

2009 Iowa State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Agriculture in the state of Iowa has grown from traditional production of crops and livestock to encompass the revolution in the bioeconomy, life sciences, food sciences, value-added products, environmental sciences, and social sciences. Iowa's world-class endowment of natural resources, its highly skilled and educated people, and its well-developed infrastructure supports a diverse and dynamic set of food, feed, fiber, biofuels and bioproducts, environmental and community endeavors.

The accomplishments and results contained in this report for Iowa State University's (ISU) Combined Extension and Research Plan of Work is organized under seven themes:

- Animal Systems
- Economics & Sociology
- Family, Youth, & Communities
- Food & Nonfood Products
- Human Nutrition & Health
- Natural Resources
- Plant Systems

This annual report presents accomplishments and results from our five-year, rolling Plan of Work. Whereas the Plan of Work has 19 program areas, in this Annual Report we will include annual accomplishments and results for all 1862 Extension programs and on a rolling basis some 1862 Research programs. Table 1 presents the specific programs areas under each of the seven themes and indicates those programs for which report is made in 2009 per our plan. The research expressed in the program areas is the result of cooperation among researchers within and between departments and colleges at all levels of activity.

Table 1. ISU Program Areas by Theme

- **Theme**
- **Program Areas**

- Animal Systems
 - *Iowa Beef Center*
 - *Dairy Team*
 - *Iowa Pork Industry Center*

- Economics & Sociology
 - *Farm & Business Management*
 - *Community Resource Planning & Development*
 - *Economics, Markets & Policy NOT REPORTING IN 2009*
 - *Economic & Social Welfare NOT REPORTING IN 2009*

- Family, Youth & Communities

- *Community Services & Institutions*
- *4-H Youth Development*
- *Families, Communities and Civic Engagement*
- *Money for Life*
- *Strengthening Families*

- Food & Nonfood Products
 - *Food and Nonfood Products NOT REPORTING IN 2009*

- Human Nutrition & Health
 - *Food and Nutrition: Choices for Health*
 - *Human Nutrition, Food Safety, and Human Health and Well-being*

- Natural Resources
 - *Natural Resources and Environmental Stewardship*

- Plant Systems
 - *Commercial and Consumer Horticulture*
 - *Corn and Soybean Production & Protection*
 - *Plants and Their Systems NOT REPORTING IN 2009*

In addition and where possible, we have attempted to report on the five USDA priorities:

- Global Food Security and Hunger
- Climate Change
- Sustainable Energy
- Childhood Obesity
- **Food Safety**

Because these were not part of our 2009 Plan of Work, the data on which we base our reports were not reflective of that paradigm. Rather than attempt a global reorganization of our activities reporting several months after the end of the year in which those activities took place, we elected to glean relevant data from our source reports and sort them into these new programs where they fit. Therefore, the program reports for these new USDA programs for the most part duplicates material included elsewhere in this report. For this reason, we have only attempted to include appropriate activities and outcome measures, leaving the remaining reporting fields blank.

Also, the national recession resulted in significant budget cuts to state appropriations to ISU resulting in a large reorganization of Extension. This has impacted all extension programs to varying degrees.

Following are select impacts and **accomplishments**:

4-H Youth Development Program Area

- One in five Iowa school-age youth participate in a 4-H Youth Development program. Some 107,106 youth were involved in 4-H clubs, special interest groups, school enrichment, and other 4-H programs.
- 9,839 youth and adult volunteers contributed their time, energy, and expertise to help youth strengthen life skills through 4-H learning experiences.
- 2,122 direct youth service volunteers were trained in youth development principles and practices via face-to-face, self-study, and online methods.
- The Iowa 4-H Foundation and its partners provided \$108,012 in scholarships to 121 4-H'ers.

