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2005 Accomplishments and Results Report

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Joint Themes

Goal	Theme	Joint or Extension
GOAL 1	*Agricultural Profitability*	Joint
	Ag Competetiveness	Joint
GOAL 2	*Food Safety*	*Joint*
GOAL 3	*Human Health*	*Joint*
GOAL 4	*Agricultural Waste Management*	Joint
	Pesticide Application	Joint
	Natural Resources Management	Extension
GOAL 5	*4H/Youth Development*	Extension
	Family Resource Management	*Joint*
	Parenting	Joint

University of Minnesota Extension Service
2004-2005 Federal AREERA Accomplishments and Results Report
Executive Summary

University of Minnesota Enrollment Measures

a. Demand: There was significant demand for Extension resources in 2005. As a result,

- University of MN Extension served 370,285 Minnesotans in educational events.
- There were 15,779,286 visits by 4,740,919 people to our Web site (rated by Google as the most for any state extension service.) These visitors viewed 43.7 million pages.
- Extension handled 36,295 phone calls via four phone-answering services.

b. Outreach to Underserved Populations

- In 2005, 50% of federal programs developed methods to target non-white Minnesotans.
- Programs in four of five capacity areas target immigrant and non-white cultures.

Multi-state Engagement

- Nine programs were widely adopted by other states.[1]
- Extension sold 1,300 publication titles to fifty states and five continents.
- We've contracted with the Iowa State Extension to provide cost-effective phone service to Minnesotans. In 2005, almost 5,400 Minnesotans were served.

Other Performance Measures, including Integrated Service: We made "being the best in the business" our goal in 2003. Integrated efforts are how we achieve that goal.

a. Quality and centrality to mission

- All programs are required to demonstrate their connection to research.
- 123 highly specialized regional educators are at work throughout Minnesota. An additional 245 specialized staff work in county offices.
- Partnerships with six colleges fund 107 faculty members (60 FTE) and provide a strong link between research and outreach.
- Programs are focused. 208 programs in 2002 were consolidated to 54 in 2005.
- All new regional educators have M.S. or Ph.D. degrees in their area of specialization. Since 2004, nine of nineteen Extension Educators hired had Ph.D.s.
- In 2005-06, 78% percent of programs have developed in-depth evaluations.

b. Development and leveraging of resources

- As a result of county satisfaction with programming, funding for county-based positions increased by an average of 6.4% statewide in 2005.
- Goals for grants and revenue are incorporated into program plans. Reports of external sales increased by 30% in the past year. New fiscal reporting systems were designed to better benchmark and track progress in revenue generation.

[1] Access eInfo, Business Retention and Expansion, U-Lead, U-Facilitate, Onsite Sewage Treatment, Radon Education, Habitattititude, Agricultural Risk Management, Parents Forever

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2004 - 2005 Federal (AREERA) Accomplishments and Results Report

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I. Programs

GOAL 1. An agricultural system that is highly competitive in the global economy

Overview

The educational objectives of over 20 programs located within the Agriculture, Food and Environment (AFE) capacity area are aligned with Federal Goal #1. These programs provide research-based education and consultation that enable the agricultural industry reduce production costs, identify new crops and products, develop new uses for agriculture products, manage business more effectively, and prevent or cure harmful conditions that deplete profits.

Programs for Goal #1 related to four joint themes. Though not all of the research delivered through outreach for Goal #1 was funded by Hatch/MRF-funded research, all Agriculture, Food and Environment program teams include a Hatch-funded state specialist and a regional Extension educator. Together, these teams develop program design, content and outreach strategies.

Inputs and Outputs Summary:

Table 1: Inputs and Outputs Summary, Federal Goal #1, University of Minnesota Extension, 2005

	Pgm 1: Farming for Tomorrow	Pgm 2: Bountiful Horticulture: Gardens and Food	Total all Goal 1 Programs
# FTE	69	21	90
# Program Participants	59,050	77,478	136,528
# of trainers / volunteers trained	n/a	1,054	1,054
Number of meetings, workshops, presentations, seminars, etc.	954	816	1,770
Number of consultations with individuals, families or business firms	1,879	26,170	28,049
# of volunteer hours	n/a	94,000	94,000
Numbers of presentations to media	5,499	1,126	6625

Table 2: Goal 1 Sources of Funding, University of Minnesota Extension

Smith Lever 3B&C	State	County	Grant/Contract	Hatch
$636,686	$902,391	$2,262,423	$216,030	$530,997

Delivery methods varied, but included significant effort in providing workshops to industry professionals that consult with and train farmers. Extension's web site and media alerts often focus on Goal 1 issues and provide timely research-based advice and programming. Educators and researchers reported that tens of thousands of newspaper, newsletter, web site articles and publications were distributed around the state. In 2005, an emphasis was placed on audience analysis studies that enable regional educators to more clearly understand where industry professionals and producers currently receive information, how they use it, and what new information is needed.

Outcomes: Each of the selected educational program goals are linked by research to improvements that increase the profitability, productivity safety, and compliance of the farming and horticulture industries. Farming for Tomorrow programs assess that acquisition of knowledge. Horticulture programs train industry professionals and create a strong network of qualified volunteers who are well-known for their consultation with garden and yard growers throughout Minnesota.

Key Theme: Agricultural Profitability (Joint)

(Ref. 2004-2006 Plan of Work) Goal 1, Program 1: Farming for Tomorrow
Program Component: Agricultural Financial Management

Description: The mission of the Center for Farm Financial Management and the U of M Extension Service Agricultural Business Management program is to improve farm financial and risk management through research-based educational programming, trainings, publications, and software. This program serves farmers, ranchers, university/technical college educators, lenders, veterinarians, and other public agencies and businesses that can use educational information to make the agricultural economy more profitable. This program is built upon research and data base construction that was described in our report regarding Hatch funds in 2003.

a. Impact:

Behavior Change:
According to the Extension program *Winning the Game* follow-up evaluations conducted six months after program delivery, targeted workshops created the following changes in farm management behaviors:

- 90.3% of participants developed a pre-harvest marketing plan.
- 98.6% utilized a revenue-based crop insurance to manage production and price risk.
- Those attending stated that they pre-harvest marketed 12.2% more corn, 29.2% more soybeans, and 12.8% more spring wheat than the previous year.
- 76.1% reported developing a post-harvest marketing plan. Of those producers, 90.3% implemented the plan.
- 68% stored less corn than the previous year, and a total of 61.8% of participants stored less soybeans than the previous year.

Economic Impact:
Based upon one follow-up evaluation of *Winning the Game* programs completed six months after program delivery, participants reported an increase in crop revenue of $0.20 per bushel of corn sold, $0.29 per bushel of soybeans sold, and $0.11 per bushel of spring wheat sold. This is an increase in net farm income by $5,400 to $9,900 per participant farm. Total financial impact of the program effort was $5.5 million.

Based upon another follow-up evaluation of *Winning the Game* completed six months after program delivery, participants reported an increase in revenue of $0.26 per bushel of corn sold, $0.52 per bushel of soybeans sold, and $0.22 per bushel of spring wheat sold. This is an average increase of $4,800 per participant farm. Total financial impact of the program effort was $3.2 million.

Based upon follow-up evaluation, 92.3% of participants in *Farm Transition and Estate Planning* program, 92.3% stated they would develop and implement a farm transition plan and associated estate plan, the total impact for the program effort was $93.3 million.

Based upon an evaluation of marketing club participants, it was found that because of participating in the marketing clubs and utilizing the techniques taught, producers gained on average an additional $20,401 in net farm income.

b. Source of Funding: Smith-Lever 3b&c, state, county, sponsorship fees from various ag commodity groups and a Community Assistant Partnership Grant

c. Scope of Impact: Multi-state, Integrated Research and Extension (DE, IA, MN, ND, NE, SD, TX, WI)

Integrated Research from the MAES Plan of Work

Description: Results of ongoing research evaluating the viability of Minnesota family farms determined that average farm income for the 125 farms in the Southwestern Minnesota Farm Business Management Association was $98,300 in 2004. In constant dollars, 2004 was the third most profitable year for Southwest Association farmers in the past 20 years. Average farm income for the 46 farms included in the Southeastern Minnesota Farm Business Management Association was $113,400. 2004 was the most profitable year for Southeast Association farmers in the past 20 years.

a. Impact

The annual farm financial reports are used by farmer-members and many others. Bankers utilize these reports to check their own data and to compare to their customers'. Other farmers use them as a point of comparison for their own operations. People interested in investing in farmland use them to evaluate potential returns. Companies use them to evaluate the potential profitability of their potential markets. Reports explain current conditions to legislators, media and the general public.

b. Source of funding: Hatch

c. Scope of impact: State

Description: The FINBIN farm management database has been further developed and expanded to include data from seven states. This database allows producers and agricultural professionals to search and query actual additional farm data from more than 3,200 farms representing more than 2.9 million acres of crop land, over 72,000 dairy cows, and over 2.1 million pigs. Extension farm management association and technical college farm business management education programs in nine states are cooperating to expand farm management assistance provided producers.

