Grants

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|--|---|--|---|--|--|
| | | | | Knowledge | Actions | Conditions |
| <p>SARE summarizes the above responsibilities as: SARE works to increase knowledge about – and help farmers and ranchers adopt – practices that improve profits, environmental stewardship, and quality of life.</p> | <p>Financial Resources - Federal -State -CSREES -Other sources</p> <p>Human Capital -CSREES NPLs -CSREES Administrative -CSREES Support Staff -Faculty -Researchers -Extension practitioners -Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers</p> | <p>-R&E Grants Interdisciplinary research</p> <p>-On-farm experimentation</p> | <p>Research, education and extension outputs:</p> <p>-Vetted by scientists and educators -Submitted to CSREES -Adopted and adapted by partners -Findings disseminated -Publications -Citations -Disclosures -Patents -Marketing tools and practices -Curricula -Undergraduate and graduate education -Training provided to producers</p> | <p>New/better knowledge of SA production and marketing practices; (including risks and certainties & economic data)</p> | <p>Knowledge/ research results disseminated -Through direct project outreach - Through linkage to PDP -Through links to communications -Increased adoption of sustainable production/marketing practices by those directly involved in projects, e.g. value-added production -Increased diversification - Reduced use of purchased off-farm inputs; net energy inputs -Increased # of networks organized</p> | <p>Improved conditions, e.g. -Increased profitability and/or reduced risk -Improved soil quality -Improved surface water quality -Increased healthful products available; increased access to locally grown food - Healthier environment -Increased farm/ranch efficiencies (eg. net grazing efficiency) -Improved quality of life/increased satisfaction with quality of life</p> |

Assumption- CSREES in will support leadership for state, extension and county faculty to do more work in the field and to improve agricultural sustainability

External Factors - Funding from Congress; Prices/economics (more/less favorable to conventional); Incentives; Regulations

Professional Development Program (PDP) Grants and State PDP Training Funds

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|--|---|---|--|---|--|
| | | | | Knowledge | Actions | Conditions |
| <p>SARE summarizes the above responsibilities as: SARE works to increase knowledge about – and help farmers and ranchers adopt – practices that improve profits, environmental stewardship, and quality of life.</p> | <p>Financial Resources</p> <ul style="list-style-type: none"> - Federal -State -CSREES -Other sources <p>Human Capital</p> <ul style="list-style-type: none"> - CSREES NPLS -CSREES <p>Administrative</p> <ul style="list-style-type: none"> - CSREES Support Staff -Faculty -Researchers -Extension practitioners -Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers | <p>Grants and support for educational projects and activities that include, e.g.</p> <ul style="list-style-type: none"> -Web-based curriculum -Farm tours -Scholarships -Meetings/conferences -Demonstrations - Videos -Handbooks -Publications | <p>Research, education and extension outputs:</p> <ul style="list-style-type: none"> - Vetted by scientists and educators -Submitted to CSREES -Adopted and adapted by partners - Findings disseminated -Publications -Citations -Disclosures -Patents -Marketing tools and practices -Curricula Undergraduate and graduate education -Training provided to producers | <p>-Increased knowledge of SARE, SA practices and technologies (critical content areas); resource materials</p> <p>-Increased acceptance of SA practices/principles</p> <p>-Increased skills to conduct educational programming in SA</p> <p>-Increased awareness of local farmer knowledge about SA</p> | <p>-Increased integration of SA in all programming/deliver more educational programs linked/dealing with SA</p> <p>-Increased use of SAN/SARE results and products (incl. R&E, producer grants)</p> <p>- Increased referral of farmers to local and/or SARE resources (esp. other farmers)</p> <p>- Develop/participate in on-farm participatory research</p> <p>-Greater participation in overall SARE activities</p> <p>-Promote SAN/SARE resources</p> | <p>Increased institutional support for sustainable agriculture from land-grant universities and others, e.g.</p> <ul style="list-style-type: none"> -Universities target \$ to SA -Institutional rewards to SA -Federal policy supports SA -Increased funding for SA |

Assumptions - CSREES in will support leadership for state, extension and county faculty to do more work in the field and to improve agricultural sustainability

External Factors - Funding from Congress; Prices/economics (more/less favorable to conventional); Incentives; Regulations

Communications

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|---|--|---|---|---|---|
| | | | | Knowledge | Actions | Conditions |
| <p>SARE summarizes the above responsibilities as: SARE works to increase knowledge about – and help farmers and ranchers adopt – practices that improve profits, environmental stewardship, and quality of life.</p> | <p>Financial Resources</p> <ul style="list-style-type: none"> -Federal -State -CSREES -Other sources <p>Human Capital</p> <ul style="list-style-type: none"> -CSREES NPLs -CSREES Administrative Staff -CSREES Support Staff -Faculty -Researchers -Extension practitioners -Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers | <p>-Identify info. needs</p> <p>Synthesize and publish information:</p> <ul style="list-style-type: none"> -Books -Bulletins -Websites -Content for reprint -Motivational and success stories -Promotional materials -Build organizational relationships -Mkting/ Promotion -RFPs -Awards information -Conferences -Attendance -Workshops | <p>Research, education and extension outputs:</p> <ul style="list-style-type: none"> -Vetted by scientists and educators - Submitted to CSREES -Adopted and adapted by partners -Findings disseminated -Publications -Citations -Disclosures -Patents -Marketing tools and practices -Curricula -Undergraduate and graduate education -Training provided to producers | <ul style="list-style-type: none"> -Knowledge and awareness of SARE and of SAN information products -Knowledge and awareness of sustainable practices -Attitude Shifts | <p>Primary:</p> <ul style="list-style-type: none"> -PDP coordinators, Extension and NGO educators use SAN materials to train other educators and farmers -Farmers use SAN materials to consider/explore and/or implement sustainable practices. -Farm organizations collaborate with SAN and SARE to publicize and/or promote the SARE program and SAN information products. <p>Secondary:</p> <ul style="list-style-type: none"> -Consumer orgs and youth educators collaborate with SAN to publicize and/or promote the SARE program and SAN information products | <p>Primary:</p> <ul style="list-style-type: none"> - Farmers and ranchers who are reached by our partners (Extension, NGOs, farm organizations, etc.) increase their knowledge and adoption of sustainable practices <p>Additional (secondary) outcomes:</p> <ul style="list-style-type: none"> -Consumers support sustainable farmers -Youth use SAN/SARE information to remain in farming. |

Assumptions - CSREES in will support leadership for state, extension and county faculty to do more work in the field and to improve agricultural sustainability

External Factors - Funding from Congress; Prices/economics (more/less favorable to conventional); Incentives; Regulations

Administration

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|---|--|---|--|--|--|
| | | | | Knowledge | Actions | Conditions |
| <p>SARE summarizes the above responsibilities as: SARE works to increase knowledge about – and help farmers and ranchers adopt – practices that improve profits, environmental stewardship, and quality of life.</p> | <p>Financial Resources</p> <ul style="list-style-type: none"> -Federal -State -CSREES -Other sources <p>Human Capital</p> <ul style="list-style-type: none"> -CSREES NPLs -CSREES Administrative -CSREES Support Staff -Faculty -Researchers -Extension practitioners -Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers | <ul style="list-style-type: none"> - Regional meetings, conference calls, other communications -National interactions with regions, Operations Committee | <p>Research, education and extension outputs:</p> <ul style="list-style-type: none"> -Vetted by scientists and educators -Submitted to CSREES -Adopted and adapted by partners -Findings disseminated -Publications -Citations -Disclosures - Patents -Marketing tools and practices -Curricula -Undergraduate and graduate education -Training provided to producers | <ul style="list-style-type: none"> - Participants contribute fully at meetings and between meetings -Participants feel their time is used well | <p>Participants value their experience with SARE, and therefore:</p> <ul style="list-style-type: none"> -Encourage/recruit their replacements -Participate as alumni | <p>Involvement with SARE is generally/widely perceived as valuable and worth the time (and prospective members are willing/eager to serve)</p> |

Assumptions - CSREES in will support leadership for state, extension and county faculty to do more work in the field and to improve agricultural sustainability

External Factors - Funding from Congress; Prices/economics (more/less favorable to conventional); Incentives; Regulations

Proposal Process

| Situation | Inputs | Activities | Outputs | Outcomes | | |
|--|--|--|--|---|--|--|
| | | | | Knowledge | Actions | Conditions |
| <p>SARE summarizes the above responsibilities as: SARE works to increase knowledge about – and help farmers and ranchers adopt – practices that improve profits, environmental stewardship, and quality of life.</p> | <p>Financial Resources</p> <ul style="list-style-type: none"> -Federal - State -CSREES -Other sources <p>Human Capital</p> <ul style="list-style-type: none"> -CSREES NPLs -CSREES Administrative -CSREES Support Staff -Faculty -Researchers -Extension practitioners - Teachers -Para-professionals -Stake holders (Industry, etc.) -Volunteers | <ul style="list-style-type: none"> -Develop clear protocols & RFP guidelines -Advertise/promote SARE grant opportunities -Train, mentor, & provide examples | <p>Research, education and extension outputs:</p> <ul style="list-style-type: none"> -Vetted by scientists and educators -Submitted to CSREES -Adopted and adapted by partners <ul style="list-style-type: none"> -Findings disseminated -Publications -Citations -Disclosures -Patents -Marketing tools and practices -Curricula -Undergraduate and graduate education - Training provided to producers | <ul style="list-style-type: none"> -Increased awareness of SARE -Increased knowledge about what constitutes a quality SARE proposal -Increased ability to develop a quality proposal | <ul style="list-style-type: none"> -Increased grant submissions (especially from “beyond the choir”) -Increased # of quality proposals submitted (including increased focus in proposals on outcomes and economic impact of project; R&E projects include Extension educators and farmers; other criteria met) - Increased interaction of State PDP Coordinators with PIs | <p>Increased incorporation of sustainable agriculture topics and approaches into general scientific community (e.g. in proposals to funding sources beyond SARE; in the general literature).</p> |

Assumptions - CSREES in will support leadership for state, extension and county faculty to do more work in the field and to improve agricultural sustainability

External Factors - Funding from Congress; Prices/economics (more/less favorable to conventional); Incentives; Regulations

KA 902 Key Outputs

The Sustainable Agriculture Research and Education (SARE) program has awarded grants to more than 3,700 projects in its 20-year lifetime. The impacts of those projects have made a real difference to the lives of farmers, ranchers, and to the agricultural community nationwide.