- 859 high school youth and 80 adults attended the 2009 State 4-H Youth Conference at Iowa State University where they participated in educational and workforce development seminars and community service projects.
- Iowa 4-H clubs leveraged \$13,000 into more than \$142,000 in community improvement projects via Iowa Promise Youth and Pioneer Community Improvement grants.
- 367 4-H Afterschool programs were managed by 4-H volunteers and/or 4-H Extension personnel.

Healthy People or Healthy Economies. New research shows that Iowa youth credit their 4-H club experiences with making them better citizens, leaders, and communicators. 508 randomly selected 4-H club members participated in the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Research Study. The study examined self-reported changes in 4-H club members' citizenship, leadership, and communication knowledge/skills and behavior/practices. Youth compared their skills and practices after participating in 4-H with their skills and practices before participating in 4-H. *The 4-Hers'* after 4-H scores were *higher than* their before 4-H scores, and the differences were statistically significant for every citizenship, leadership, and communication indicator. Iowa 4-Hers' survey responses offer solid evidence that participation in Iowa 4-H clubs provides youth opportunities to learn and practice critical workplace skills that employers seek such as active listening, critical thinking, effective speaking and writing, time management, team building, sound decision making, and service to others. As one 4-H'er from Hamilton County said, "4-H has unique opportunities that allow you to become a leader, ... role model, ... effective communicator, and to become active in your community. I discovered the pathway to my future through 4-H."

Healthy Environments.

- Thanks to the State of Iowa, grants, stimulus money, 20 partners, 150 hands-on lessons, 24 professional development trainings, 425 educators, and 350 student teachers, another 20,000 Iowa pre-K through grade 12 youth can connect what they learn with how they live on planet Earth. Educators report that "Connecting Learning and Living (Growing in the Garden; Where We Live; Food, Land & People) lessons add substance to educational programs, are easy to adapt to multiple grades and subjects, and students have fun and remember what they learned." This translates to thousands of Iowans with increased knowledge, experience, interest, and involvement in the areas of life-skill development, agriculture, environment, and food and nutrition.
- Extension Science, Engineering and Technology (E-SET) builds awareness of climate science and issues by collaborating with 4-Hers and science museums using the NSF funded Antarctica's Climate Secrets. The project will focus on explorations by the multinational, NSF-funded Antarctic Drilling Program (ANDRILL). 4-Hers learn about the science and then conduct learning exhibits for the public at the science museums. The program was featured at The Science Center in Cedar Rapids, The Putnam in Davenport, and is being used by 4-H clubs to learn and teach the science concepts related to climate.

Animal Systems:

Resources for Managing Financial Tough Times for Livestock Producers on One Website. At a time when Iowa livestock producers continue to grapple with the tough economy, extension makes it easier for producers to find ISU educational resources they need. The new Web page, *Managing Financial Tough Times for Livestock Producers*, www.extension.iastate.edu/livestock/managingFinancialLivestock.htm, has materials organized on seven sub-pages -- Iowa Concern; Ag Decision Maker; Center for Agricultural Law and Taxation; financial management tools specific to beef, dairy and pork producers; and tips to help parents talk to kids about the financial situation. The Iowa Concern page brings forward legal, financial and emotional support by providing a toll-free number, Web chat, and frequently asked questions on its Web site. The Center for Agricultural Law and Taxation page has links to livestock financial issues information on the topics of bankruptcy, civil liabilities, contracts, insurance and secured transactions. The financial management section provides Ag Decision Maker files and tools that are specific to livestock economics. Species specific information has been pulled from ISU Extension center resources for beef, dairy and pork. New materials were not created, rather pulled from the vast resources focusing on information that is most pertinent during these times and organized them in a way producers will **find easy to use**.