a. Impact

As a result of this research, producers and agricultural professionals have access to a dynamic benchmarking database to explore financial topics such as differences between GMO crops and non-GMO crops, large and small dairy herds, different tillage systems, farm sizes, and geographic

locations. The magazine *Farm Futures* called FINBIN "the big dog of public databases." FINBIN reports were used in presentations on financial benchmarking at the 2005 ABA National Agricultural Bankers Conference, the Minnesota Crop Insurance Conference, and in presentations on using cost of production in market planning in the award-winning *Winning the Game* workshop series in several Midwest states.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Key Theme: Agricultural Competitiveness (Joint)

(Ref 2004-06 Plan of Work) Goal 1, Program 1: Farming for Tomorrow
Program Component: Production Systems – Dairy Modernization Program

Description: The *Dairy Modernization* program works with dairy producers to improve the profitability of dairy businesses. A major program effort is the Minnesota Dairy Initiative Program, a collaborative effort to increase dairy income by reducing somatic cell counts. In seven regions throughout the state, this initiative educates dairy producers and other dairy industry professionals. This program manages farm management teams, field days, educational conferences and other initiatives in order to create a strong impact statewide.

a. *Impact:*

Improved health for milk-producing herds: At the beginning of the decade, Minnesota was among the dairy states with the highest average somatic cell counts. According to University of Minnesota dairy scientists, these high counts robbed farmers of nearly $53 million in potential income every year. Concerned about the impact on the dairy sector, the Minnesota Department of Agriculture (MDA) joined with the University, producer groups and processors to help farmers reduce somatic cell counts. When the program started in June 2003, the state's average SCC hovered above 400,000.

In June of 2005, Minnesota Agriculture Commissioner Gene Hugoson announced that Minnesota's dairy farmers are closing in on the goal of reducing average herd somatic cell counts to below 300,000 in 2005. The median SCC was 305,000 in May, putting the state within reach of the 300,000 goal. Overall, the May DHIA average was down 20,000 from May 2004 and down 60,000 from May 2003.

b. ***Source of funding:*** Smith Lever 3b & c, state, county, State of Minnesota MDI program, Minnesota Department of Agriculture, Sponsorships, Dairy Associations

c. ***Scope of impact:*** Multi-state Integrated Research and Extension (IA, IL, MN, ND, SD, WI)

(Ref. 2004-06 Plan of Work) Goal 1, Program 1 Farming for Tomorrow
Program Component: Beef – Animal Identification Systems

Description: The new *National Animal Identification System* is designed to trace animals to the physical locations where they have been so that threatening disease spreads can be identified and isolated within 48 hours. The U of MN Beef Team, in coordination with the USDA, Minnesota's Department of Ag and MN Board of Animal Health, delivers research-based education to

Minnesota's livestock industry in order to increase levels of beef registration into the system. The U of M Beef Extension Team developed and coordinated professional Animal ID "Train the Trainer" for education to Extension ag/livestock staff, veterinarians and other agriculture industry professionals. A total of 28 National Animal ID Trainers were certified to deliver animal ID information and value-added opportunities to Minnesota's livestock industry. Extension staff also delivered over 121 educational Animal ID sessions in 2005.

a. Impact:

Animal Registrations: The impact of Extension's outreach efforts is reflected in the registration of Minnesota's livestock premises (physical location of livestock operations) by livestock producers. *Minnesota ranks in the top 7% of states with premises registrations to date*. In 2005 over 25% (10,485 Minnesota livestock farms) voluntarily registered their premises in the new National Animal ID Program.

b. Source of funding: Smith-Lever, Hatch, Minnesota Board of Animal Health (USDA)

c. Scope of impact: Multi-state Integrated Research and Extension

(Ref. 2004-06 Plan of Work) Goal 1, Program 2: Bountiful Horticulture: Gardens & Foods Program Component: Honeybees in Northern Climates

Description: Research conducted and reported to CSREES three years ago developed new ways to reduce the amount of pesticide and antibiotic use in honey bee colonies for control of two harmful PESTS: 1) the parasitic mite, Varroa destructor, and 2) the highly contagious bacterial disease, American foulbrood. In 2005, research-based educational materials guided beekeepers to make sound treatment decisions. The project works with commercial beekeepers to breed for traits that allow the bees to actively resist diseases and mite pests. The breed of bees is selected for hygienic behavior and reduced mite reproductive success. A web-based course for beekeepers is being developed that emphasizes treating colonies for diseases and mites only as a last resort. A new research project aims to develop a sampling guideline for beekeepers to enable them to develop effective treatment decisions to control Varroa mites.

a. Impact:

Research Discovery: Funds are being pursued to study the effect of propolis on bee health; controlling Varroa mites and American foulbrood, and on how bees locate and recruit other bees to plant sources that secrete the resins.

Behavior Change: In 2005, beekeeping supply businesses and bee breeders report they are selling tens of thousands of queens from the Minnesota hygienic line all over the U.S. and Canada.

Economic Impact: Using pesticides increases costs; moreover, labor is required to apply them. Colony losses have more than doubled in many cases even with the use of the pesticides due to re-infestation and increase in the overall stress imposed by the mites. If beekeepers decrease by one-half the number of pesticide treatments applied using resistant bee stock, operating costs are decreased by 50%. Reduction in pesticide use by beekeepers enhances environmental quality and economic viability of individual beekeeping operations, strengthen an agricultural system based on small and moderate-scale owner operated farms, protect human health and safety by preventing the risk of contaminating honey and hive products and promote the well-being of the world's vital pollinators of crops, gardens and wildflowers.

b. ***Source of funding:*** Smith Lever 3b & c, state, county, National Science Foundation, North Central Sustainable Agricultural Research Fund, National Honey Board and Beekeeping Associations in MN, ND, SD, IA, and WI

c. ***Scope of impact:*** Multi-state Integrated Research and Extension (WI)

Integrated Research from MAES Plan of Work:

Description: Research continues on the development of new barley varieties with resistance to Fusarium Head Blight (FHB), desirable field performance, and acceptable malting quality. In 2005, 51 early generation populations and 1574 F5 lines were evaluated for FHB resistance in nurseries in three locations. Two of our four variety candidates were rated satisfactory in industry pilot-scale malting evaluations.

a. Impact
The latest variety release, Lacey, was grown on 18.5 percent of the acres in Minnesota, North Dakota and South Dakota in the 2005 growing season which is up from 13.6 percent in the 2004 season.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description: Low-input dairy systems are gaining favor among small and moderate size dairies and custom heifer growers in Minnesota and across the Upper Midwest. There are many management decisions in a low input system. Forage species selection, pasture management, seasonal calving, and raising dairy heifers on pasture are just a few of them. This project evaluated the economic feasibility of these management choices. A three-year on-farm research trial determined that raising dairy heifers on pasture is both technically and economically feasible. The net returns per acre for raising dairy heifers exceeded average net returns per acre for corn and soybeans over the three years of the research trial.

a. Impact
The comparison of pasture versus feedlot systems for raising growing dairy heifers is being used by professional custom dairy raisers in the Upper Midwest. It provides objective comparisons of productivity and costs of two production systems. In addition, the calculations of returns per acre allow producers to evaluate expected returns for converting corn and soybean acres into pasture.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description: Soybeans occupied approximately 2.7 million hectares in Minnesota in 2005 with an average yield of about 2.8 Mg/ha. Publicly developed cultivars were grown on about eight percent of the soybean hectarage. Several cultivars developed by the Minnesota Agricultural Experiment Station are grown extensively. Two new cultivars were released in 2005. One cultivar had very high yield and one contained the glyphosate resistance gene.

a Impact
Recently released general purpose and special purpose Minnesota cultivars contributed about $1,000,000 extra income in 2005 compared with yield of older cultivars.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description. The Indian meal moth (IMM) is a major pest of grains and processed foods. Infestation caused by this pest can cause food contamination and loss of revenue for producers and processors. Despite being one of the most cold-hardy stored-product pests, research has determined the response of IMM to low temperatures and the conditions under which these temperatures could control this pest.

a. Impact
The control of Indian meal moth in raw grain depends on chemical protectants or fumigants for disinfestation purposes. For stored grain alone, losses of 7-20 cents per bushel of grain may occur through damage and related control activities. With the upcoming loss of methyl bromide and the potential risk of resistance to hydrogen phosphide, new control tactics for this insect are needed. Further, disinfesting and protecting organic-certified grain is another major concern because none of the currently registered protectants or fumigants can be used on grain destined for the organic market. Our work has demonstrated there is sufficient capacity of low temperatures to disinfest grain in the upper Midwest. This project demonstrated a simple system of control easily employed by producers using readily available equipment and ambient temperatures.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description. Foliar fungicides have been marketed to farmers to provide yield improvement even in the absence of foliar pathogens. Several studies were done to investigate the potential beneficial effects of foliar fungicides for Minnesota grown soybean. No positive yield or seed quality effects were detected in these studies.

a. Impact
Thousands of Minnesota soybean producers have purchased foliar fungicides for their soybean crop based on recommendations by the chemical industry. Minnesota research indicates that prophylactic use of these fungicides is impractical, and economically (and potentially environmentally) costly. Although up to one million acres of Minnesota soybeans have the potential to be treated, research results will greatly reduce needless application.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description. Research on nutrient management in Minnesota cropping systems has reduced losses in soybean from iron chlorosis. In other objectives under this project, it was found that 2003, 2004, and 2005 responses to N fertilization by non-resistant and resistant sugar beet varieties for rhizomania were not different. This information will change the current N recommendations.

a. Impact

The economic impact of the research conducted as part of this Experiment Station project has reduced losses to soybean producers from iron chlorosis by $12,500,000 a year in Minnesota. The impact of the nitrogen management research for sugar beet producers decreased expenses in fertilizer and processing by $46 per acre for growers.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Goal #2:
A safe and secure food and fiber system.