Surveys of farmers, extension educators, and researchers help quantify that SARE is achieving results on the ground. A 2005 survey of farmers and ranchers who received western SARE grants revealed that grant recipient experiences were overwhelmingly positive:

- 64 percent said their SARE project helped them achieve higher sales
- 41 percent reported increased net income
- 79 percent experienced improved soil quality
- 69 percent saw increased wildlife habitat.

Farmer/rancher grants also have a positive spin-off effect. Survey respondents said at least five other producers tried their idea, approach or technology on their own farms.

A related survey of extension educators and other technical advisers to farmer/rancher grantees supported the farmers' findings. Moreover, two-thirds said they would recommend the approach undertaken in “their” producer's project to others.

Surveys of extension educators – the primary audience for SARE's Professional

Development Program – also confirm the tidal wave of interest in more sustainable farming and ranching. The overwhelming majority of educators responding to two regional surveys (96 percent in SARE's north central region and 90 percent in the west) were positive about the importance of sustainable agriculture, and three-fourths of them have led at least one educational program to share innovations in sustainable agriculture with farmers, ranchers and the public.

A survey of southern SARE state coordinators found that most (16 of 19) are either “passionate” or very enthusiastic about SARE. Their enthusiasm likely evolved over time; only one-fourth “really wanted” the responsibility when it was assigned by his or her extension director.

A North Central region grant to the group, Renewing the Countryside, helped to conduct a public education campaign supporting sustainable agriculture and rural communities. Their SARE grant enabled them to leverage at least an additional \$150,000 towards this work, including the development and dissemination of the following publications:

- 2005-2006 Minnesota Cooks Calendar (15,000 copies)
- 2006-2007 Minnesota Cooks Calendar (15,000 copies)
- 2007-2008 Minnesota Cooks Calendar (15,000 copies)
- 2006 Local Food Hero Playing Cards (3000 decks)
- 2007 Local Food Hero Playing Cards (2400 decks)
- Minnesota Homegrown Cookbook (5,000 copies, available April 2008)
- Agassiz Green Route brochure (4000 copies)
- North Shore Green Route brochure (4000 copies)
- Pine & Lake Country Green Route brochure (4000 copies)
- Bluff Country Green Route brochure (4000 copies)
- Tatanka Bluffs Green Route brochure (4000 copies)

- Tamarack Green Route brochure (4000 copies)
- Upper Minnesota River Valley Green Route brochure (4000 copies)
- Green Routes Resource Handbook
- Green Routes Website (www.greenroutes.org)¹⁰

In 2009, SARE – partnering with the Renewing the Countryside group – published “Youth Renewing the Countryside.” This 175-page book shares remarkable stories of young people in each state changing the world through rural renewal.

KA 902 Key Outcomes

Impacts from SARE's grant projects often go well beyond the immediate, planned results. Surveys and interviews with recipients of north central SARE research and education, professional development, and producer grants revealed a variety of spin-off effects, such as (2008):

- seeing new ways of doing things
- meeting new people
- being viewed as leaders in the community
- continuing a program of research/innovation long after SARE funding concludes

SARE's Northeast region – using an Outcome Funding model – has evaluation built into all projects.

Projects PIs in all regions reported high levels of extension involvement in (Research and Extension) R&E projects.

Journal articles were the most frequent product created products by Project PIs in all three regions, followed by extension bulletins.

Over 7 in 10 Projects PIs reported that Projects resulted in a new collaboration with a colleague; nearly as many reported increased institutional support for sustainable ag research and education at their institutions. In the West and South, at least 4 in 10 producers who responded to the survey said they had increased yields, less soil erosion and increased satisfaction with farming as a result of participating in the R&E project.

All three SARE regions scored high in many of indicators of grantee satisfaction with the R&E program, but all were lower in the same areas as well – the quality and consistency feedback provided to grantees on applications and the long lag time between grant applications, grant awards and contracts.

Surveys and evaluation from a variety of sources assist SARE NPLs in tracking program outcomes.

- Western SARE Survey of Farmer/Rancher Grant Recipients and Technical Advisers
- Western SARE Professional Development Survey
- North Central SARE Professional Development Program Evaluation
- Southern SARE State Coordinator Survey

¹⁰ http://www.sare.org/reporting/report_viewer.asp?pn=LNC04-246&ry=2007&rf=1

- North Central SARE Evaluation of Impacts of Research/Education, PDP, and Producer Grants
- National SARE Outreach survey of book and bulletin customers (producers and educators).

SARE's outreach arm conducted surveys of customers who bought books or requested bulletins. 399 agricultural producers completed and returned mail surveys, representing a 65% response rate. 227 agricultural educators completed internet surveys, a 38% response rate. The following percentages of producers reported they were inspired to explore new ideas or use a new production technique or marketing strategy as a result of reading a SARE book or bulletin:

- Inspired to explore new production idea - 67%
- Used a new production technique - 53%
- Inspired to explore new marketing idea - 48%
- Used a new marketing strategy - 33%

Producers also indicate that Sustainable Agriculture Network (SAN) publications impacted them on their farm or ranch in several ways:

- Increased understanding of sustainable practices in general - 63%
- Helped gather information about a practice or enterprise they planned to use - 56%
- Helped in research of a practice or enterprise they were interested in - 48%
- Inspired to explore a new production or marketing practices—41%
- Provided additional technical information about a practice you already use- 40%

Southern SSAWG Farmer Travel Scholarship Recipients Survey was sent to 822 recipients of SARE-funded travel scholarships to the Southern Sustainable Agriculture Working Group (SSAWG) meeting. Out of an 18% response rate, 82% reported they had adopted information learned at the meetings into their operations. All SARE-funded projects must focus on farm and ranch sustainability. A few examples are provided below.

Grafting heirloom tomatoes onto disease resistant rootstock increased yield by 8 to 10 pounds per plant in a SARE-funded study at NCSU. Wilting diseases are a major deterrent to growing the highly profitable heirloom varieties which can bring \$2 - \$3 a pound. Heirloom tomatoes are an important crop for small farms and direct marketing. Researchers determined that even an increase of one pound per plant would pay for the labor to graft heirlooms onto resistant rootstock. The project posted an online step- by-step guide for growers to graft their own stock. *LS06-193, Grafting rootstocks onto heirloom and locally adapted tomato selections to confer resistance to root-knot nematodes and other soil borne diseases and to increase nutrient uptake efficiency in an intensive farming system for market gardeners.*

A team of Oregon State University researchers, in collaboration with 24 farmers, used a Western SARE Research and Education Grant to assess various nutrient, disease and insect management regimes in organic potato systems. The research found that mineralization of nitrogen from soil organic matter supplied most of the nitrogen the crops needed, reducing expensive fertility inputs. It taught farmers how to diagnose late blight in the field and provided information on resistant varieties and alternative treatments. And it provided monitoring and damage assessment tools for tuber flea beetle and wireworms. Equally important, 24 farmers responded overwhelmingly that the most valuable aspects of the project were relationships built with

researchers and other growers, the interaction and collaboration with university specialists and the broad multiple-discipline approach and detail on a single crop. *SW05-091, Integrated Soil and Crop Management for Organic Potato Production.*

The goal of a Northeast SARE farmer project was to examine the impact of raising hogs in the woods to harvest mast and find ways to utilize on-farm feed resources that may enhance the flavor of pork. The study compared a feedlot (corn-soy free choice ration to woodlot acorn mast. Based on prices paid for by the processor (\$.60/lb live wt. for corn-soy and \$1/lb for acorn fed pigs), the income over feed costs (IOFC) for the corn-soy pigs is \$49 while the IOFC for acorn fed hogs was \$115. *FNE06-593, Producing upscale pork for small-scale farmers: An Appalachian application.*

A North Central SARE farmer project tested the viability of beetle banks for managing pests on small organic vegetable operations. This work will be used as a demonstration to growers in the North Central region on how to create a healthy farm environment for crop production using pest control techniques that are both preventive and economical. Outreach from the project included hosting field trips by five charter schools that serve Latino children. Several school administrators have contacted the farmers to explore incorporating field trips into their curriculum. *FNC08-722, Build It and They Will Come: Integrating Beneficial Beetle Habitat with Organic Growing Systems Economically.*

Sustainable Agriculture's Next Generation of farmers, ranchers, scientists, students and professionals

Projects demonstrating SARE's attention to the "new generation" of producers, ranchers, scientists, students and professionals are reflected below:

Annie Main, who farms 20 acres as Good Humus farm with her husband Jeff 25 miles northwest of Davis, California, received a Kellogg Foundation Grant to have inner-city youth spend 10 days at the farm as part of month-long learning experience. As a friend observed, Annie "came alive" during the experience, prompting her to apply for a Western SARE Farmer/Rancher Grant in 2000 to develop the Good Humus Farm to School Project. During the course of the grant, grade school classrooms not only visited the farm but worked on a few simple farm projects and tasted the fruits and vegetables the farm produced. The agriculture as a classroom program continues today, with eight or so visits a year from area schools. "The feedback we get," says Main, "is that kids are surprised at much fun they can have working at things that really interest them." *FW00-029, Good Humus Produce Farm to School Project*

A Northeast region professional development project provided an in-depth training to 22 agricultural professionals (e.g. extension, consultants, NRCS) to strengthen their capacity to serve organic farmers. The format was an 8-month intensive training with four face-to-face meetings (14 days) that combined lectures with on-farm studies, and continuous inquiry and networking via electronic discussion. As a result of the training, participants shared information on organics with at least 50 other agricultural educators, 356 farmers, 13 non-agriculture office colleagues, and more than 163 other people (public, students, aspiring farmers, and media). Participants also reported that 17 months after the beginning of this training, they had developed seven new organic teaching resources, 8 new research projects, 10 grant proposals, 9 educational courses, and 19 other types of projects. They regularly work with 155 others and two-thirds of

the respondents had formed new collaborations to carry out programming in organic agriculture. *ENE04-086, In-Depth Organic Training for Agricultural Professionals*

Using a PDP grant, Georgia Organics produced a dynamic, organic curriculum that explores the basis of organic growing: soils, soil biology and soil management, as well as plant biology, crop management and composting. Videos, lab exercises, student activities and power point presentations provide tools to facilitate student interaction and learning. The curriculum has been widely distributed to every agriculture teacher, Master Gardener Coordinator, and cooperative extension office in Georgia. Details at www.georgiaorganics.org.