Dairy Team Responds to Dairy Financial Crisis. Worldwide recession has led to decreased global demand for dairy products and decreased international markets for whey. At the same time, previously drought stricken New Zealand's milk supply returned to international markets. These factors combined to create a rapid drop of milk prices to lows in \$10/cwt range. With production costs at \$16-17/cwt, a long period of low milk prices in the face of high cost of production has put pressure on all dairy producers nationwide and created a scenario where many dairies are losing money and equity position. Aware that impending costs of harvest and manure-hauling season could put producers at a critical decision point to stay in business or exit, the ISU Dairy Team planned and delivered 10 workshops ("Dealing with Tough Times: The Dairy Financial Situation") through-out the state. The workshops focused on providing key financial, legal, and stress management strategies

to help dairy producers and lenders through critical decision-making processes. The workshops drew not only dairy producers, but bankers, FSA lenders, accountants, and attorneys who work **with dairy clients**.

Beef Feedlots Increase Profitability and Decrease use of Fossil Fuels. Feeding wet distillers grains and solids (DGS) in feedlot rations can increase profits by \$20 per head or more for producers. The rapid growth of ethanol production in Iowa has created a large supply of DGS that when fed as wet or modified moisture have higher feed value than corn to feedlot cattle at levels up to 50% of the ration. Feeding it wet to cattle saves the ethanol producer drying costs and the use of fossil fuel. Cattle producers can gain \$20/head depending on transportation and storage cost and the price of DGS relative to corn. This cost advantage has encouraged Iowa farmers to invest in feedlot capacity resulting in increased employment and economic activity in rural Iowa. The Beef Center held numerous meetings, articles in newsletters and trade magazines, radio interviews and one-on-one discussions to inform producers. Demonstration projects were conducted on low-cost methods of storing wet and modified distillers grains and solubles (DGS). Computer workshops were held to train farmers in the use of BRaNDs a nutrition decision software so they could evaluate alternative feedstuffs to reduce their cost. An inventor's contest was held to identify new ideas or strategies for utilizing wet DGS in cattle rations. Feedlots have rapidly adopted the use of DGS in the rations they feed their cattle. Producers are also following the research on the impacts of high levels of DGS for negative implications on animal health and carcass quality and have managed their **rations accordingly**.

Business and Farm Management:

Women Take a More Active Role in Farm Management Decisions. As farming operations continue to expand and become more complex, another subtle trend is taking place in modern agriculture: women, increasingly, are being called upon to make more of the farm management decisions. Besides a growing number of sole proprietorships run by women, other contributing factors include inheritance of farmland by women, business partnerships with a spouse or other relative, and employment in various ag-related fields. Experience has shown that they prefer receiving information in an all-female environment. Ten Annie's Project groups, with 140 women participating, were formed where farm women increased their understanding of topics such as USDA farm programs, farm accounting and budgeting, interpersonal communication, machinery economics and leasing arrangements. Five larger workshops were organized to focus specifically on farm women and their concerns. An Iowa Dairywomen Peer Group was formed and members have taken leadership for their group, and have become officers in a new dairy producers group. An additional 600 women attended one-day and two-day conferences where they learned about *similar topics*. Women, Land and Legacy programs were held throughout the state. WLL is designed to help women in rural areas identify agricultural issues, educational needs and information sources that are important to them. It's sponsored by USDA's Natural Resource Conservation Service (NRCS) in cooperation with ISU Extension, other state and federal agencies and local organizations. Joy Goins, who farms near Diagonal with her husband, Jim, said she appreciated the fact that each woman, regardless of previous management experience, was given an opportunity to investigate all of the farm rental options **individually**.