Overview

Fifty percent of the food dollar is spent on meals prepared by the food service industry. The majority of food-born outbreaks in Minnesota are caused by improper handling in food service situations. In response, Extension offers both on-line and community-based, face-to-face courses about food safety. Online information expands the geographic reach of the program. The ultimate goal of these food safety programs is for producers and consumers to become more knowledgeable about food safety issues.

In 2005, two impacts on the theme of food safety are being reported. The food safety program team spent a significant portion of this year piloting bi-lingual course materials in order to reach non-English speaking food service workers. In 2006, the course structure will undertake cultural adaptations so that courses more successfully educate the growing population of Latino service workers. In addition, the team has discovered ways to reach low-income families, seniors and children. Finally, research has made valuable contributions to food safety through new technologies passed on to food processing industries.

Course content is updated through partnerships with sanitarians from the Minnesota Department of Health, the Minnesota Department of Agriculture and county and city public health departments that advise the program of current issues. They also play a key role in marketing the program.

Table 3: Inputs and Outputs Summary, Federal Goal #2, University of Minnesota Extension, 2005

	Food Safety: Producer to Consumer
# FTE	13
# Program Participants	1,327
Number of meetings, workshops, presentations, seminars, etc.	53
Numbers of media presentations made	9

Table 4: Sources of Funding for Federal Goal #2: University of Minnesota Extension, 2005

Smith Lever 3B&C	State	County	Grant/Contract	Hatch
$247,452	$343,986	N/A	$121,025	$41,844

Outcomes: Extension's food service worker certification makes a significant contribution to the food service industry in Minnesota. In 2004, 96% of food managers completing the course passed with a score of at least 75% and are eligible to become certified with the Minnesota Department of Health. In our 2004-2006 Plan of Work, the goal was to pass 95% of the workers on the first try. In 2005 (as reported in 2004) evaluation studies continued to give evidence that workplace environments were becoming safer because of education to food service managers. This has an economic impact because the cost for every outbreak of food borne illness is $75,000. (National Restaurant Association)

The focus in 2005 was to design programming and observe outcomes and impacts for establishments on the "fringes" of food service – day care providers, and day and foster care licensors.

Key Theme: Food Safety (Joint):

(Ref. 2004-06 Plan of Work) Goal 2, Program 1: Food Safety: Producer to Consumer
Program Component: Food Safety for Food Service Workers

Description: On June 7th a two-hour *To Your Health!* Food safety session was piloted for family practice nurses, Day Care Providers and Day and Foster Care licensors. All participants were pre-selected based on professional experience and place of residence. Participants received a food safety tool kit. The course content was tailored to meet the needs of a professional audience that serves high risk clients such as pregnant women, infants, young children and seniors.

a. Impact

Behavior Change:

1. In post sessions, 100% stated that the course would have a long-term impact in regard to changes that make day cares safer.
2. Within one month, 100% of those trained had used the items in the food safety kit in their professional service to high-risk groups, with benefits for those groups.

Community Action*:*
The pilot program discovered effective ways to integrate food safety checks into existing community-based institutionalized programs. As a result of *To Your Health! Food Safety for High Risk Audiences*, several counties had Public Health Home Health Aids check the refrigerator/freezer temperature in the homes of the elderly families they serve. One school district's Early Childhood Family Education staff checks for general food safety issues when they do home visits. If they note any concerns, they recommend the parents attend this Extension course. In addition, a public department work unit for the developmental delayed is working on changing hand washing policy. Because of the usefulness the tools and content are having, this pilot will be replicated more widely in coming years.

b. ***Source of funding:*** Smith Lever 3b & c, state, county, participant fees

c. ***Scope of impact:*** State Integrated

Integrated Research MAES Plan of Work:

Description: New government mandates in the ready-to-eat foods industry require testing for Listeria on a regular basis. It is essential that facilities have a rapid method to determine if the pathogen is present in their environment so that they can control its presence in food products. Researchers have been working on developing and implementing "real-time" assays for food pathogens to help the food industry control potential food borne outbreaks and help the industry meet the regulatory requirements in microbiological testing, both economically and efficiently.

a. Impact

Researchers developed a Listeria assay which detects down to 10 Listeria cells and this assay has received AOAC approval. A 90-minute immuno-magnetc chemiluminescent assay for the detection of Listeria in environmental samples has also been developed and submitted for AOAC approval and is being adopted by the food industry.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Goal #3:
A Healthy and Well-nourished Population:

Overview

Sedentary lifestyles and poor dietary habits have contributed to the doubling of overweight frequency among children since 1980. Associated diseases such as diabetes are on the rise, robbing families of quality of life. Action in communities can make a difference for prevention of disease and promotion of good health. Creating environments that promote healthy eating and physically active lifestyles is a positive approach to the complex issue of childhood overweight.

Smith-Leever funds and integrated research are tapped to reach Minnesotans who are not income eligible to be engaged in the Food Stamp Nutrition Education(FSNE) program or the Expanded Food and Nutrition Education (EFNEP) program. However, much of the same research and educational content is delivered. Both focus on diet quality, food safety, food resource management and food security through behavioral change and institutional attention to diet quality. Minnesota's FSNE program served 38,692 youth, adults and seniors last year. The Expanded Food and Nutrition Education Program (EFNEP) served 5,053.

We are reporting impacts on one theme, describing one Extension program and two integrated research projects.

Table 5: Inputs and Outputs Summary, Federal Goal #3, University of Minnesota Extension, 2005

	Health and Nutrition Education
# FTE	1.5
# Program Participants	384
Number of meetings, workshops, presentations, seminars, etc.	36
# of media presentations	120

Table 6: Sources of Funding for Federal Goal #3, University of Minnesota Extension, 2005

Smith Lever 3B&C	State	County	Grant/Contract	Hatch
$111,097	$220,695	N/A	$3,892,056	$60,333

Outcomes:

In 2005, community lessons were developed around the new 2005 dietary guidelines, "My Pyramid" and the "WIC Reauthorization Local School Wellness" plans. In addition community outreach created awareness of healthy lifestyles.

Key Theme: Human Health (Joint)

(Ref. 2004-06 Plan of Work) Goal 3, Program 1: Health and Nutrition Education Program Component: Obesity Prevention in Communities

Description: In order to prepare to work with communities, Extension created a curricula and assisted in hosting Actions for Healthy Kids downlink satellites to inform stakeholders, agencies and food service workers about the upcoming Child Nutrition and WIC Reauthorization Act. The hundred page guide includes step by step community meeting process and nutrition education resources. Over 100 guides were purchased by schools to work with a large variety of community members toward developing their local nutrition and physical activity school plans.

Weight Issues: Obesity to Vitality was an educational packet used to reached community groups addressing the obesity issue and lifestyle changes. Participants shared this information in non-formal educational group settings with community members. Each participant reached approximately 5 other community members.

a. Impacts

Behavior Changes:

- Participants in *Weight Issues: Obesity to Vitality* created three personal goals to make healthy lifestyle changes—including increased physical activity, limits in snacking, increased consumption of healthy beverages, avoiding large portion sizes and seconds, and increasing consumption of fruits and vegetables.

- Educators trained food service workers and community organizations in the MyPyramid and New Dietary guidelines. Food service workers reported they had not studied the new changes between the Food Guide and the MyPryamid, and so this program reached an important audience who, in turn, improved the nutritional value of food service settings.

- 26% of health and nutrition professionals attended the *How America Eats: Health and Weight Management Implications* downlink satellite presentation from Iowa State University. Attendees changed their teaching methods and/or lesson plans to encourage their participants/clients to improve their own diets.

- *Jump into Food and Fitness* staff trainings were conducted across the state, focusing on activity and lifestyle. Strong impact was shown. Youth returned to sessions the following year sharing the main concepts of healthy living that they learned the pervious year.