A survey and selective in-depth interviews of ten years (1996-2006) of graduates from the Wisconsin School for Beginning Dairy and Livestock Farmers (WSBDF) showed that the vast majority had entered farming careers, over a third of farmer graduates owned their own farms, and satisfaction with the quality and value of the WSBDF training program was very high. Farmer graduates overcame obstacles such as little equity and difficulty finding a farm to lease or purchase in order to be successful. *LNC05-254, the Wisconsin School for Beginning Dairy Farmers Program - the First Ten Years: A Graduate Follow-up Survey and Beginning Dairy Farmer Case Studies*

A Western SARE project resulted in a curriculum called *People of the Land: Sustaining American Indian Agriculture in Idaho, Nevada, Oregon and Washington*. The project aimed to teach agriculture professionals the importance of the influential role(s) that the local tribal political structure plays within Indian tribes and natural resource management decisions. The 8-chapter curriculum was piloted in two sessions in Las Vegas in December 10, 200. The first pilot session was with the Federally Recognized Tribes Extension Program (FRTEP) with a 30-minute time slot. The second pilot session was in the Intertribal Agriculture Council/Indian Nations Conservation Alliance Symposium as a two-hour session. The curriculum was unveiled in the 4 states in 2008. *EW05-005, Strengthening Sustainable Agriculture Programming with Native American Producers in the West*.

Southern SARE Integrated Pest Management for Organic Crops Course. This online course is designed to achieve widespread incorporation of the principles and practices of sustainable agriculture in the training provided to agricultural professionals in the Southern Region. The Web-based course builds on the basic curricula provided by the National SARE Curriculum Project. Course modules include: Managing Crop Diseases, Managing Insect Pests, Cultural Practices for Managing Weeds, Overview of Biologically-Based Integrated Pest Management (IPM), Biological Control of Diseases, Biological Control of Insect Pests, Biological Control of Weeds, Overview of Monitoring & ID Techniques for Insect Pests, Weeds & Diseases, Use of Approved Pesticides in Organic Production, How to Conduct On-Farm Organic Pest Management Research. The course is free, self-guided and self-paced so users can complete them on their own schedule.

Twenty agricultural professionals attended the workshop, "Soil quality: concepts and Practices," at the Rodale Institute, on July 5-7, 2006. The purpose of the workshop was to build capacity among extension agents and other agricultural professionals in the NE for and promoting the soil quality paradigm to agricultural professionals and other stakeholders. We conducted an evaluation in early 2008 to measure the longer-term impacts of the workshop. Seventeen out of 19 evaluation respondents presented information about soil quality nearly 7500 people in the year following the workshop. *ENE05-089, Soil quality workshop: Concepts and practices*.

New Marketing Opportunities

To increase sales of local food, trainings were organized which engaged 80 farms, 10 chefs and 350 consumers. Over 65,000 copies of the Farm Fresh Guide were printed and distributed in Western Pennsylvania and a buy local website was developed with over 70,000 consumer hits in one year. Fifty farms actively engaged in the project and collectively had new sales of \$646,000 to local restaurants, an average of \$12,900 per farm. *LNE05-219, Farm to chef: Increasing farmer and chef capacity for marketing and purchasing agricultural products in western Pennsylvania.*

A project to gauge the potential for local food sales in 23 western North Carolina counties found that while only \$14 million of local foods is currently being sold, there is a customer desire for more than \$400 million of local fresh and processed foods. This information compiled from 20 surveys of every market from summer camps to schools and restaurants confronts the myth that only high-income consumers in large cities will purchase local food. The study has been used to initiate policy changes, campaigns for processing infrastructure and to inspire other communities to look into their own potential for local food systems. *LS03-146, Appalachian Grown: Toward Regional Community-based Food Systems.*

In Canistota, SD, Tom and Ruth Neuberger and a group of family farmers have been experimenting with methods for adding value to their products and income to their operations. While this project did not produce a profit due to large labor costs and time spent producing the products, it did confirm that there is potential to add profits by adding value to products on the farm. http://www.sare.org/reporting/report_viewer.asp?pn=FNC01-351&ry=2004&rf=1

Participants from the “Marketing” track at SARE’s 20th Anniversary conference had the following suggestions for future work:

- Focus on farmer to farmer networks that explore innovative partnership structures
- Provide detailed analysis of failed vs. successful marketing approaches, like CSA’s
- Target grants for market and product development
- Focus on programs for new and beginning farmers
- Replicate and promote successful models across regional boundaries
- Better guidelines on local farm to school policies and regulations
- Address the processing gap for smaller producers
- Increase funding levels in this area

A North Central SARE project, the Indiana Agritourism Training Initiative, increased educators’ awareness of the agritourism potential for the State of Indiana, increased educators’ awareness of the business planning process, and increased awareness of potential partners and resources available to educators and producers. A Statewide Agritourism Conference was kicked off at the 2005 Indiana Horticulture Congress, with a continuation in 2006, and 2007. Six regional workshops were conducted at various agritourism businesses and locations around the State. NxLevel classes were conducted with more than 30 pairs of producers and educators participating in the 10-week Business Planning Course. An Indiana Resource Guide showcasing more than 200 pages worth of information was compiled and burned on a CD. 7000 CD’s were distributed across the State. The guide lists, by county, the resources available (both technical and financial) to educators and agritourism producers. Most importantly countless relationships were started, strong partnerships were formed, the natural divide between agriculture and tourism

has decreased in Indiana, movement has been made toward the establishment of an Indiana Agritourism Association, and the agritourism momentum continues. *ENC04-079, Indiana Agritourism Training Initiative.*

Earl Smith and the Hancock Harvest Council's 2006 NCR-SARE Farmer Rancher Grant project about marketing locally produced products was recently featured by Farm and Dairy. Their SARE grant is being used to help this group expand marketing capabilities by funding start-up activities to launch new programs and systems. A Sustainable Community Innovation Grant in the same county took a broader approach by investigating farm to school prospects. *FNC06-620, Developing Direct Marketing and Educational Campaigns to Promote Locally Grown Products to Consumers AND CNE06-012, Farm to School in Hancock County*

Farm Energy

1) Just as bioenergy was beginning to move front and center in the national spotlight, SARE convened a symposium in Washington, D.C. in 2006 to address the need to include sustainability in agency biofuel discussions (see http://www.sare.org/coreinfo/energy_subd.htm). Attendees included USDA, Department of Energy, Environmental and Energy Study Institute, Oak Ridge National Laboratory, National Catholic Rural Life Conference, as well as national conservation and wildlife organizations. The objectives of the meeting were to:

- Explore the research, education and extension issues surrounding the intersection of renewable energy and sustainable agriculture.
- Identify the knowledge base and information gaps regarding renewable energy and sustainable agriculture
- Bring together various groups and agencies that focus on renewable energy and sustainable agriculture to exchange information and identify areas of commonality.

2) SARE has funded some outstanding and innovative farmer-led projects involving development of renewable energy technologies and adaptation:

- Dan West of Macon, Missouri, who grows apples, peaches, apricots, and other small fruits, hit upon a novel approach while pondering his fruit waste problem: Why not turn the waste into energy? West, who has been running an orchard on 10 acres since 1995, received a SARE grant to build a still from a 500-gallon propane tank. “Even at \$2-a-gallon fuel prices, my ethanol distillation process is well worth doing,” West said. Discounting the labor to gather and crush fruit, distillation costs only 65 cents per gallon in electricity costs, although West, always thinking about how to get the most from his farm, applied for and received another SARE grant to design a closed-loop energy production system using a solar concentrator to reduce those electricity costs. He now uses his own ethanol to power his farm engines at a higher octane than gasoline and, with a cleaner burn.
- Farmer Don Bustos of Santa Cruz Farm and Greenhouses in Espanola used a Western SARE Farmer/Rancher Grant to try to increase his output of organic vegetables using solar energy. His solar root-zone thermal system heats water that runs through pipes beneath plant beds in a farm greenhouse. During the first two years, the system cut the wintertime cost of fossil fuels used to heat the greenhouse to zero from \$2,000. At the same time, yields from greenhouse crops increased 30-40% in 2005-06 – even more in 2006-07. Thanks to the solar-heated system, Bustos now can produce a steady supply of salad greens, arugula, Swiss chard, and other winter crops from October to March, even

when outside temperatures drop below freezing. *FW05-011, Solar Energy for Year-Round Sustainable Production*

- In the Northeast, the results of an \$8917 farmer/rancher grant were summarized by recipient Daniel Crocker of Sidelands Sugarbush, a large 23,000-tap modern maple sugaring operation, which was started in 1982. “We produce between 5,000 and 7,000 gallons of maple syrup annually. Our project's purpose was to power our sugarhouse with used vegetable oil (UVO). We found a source for UVO, built the infrastructure needed to receive and store the UVO and then converted our evaporator and a generator to run on UVO. Once we installed a day tank for the evaporator, everything worked very well with very little hassle. We added around \$7,000 to our bottom line from increased production during power outages and by saving \$1.00/gallon on the 3,700 gallons of fuel we burned. In the future, we may want to collect and refine our own vegetable oil. This project has met and exceeded all our expectations.” *FNE06-570, Powering a sugarhouse with used vegetable oil.*

3) In 2008 SARE published "Clean Energy Farming: Cutting Costs, Improving Efficiencies, Harnessing Renewables." The 20-page bulletin features innovative SARE-funded research and examples of farmers who are improving energy efficiency while saving money, implementing farming practices that both save energy and protect natural resources, and producing and using renewable fuels. <http://www.sare.org/publications/energy.htm>

4) Attendees from the “Sustainable Energy” track at SARE’s 20th Anniversary Conference identified the following areas of for further study:

- Provide research based data on the economics, incentives, and efficiencies of producing bio-based crops or fuel
- Focus on farm scale technologies
- Fund farmer to farmer learning opportunities
- Need enterprise budgets and state by state regulations for licensing, taxes, disposal
- More case studies and audits of practical on farm energy efficiency and conservation
- Provide information on the economics and building specifications on season extension and greenhouses

Western Subregional Conferences: Listening to Stakeholders

When farmers and ranchers in the Western region speak, Western SARE listens. Voices from the West’s subregions speak to distinctive regional needs and interests, yet several common threads run throughout:

- Producers want help with marketing
- Youth need to be engaged in and educated about agriculture and food systems
- SARE needs to do a better job of placing research results into producer hands
- Infrastructure, especially for small and mid-size producers, is sorely lacking

The sounding board is a series of six subregional conferences Western SARE initiated in 2007. In addition to eliciting producers’ ideas, Western SARE sought to engage ideas from the entire

ag-support community – scientists, educators, legislators, agency employees and those engaged on nongovernmental organizations.