Natural Resources

Performance-Based Watershed Management Improves Water Quality. Water quality in Iowa is of increasing concern and is receiving increased attention. ISU Extension worked with watershed groups to understand issues and assist in developing watershed management plans as part of the Performance-Based Watershed Management project. As part of the Performance-Based Watershed Management projects farm operators are learning learned to evaluate on-farm environmental performance of their livestock and crop management practices. Educational programs on the impacts of agricultural practices on water quality were conducted including working with youth, rural, and urban audiences. A series of six DVDs were developed on conservation related issues by the Iowa Learning Farm project. Nearly 1000 have been distributed to the Soil Water Conservation Districts and educators throughout Iowa. As part of the Iowa Learning Farm project the Conservation Systems Rainfall Simulator was used at educational events throughout the state to demonstrate how maintaining residue cover on the land can decrease nutrient and sediment loss from **agricultural fields**

Sustainable Energy

Community Conversations focus on Feed, Fuel, and Food. ISU Extension initiated *Community Conversations II -- Feed, Fuel, and Food* to bring together stakeholders to discuss the challenges and opportunities of Iowa's biofuel economy. Over 800 participants in 96 counties across Iowa participated in the county dialogues, including representatives from agriculture, government, finance, education, and economic development. The county conversations focused on topics that were important to stakeholders, and explored the effects of the biofuel industry on Iowa's communities, families, local economies, energy prices, food costs, and conservation efforts. The North Central Regional Center for Rural Development analyzed the county reports to determine overall themes and issues that surfaced from the dialogues. The conversations painted a complex, yet informative picture of Iowa agriculture, communities, families, and environment. The biofuel economy has provided Iowa with many opportunities. Stakeholders have observed the creation of new jobs, new markets for corn and soybeans, increased income for grain farmers, and an increased tax base. Unfortunately, the benefits have also come with

some costs, especially as it relates to livestock farmers.

While the conversations describe the situation today, participants also looked ahead toward the future of agriculture and energy. They expressed a need to reach out beyond the agricultural community and educate consumers about the real costs of energy to dispel myths about the influence of ethanol on food costs. They see Extension as a leader and partner in this regard, uniquely poised to help the state explore diversification to mitigate market volatility and community **vulnerability**.

Renewable Energy Alternatives -- Harnessing the Wind. Energy makes up an ever-increasing portion of operating costs for farmers. Costs for natural gas, propane, diesel, and gasoline can vary greatly and spike unexpectedly. Electricity costs also continue to increase. Renewable energy resources need to be developed or harvested while adopting conservation practices with currently available resources. Seven meetings with focus on energy efficiency and alternative energy options, and two conferences on wind as an alternative energy source were delivered. At a wind energy conference in SE Iowa, 230 participants from 46 counties indicated that 86% had a better understanding of wind energy and regulations after attending the meeting and 93% indicated that they were able to determine if their situation was appropriate for wind energy. Ninety seven percent indicated that they would recommend the program to a friend. Those considering long term leases for wind towers on their property called the meeting "A must for anyone near a potential wind farm" and indicated that the information presented at the meeting would not only cost them over a thousand dollars to obtain but should save them 20 times that amount. As a result of an educational meeting in SW Iowa, a group was formed by farmers in southern Page and Fremont counties where new wind energy development is taking place. Craig Harris, a landowner on the steering committee, said "Our goal is to make sure it's a good deal for everyone: landowners, tenants, the community **and the developer.**"

Family, Youth & Communities

Horizons. Horizons is an eighteen-month program carried out by ISU Extension with funding from the Northwest Area Foundation headquartered in St. Paul, MN. Fourteen Horizons III communities completed the 5-week Study Circles process to understand effective poverty reduction strategies with 512 community members participating. 348 people participated in the 30-hour LeadershipPlenty® training course early in 2009. 2875 or 19.8% of their population contributed to community wide Visioning efforts between October 1, 2008, and September 15, 2009.

Projects completed at the end of Study Circles include: increased communication in their community about how to access services locally, produced a bilingual resource guide to better serve Spanish speaking residents, establishment or expansion of food pantries, a "backpack" program to provide food for 80-90 children each weekend, afterschool tutoring, working with entrepreneurs, a school supply/winter clothing program, expanding a farmer's market, establishing a school based youth mentoring program and a clothing exchange program.