- A lifestyles program was also integrated into Extension, based on the philosophy that Extension staff should model healthy lifestyles in communities. Nine offices completed the challenge with a total of 48 participants staying on a six-week physical activity and healthy eating program.

b. Source of funding: *Smith-Lever 3b&c, state, county*

c. Scope of impact: *State Integrated*

Integrated Research from MAES Plan of Work:

Description: Colon cancer continues to be one of the most common forms of cancers, and is one with a poor prognosis. It is clear that diet influences colon cancer risk, but which foods may be most protective against the development of colon cancer has remained uncertain. Researchers have studied the effects of wheat and cruciferous vegetable consumption in reducing that risk.

a. Impact

Researchers have shown that in an animal model of colon cancer risk, commonly consumed foods can impact colon cancer risk. Research has shown that red wheat (used primarily in bread-making), reduces colon cancer risk relative to white wheat. Second, they have found that three different types of cruciferous vegetables—watercress, green cabbage, and broccoli—are all highly effective at reducing risk. Thus, there is now evidence that two different dietary interventions show significant promise in reducing colon cancer risk.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-state

Description: Whole grain consumption is associated with reduced risk for chronic diseases; however, national dietary intake data show that children consume only one-third of the recommended three servings of whole grain foods per day. A school-based intervention research project was conducted to test a multi-component intervention including curriculum and school cafeteria menu changes.

a. Impact
Surveys administered to children and adults before and after the intervention showed that knowledge about whole grain foods increased for children. To our knowledge, this is the first published report of a multi-component school-based intervention designed to increase intake of whole grain foods by children. The results of this study indicate that modifying school cafeteria menus to include more whole grain foods can increase whole grain consumption by children to levels closer to the current recommendations. The successful outcome of this research has direct relevance to the National School Lunch Program and school meal policies. This research also demonstrates to the food industry that pilot testing of whole grain foods can be successfully implemented in a school food service program.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-State

Description: Since 1993, Minnesota researchers have painstakingly bred queen bees to propagate a new strain of bees with the genetic instincts to protect themselves. Now this bee research has led to an important human health connection. Propolis, or bee glue, is resin that bees collect from the leaf buds and bark of some trees. Researchers are collaborating with an interdisciplinary team including researcher from the University's medical schools to testing propolis against HIV.

a. Impact
Every propolis sample the researchers evaluated, (sourced from three sites in Minnesota, three in Brazil, and one in China) killed HIV in lab cultures. The propolis also appeared to at least partially inhibit HIV's ability to enter cells—an elusive and sought after property in potential HIV treatments. Propolis is a cheap, natural substance. Of the forty million people affected by this virus, ninety percent of them are living in the developing world and cannot afford the current, expensive HIV treatments. Funding is currently being sought for clinical trials.

b. Source of funding: *Hatch*

c. Scope of impact: *State and Multi-state*

Description: Research on food security is being conducted with additional funds from the National Center for Food Protection and Defense, as part on long term Hatch supported research on the changing structure of the food industry and consumers' food attitudes. A consumer survey has determined the relative value consumers put on defending the food supply as opposed to other

potential terrorist targets. This is a useful pilot test that has benchmarked retail food firms with respect to their readiness to defend their faculties and the food they handle from terrorist attacks.

a. Impact
This first-of-its-kind survey had a representative national sample of 4,200 U.S. residents. A key finding is that people believe guarding the nation's food supply merits more federal spending than protecting against any other potential terrorist target, from airports and rail lines to the electrical power grid and national monuments. The nation spends billions to shield the nation from terrorists. But until now, the Department of Homeland Security and Congress had no way of knowing what priorities Americans put on different protections. The results show that the American public expects their food supply to be well protected. The food industry has worked hard to keep accidental contaminants from entering the food supply chain. Consumers expect the same kind of effort to be made to protect against deliberate contamination.

b. Source of funding: Hatch

c. Scope of impact: State and multi-state

Description: Research in animal genomics has focused on the characterization and the manipulation of pig genome. Progress on this front has been reported in previous Accomplishment Reports. New technologies, coupled with genomic sequencing, enable the use of the pig as an alternative animal model (replacing laboratory mice) for study of human diseases such as cystic fibrosis and diabetes. The physiology of swine and their organs are remarkably similar to humans, making this an ideal animal model. In collaboration with University of Minnesota medical researchers, our researchers are investigating treatment for type 1 diabetes. They were able to reverse diabetes in monkeys by transplanting insulin-producing cells from pigs. If successfully applied to humans, genetically manipulated pigs could produce islet cells and provide an alternative to insulin injections.

a. Impact
This study raises the potential for an endless supply of insulin-producing cells to cure the disease that affects 20 million Americans. The study involved only a dozen monkeys. But it showed "proof of principle" that pig cells can cure animals that are close to humans. One Minnesota man believes the research is so promising that he's heading efforts to raise $20 million to build and operate a high-tech facility to raise pigs for future studies. So far his group has raised about $4 million.

b. Source of funding: Hatch

c. Scope of funding: State and Multi-State

GOAL #4:
An Agricultural System that Protects Natural Resources and the Environment

Overview

Three themes are reported this year, describing three Extension programs and integrated research projects. Four Extension program clusters address Goal #4:

1. Environmental safety and management programs address drainage issues, manure management, pesticide safety and waste and by-product management.

2. Natural Resource Management and Utilization programs assure that every Minnesotan, now and in future generations, can continue to enjoy and benefit from the wealth of Minnesota's natural resources. Minnesotans are more mobilized to make greater use of the land, its timber, and to preserve our land and timber for this generation and the next. The program mobilizes and educates volunteers, citizens, homeowners, professionals, loggers and tree inspectors.

3. Environmental Science Education Programs are a catalyst for environmental education that happen in school and community settings, with a special emphasis on helping teachers target underrepresented youth with education about the environment. Practitioners received the training and materials they needed to supplement curriculum of youth education, activity programs, and programs of water conservation districts with research-based environmental science education. These practitioners were better able to administer Minnesota Statute 115A.073 which states that pupils and citizens should be able to apply informed decision-making processes to maintain a sustainable lifestyle. Direct activities related to this work include student reports to lakeshore residents about the quality of their water, Environmental restoration projects and quality implementation of environmental field days that reach 10,000 students annually.

4. Water Resource Management and Policy Programs provide key audiences with the tools, skills, education and alternative solutions that make Minnesotans good stewards of Minnesota's waters and shorelands.

Table 7: Inputs and Outputs Summary, Federal Goal #4, University of Minnesota Extension, 2005

	Program 1: Environmental Safety and Management	Program 2: Natural Resource Management and Utilization	Program 3: Environmental Science Education	Program 4: Water Resource Management	Total Goal 4
# FTE	23	34			57
# Program Participants	14,356	1,422	3,534	30,501	49,813
# of mtgs., workshops, etc.	140	64	29	125	358
Media Presentations	75	68	24	75	242

Table 8: Sources of Funding for Federal Goal #4, University of Minnesota Extension, 2005

Smith Lever 3B&C	State	County	Grant/Contract	Hatch
$693,352	$921,640	$894,002	$222,274	$ 284,211

Outcomes: Through a strong network of organizations in education, natural resource organizations, nonprofits, industry professionals, business owners, home owners and more, our natural resource and environment education courses are invested in educational outcomes that motivate Minnesota to care for its environment. These educational outcomes leverage natural resource protection, creative uses of natural resources for economies, new dollars for environmental protection, and more sophisticated collaboration among industry, citizens, educators and government.

Key Theme: Agricultural Waste Management (Joint)

(Ref. 2004-06 Plan of Work) Goal 4, Program 1: Environmental Safety and Health Program Component: Manure Management and Air Quality Management

Description: In order to improve manure management, Extension educators lead groups of livestock, crop producers and agronomy professionals through the development of field manure/nutrient management plans. Since 2003, 710 participants have prepared plans in 68 workshops and made associated management practice changes. In 2005, twelve sessions were held in nine counties, attended by 137 participants. Information on planning and practice changes made by these participants was gathered through in-session and post-cropping season surveys.

This project was featured in the cover article in the April 8, 2005 edition of Successful Farming magazine.

a. Impact

Behavior change:

- Of 260 respondents to the post cropping season surveys (47% response rate), 60% had completed their plans for the entire farm as a result of the sessions, 4% were still completing their plans, while 10% had completed them prior to the sessions.
- Of respondents, the increase in practice adoption from pre-workshop to post-season was 21% for soil testing, 19% for testing manure, 21% for calibration of spreaders, 27% for crediting nutrients in manure, and 31% for keeping records of manure applications. An additional 10-19% indicated that they intended to adopt the practice within two years.

Increased Profitability

- 86% of participants calculated in the sessions that they would save an average of $14 per acre in fertilizer purchases if they followed their new plans and 56% would save more than $10 per acre. Of respondents, 92% were producers, managing an average of 785 acres, which indicates that the total crop acreage managed by all producer participants to date is approximately 513,000 acres. Assuming that the minimum of $14 / acre was saved on the 50% of those acres in corn production, the economic impact would be $3.6 million.

b. ***Source of Funding****:* Smith Lever 3b & c, state, county, Minnesota Pollution Control Agency, USDA, Environmental Protection Agency 319 and the Minnesota Department of Agriculture

c. ***Scope of Impact:*** State Integrated

Integrated Research from MAES Plan of Work:

Description: Multi-state cooperative research has measured emission rates of odor, ammonia, hydrogen sulfide, carbon dioxide and particulate matter from six types of animal confinement buildings for poultry and swine. Air sampling from two adjacent identical buildings for each type was conducted over a year and three months, revealing seasonal variation in emissions depending on emission and building type.

a. Impact

The air emissions from animal buildings reported from this project had a significant impact on both regulatory and dispersion modeling. Emissions data from livestock and poultry buildings found in this study are a valuable resource to individuals who need accurate estimations of various gas and particulate emissions to use in dispersion models to predict downwind concentration of particular pollutants. This is important for regulatory purposes, but also to site facilities to avoid adversely affecting neighbors.

b. Source of funding: Hatch and Multi-State

c. Scope of impact: State and Multi-state

Key Theme: Pesticide Application (Extension)

(Ref. 2004-06 Plan of Work) Goal 4, Program 1: Environmental Safety and Health
Program Component: Pesticide Safety Education

Description: *The National Integrated Pest Management (IPM*) Initiative was announced in 1994 with the intent to achieve a national goal of IPM implementation of 75% of crop acres by 2000. For the most part, this goal was met on high value crops, but not on commodity crops such as corn and soybeans. Creating awareness and interest in IPM practices, and relating them directly to farming practices can help promote and increase adoption.