At each conference, Western region staff and Administrative Council members have found conference participants prepared with candor. They clearly welcomed the chance to learn more about SARE and to voice their thoughts on the future of SARE and agricultural sustainability.

The conferences, each planned by successful applicants of competitive regional grant requests, were structured similarly to both educate and engage:

- Speakers described SARE and regional challenges for agriculture
- Posters and handouts showcased successes of SARE-funded regional projects
- Facilitated and recorded tabletop discussions, eight or nine participants per table, addressed six ‘burning questions’.

Conference planners selected and invited regional attendees with a view of assuring wide representation from their region’s diverse agricultural community. Attendance at each has ranged between 80 and 120 key stakeholders.

Following each subregional conference, the Western SARE Administrative Council is releasing Requests for Applications allowing participants to apply for up to \$50,000 to pursue research and education in an area of regional need. Each grant application is required to have a minimum of five agricultural producer cooperators.

SARE Multi-State Impacts

The Southern Sustainable Agriculture Working Group (SSAWG) remains a vibrant and growing organization that works alongside the SARE program in improving knowledge among those engaged in organic and/or sustainable production methods. SSAWG sponsors a yearly conference in Kentucky and draws consistently in excess of 1000 producers, educators and community officials to learn more and network among others in the South. A short survey was sent to 822 recipients of SARE-funded travel scholarships to the Southern Sustainable Agriculture Working Group meeting. Out of an 18% response rate, 82% reported they had adopted information learned at the meetings into their operations.

Several multi-state, inter-disciplinary projects in SARE’s Southern Region have shown that a nearly forgotten forage—*Sericea lespedeza*— not only provides excellent nutrition on marginal land and in drought conditions, but that it reduces internal parasites in small ruminants as well as or better than chemical anthelmintics. This information has increased profit margins and reduced the use of chemical dewormers on sheep and goat operations. The research was published by project participant Appropriate Technology Transfer for Rural Areas (ATTRA) as an 8-page bulletin called *Tools for Managing Internal Parasites in Small Ruminants: Sericea Lespedeza*.

Over 3 years, 33 New England growers successfully installed Perimeter Trap Cropping (PTC) systems to manage insect pests on at least 450 acres of vegetables; 15 of the growers used the system on two or more commodities; 3 growers reported failure with the system. Twenty-three growers filled out evaluation forms which showed that by using PTC: 96% reduced their pesticide use; 96% improved their pest control; 83% reduced adverse environmental impacts on

land and water; 91% reduced personal/personnel exposure to hazards; and 70% saved time. Eighty seven percent said that PTC cost them less than conventional methods (by up to \$3,810/acre) and 91% claimed they would use PTC in the future. In 2004, 9 CT and 1 NH cucurbit grower saved 96% of their insecticide use by switching to PTC. They saved an average of 1.8 pounds of active ingredient per acre on over 152 acres. Gross revenue increased by an average of \$1,098 per acre or \$11,770 per grower. Over 4,000 Northeastern growers attended conference talks and twilight meetings about PTC over 3 years. *LNE03-177, Perimeter Trap Crop Approach to Pest Management on Vegetable Farms.*

Beyond SARE

Every land-grant university has some research, extension, and/or education activities in sustainable agriculture. At some universities, these activities are organized through a center, institute, or other formal administrative unit. At others, they are woven into the activities of broader administrative units. Some universities take both approaches.

Examples of sustainable agriculture activities at some land-grant universities (but by no means a complete list) include:

- California: The statewide Sustainable Agriculture Research and Education Program (SAREP) of the University of California was established in 1986 as the first land grant university-based sustainable agriculture program in the country. UC SAREP offers competitive grants, educational opportunities, and information in both print and electronic forms.
- Iowa: Iowa State University's (ISU) Leopold Center operates competitive grants, interdisciplinary research issue teams, and educational programs statewide. The Sustainable Agriculture Extension page maintained by ISU Extension offers information on publications, training, funding sources, and other links of interest to producers, educators, and researchers.
- Minnesota: The Minnesota Institute for Sustainable Agriculture is a unique partnership between the College of Agricultural, Food, and Environmental Sciences at the University of Minnesota and the Sustainers' Coalition, a group of individuals and nonprofit organizations.
- North Carolina: The Center for Environmental Farming Systems, a partnership of North Carolina State University (NCSU), North Carolina Agricultural and Technical State University, and the North Carolina Department of Agriculture and Consumer Services, operates a farm dedicated to sustainable agricultural systems and offers information about sustainable agriculture in the state.
- Pennsylvania: Cooperative Extension at Penn State offers information on production, management, and marketing alternatives at its Web site, Sustaining Pennsylvania Agriculture.
- Washington: The Center for Sustaining Agriculture and Natural Resources of Washington State University focuses on facilitation and networking, funding, and education in several program areas: agricultural systems, biologically intensive and

organic agriculture, community capacity building, professional development, and small farms.

Summary and Future Directions

SARE's work over the last 5 years clearly demonstrates that the program is successfully reaching American agriculture at many levels, from the research conducted at our universities, to the educational efforts of Cooperative Extension and on down to the production and marketing practices on our farms and ranches. The SARE portfolio of more than 4,300 grants over the last 21 years has resulted in demonstrable impacts as measured by surveys and evaluation work commissioned by SARE over this 5-year reporting period.

The examples and successes presented in this limited space also show some of the many strengths of the SARE program:

- Farmers and ranchers play an integral role in SARE decision-making, in their participation in all types of SARE grants, including those that they initiate themselves, and in their role as educators and information disseminators.
- Multi-state, multi-disciplinary projects involve many stakeholders who--through their participation on these projects --also benefit from the innovations developed.
- While difficult to attribute directly to the SARE program, it is clear that collaboration as part of SARE grants has been a factor in the development of partnerships and other collaborative efforts that continue long after the grant has finished. Some examples include the continuing work of groups like the Southern Sustainable Agriculture Working Group (SSAWG), Northeast Organic Farming Association (NOFA), various beginning farmer groups, activities and centers at land-grant universities, and other collaborative work organizations working with underserved audiences, such as Nuestras Raices, the Rural Coalition, and the Federation of Southern Cooperatives.

Over the past several years, SARE embarked on visioning and strategic planning efforts, both at the regional level and for the program as a whole. We developed a new mission and vision, and committed to expanding our reach to new audiences, with particular attention to underserved audiences. SARE will continue to respond to ever-changing conditions in agriculture, with research and education efforts aimed at emerging challenges. For example, SARE responded to the farm energy crisis by increasing our grantmaking for energy conservation and renewable energy, and by publishing the bulletin, *Clean Energy Farming Cutting Costs, Improving Efficiencies, Harnessing Renewables*.

Issues and Challenges

- Promoting Systems Thinking: A continual challenge for SARE has been to help applicants focus on whole systems research, a priority for sustainable agriculture that is a new way of thinking for most agricultural researchers. Starting with the Call For Pre-Proposals to be released in March 2009, applicants to Southern SARE must propose research that fits one of three grant categories: production, postharvest/food systems, or a combination of production and postharvest/food systems. For researchers who are not yet ready to submit a full systems proposal, Southern SARE will offer two entry-level funding opportunities with the release of calls for proposals later in the year for Planning

Grants and Preliminary Grants. Northeast SARE issued a special call for systems research in 2008, funding one dairy system project in NH. Other SARE regions are exploring ways to encourage better systems projects.

- Preparing for Matching Grants: SARE's authorizing legislation provides for large matching grants for the creation or enhancement of state programs once SARE's Research & Education appropriation exceeds \$15 Million. In 2008 Southern SARE offered planning grants up to \$20,000 for one year to states to prepare for the time when Congress allocates such funds.
- Climate Change: A Northeast SARE project involved 8 scientists who developed educational tools and a training for agricultural service providers to help them assist farmers in making informed choices related to climate change. Two day-long trainings in Baltimore, MD and Windsor, CT addressed the following issues: greenhouse gases and climate change, changes in temperature and precipitation patterns in our region, potential impacts on crops and livestock, implications for pest, soil, and energy management, and outreach to farmers. Ninety-nine people attended the trainings. A CD and notebook with 8 PowerPoint presentations and 10 fact sheets were developed on these topics, and this information was also posted to the web site www.climateandfarming.org. The web site has received over 5,000 hits per month. A follow-up survey of training participants had 69 responses; of these, 55 agricultural service providers said they used the information from the training in their work, reaching a total of 17,970 people." ENE05-091, Climate change and agriculture: Preparing educators to promote practical and profitable responses.
- Farm Energy and Impacts on Production Costs and Commodity Prices: Volatility in energy costs and commodity prices represent an unprecedented challenge on the farm. SARE will build on its history of funding renewable energy and energy conservation at the farm level, and is poised to provide research and information to help farmers and ranchers meet the challenge

Looking forward, we will apply our strengths and lessons learned in the pursuit of our new mission and vision:

SARE's **vision** is an enduring American agriculture of the highest quality. This agriculture is profitable, protects the nation's land and water and is a force for a rewarding way of life for farmers and ranchers whose quality products and operations sustain their communities and society.

SARE's **mission** is to advance—to the whole of American agriculture—innovations that improve profitability, stewardship and quality of life by investing in groundbreaking research and education.

Section III: Secondary Knowledge Areas

The Sustainable Farm Enterprises portfolio is greatly enhanced by several Secondary Knowledge Areas and Key Programs that are highly relevant to improving farm management, sustainability and viability of the nation's farms, ranches, working lands, and the families involved in these operations. The Secondary Knowledge Areas report primarily to other portfolios, but maintain strong linkages in content with this portfolio.

As this portfolio was only recently reconfigured in Spring 2008, portfolio team members anticipate further refinement of the interrelationships among and between Primary and Secondary Knowledge Areas reporting into the portfolio and further clarification of the emerging issues relating to the goals and visions of the portfolio in strengthening and supporting the management expertise, sustainability, and viability of all operations, regardless of size, length of operation, location, or means of production.