Twenty-two Alumni Horizons I & II communities continue to work plans developed through their Horizons experience or new plans developed since completing the formal Horizons program. Ten communities have improved housing for low income residents; six communities provide resource information to low income residents; five communities provide free tax preparation to help more low income families receive the EITC without spending money on tax preparation or refund anticipation loans; five communities work with entrepreneurs and local businesses to increase family incomes; four communities provide clothing exchange opportunities for those in need; two communities increased childcare capacity; four communities provide mentoring to children in need or **afterschool tutoring**.

Money for Life. Iowa State University Extension trained community professionals, leaders and volunteers to teach financial management skills to their clientele and also delivered educational programs directly to individuals and families via workshops, small group consultations, web-based instruction and media. Train-the-trainer workshops and many community-based workshops for families were conducted in partnership with other organizations. Of those trained, 9835 improved family financial management skills and 3038 consumers strengthened decisionmaking skills. About 50 community VITA volunteers were trained by ISU Extension to complete tax returns for 1,224 low-income Iowans who received \$602,924 in EITC to bolster family incomes and local economies.

Surveys conducted with a sample of financial management workshop program participants after completion of an investment education class indicate that the majority of participants make significant changes:

- 64% took steps to reduce debt
- 82% increased contributions to employer-based retirement plans

Pre and post surveys of participants in investment education workshops document significant change in knowledge, attitudes

and behaviors:

- average score on a 15-item knowledge test increased from 9.6 to 12.2
- average score on a satisfaction with ability to discuss investments with family members increased from 2.5 to 3.8 (with 5 as highly satisfied)
- proportion of participants who had developed an investment philosophy and assessed risk tolerance increased from **39% to 87%**

Nutrition and Health. Nutrition and health programs, offered in every major community and most counties in Iowa, focus on improving nutrition education and behavior to reduce negative health consequences brought about by overweight, obesity and inactivity; improving food handling behaviors and practices by consumers, food processors, and foodservices for the purpose of reducing the incidence of food borne illness; and mitigating food insecurity within communities in the state.

Programs were directed to professionals, volunteers, community leaders, individuals and families through multiple delivery methods (direct and indirect). A new website, Spend Smart Eat Smart was started to provide information for consumers and educators about how to eat nutritiously on a budget. Live Healthy Iowa (adult) and Live Healthy Iowa -- kids (youth) programs encourage physical activity and healthful eating using the team concept. Eat to Compete, a program consisting of three separate sports nutrition topics, was presented statewide to parents, coaches, school staff, and adolescent athletes. Several field staff serve as supervisors of Expanded Food and Nutrition Education Programs and Food Stamp Nutrition Education Programs educators who deliver basic food and nutrition information to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and Extension to 4-H Youth, with partnership and support of Extension faculty. Audiences learned about the myriad of factors in the current socioeconomic environment contributing to overweight and obesity including genetics, the feeding relationship, lack of physical activity, technology, portion distortion, and food availability. Community advocacy for public and environmental policy change was promoted as a measure to meet the demands of this growing problem.

Food safety education included certification programs and training sessions delivered via direct and indirect methods. The ServSafe® food safety certification program, developed by the National Restaurant Association, consists of at least 8 hours of direct training and successful completion of a certification exam. Other food safety programs focused on safe food handling from farm to fork, HACCP plans in schools and food processors, grilling safely, allergen controls, cleaning and sanitizing, handwashing, food stands, canning and food preservation. Health fairs, Germ City and interactive web-based lessons, streaming videos, Flash animations, SafeFood© Blog, downloadable signage, and podcasts on the Extension Food Safety web site were examples of indirect educational efforts

20,268 individuals increased their minutes of activity. Activity guides were incorporated into all the EFNEP/FSNE lessons covering aerobic, strength, and flexibility exercises. Live Healthy Iowa had 28,000 participants this past year, which included weekly physical activity tips and online monitoring of physical activity.