To reach farmers with this information, the *Pesticide Safety* program team reaches farmers directly, as well as industry professionals and sales consultants who, in turn, reach farmers. The *Pest Management Assessment* administered in workshops and consultation has four goals: 1) to examine what IPM practices farmers are currently using; 2) to help farmers identify others they may need to consider; 3) to examine where farmers get information so that research-based information can be taken to those sources; and, 4) to assess whether farmer practices are improving because of consultation and workshops sponsored by the Extension Service.

a. Impact

Behavior Change:
Farmers reported behavior changes that were directly the result of Extension programming received over the past five years. Each of these behaviors is critical to integrated pest management.

- 60% said that they had increased the frequency of crop scouting to examine threats.
- 50% said that they were keeping more detailed records.
- 42% had implemented more safety precautions when working with pesticides.

- 42% said they had grown more confident in their ability to scout their acres.
- 33% said they had more confidence in the management decisions they made after they scouted their crops.
- An additional 70% said that they were seeking more information through educational programs, the internet and field days.

b. ***Source of Funding:*** Smith Lever 3b & c, state, county, participant fees

c. ***Scope of Impact:*** State Integrated

Key Theme: Natural Resources Management (Extension)

(Ref. Plan of Work 2004-06) Goal 4, Program 3: Environmental Science Education
Program Component: Best Practices in Environmental Field Days

Description: *Best Practices for Field Days* is a professional development program for those who educate youth through field day experiences; e.g., organizers, presenters, teachers and volunteers. Program content includes research-based practices that maximize the educational impact of events. When the impact of field days are maximized, there is a better educational return on the thousands of volunteer hours and public dollars invested in these events.

The educational goals of the program are to guide program participants to:

a) collaborate for more economical, efficient and effective field day programs;
b) develop an "interest pipeline" of youth who explore careers in natural resources, science and technology; and,
c) increase citizen environmental literacy and their ability to proactively protect and enhance the environment.

a. Impacts
According to post workshop assessments, the program achieved the following outcomes in 2005:

- More field day programs followed best practices guidelines as measured from baseline data.
- Environmental science educators demonstrated that their efforts were linked to formal education standards, the environmental literacy scope and sequence, and credible research.
- Three-eight months after the workshop, 95% of survey respondents still agreed that the workshop raised the quality of their educational programs.

b. ***Source of funding:*** *Smith-Lever 3b & c, State of Minnesota*

c. ***Scope of impact:*** *State Extension*

Goal 5
Enhanced economic opportunity and quality of life

Overview:

Six areas of expertise address Goal 5.

1. Agricultural Workplace Safety and Health Programs reduce hazards and improve specific safety-related behaviors in the work environment of the agriculture and food industry.
2. Community Youth Development and 4H Youth Development Programs provide quality learning opportunities during non-school hours, develop Minnesota's future citizens and leaders, and help professionals and community leaders prepare to provide positive out-of-school experiences to youth.

3. Community Economics Programs create a network of informed citizens and leaders who think strategically about the future of economies in their communities and regions. Besides Extension educational formats, the Department of Applied Economics provide consultations to community and state leaders, government administrators and the media as state problems related to economics and public policy arise.

4. Leadership and Civic Engagement programs enable leaders and citizens to act knowledgably to solve problems together while staying true to principles of democracy.

5. Family Resource Management programs increase fiscal stability and money management skills of Minnesotans in order to reduce some of the causes of poverty.

6. Parent Education programs provide research-based training, education and information to families as they in making decisions about raising children during challenging times.

Table 9: Inputs and Outputs Summary, Federal Goal #5, University of Minnesota Extension, 2005

	Pgm 1: Ag Workplace Safety & Health	Pgm 2: Youth Development	Pgm 3: Community Economics	Pgm 4: Leadership & Civic Engagement	Pgm 5: Family Resource Mgmt	Pgm 6: Parent Education	Total all Goal 5 Programs
# FTE	3	133	15	15	20	20	206
# Program Participants	672	159,211	8,905	5,529	4,932	3,430	182,679
# of volunteer hrs. provided	*	1,062,979	*	249		1,047	1,064,275
# of mtgs workshops, presentations, seminars, etc.	13	23,000	163	248	324	200	23,947
# of consultations with individuals, families or business firms	n/a	n/a	24,191	n/a	n/a	n/a	
# of media contacts	35	372,866	513	9	15	316	373,754

Table 10:Sources of Funding for Goal #5, University of Minnesota Extension, 2005				
Smith Lever 3B&C	State	County	Grant/Contract	Hatch
$1,977,906	$2,345,301	$7,035,988	$1,986,667	$79,859

Outcomes:
Many Extension Goal 5 programs have undertaken studies that measure knowledge gains and track longitudinally the effects of programming on the choices that individuals, organizations and communities make. By using post-program evaluations, maintaining contact with program recipients and providing "after care" to program participants, we can tell the stories of positive outcomes and impacts in many cases.

Key Theme: Youth Development/4-H (Extension)

(Ref. 2004-06 Plan of Work) Goal 5, Program 2: Community Youth Development and 4H Youth Development
Program Component: 4-H Youth Development

Description: According to longitudinal research about youth programs, investment in 4-H programs pays off in developmental outcomes. Youth learn to be productive and to connect and navigate their social world. 4H programs also improve long-term outcomes in adulthood, including economic self-sufficiency, healthy relationships, and involvement in communities (Gambone, Klem and Connel, 2002). Our own research[2] supports these linkages. Nearly all (86%) Minnesota 4-Hers report active parent involvement. With community service as a key aspect, 80% assert that they are making a difference in their communities through 4-H.

a. ***Impacts***

Healthier Youth Development: In studies of Minnesota's 4-Hers, 71% say they were learning to take positive risks, 89% say they built new friendships, 90% learned goal-setting and 95% learned teamwork skills. 69% are learning about careers to pursue, 79% are practicing leadership skills and 62% are learning about diversity and new cultures. When compared to other youth in Minnesota of similar ages/grades, 4-Hers were more likely to volunteer in their community than their peers (53% vs. 32%). They are also less likely to spend six or more hours a week watching TV (15% vs. 44%). They are less likely to have smoked cigarettes (19% vs. 26%) and less likely to have drank alcohol (23% vs. 37%).

Longitudinal Impacts: In 2005, 4-H was involved in the National Longitudinal Study of Positive Youth Development. This study is being conducted out of Tufts University. A summary of the study is available at: www.fourh.umn.edu/evaluation/4hpydstudy.html

b. ***Source of Funding***: Smith Lever 3b & c, state, county, USDA, Center for Public Health Preparedness (CDC), National Institute of Health, U of Minnesota Experiment Station Rapid Response, and multiple other sources

c. ***Scope of Impact:*** Multi-state Integrated (every state)

[2] Marczak, M. S. (2002) A Comprehensive Approach to 4-H Youth Development Evaluation: Proving the Difference We Make. IRB Study Number: 0109S07221.

Key Theme: Family Resource Management (Joint)

(Ref. 2004-06 Plan of Work) Goal 5, Program 5: Family Resource Management
Program Component: The Mentorship Model of Financial Management

Description: Current studies document the need for community-based training in financial literacy. From 1990 to 2000, the rate of personal bankruptcy in the United States rose by 69 percent. It appears this trend will continue, supported by recent statistics showing a 19.2 percent increase between 2000 and 2001. High school seniors taking part in a 2002 national survey of financial knowledge scored an average of 50.2 percent—a failing grade. Scores have been declining since the first survey was administered in 1997. The United States reportedly has the lowest individual savings rate in the industrialized world. In 2001, an AARP survey of older baby boomers (age 51-59) showed that nearly 40 percent were not confident about a secure retirement. (National Endowment for Financial Education, 2002)

The *Community Educator Mentorship Program* was designed to build an infrastructure of financial literacy in community social service and educational settings where low- and moderate-income individuals and families can be reached "where they're at." In doing so, Family Literacy educators are solving a problem of both quantity and quality for financial literacy information in communities. Curricula passed on to community partners by Extension cover a wide variety of topics. In 2004-2005, 45% of trainers trained utilized the following content guides and tools:

- Credit Quizzes
- Mind Your Money Games
- How Does Your Budget Stack Up? (Activity)
- Teaching Techniques about Credit
- Affluenza Quiz
- Credit Scoring Power Point

a. Impact

Behavioral Change for Financial Literacy Program Users: U of MN Extension's 2004 report outlined the impact of fiscal literacy programs on program participants. For example, 280 participants developed spending plans to manage ongoing income and expenses. Program participants reviewed social security statements, identified later life financial goals, saved and invested money, created spending plans and kept track of where money is spent. These Extension curricula and training successfully reach non-English speaking residents in American systems. In a representative sampling of 352 immigrants participating in financial literacy programs, 88% were able to assess how much credit they could afford, 93% reported they knew how to get a credit report and what was in it, 78% knew ways to build a credit history, 97% reported knowing how to open a bank checking or savings account, and 25% of those who didn't have an account got one after the program. Additionally 96% reported understanding cost-saving ways to transfer money internationally.