Secondary KAs:

- KA 605 Natural Resources and Environmental Economics
- KA 801 Family Resource Management and KA 607 Consumer Economics
- KA 610 Domestic Policy Analysis

Key Programs:

- Section 2501 – Outreach to Socially Disadvantaged Farmers and Ranchers
- Small Farms
- Beginning Farmers and Ranchers Development Program

Secondary KA 605: Natural Resources and Environmental Economics

Secondary KA 605 Introduction

This knowledge area focuses on understanding economic relationships, decisions, and impacts relating to the management and use of public and private natural resources, and the environment. Research and education activities in this area also encompass the economics of improving the efficiency of agricultural, forest, and rangeland use while minimizing adverse impacts on the environment. While economic viability is critical to producers, long-term environmental stewardship in managing natural resources effectively and efficiently benefits both current and future generations.

Secondary KA 605 Key Outcomes for 2004-2008

Water Quantity Management:

Irrigation water use accounted for almost 93 percent of all water use in Nebraska. The sustainability of irrigation was being questioned. In 2004, state policy established a process for defining watersheds based on water usage as a fully or over-appropriated. Out of a total 23 Natural Resource Districts, part or all of 11 of them are defined as fully or over-appropriated. Over-appropriated basins are required to reduce water use to that of 1997 levels.

Extension programs conducted workshops and tours to address: lowering energy costs, maintaining pumping plant performance, soil moisture/ET gauges for scheduling irrigation, managing limited irrigation, reducing pumping costs, sprinkler package selection, increasing fertilizer use efficiency, timing of irrigation application, skip row planting, and “Water Optimizer” software application. Tours included visits to on-farm demonstration of soil moisture monitoring and ET gauges for scheduling irrigation.

In 2007, 27 workshops (a total of 57 programs were conducted reaching 3,940 producers) that were evaluated impacted 898 crop producers with about 1.6M acres of irrigated crops, which account for approximately 20 percent of Nebraska's irrigated acres. Post evaluations completed by producers indicated that changes resulting from these workshops would result in a potential saving of approximately 1.7 inches of water per acre per year or 211,470 acre feet of water or about 69 billion gallons of water. This quantitative outcome is a reduction of about 2.2 percent in irrigation water pumped in Nebraska. Moreover, producers also indicated a potential savings of \$17,000,000.

Water Quality Management:

Agriculture production affects not only water quantity but also water quality. A 2006 *Surface Water Quality Report*, a research study conducted in Nebraska, suggests that dissolved oxygen, atrazine, and ammonia are increasing at 4 sites, decreasing at 12 sites, and remain about the same at 64 sites. Similarly, the 2006 *Nebraska Ground Water Quality Report* suggests a slow upward trend in median nitrate levels (from 3 ppm in 1974 to 5 ppm in 2005) with a possible decline since 2001 and a decline in mean atrazine levels since the mid-1990. Emerging pollutants of concern include Endocrine Disrupting Compounds (EDCs) and antibiotics. Drinking water polluted with EDCs and antibiotics may have significant impact on human health.

University of Nebraska Extension hosted educational programs targeting issues related to water quality impairment from nitrogen, erosion, and herbicides. Programs target environmental design/best management practices for reducing contamination associated with tillage, irrigation, fertilization, chemigation, on-site waste water treatment, and construction sites. Best management practices help producers not only reduce the cost of fertilizer, chemicals, or water, but also reduce soil erosion and improve water quality. Agricultural educational programs impacted about 10 million acres of cropland. On-site wastewater programs certified 733 professionals, and construction site sediment control programs were attended by 300 public and private sector individuals involved in construction. Based on a survey of 40 counties, no-till planted crop acres increased by 12 percent between 2004 and 2006. In Shell Creek watershed (listed as a Total-Minimum-Daily-Load watershed), erosion reduced 35,000 tons per year.

Compliance to federal regulations is important to operators of animal feeding operations (AFO) or Concentrated AFOs (CAFOs). A video was produced on AFO/CAFO for Montana State University Water Center and for training efforts. Presentations, workshops and trainings have been conducted for commodity groups and operators and for small land owners on stocking rates of horses, sheep and exotics as well as manure management and small pasture management. The information has helped producers keep required records to meet state Department of Environmental Quality regulations for manure exports from AFOs and to reduce their liability should pollution result from the improper use of the manure. Information on obtaining a manure analysis was provided to operators along with recommendations for acceptable application practices. A particular on-site assistance has saved one producer nearly \$7,000. While data is not yet available, this operation is expected to be able to offset the purchase of more than 30,000 lbs. of commercial nitrogen fertilizer. At 150 lbs. nitrogen per acre, this could fertilize over 150 acres of hay land, reducing production cost and increasing its profits.

Rangeland/Pasture Management:

In Montana, the Undaunted Land Steward Certification program educates landowners to make better resource management decisions as they develop or refine ranch management plans. Interpretive displays at historical sites, news features on radio or television, camp sites, workshops, magazines and newspapers are methods used to inform city dwellers about the compatibility of agriculture and the environment. Producers could do business plans for developing or expanding a tourist-based component to their ranch, which diversify income sources and increase the vitality of ranch operations.

Fifty-three ranches have been certified as Undaunted Land Stewards, comprising more than 1.25 million acres. Another 39 ranches are progressing toward certification. As a result of the certification process, all 53 certified ranches changed their grazing management or resource monitoring practices. Eleven historical sites on private agricultural lands have been preserved and historical interpretation and public access to these 11 sites has been provided. Visitor interviews at the interpretive sites indicate they modify their opinions about ranching and livestock grazing after viewing the exhibits. Visitor-use surveys estimate more than 6,000 people have visited the interpretive sites. The public education campaign via mass media has involved every major television and radio station and articles have appeared in every major newspaper and several popular magazines. Fourteen ranch businesses have added or expanded a recreational enterprise.

In the western states, there are many counties with high proportion of federally managed public lands. In Nevada, over 90 percent of county areas in 5 counties (Esmeralda, Lander, Lincoln, Nye, and White Pine) are under federal control. For these counties and others in the state of Nevada, changes in public lands management policies will impact local communities. Often changes in public land management policies are not researched or analyzed concerning consequences to the local economy.

A regional dynamic Computable General Equilibrium (CGE) model was developed based on data from Elko, Eureka, and White Pine Counties. This model provides information regarding future impacts of alternative public lands policies. Researchers extend this regional level dynamic CGE modeling to address resource management issues and impacts on the regional economy. Development of the model occurred in close cooperation with federal, state, and local decision makers. The model is simultaneously used as an important extension education tool for providing information on the linkages of public lands and the local economy. As opposed to many so-called "black-box models," this regional dynamic CGE model is open so that data, linkages, and modeling can be made available to federal, state and local decision makers. An extension education program was developed for understanding the model through the Center for Economic Development, University of Nevada at Reno.

Based on a typical Elko ranch, having 700 head of cattle, and extrapolating to total county animal-unit-per-month (AUM), production would be valued at more than \$32.5 million, with an impact of more than \$57.2 million and labor earnings of more than \$11.4 million, employing more than 550 people. The study also looked at impacts of potential reductions in federal grazing land, reaching the conclusion that if all federal AUM permits were eliminated, there would be a 96 percent chance of ranch failures, based on debt load. Model results are now being used by Elko County Commissioners and U.S. Forest Service in the upcoming Environmental Impact Statement analysis of public land grazing in Elko County, Nevada.

Forest Resource Management

Forest lands accounts for 47 percent of land area in Kentucky. These forests provide an estimated economic impact of more than \$6 billion annually. Forests have increasingly experience abuses and attacks, such as exploitive timber harvest, forest fires, insects, diseases, and invasive plants. In order to assist forest landowners to address these issues, the University of Kentucky collaborated with state forestry and water resource agencies and developed the Woodland Owners Short Course (WOSC). In 2007, more than 160 woodland owners representing 46,723 acres attended WOSC. As a result of this program, participants have reported increased income from their properties through on-farm enterprises. The WOSC has been extended to a regional level, giving more woodlot owners access to the program. The long-term impacts from the WOSC will result in increased revenue earned from timber sales for those using a professional forester, improved wildlife habitat, increased woodland productivity, and improved woodland health.

In addition, the Kentucky Master Logger Program provides science-based certification program. Training includes environmental protection, safe logging practices, and education in laws and regulations impacting the timber harvesting industry. A total 976 loggers obtained or maintained their Master Logger status. Pre- and post-training testing indicated an average 66% increase in knowledge. Post-training evaluation indicated that a total of 750 small logging firms were able to comply with state regulations and 229 of these were new firms that were provided the necessary

training to comply with state law requirements enabling them to continue logging. These firms provide income for 2,236 individuals (owners or employees) the majority in rural and semi-rural economies. Environmental assessment of program participants indicated that best management practices usage ranged from 80 to 90 percent for streamside management zones and haul road and skid trail drainage control practices to 30 to 40 percent for the use of improved stream crossings and successful re-vegetation of skid trails. The end result was 128 perennial streams and 354.9 intermittent streams were provided protection from sediments, which, in turn, improve water quality.

Coastal Resource Management:

The health and well being of Louisiana's citizens depend on its resource-based economy. The Center for Natural Resource Economics and Policy (CNREP) at Louisiana State University helps meet this challenge by engaging in research and extension programs related to energy, coastal and inland wetlands, fisheries, wildlife, land, and water resources that contribute to the management and sustainability of Louisiana's diverse natural resources. Two international conferences targeting socioeconomic aspects of wetland and coastal resource management were held. The knowledge generated and transferred at these conferences has been used by other scientists, extension professionals, and resource managers in professional practice. A new technique for estimating the economic impacts of hurricanes to coastal fishing infrastructure was developed. The new method allows for a more rapid and spatially precise estimate of damages to fisheries infrastructure. During 2007, the results of this assessment provided the basis for more than \$200 million in funding for fisheries recovery in Louisiana. Several applied research projects have been developed to examine the economic aspects of Louisiana's wetland restoration and preservation initiatives. Results indicate that in recent years restoration agencies have begun to abandon economic metrics in favor of more subjective, political criteria for project selection (e.g. project type, location, and sponsor). The net result of this trend has been an increasing loss of program efficiency in the allocation of nearly \$1 billion in project spending since 1991. This research result demonstrates the loss of public funds when decision making does not conform to science-based recommendations.