More than 47% of EFNEP/FSNE graduates had a positive change in physical activity from beginning to end of program. A survey sample of Lighten Up Iowa participants indicates approximately 70% of participants increasing frequency and/or intensity of activity/exercise throughout/after the program. Among Habits for Healthy Hearts participants (N=22), 23% reported 30-60 minutes of physical activity daily was habit and another 64% were meeting this recommendation sometimes, but working on making it a habit. Follow-up with a random sample of program participants (N=187) found 48% (N=89) of participants increasing their minutes of physical activity.

29,263 individuals improved their diet; Live Healthy Iowa had 28,000 participants in 2009 where they received weekly tips to increase consumption of nutrient dense foods including fruits and vegetables. EFNEP/FSNE enrolled 2,401 adults. Professional training has been provided through Current Issues in Nutrition, an interactive video webcast that is now offered twice a year. Programs in 2009 reached 503 participants (>35 different states and ~10 international). Professional training also included school wellness policy implementation and environmental change for school officials/staff, and Eat to Compete programs for teacher recertification and coaching authorization.

A survey sample of Lighten Up Iowa participants indicates increased intake of fruits and vegetables by one serving daily. Based on 24 hour pre- and post-food recalls, 98% of EFNEP/FSNE program participants reported positive change in any food group at exit. A worksite wellness program using newsletter conducted collaboratively with Farm Bureau insurance resulted in increased daily fruit and vegetable servings ($p < 0.05$). This same program documented a significant increase in the intake of Vitamin C, magnesium, fiber, and potassium. In addition, a significant decrease in the intake of total fat, saturated fat, and cholesterol was noted. Further analysis determined that many of the improvements were primarily among male

participants -- a challenging audience to meet with nutrition and health extension programming. Another program, Habits for Healthy Hearts, found that over 50% of participants (N=22) noted that eating vegetables, fruits, whole grains, low fat dairy products, lean meats, low fat foods, and low sodium foods were considered a habit after participating in the program. Follow-up with a random sample of program participants (N=379) found 86% (N=325) of participants improving their diet in two or more ways.

Iowa surpassed the national average for those considered food insecure a year ago (national average 10.6%; Iowa 11.6%). Iowa has almost 90,000 households with 100,000 children who are food insecure.

Six communities in Iowa addressed food insecurity because of extension efforts. In addition, 29 of 36 Horizons communities are addressing food insecurity. A variety of means have been used to address food insecurity **by communities**.

Strengthening Families. 16,990 child care and early childhood education professionals received training to improve child care quality in a variety of care settings. Education included basic first aid, health and safety, guidance and discipline, development, nutrition, learning environments, curriculum, new staff orientation, childhood obesity, and active play. 721 early childhood educators received instruction and assistance to self assess the overall quality of care and educational services, develop improvement plans, and implement changes. Over 67% of all Iowa child care centers and preschools participate in the Iowa Better Kid care New Staff Orientation Program. 1015 child care preschool teachers received 16 hours of instruction and completed activity assignments specific to their worksite. 178 child care center directors received instruction in new staff orientation, staff feedback and coaching procedures. 733 child care professionals completed self-study instruction. There were 3,468,013 page views on the National Network for Child Care website, representing 2,034,929 visitors. There were 32,349 page views and 15,798 visits to ISUE child care websites.

Both PROSPER (Promoting School-Community-University Partnership to Enhance Resilience) and CYFAR (Children, Youth and Families at Risk) collaborate with community teams to offer evidence-based programs for middle school students and their families. PROSPER is a randomized control study to evaluate the effectiveness of the community partnership model. Youth ages 10-14 whose parents participate in an evidence-based parenting class report that their parents better monitor their activities, administer more consistent discipline, and spend more time with them than those whose parents do not participate in the class. The youth in intervention communities report a lower likelihood of engaging in risky behaviors, such as substance use and violence than do youth in control communities. The majority of parents who participated in Extension educational programming have improved/strengthened parent/child communication and the ability to provide love and limits.