Improvement in the Quality and Quantity of Community-Based Financial Literacy Programming: The train-the-trainer system uses Extension's effective tools to increase both the quality and quantity of financial literacy available in Minnesota communities. In a study of 24 participants of the train the trainer program delivered, a resulting 94 classes had reached 950 students. Outcome studies conducted with the community-based educators demonstrate that financial literacy train-the-trainer programs helped community-based practitioners to:

- Integrate personal finance education into ongoing program offerings.
- Establish coalitions that bring additional personal finance resources and opportunities to neighborhoods and individuals.
- Spawn the development of personal finance clubs among program participants. These finance clubs help low and moderate income families and individuals stay abreast of resources and financial information.
- Stimulate communication about financial literacy among family members so that changes were made to enhance a family's financial health.

b. ***Source of Funds:*** Smith-Lever 3b&c, state, contracts with communities

c. ***Scope of Impact****:* Multi-state and Extension (CT, FL, IA, KS, LA, MI, MN, MO, ND, NY, VA, WI and four Canadian provinces)

Integrated Research from MAES Plan of Work:
Research is targeted at helping Minnesota families manage financial resources, improve economic stability and create quality of life at several stages of the life cycle. Research has focused on housing, tax policies, retirement strategies and low-income family support. The results informed legislative policymakers and led to educational programs and public understanding of the complex issues families face to establish and maintain financial stability.

Description: Final reports were written from data analysis of 25 families who participated in the *Match Savings Program* to build assets – own a home, small business or higher education. Low-wage families, who do not have access to the government subsidized programs such as 401(k) and property tax deductions, had access to Individual Development Accounts through a national model. Most wage-earning families reached their goal over the four year program and were motivated to build assets through the structured program.

a. Impact
The Minnesota Legislature made *Family Assets for Independence* in Minnesota a permanent program based on research findings from this qualitative study, and the quantitative data of the 500 families in the pilot program. Over the four years of the study, FAIM coordinators adjusted the program based on findings from the semi-annual interviews with 25 participants. They clarified rules for savings to be matched, coached participants in goal-setting, and sought additional resources to improve the financial coaching.

b. Source of funding: Hatch

c. Scope of impact: State

Description: The financial security of Minnesota's families, as well as the security of the state's economy will be adversely affected if Minnesotans are not adequately prepared to make informed decisions about financing long term care. An examination of long-term care financing decisions facing family members identified key factors that explain gaps in intentions and behaviors. Findings suggest that many Minnesotans are not prepared to take personal responsibility and make decisions about financing long term care. Findings were disseminated to practitioners and policymakers through presentations to a State of Minnesota policy direction conference; a Care Providers Association statewide conference presentation; and training University of Minnesota and University of Wisconsin Extension educators. Findings were also shared at the Gerontological Society of American national conference.

a. Impact
A report of the Minnesota Department of Human Services to the Minnesota Legislature in January 2005 cited the research in this project as a basis for recommendations, and project related educational resources as models to be used statewide.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-State

Description: A multi-state research project to evaluate the quality of life of low-income rural residents focused on the stability of employment in rural Minnesota. The results of this longitudinal study showed that having medical insurance and working more than 30 hours were key contributing factors to employment stability.

a. Impact
A University of Minnesota Extension Service project used the findings to build a program that integrates into its logic model an understanding of how resources are used across various ethnic groups. Findings have also been used to support programs that link information about working and Earned Income Tax Credits for rural poor families.

b. Source of funding: Hatch

c. Scope of impact: State and Multi-State

Description:
Child care assistance provides important support to low-income working families for whom child care costs might otherwise consume a sizeable portion of the family budget. Research in Minnesota tracked the employment and earnings of families who received child care assistance and found average earnings gains of about $2,000 over a three-year period.

a. Impact
This research has informed state policymakers about the role of child care assistance in the Minnesota economy. The study tracking families' outcomes over time has provided state and county program managers with much needed information on families' need for assistance over time and allows for improved expenditure forecasts.

b. Source of funding: Hatch

d. Scope of impact: State

Key Theme: Parenting (Joint)

(Ref. 2004-06 Plan of Work) Goal 5, Program 6: Parent Education
Program Component: Parents Forever for Divorcing Parents

Description: Research on children's adjustment following divorce assesses what conditions create a risk for child maladjustment, and what creates resilience among children in divorcing families. A summary of that research notes this implication for practice:

> *Interventions are more likely to benefit children from divorced families if they seek to contain parental conflict, promote authoritative and close relationships between children and both of their parents, enhance economic stability in the post-divorce family and, when appropriate, involve children in effective interventions that help them have a voice in shaping more individualized and helpful access arrangements (Kelly, 2002).*

Parents Forever is a twelve-hour educational program for parents going through divorce with a goal of helping families reduce risk and create resilience among the children of divorce. It encourages parents to negotiate divorce decisions without putting their children in the middle of their issues or forcing the children to choose one parents over the other. The program is delivered by Extension educators and also by trainers trained for delivery by Extension staff. *Parents Forever* is mandated by judges when families in divorce court appear to be posing high risk for children. Others participate voluntarily.

a. Impact

Post-program evaluations of parent behaviors indicate that the program creates change in how parents handle divorce. Specifically:

Table 11: Evaluation of Parents Forever Impacts

	Lowest % of behavior change within studied *Parents Forever* workshops	Highest % of behavior change within studied *Parents Forever* workshops	Average behavior change – all workshops
Parents eliminated conflict in front of their children.	45%	100%	73%
Parents were working towards putting the best interest of their child first.	75%	92%	82%
Parents were working toward permitting children access to both parents.	60%	92%	82%
Parents were working to avoid putting their children in the middle.	45%	83%	65%

b. Source of Funding: Smith-Lever 3b&c, state, contracts with communities

c. Scope of Impact: Multi-state integrated

Integrated Research from MAES Plan of Work:

Description
The Family Formation Project is a research project on the transition to fatherhood. This is a demonstration project aimed at determining methods to support the relationships of urban unmarried new parent couple to aspire to form a stable family and who say that marriage is a goal for their relationship. Community leaders were recruited as stakeholders in the project through forming a Partnership Group and mentor couples were recruited to work with new couples.

a. Impact
Researchers found that an eight-session educational intervention for new parent couples was successful in enhancing father involvement and skills when interacting with their infants. This finding is significant because it previously had not been known whether a relatively brief educational intervention for non-risk fathers could enhance their involvement and skills. Educators and health professionals now have an effective educational tool for their work with expectant and new parent couples. The Family Formation Project has also shown that it is possible to mobilize lay and professional leaders around the goals of promoting healthy marriages in low income communities. More involved and skilled fathers have a positive impact on the social and economic outcomes of their children. The formation of more stable, healthy marriages in low income communities has widespread positive impact on the social and economic fortunes of families and communities.

b. Source of funding: Hatch

c. Scope of impact: State

II. Stakeholder Input Process Update

A. Actions taken to seek stakeholder input that encourages their participation.

In 2005, stakeholder input was gathered in the following ways:

- Regional directors worked closely with each county Extension Committee and board of commissioners to choose the investment of dollars for Extension programming. Where investment decreased, regional directors are working with decision-makers to determine future needs. Of Minnesota's 87 counties last year:
  - 85 chose to invest in youth development programs;
  - 45 chose to invest in agriculture and food sciences;
  - 5 chose natural resources and environment programs;
  - 4 four chose family development programs; and,
  - 3 chose community vitality.
  - Some counties chose to invest in programming from the regional office.

  Monitoring last 2004 investments against 2005 investments helped to measure ongoing county stakeholder commitment to Extension programs and, thus, our responsiveness to their concerns. In 2005, 86% of counties chose to increase their investment in Extension programming. County investment in Extension increased by an average of 6.4% per county. The chart below examines the investment of Minnesota's 87 counties in Extension Programming:

Table 12: assessment of county stakeholder investments in Extension.

% of Increase / Decrease From FY 2004 – FY 2005	# of counties	% of Counties
- 50%	1	1%
-12% – 0%	11	13%
	(Total % decreasing or maintaining)	***14%***
+ 1 – 10%	47	54%
+ 10 – 20%	15	17%
+ 20-30%	5	6%
+ 30 – 40%	4	5%
+ 40 – 60%	3	3%
+ 150%	1	1%
	(Total % increasing investment)	***86%***

- Program teams continued to improve the quality of programming in collaboration with academic staff and key stakeholders. The emphasis this year was on the completion of business plans and evaluation strategies. More programs analyzed their target audiences to reach them more effectively. Teams conducted environmental scans, analyzed trends, reviewed literature, gathered secondary data and talked to target audiences through focus groups.
- Regional Extension Directors acted as a liaison to stakeholders in the region. In 2005, the needs assessment process was analyzed and revised, with significant changes made for 2006 and beyond.