Bio-energy Programs:

Biomass energy sources can reduce energy usage impacts on the environment. The production of electricity and fuels from biomass resources reduces pollution, greenhouse gases, energy usage and dependence on foreign energy. Vermont's agricultural economy is causing some traditional dairy farms to look at diversifying towards enterprises such as organic farming, and nursery and bedding crops. Energy produced from crops such as hay, corn soybeans or canola could diversify and keep Vermont agricultural viable.

The Center for Sustainable Agriculture at the University of Vermont conducted an ecological and economic assessment of a biodiesel industry to determine the feasibility and impact of Vermont farmers producing feedstock crops. They examined the economic, environmental, and social sustainability of biomass crops production; pros and cons of various feedstock crops; social barriers to production of non-food crops; and economic impacts of a bio-refinery industry, in particular upon potential feedstock producers.

Ethanol from corn and biodiesel from oilseeds were identified as economically feasible in the current economic context. Due to concerns about the environmental efficiency of ethanol from

corn, the simulation model analyzed the economic feasibility and ecological, economic, and social impacts of biodiesel production, assessing profitability, macroeconomic impact, potential changes in Vermont land use, green house gas emissions, and energy utilization. Results indicate a private biodiesel plant would not be feasible. However, a grower's cooperative would benefit from a facility using Vermont-grown soybeans, with the meal used for dairy feed. Benefits of this facility include the development of a renewable fuel source, a potential reduction in greenhouse gas emissions, and reduced air pollution. On the other hand, potential disadvantages of significant environmental impact include increased fertilizer applications to increase yields, increased soil erosion, groundwater depletion, groundwater and soil contamination, and possibly, expansion of cultivating marginal lands to increase soybean production.

Urban sprawl and rising real incomes have generated rural development scenarios that have displaced traditional agriculture and, as a result, deemphasized the ecosystem services agriculture contributes to the quality of rural life. By examining the marketing of ecosystem services, an AFRI Rural Development program funded project will offer an early step to entrepreneurship opportunities and new revenue streams based on ecosystem services that farms may deliver to rural residents. This project will implement experimental markets in a pilot market in Jamestown, Rhode Island where residents buy into contracts that compensate farmers who manage hayfields in consideration of grassland nesting birds or other cultural or aesthetic ecosystem services. The integrated project will disseminate the information to farmers, and policy makers interested in the sustainability of small farms and the environment.

An AFRI funded project at the University of Guam will examine the socioeconomic impact of subsistence farming and its changing role in the Pacific Islands by conducting stakeholder input sessions and field research. The researchers will identify subsistence crops that have a market potential and design small-scale marketing strategies and educational programs that will enhance farm income. This project has a potential to improve the living conditions of the people in Micronesia as small scale agriculture and agro-forestry provides sustainability and economic viability to the region. More than 80 percent of the population of the Federated States of Micronesia depends on subsistence and semi-subsistence activities for their livelihoods. However, many of the issues related to subsistence and semi-subsistence farming are not well understood creating a tremendous gap in field research linking small and medium-scale farming to business practices in Micronesia. The need for local market development was highlighted in the 2008 Association of Pacific Islands Legislatures.

Secondary KAs 607 Consumer Economics and 801 Family Resource Management

Secondary KA 607 and 801 Introduction

Knowledge Area 607 activities provide insight and understanding into the demands, preferences, behavioral responses, and needs of individuals and consumers. This work provides insight and understanding about how consumer choice drives market economies, and how consumer policy, advertising, and other market forces influence consumer demand.

Work in Knowledge Area 801 provides an understanding of how individuals and families obtain and use resources of time, money, and human capital to achieve their standard of living and overall quality of life. This area is also concerned with factors affecting the decision-making process, such as availability of resources, life events, living patterns, values, goals, interests, and attitudes of families, and external forces such as public issues, policies, and programs.

Secondary KAs 607 and 801 Key Outputs:

Three educators from Iowa and Illinois Extension spent one week each in Washington, DC. They presented seminars on Annie's Project; connected with strategic partners in USDA, the U.S. Treasury Department, the Federal Reserve Board, a Russian delegation funded by World Bank, and the American Savings Education Council, and provided guidance for national leadership to link professionals working on farm finance and family finance. A session on *Managing Farm and Household Financial Risk* was accepted for the 2008 American Council on Consumer Interests/American Agriculture Economics Association annual conference. An Extension webcast on integrating farm and family finances drew more than 120 participants from 13 States.

Secondary KAs 607 and 801 Key Outcomes for 2008:

About 1,150 Extension professionals (250 farm management; 900 financial security) increased knowledge about integrated farm and family finance educational programs. Annie's Project gained national Extension exposure and expects an increase of participation from 17 States to 25 States reaching 2,500 women with programming in 2008. Achievement of this projection will give Annie's Project a total of over 7,300 participants since 2003. CSREES leadership identified a strategic focus of farm succession and estate planning where Farm Management and Financial Security professionals, along with agricultural lawyers, can work in local teams.

Farm and Farm Family Financial Management

Financial security (the ability to meet future needs while keeping pace with day-to-day obligations) is a goal of any family. Many farm families have special financial management educational needs due to comingling of farm business and household funds, income and benefits related to off-farm employment, and asset-rich and cash-poor portfolios. The expertise and resources of two CSREES programs, Farm Management and Financial Security, have potential to address these issues.

CSREES seed funding in 2007 supported Extension educators from Iowa and Illinois. Their work focused on identifying Extension programs linking farm and family finances and to give national exposure to Annie's Project <http://www.extension.iastate.edu/Annie/>. Annie's Project, which includes a component on household finance, uses a workshop approach to empower farm women to be better business partners.

Three Extension educators from Iowa and Illinois Extension spent one week each in Washington, DC. They presented seminars on Annie's Project; connected with strategic partners in USDA, the U.S. Treasury Department, the Federal Reserve Board, a Russian delegation funded by World Bank, and the American Savings Education Council, and provided guidance for national leadership to link professionals working on farm finance and family finance. A session on *Managing Farm and Household Financial Risk* was accepted for the 2008 American Council on Consumer Interests/American Agriculture Economics Association (now Agricultural and Applied Economics Association) annual conference. An Extension webcast on integrating farm and family finances drew more than 120 participants from 13 States.

About 250 Extension professionals involved in farm management; and 600 involved in financial security increased knowledge about integrated farm and family finance educational programs. Annie's Project gained national Extension exposure and expects an increase of participation from

17 States to 25 States in 2008, reaching an additional 2500 new participants with programming in 2008, and more than 7,300 participants since 2003.

Agriculture and Rural Finance Markets in Transition – Multi-State Research (NC- 1014)

Financial institutions have traditionally facilitated the distribution of capital to both producers and agribusinesses. However, net impacts of financial market, agricultural and rural policy change coupled with a new risk management environment are not well understood. Financial institution numbers have been greatly reduced, leading producers and agribusinesses to be concerned about sources of capital and financial services. Outside observers have noted that the consolidation across the different sectors has perhaps created an environment with reduced transparency of the sector's financial situation. The Economic Research Service, Federal Reserve Bank, and lending regulators have been regular collaborators and have provided insights into the needs of agricultural and rural financial markets.

The 4 objectives of this multi-state research project were to:

- Determine the effects of changes in international competitive balance and federal and state policies affecting agriculture on the financial and economic performance of farms, agribusinesses and rural financial markets;
- Determine the effects of market, policy, and structural change in the agricultural and financial market sectors on the financial soundness, safety, and management of financial institutions that supply financial capital to agriculture;
- Evaluate the management strategies, capital needs, and financial performance required for the long-term sustainability of firms in the food and agribusiness sector, and
- Promote social capital and rural entrepreneurship.

To attain these objectives, the outputs included:

- A comprehensive research base that contains performance and benchmark financial information on farm, agribusiness, lender, and rural capital markets.
- Research disseminated through publications in refereed journals, popular periodicals, and professional conferences.
- The members of the committee have strong records of scholarly publication, resulting in the research being widely disseminated. Four members of the committee have partial or total extension appointments.

The nature of the research undertaken in this project placed a premium on communicating and disseminating research results to academic professionals, the policy community, farm and agribusiness leaders, and local citizens. In addition to the usual channels through Extension and professional publications, government and industry participants were utilized to provide an immediate transfer beyond the academic community. An Outreach Plan produced the following outcomes:

- Widely disseminated informational bulletins in non-technical language as well as summaries of research results.
- Organized sessions for professional meetings of the American Agricultural Economics Association (now the Agricultural and Applied Economics Association) and several regional science associations.

- Project annual reports, symposia programs, and related materials were posted on the NC-1014 website and summaries of research results were made available to a broad audience.

Other outcomes include:

- A strengthened international network of economists capable of examining specific financial market policies affecting rural areas. Participants discerned local impacts of transition and change in financial markets.
- A standardized set of investigative methodologies and assessment tools for analyzing the social, economic and fiscal impacts of transition and change in rural financial markets.
- Publications and educational materials for public and private policymakers, financial industry and agribusiness leaders, and farmers/rural citizens that will help them understand impending changes in financial markets.
- Insight into research venues including rural finance and social capital.

Secondary KA 610: Domestic Policy Analysis

The work involved in KA 610 around domestic policy analysis focuses on the economic and social impacts of domestic programs and policies, including the effect of government actions on the U.S. The work in this area analyzes the long term effects of government actions, which influences how the U.S. develops and implements policies. In 2007 and 2008 the formation of a new multi-state committee SERA 32 occurred. This multi-state has membership from throughout the United States and is focused on deepening the public policy (domestic) analysis and public engagement capacity within the land grant and extension system. SERA 32 key professionals are individuals within the Land Grant and Extension system who were involved for many years with the National Public Policy Education Committee (NPPEC). NPPEC professionals for years worked alongside the Farm Foundation in identifying key methodology for use within the public land grant and extension arena to be used to identify, launch public discussions of, and identify the means through which critical public policy issues could be incorporated into the ongoing public education and dialogue capabilities of the Extension system. Due to budgetary issues, Farm Foundation withdrew from ongoing sole financial support for the NPPEC work efforts and key leaders within NPPEC thereafter launched and sought approval for SERA 32. Key outcomes as the SERA 32 advances will follow in later portfolios.

2501 Program

2501 Program – Outreach to Socially Disadvantaged Farmers and Ranchers:

The Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers Competitive Grants Program (OASDFR) provides funds to organizations to conduct outreach and technical assistance to encourage and assist socially disadvantaged farmers and ranchers to own and operate farms and ranches and to participate in agricultural programs. The OASDFR supports a wide range of outreach and assistance activities in farm management, financial management, marketing, application and bidding procedures, and other areas. The primary purpose of the OASDFR is to deliver outreach and technical assistance, to assure opportunities for socially disadvantaged farmers and ranchers to successfully acquire, own, operate, and retain farms and ranches; and assure equitable participation in the full range of USDA programs.

Georgia:

Georgia's Federation of Southern Cooperatives' 2501 project continues to build a Regional Marketing System that link socially disadvantaged producers (SDP) cooperatives in Georgia, Alabama, Mississippi and South Carolina. This increases the producers' opportunities in both commercial and direct marketing. There was a 20% increase in acreage devoted to alternative crops including seedless watermelon and a variety of vegetables giving producers a broader market. There was a 38% increase in producers participating in sales through farmers' markets, retail grocers, farmer-owned processing operations and institutional buyers. For example, by moving to production of seedless watermelon (desired in high-end market), farmer prices once .05 per pound, went up to \$.30 per pound. The average income of farmers participating in the watermelon project has increased by 5%.

Nebraska:

In Nebraska, the Hispanic & Native American Farmer/Rancher Outreach Project educates and supports the Hispanic and Native American communities with applying for USDA, loan programs. Through this work the project a USDA manual "Producer's Guide to Farm Service Agency (FSA) Loan Programs was translated in Spanish (Guia de Programas de Prestamos FSA para Productores); the location of the project was expanded to Central and Western Nebraska and new partnerships with Panhandle Community Services, University of Nebraska at Lincoln and Elkhorn Logan Valley Public Health Department were developed. These efforts resulted in a 10% increase in the target group participating in USDA programs and assisted them in increasing farm ownership and retention of farms and ranches.

Oklahoma:

In Oklahoma the project through Langston University reports that clients have had the opportunity to apply and participate in the Environmental Quality Incentives Program (EQIP). This year, over 50 clients have received \$194,300 in cost-share funds. One hundred and sixty-eight (168) clients have been assisted with the Livestock Assistance Program (LAP) through the Farm Service Agency (FSA) totaling \$246,352. Prior to Langston University's involvement few socially disadvantaged farmers and ranchers participated or even knew about the program that could have helped them in dealing with losses due to natural disasters. Through the Non-Insured Assistance Program, 53 clients have been assisted in insuring their crops for \$94,000. Through the Farm Service Agency, the 2501 program facilitated securing \$771,940 in loans; \$316,970 for farm ownership and \$454,970 for farm operating expenses. Five (5) loan packages involved restructuring of the debts so that the farmers could continue farming. Additionally, ten youth loans were approved for \$50,000. Forty-seven clients were assisted with the Conservation Reserve Program (CRP) for \$38,842. Working with RMA, producers are not only learning about agricultural risks but also how to keep records. Over 120 producers now keep records compared to 14 when the program started. This figure is up from 100 last year (a 20% increase). Increased income was reported by 454 producers.

Arkansas:

In Arkansas through the University of Arkansas at Pine Bluff, staff explained the loan process to farmers and assisted 45 socially disadvantaged producers with loan applications. Thirty of these producers received a total of 2.5 million dollars in loan funds. Participant producers in the targeted area were informed about the Environmental Quality Incentive Program (EQIP). As a result, 11 received approximately \$257,000 in EQIP cost share assistance which will be used for land improvement practices such as land leveling, irrigations wells, and underground pipelines.

Participant producers in the targeted area were notified about the 2005 Crop Disaster Program. Approximately 15 in the targeted area signed up for the program and received approximately \$150,000 in Crop Disaster Funds to help offset income lost from crops in either 2004 or 2005. Participant producers were also contacted by mail and by telephone about the Loan Deficiency Payment (LDP) Program that was available for soybeans (due to low market prices). These farmers were reminded of the need to keep a beneficial interest in the crop to qualify for the LDP Payment. We estimate that about 25 were able to collect LDP Payments totaling \$100,000 as a result of being notified by the 2501 Programs.

Kentucky:

Kentucky State's Small Farm Program provided assistance to socially disadvantaged farmers to improve their beef cattle and dairy beef enterprises and insure a safer food supply. Participating farmers averaged an increase in annual farm income of \$9,000 - \$12,000. Approximately 75% of the cooperating beef and dairy beef cattle producers improved their genetics fencing, forage or mineral programs, or incorporated Quality Assurance Programs or Graded Sales.

Small Farms Program

The Cooperative State Research, Education, and Extension Service (CSREES), an agency within the U.S. Department of Agriculture, has a Small Farm Program committed to meeting the needs of the small farm community. The goal of the CSREES program for small farms is to improve the income levels and the economic viability of small farm enterprises through a partnership effort with the land-grant university system, public and private sectors, by encouraging research, extension, and education programs that meet the specific needs of small farmers and ranchers.

Small farm programs are conducted to assist small farm families better use community services, improve financial management, develop markets, assist in estate planning, emphasize on-farm research and demonstrations, and prepare family members for employment opportunities. Included in our program functions are providing leadership in facilitating small farm programming for the Agency as well as serve on the USDA Small Farm Coordination in promoting small farms for the Department of Agriculture. We have a monthly program highlights that is disseminated to our stakeholders, a bi-annual newsletter, the Small Farm Digest; maintain a small farm website, conduct program reviews, coordinate small farm conferences every three to four years, review grant proposals, make presentations at colleges and universities, and also promote equal access of small farmers and ranchers to USDA programs and services.

Colorado:

Small Farm Advisers at the University of California Small Farm Program worked with a community of previously underserved ethnic farmers who were provided additional knowledge, skills fine-tuning, and encouragement on water quality issues, with the renewed goal of cleaner water run-off and less water waste. An average of 63 farmers participated in each of the workshops, with approximately 60 percent completing every class to earn the total educational units required for the waiver.

Near Delta in western Colorado the local Extension agent guided a small acreage farmer on Thistle Whistle Farm through the design and construction of a portable hoop house on his 16 acre farm. In addition to extending the growing season for vegetable crops from 140 days to 250

days, the portability aspect reduced the cost per covered square foot of growing area from \$4.26 for a permanent hoop house to \$1.25 for the moveable one. Expanded sales options on this farm now include sales to institutions like schools and hospitals, and cooperative marketing with other farmers who have permanent hoop house structures. Considerable season extension has been achieved with significantly reduced costs.

Kentucky:

At Kentucky State University, working with 75 farmers netted \$12,000 - \$15,000 increase in sales for these farmers at the farmers market. Most of these farmers will enter the Kentucky State University Program making less than \$15,000 gross in sales, and will graduate from the Program making \$30,000 - \$35,000 gross in sales. Most of Kentucky's small and socially disadvantaged farmers, over 90% of Kentucky's African American farmers, were dependent on tobacco as their primary source of farm income. Many new immigrant farmers, particularly Hispanic farmers, came to Kentucky because of jobs in the tobacco industry. Many have limited resources, land, labor, and educational attainment and are in extreme stress due to the rising cost of inputs and the loss of the tobacco quota/price support program. The Kentucky State University Small Farm Program brings outreach professionals and paraprofessionals together with USDA and state agencies, non-profits, farmer groups, and small and limited-resource farmers to address problems one-on-one, in groups, conferences, and in settings where farmers are at ease. The program provides one-on-one training on cooperators' farms and group trainings via small farm paraprofessionals and area (regional) small farm agents. Cooperators are assisted in evaluating their needs and opportunities, itemizing and evaluating their resources, evaluating their goals and ambitions, and to utilize agency opportunities. Record-keeping is a key focus, as is risk reduction and efforts to improve net farm incomes.

Breckinridge County has approximately 1,443 farms, almost all being small farms. The county population is 19,000 people; over 31% of the adult population does not have a high school equivalency. With the Federal Tobacco Program undergoing changes starting in 1997, paraprofessionals in Kentucky's small Farm program began searching for an alternative that would yield more money to the producers, particularly the livestock producers.

Kentucky State University hosts monthly workshops on sustainable agriculture, risk management, record-keeping, marketing alternatives, and new crops termed "The Third Thursday Thing" to give farmers hands-on opportunities to learn new skills and an annual Small, Limited-Resource/Minority Farmers Conference that focuses on the use of USDA and State Agencies, heir property, estate and retirement planning, new enterprise and marketing opportunities, farm records, animal and premise identification, and current events. Small farmer education utilizes the "Risk-Assessed Business Planning for Small Producers" curriculum developed by the 1890 Association of Extension Administrators Small Farm Team. The curriculum has 11 in-depth lessons on farm business planning and includes lesson materials, potential speakers, resource materials, overheads, and a case study farm.

The Annual Small, Limited-Resource/Minority Farmers Conferences reach 200-250 participants; biennial Small Farm State Field Day reaches 500-800 participants annually; the Southern SAWG Conference tour usually has approximately 75-200 Kentucky farmers participating; one-on-one educational training on cooperators' farms serves nearly 300 farm families with approximately 6,500 contacts. Educational tours conducted an average of one to two tours annually with 50-75 participants each to study alternative enterprises reaches additional producers; the highly successful "Third Thursday" workshops, conducted approximately 10-11 times annually with

approximately 1,200 participants; and four quarterly risk management and alternative crop field days with Mennonite and local small farmers hosted by the Fairview Produce Auction, Inc., serve approximately 650 annual participants

Among documented results are data reflecting that Small Farm Program participants will double or triple their net farm income while also making their farms more sustainable and improving their quality of life and Kentucky has one of the lowest loan delinquency rates in the South.

UC Small Farm Program:

In 2005, California's Central Coast Water Quality Control Board began an agricultural waiver program for water discharge; requiring farmers who use irrigation learn how to manage water quality. To earn the conditional waiver, growers were required to complete educational courses—all of which were originally offered in English. Courses were later offered in Spanish as well. The only major agricultural population not to have access to water quality courses were ethnic Chinese growers, who operate an estimated 80 percent of Santa Clara County's small-scale farms. With its expertise in working with socially disadvantaged and small-scale farmers and with a core farm advisor dedicated to the region, the UC Small Farm Program was well positioned to consider a solution.