B. Brief statement of the process used to identify individuals and groups who are stakeholders and to collect input from them.

The chart below describes our stakeholder input process:

Table 13: Processes for Stakeholder Input Process, University of Minnesota Extension, 2005

Group	**Process for collecting input**	**Who is responsible?**	**Documentation**
Statewide Extension Citizen Advisory Committee (Volunteers from Minnesota's various geographies and diverse interests.)	o Three meetings per year o Conference calls two – three times a year o Regular distribution of memos and reports	Dean and Director	Agenda Minutes Meeting summaries Correspondence
Local Fiscal Partners; e.g., county commissioners and Extension committees	o Regular review of programs at County Extension meetings. o One-on-one meetings with commissioners. o Attendance of local partners at program showcases, Extension gatherings, etc.	Regional Extension Directors Liaison to the Association of Minnesota Counties	MOUs which align local positions to priorities. Written summary of County Extension Committee meetings. Local needs assessments
Current program participants	o Participant satisfaction surveys o Repeat interest in Extension programs	Regional educators and program leaders	Program business plans that include information about past participation and program adjustments
Targeted program audiences and constituents	o Getting acquainted meetings o Surveys and feedback forms at program showcase events o Market Surveys	Regional Educators, Campus Specialists and Regional Directors	- Program outreach materials and strategies that address key concerns of the target audience. - Program business plans that incorporate feedback into an outreach plan for the audience.
Regional Educators and Campus staff	o Regular program meetings that design research-based programs	Area Program Leaders and Capacity Area Leaders; Associate Dean and Director	Program Business Plans Individual Work Plans
Legislators and Higher Ed Committee	o Personal Meetings and Committee Presentations	Dean and Director; Associate Dean for External Relations	Updates in Extension Weekly

C. Statement of how the collected input was considered.

Input from stakeholders guides program teams and capacity areas as they design program business plans that address stakeholder priorities. Stakeholder input is considered when answering questions such as:

- Where will staff be placed?
- Which stakeholders should regional educators work with as they conduct programming? Who is interested in their work?
- What fees will be charged, for which services, at what price points?
- How should research-based education be delivered? (Long-term consultation, workshop format, on-line course, assessment, one-on-one consultation, mass media, web site, etc.)
- What other resources do stakeholders turn to? Do these intermediaries need research-based information? Are we duplicating a service? What is our program niche?
- What do stakeholders know about Extension programs? How do they hear about our services?
- Has past service and research been satisfactory? How might it be changed?
- What new research should shift how we deliver programs?

D. Statement regarding the usefulness of the stakeholder input process in refocusing and reaffirming priorities or in identifying emerging issues.

As Extension has established program specialization, regional centers, and county purchase of service, stakeholder input is more integrated into our organizational response. The extent to which programs continue, grow and evolve relies upon the satisfaction, positive feedback and investment from stakeholders, as well as demonstration of positive educational impacts.

Each program business plan and capacity area work plan includes input from external scans, stakeholder input and secondary data that feed the strategic planning process. It will directly influence the use of resources and the direction of these programs.

III. Program Review Process Update

A. What is our process?

The University of Minnesota defines and refines its program review process to support priorities in each of the five capacity areas: (1) Agriculture, Food and Environment; (2) Community Vitality; (3) Family Development; (4) Natural Resources and Environment and (5) 4H and Youth Development. Yearly audits of program status are done by program teams which consist of educators and campus specialists. From these audits, program business plans are developed and requests for program improvement funds are made. The program business plans and the request for funding are reviewed by Capacity Area Leaders and the Associate Dean and Director of Programs.

The review of business plans and program fund application include investment in needed improvements and discontinuation of programs that are not strong or growing stronger regarding program outcomes and sustainability.

In 2005, increased program investments were made in evaluation processes and in target audience analysis.

B. Have there been significant changes in it during 2004-2005?

No significant changes were made, but ongoing progress in establishing formal program reviews continue to evolve. Additional responsibility for reviewing programs, analyzing target audiences and establishing evaluation procedures was assumed by program teams in 2005.

IV. Evaluation of the Success of Multi-state and Joint Activities

A. Did the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

Stakeholder input processes developed and implemented over the past three years are intended to assure that programs addressed critical issues of strategic importance; that they were not duplicating existing services, and that they were best addressed utilizing research-based information. As noted in the Executive Summary, new resources from the county and from grants and contracts were leveraged in 86% of Minnesota Counties; moreover, revenue generation from sponsors and participants increased by 30%. Both of these indicate that the alignment of programs to strategic issues is creating quality programming of value to local stakeholders. In addition, ongoing demand and increased productivity demonstrates a concrete understanding among Minnesotans of the critical issues Extension addresses, and our competence in delivering outcomes and impacts.

B. Did the planned programs address the needs of underserved and underrepresented populations in Minnesota?

Targeted Programs. Extension programs are targeting new, diverse and historically underserved audiences when such efforts addressed particular concerns.

Table 14: Methods for Targeting Underserved Minnesotans, University of Minnesota Extension, 2005

Targeting Underserved Minnesotans

(Note: These programs also serve non-white Minnesotans.)

Program	Description
Environmental Science Education **36% of Extension's Environmental Science Education programming reached non-white participants in 2005.**	*Woodlands Wisdom* is a collaboration between Tribal Colleges and the University of Minnesota. The goal of Woodlands Wisdom is to integrate traditional Native knowledge with Western methodologies to create, promote, and support sustained healing processes of American Indian communities. The four objectives to carry out the goal of Woodlands Wisdom are: - To increase the number of Native American providers, educators, and researchers. - To increase culturally responsive research. - To promote awareness around issues of health and well-being. - To increase the capacity of Tribal Colleges. Visit Woodlands Wisdom at www.woodlandswisdom.org/.

	The White Earth Summer Math and Science program connects American Indian youth to cultural traditions and the natural resources of the White Earth Reservation while improving academic performance in math and science. Elders, tribal leaders, Extension and Reservation natural resource managers deliver a six-week summer program that prepares young people to take their place in a complex world while building on the strong foundations of the Ojibwe traditions. Benefits from this partnership include improved academic performance for American Indian students who participate in the program, enhanced relationships between students and teachers and plans for future partnerships.
Financial Literacy **21% of Extension's Financial Literacy Programming reached persons of color in 2005.**	*Dollar Works en Espanol* is a series of ten educational modules that teach newly employed people to take control of personal or family finances. Module topics include: How to Make Choices About Money; How to Teach Kids About Cash; How to Make a Spending and Savings Plan; How to Use Credit Wisely and How to Get Out of Debt. Outreach efforts make this program deliverable through human service workers and welfare counselors who work with Spanish-speaking audiences. *The Learning the Language of Money team,* with the Minnesota Department of Employment and Economic Development, Hmong, Latino, and Somali leaders, banks, and Extension educators, developed a web-based guidebook, fact sheets, and a CD to teach financial workers about cultural money systems, to help their clients understand the U.S. money system and thereby to more quickly become part of their new communities.
Parenting Education **12% of all parent education initiatives in 2005 reached non-white populations.**	The *Parents Forever* program addresses parent conflict and decision-making in times of divorce. *Padres Para Siempre* is a program that translates the program both culturally and linguistically to meet the needs of Minnesota's growing Latino culture.
Info-U in Hmong, Spanish and Somali **Over 1,500 calls were placed to Info-U's other-language lines. This is 7% of all total calls to that line.**	A hundred of our *Info-U* answer lines and web links are translated into Hmong, Spanish and Somali – especially targeted at the most frequent needs of these populations.

Diversity Task Force: During the winter of 2004, the dean and director appointed a task force to examine the status of diversity and inclusion efforts within the Extension organization. The full report was presented in May of 2005. Nineteen recommendations were made in the areas of 1) Access and Representation, 2) Climate and Environment, 3) Programs and Products and 4) Special Initiatives.

As recommendations are carried out, Extension is working to benchmark progress.

New Data Tracking Methods: As we reported in last year's report, U of MN Extension is implementing new data tracking procedures. These new procedures will have a significant impact on the quality of data collection regarding non-white participants. Already, there are drops in numbers as estimates became actual. Those drops may be artificially low as the system adapts to more deliberate asking of the question of demographics in each educational event.

Capacity Area	**% of Total of Known Respondents who were persons of color**
Agriculture, Food and Environment	2.5%
Natural Resources and Environment	15%
Community Vitality	3%
Family Development	18%
FSNEP	45%
FNEP	30%
Youth Development	17%

Table 15 Percentage of on-white Minnesotans in Extension programs

C. Did the planned programs describe the expected outcomes and impacts?

Programs are in varying stages regarding demonstration of outcomes and impacts. In 2005, program dollars were tied to evaluation planning and Extension's annual conference featured workshops about quality evaluation strategies and evaluation success stories within Extension. In 2005-06, 78% percent of programs are developing in-depth evaluations.

In addition, the on-line program tracking tool being developed will provide a place for all program teams to report knowledge, skills and attitude changes post-event, as well as impact statements uncovered over time.