With assistance from CSREES funding for socially disadvantaged farmers, the UC Small Farm Program spearheaded a cooperative effort to develop and deliver educational units on water quality, which were culturally and linguistically appropriate for the ethnic Chinese farming audience. Additional resources in funding, cooperative partnerships and technical language assistance was sought and received from university, county, national, and special interest organizations. The Small Farm Program hired a translator to work on printed course materials. Guidance from the ethnic Chinese agricultural community leaders was sought early in the process, to insure the community's participation. The water quality courses were designed, translated, and organized.

Six workshops were offered to ethnic Chinese farmers on the Central Coast, on the topics of pest management, irrigation, nutrient management, erosion management and plan development. Workshops were created in a more hands-on style than their corresponding English-language courses, and were given or interpreted in Cantonese, with Chinese-language course materials. The Small Farm Center designed and printed a Chinese translation of the handbook "Food Safety at Farmers Markets and Agritourism Venues," which was distributed at one of the courses, by mail, and online—with additional publicity garnered through ethnic media.

A community of previously underserved ethnic farmers were provided additional knowledge, skills fine-tuning, and encouragement on water quality issues, with the renewed goal of cleaner water run-off and less water waste. An average of 63 farmers participated in each of the workshops, with approximately 60 percent completing every class to earn the total educational units required for the waiver. The availability of water quality courses turned what could have been a punitive approach to water-quality regulations for this sector of farmers into an educational opportunity. An improved working relationship and trust among the area's well organized ethnic Chinese farmers has lead to additional workshops and meetings on other agricultural topics. Feedback from regulatory visits in late 2008 will provide further direction as to the next step of water quality education for this specific community of growers.

University of California Small Farm Program Other Small Farm Program Activities:

4th National Small Farm Conference:

In October 2005, the CSREES Small Farm Program gave leadership to conducting of the 4th National Small Farm Conference that was held in Greensboro, North Carolina. Approximately 750 participants from land grant university-system, community-based organizations, farmers and ranchers and other public and private sectors were in attendance. Plans are currently underway for the 5th National Small Farm Conference to be held in Springfield, Illinois in September 2009. These conferences help to raise the visibility of small farm programming efforts nationwide and focus on more cohesive programming, services and identification of resources and networking needs.

Farmer Certification:

In 2006, the CSREES Small Farms program facilitated training sessions for land grant universities and community-based organizations in the Southern region with farmers undergoing training to obtain certificates of Good Agricultural Practices for fruits and vegetables. Obtaining certificates serve to improve marketability and enhance sales. Eight farmers in Arkansas as a result of being certified were able to increase sales in fruits and vegetables by 20% in 2007. As a result of the certification training in Tennessee, Arkansas, and North Carolina, 15 certified farmers were able to increase the number of clients they serve by 10%, these farmers were able to encourage other farmers in their localities to apply for certification.

The Small Farmer Agricultural Leadership Program:

On March 22, 2007, 21 farmers held a graduation ceremony from a leadership course at the Department of Agriculture. The CSREES Small Farm Program coordinated this effort for the Department in partnership with the CSREES Competitive Unit's 2501 Program, which provided initial funding for the leadership program activities.

Grant writing Workshops:

CSREES Small Farm Program coordinates a USDA-Stakeholders' grant writing workshop that has been conducted at smaller institutions and community-based organizations since November 2007, on an as-needed and as-requested basis. These workshops have been conducted in South Carolina, Virginia, Alabama, Washington State, Kentucky, Mississippi, and Tennessee. The USDA agencies involved are Cooperative State Research, Education, and Extension Service, Rural Development, Risk Management Agency, Office of Outreach, Natural Resources Conservation Services, Farm Service Agency, Agricultural Marketing Service, Sustainable Agriculture Research Education Program, and Food and Nutrition Service. The goal is to improve grant writing skills among professionals at smaller institutions and community-based organizations.

Beginning Farmer and Rancher Development Program

RFAs were developed and reviews were held. Awards have not been made yet.

Section IV: Sustainable Farm Enterprises Portfolio Assessment Report

The NIFA Sustainable Farm Enterprises Portfolio Team response to the external panel recommendations is being developed and will be available by March 2, 2009.

Acronym List

| Acronym | Definition |
|---------|---|
| A&M | Agriculture and Mechanical |
| AFO | Animal Feeding Operations |
| AFRI | Agricultural Food and Research Initiative |
| AgHOs | Agricultural Hazardous Occupations Order |
| APRIL | Association of Programs for Rural Independent Living |
| AR | Annual Report |
| AREERA | Agricultural Research, Extension, and Education Reform Act |
| ARPA | Agriculture Risk Protection Act |
| ARS | Agricultural Research Service |
| ATS | Advance Topic Series |
| ATTRA | Appropriate Technology Transfer for Rural Areas |
| ATV | All-Terrain Vehicles |
| AUM | Animal Unit per-Month |
| BFR | Beginning Farmers and Ranchers |
| BFRDP | Beginning Farmer and Rancher Development Program |
| BNG | Breaking New Ground |
| CAFO | Concentrated Animal Feeding Operations |
| CCC | Commodity Credit Corporation |
| CDC | Centers for Disease Control |
| C-FARE | Council on Food, Agricultural and Resource Economics |
| CFFM | Center for Farm Financial Management |
| CGE | Computable General Equilibrium |
| CNREP | Center for Natural Resource Economics and Policy |
| Co-PI | Co Principal Investigator |
| CP | Competitive Programs |
| CPD | Center for Persons with Disabilities |
| CPI | Consumer Price Index |
| CRIS | Current Research Information System |
| CRP | Conservation Reserve Program |
| CSA | Community Supported Agriculture |
| CSA | Community Supported Agriculture |
| CSREES | Cooperative State Research, Education and Extension Service |
| DHHS | Department of Health and Human Services |
| DVR | Department of Vocational Rehabilitation |

| Acronym | Definition |
|---------|---|
| ECS | Economic and Community Systems |
| EDC | Endocrine Disrupting Compounds |
| EIRP | Extension Indian Reservation Program |
| EPA | Environmental Protection Agency |
| EPICS | Engineering Project in the Community Services |
| EQIP | Environmental Quality Incentives Program |
| ERS | Economic Research Service |
| ES | Easter Seals |
| ESCOPE | Experiment Station Committee on Organizational Policy |
| FACT | Fair and Accurate Credit Transaction |
| FAO | Food and Agriculture Organization |
| FARM | Farm Assessment and Rehabilitation Methods |
| FAS | Foreign Agricultural Service |
| FBM | Farm Business Management |
| FFA | Future Farmers of America |
| FFIDO | Farm Fatality Database in Ohio |
| FFM | Farm Financial Management |
| FIELD | Farmwork Institute for Education and Leadership Development |
| FRTEP | Federally Recognized Tribes Extension Program |
| FSA | Farm Service Agency |
| FSIS | Food Safety and Inspection Service |
| GAO | Government Accountability Office |
| HOSTA | Hazardous Occupations Safety Training for Agriculture |
| HOSTA | Hazardous Occupation |
| ICAN | Independence Capital Access Network |
| IOFC | income over feed costs |
| IPM | Integrated Pest Management |
| IRS | Internal Revenue Service |
| ISU | Iowa State University |
| KA | Knowledge Area |
| LAP | Livestock Assistance Program |
| LDP | Loan Deficiency Program |
| LGM | Livestock Gross Margin |
| LGU | Land-Grant University |
| MAFO | Midwest Association of Farmworker Organizations |
| MiTTNet | Managing in Tough Times Network |

| Acronym | Definition |
|---------|---|
| NAGCAT | North American Guidelines for Children's Agricultural Tasks |
| NAP | National AgrAbility Project |
| NASD | National Agricultural Safety Database |
| NASS | National Agricultural Statistics Service |
| NASULGC | National Association of State Universities and Land-Grant Colleges |
| NC | North Central |
| NCERA | North Central Regional Association |
| NCSU | North Carolina State University |
| NEPA | National Environmental Policy Act |
| NGO | Non-government Organization |
| NIFA | National Institute of Food and Agriculture |
| NIFS | National Institute for Farm Safety |
| NIH | National Institutes of Health |
| NIMSS | National Information Management and Support System |
| NIOSH | National Institute for Occupational Safety and Health |
| NNMOP | Northern New Mexico Outreach Project |
| NOFA | Northeast Organic Farming Association |
| NPL | National Program Leader |
| NPPEC | National Public Policy Education Committee |
| NRCA | North Central Regional Administrators |
| NRCS | Natural Resources Conservation Service |
| NRI | National Research Initiative |
| OASDFR | Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers |
| OMB | Office of Management and Budget |
| OVR | Office of Vocational Rehabilitation |
| PAWAgn | Pennsylvania Women's Agricultural Network |
| PCSGA | Pacific Coast Shellfish Growers Association |
| PDP | Professional Development Plan |
| PI | Principal Investigator |
| POW | Plan of Work |
| PSEP | Pesticide Safety Education Program |
| PSU | Pennsylvania State University |
| PTC | Perimeter Trap Cropping |
| PTO | Power Take-off |
| R&E | Research and Extension |

| Acronym | Definition |
|---------|--|
| R&E | Research and Extension |
| RAFI | Rural Advancement Foundation International |
| REE | Research, Education, and Economics |
| RESNA | Rehabilitation Engineering and Assistive Technology Society of North America |
| RFA | Requests for Applications |
| RMA | Risk Management Agency |
| RME | Risk Management Education |
| RTC | Research and Training Center |
| SAN | Sustainable Agriculture Network |
| SARE | Sustainable Agriculture Research and Education Program |
| SBIR | Small Business Innovation Research |
| SCRI | Specialty Crop Research Initiative |
| SDP | Socially Disadvantaged Producers |
| SERD | Science and Education Resource Development |
| SIS | Speed Identification Symbol |
| SRAP | State and Regional AgrAbility Program |
| SSAWG | Southern Sustainable Agriculture Working Group |
| STAR | Science to Achievement Results |
| TAA | Trade Adjustment Assistance |
| TAP | Telecommunications Access Program |
| TARP | Troubled Asset Relief Program |
| UATP | Utah Assistive Technology Program |
| USDA | United States Department of Agriculture |
| USDOL | United States Department of Labor |
| USFS | United States Forest Service |
| UVD | Used Vegetable Oil |
| VR | Vocational Rehabilitation |
| WOSC | Woodland Owners Short Course |
| WSBDF | Wisconsin School of Beginning Dairy and Livestock Farmers |
| YFSEC | Youth Farm Safety Education and Certification |