D. Was research integrated into the Extension activities?

As noted in the Executive Summary, the integration of research and Extension is a key element to enabling the University of Minnesota accomplish its goal to become "the best in the business" related to outreach and Extension programming. The 140 regional educators are highly specialized in their area of expertise, and are directly tied to campus staff that provide program team support. Capacity areas commit their staff development and professional development funds on improving their connection to new research and quality improvements for their program work. Partnerships with five colleges fund 107 faculty members with Extension appointments, and many others that collaborate with Extension, help develop a strong link between research and outreach.

Recruitment and hiring is also improving the degree of specialization and research connection. All new educators hired in 2005 have M.S. or Ph.D. degrees in their area of specialization. Since 2005, nine of nineteen regional Extension Educators hired had Ph.D.s.

V. Multi-state Extension Activities (See Form CSREES-REPT 2/00)

In tracking multi-state activities program by program, it is clear that Extension programs value relationships with other states. Extension programs identified collaborative relationships with Minnesota's bordering states of Iowa, Wisconsin, North Dakota and South Dakota, serving each others' residents and distributing educational materials. They also reported on cooperative relationships with research and Extension sources nationwide. Shared curriculum and training opportunities, joint conferences and joint research are both documented and non-documented types of multi-state activity reported.

At the agency level, Extension utilizes multi-state relationships through participation in the Northeast Leadership Development Program, NASULG activities and contracting of phone answering services from the University of Iowa Extension Service. These relationships are all documented and auditable and, thus, are represented in our multi-state budget description.

VI. Integrated Research and Extension Activities (See Form CSREES REPT 2/00)

As of 2005, all research and Extension activities are articulated and documented for 97% of programs due to the development of program business plans. Other examples of progress in integrating research and Extension activities are described in the Executive Summary and in the Program Review Process section of this report. Our integrated budget outlines expenditures for programs that are integrated through Hatch funded research projects. All other programs use other funding and collaborations to integrate research into programming.

University of Minnesota Extension Service
2004 – 2005 Federal Accomplishments and Results Report Financial Data
Sources of Funding and Staff Time Used

GOALS AND PROGRAMS	Reported Themes	Smith Lever	State	County	Grants & Income	Hatch/ MRF	Total	Staff FTE
GOAL 1 Program 1 Farming for Tomorrow	*1. Ag Profitability 2. Ag Competitiveness*	$442,226	$636,534	$1,754,427	$168,260	$530,997		**69**
Program 2 Bountiful Horticulture	*1. Ag profitability*	$194,460	$265,857	$507,996	$47,771			**21**
Total Goal 1		**$636,686**	**$902,391**	**$2,262,423**	**$216,030**	**$530,997**	**$4,548,527**	**90**
GOAL 2 **Total Goal 2**	*Food Safety*	**$247,452**	**$343,986**		**$121,025**	**$41,844**	**$754,307**	**13**
GOAL 3 **Total Goal 3**	*Human Health*	**$111,097**	**$220,695**	**n/a**	**$3,892,056**	**$60,333**	**$4,284,181**	**1.5**
GOAL 4 Program 1 Env. Safety & Mgmt	*1. Ag Waste Mgmt 2. Pesticide Application*	$200,231	$275,329	$603,856	$24,182	$107,729		**23**
Program 2 Natural Res. Mgmt & Util	*Soil Quality*	$210,827	$240,326	$290,146	$104,180	$176482		**34**
Program 3 Environmental Science Ed	*Natural Resources Management*	$130,513	$169,151		$10,046			
Program 4 Water Res. Mgmt & Policy	*Water Quality*	$151,781	$236,834		$83,867			
Total Goal 4		**$693,352**	**$921,640**	**$894,002**	**$222,274**	**$284,211**	**$3,015,479**	**57**
GOAL 5 Program 1 Ag Workplace Safety/Health	*Farm Safety*	$79,334	$96,226					**3**
Program 2 Youth Dev/4H	*4H / Youth Development*	$837,370	$1,266,531	$6,645,455	$1,283,991			**133**
Program 3 Community Economics	*Promoting Business Development*	$179,604	$200,162	$84,327	$95,852			**15**
Program 4 Leadership & Civic Engagement	*Leadership Training and Development*	$197,263	$306,144	$67384	$344,630			**15**
Program 5 Family Resce Mgmt	*Family Resource Management*	$270,759	$380,012	$145,732	$181,518	**$79,859**		**20**
Program 6 Parent Ed	*Parenting*	$413,576	$96,226	$93,090	$80,676			**20**
Total Goal 5		**$1,977,906**	**$2,345,301**	**$7,035,988**	**$1,986,667**	**$79,859**	**$13,425,721**	**206**
Grand Total		**$3,666,493**	**$4,734,013**	**$10,192,413**	**$6,438,052**	**$997,244**	**$26,028,215**	

Faculty with Joint Appointments (Research/Extension)

Fiscal Year: ***2005***

College / Department	Research	Extension	Teaching	T
AGRICULTURAL,FOOD,ENVIRONMENTAL SCIENCES				
NWROC - CROOKSTON				
Hollingsworth,Charla R	70.00	30.00	0.00	1
Macrae,Ian Vance	54.00	46.00	0.00	1
WCROC - MORRIS				
Johnston,Lee Jay	80.00	20.00	0.00	1
Rudstrom,Margaretha V	67.00	33.00	0.00	1
NCROC - GRAND RAPIDS				
Lamb,Graham Clifford	77.00	23.00	0.00	1
SROC - WASECA				
Fritz,Vincent A	70.00	30.00	0.00	1
Zhu,Jun	80.00	20.00	0.00	1
Baidoo,Samuel Kofi	80.00	20.00	0.00	1
BIOSYSTEMS AND AGRICULTURAL ENGINEERING				
Jacobson,Larry Dean	25.00	75.00	0.00	1
Shutske,John M	25.00	75.00	0.00	1
Wilcke,William F	50.00	50.00	0.00	1
Sands,Gary Robert	35.00	65.00	0.00	1
AGRONOMY AND PLANT GENETICS				
Becker,Roger Lee	25.00	75.00	0.00	1
Peterson,Paul Richard	25.00	75.00	0.00	1
Naeve, Seth L.	25.00	75.00	0.00	1
Hicks,Dale Ray	8.00	92.00	0.00	1
Durgan, Beverly R.	26.00	71.00	3.00	1
Gunsolus,Jeffrey L	30.00	70.00	0.00	1
APPLIED ECONOMICS				
Olson,Kent D	33.00	25.00	42.00	1
Parliament,Claudia	13.00	50.00	37.00	1
Buhr,Brian L	50.00	29.00	21.00	1
Fruin,Jeremiah E	50.00	50.00	0.00	1
Hurley,Terrance Michae	40.00	50.00	10.00	1
Lazarus,William Frankl	35.00	65.00	0.00	1
Kalambokidis, Laura	32.00	58.00	10.00	1
Stinson, Thomas	46.00	44.00	0.00	1
Ediman, Vern	50.00	10.00	40.00	1
Taff, Steve	50.00	50.00	00.00	1
ANIMAL SCIENCE				
Endres, Marcia Ines	25.00	75.00	0.00	1
Linn, James Gary	15.00	75.00	10.00	1
Noll, Sally	15.00	75.00	10.00	1
Shurson, Gerald C	5.00	30.00	65.00	1
Roeber, Deborah L.	50.00	50.00	0.00	1
DiCostanzo, Alfredo	19.00	71.00	10.00	1
ENTOMOLOGY				
Hutchison,William Dale	66.00	34.00	0.00	1
Ostlie,Kenneth R	40.00	60.00	0.00	1
Ragsdale,David Willard	64.00	10.00	26.00	1
Krischik,Vera	35.00	65.00	0.00	1
Spivak,Marla S	59.00	13.00	28.00	1
COAFES - FOOD SCIENCE AND NUTRITION				

Pa

College / Department	Research	Extension	Teaching	T
Feirtag,Joellen	3.00	94.00	3.00	1
Schafer III,Henry W	3.00	95.00	3.00	1
HORTICULTURAL SCIENCE				
Tong,Cindy Bow San	50.00	50.00	0.00	1
Horgan, Brain P	40.00	60.00	0.00	1
Erwin,John E	70.00	30.00	0.00	1
Hoover,Emily Esther	17.00	24.00	59.00	1
Meyer,Mary H	15.00	85.00	0.00	1
SOIL, WATER, & CLIMATE				
Rosen,Carl Jay	30.00	70.00	0.00	1
Anderson,James L	1.00	88.00	11.00	1
Seeley,Mark W	21.00	79.00	0.00	1
Rehm, George	18.00	79.00	3.00	1
Moncrief,John F	40.00	60.00	0.00	1
Lamb, John	55.00	20.00	25.00	1
COLLEGE OF HUMAN ECOLOGY				
FAMILY SOCIAL SCIENCE				
Danes,Sharon M	40.00	60.00	0.00	1
Stum,Marlene Sue	29.00	71.00	0.00	1
Bauer,Jean W	28.00	52.00	20.00	1
DESIGN, HOUSING, & APPAREL				
Bruin,Marilyn J	30.00	60.00	10.00	1
CHE - FOOD SCIENCE AND NUTRITION				
Reicks,Marla M	22.00	69.00	8.00	
Hassel,Craig Alan	26.00	63.00	11.00	1
SOCIAL WORK				
Quam,Jean Kathleen	20.00	7.00	73.00	1