3602 people were reached through sequential parenting education workshop series, one-session workshops, as well as training for professionals to deliver sequential in-depth parenting education. Key components of these trainings were understanding parent and child development; developmentally appropriate guidance; strengthening parents/child interaction and communication; preventing substance abuse. An additional 18,725 parents/caregivers participated in parenting education workshops, home visits and group education that professionals ISUE trained to deliver parenting education reached. An additional 1295 parents/caregivers participated in parenting fairs. 249 youth were involved in in-depth parenting/family education workshop series (specifically Strengthening Families Program: Parents and Youth 10-14. An additional 20,022 youth were reached through parenting education programs conducted by professionals that ISUE trained to deliver parenting education. 59,899 calls were made to parenting/teen hotlines, 83,000 received parenting newsletters, 21,000 downloads from the web and 13,613 visits to ISUE websites on parenting issues.

ISUE has certified 125 parenting educators and other family support professionals in the SFP 10-14 program around the country during this reporting period. 87 professionals received certificates of completion/certification in parenting education and family development from ISUE. The certificates/certification recognize in-depth training and demonstration of competencies related to parenting education and family development. 30 family support professionals participated in 52 hours of direct training in delivering strengths-based family development education and services through the Family Development Certification Training. 57 professionals participated in 65 hours of direct training in planning, delivering and evaluating parenting education through Partnering with Parents. 22 of these professionals participated in Partnering with Parents through online education. Program evaluation data reveal that participants strengthened their parenting education knowledge and skills after participating in Partnering with Parents, and actively implemented new information and strategies into their parenting education efforts.

940 participants were reached during 38 workshops, demonstrations, and other events to help Iowans learn ways to make homes more convenient and accessible. There were 20,409 visits to the website and 36,670 page views.

2177 Iowans participated in learning related to intergenerational family relationships in mid, later life, and aging families. 99 family caregivers participated in *the six-week, 15-hour Powerful Tools for Caregivers* and 433 adults participated in *Who Gets Grandma's Yellow Pie Plate: Transferring Non-Titled Property*. 1645 people attended additional aging-related information

workshops including Memory: Am I Losing my Mind?, caregiving, stress and aging, emotions and aging, and other diverse programming focused on local needs. ISUE continued to provide leadership for the eXtension Family Caregiving Community of Practice. There were 731 indirect contacts through poster presentations and information displays. 80 educational workshops, including 135 total sessions, covering 24 different topics, were presented on intergenerational and aging family issues. 18 conferences and meetings included presentations and displays associated with aging Iowa families.

Findings revealed that study participants who had participated in PWP (current and past participants) assessed their parenting education knowledge and skills higher after participating in PWP compared to before the training, as well as higher than study participants who had never participated in PWP. In addition, those who participated in PWP had higher mean scores on competencies related to providing accurate information regarding nurturing children ($p < .05$) than those who had not participated in PWP. Also, there was a positive statistically significant difference ($p < .05$) in role play rating scores for PWP participants (pre to post scores) pertaining to providing information related to creating a rich learning environment for children and understanding developmental expectations of children.

A program evaluation of the PWP training (Greder, et al., 2010) instructed in the face-to-face setting and online was conducted. There was a statistically significant increase in all participants' ($n=146$) ratings of their parenting education competencies (i.e., knowledge and skills) from before to after the training. Those who participated in the online training rated their competencies before the training higher than those who participated in the face-to-face setting; however, they also rated their competencies after the training modestly lower than those who participated in the face-to-face setting. Qualitative analysis revealed that regardless of program delivery format, participants reported a paradigm shift in how they viewed themselves as parenting educators, as well as broadened their understanding of parenting education.

The PROSPER research continues to evaluate the quality of implementation of evidence-based programs offered to middle school students and their families. It also evaluates the quality of team functioning of the community teams charged with delivering those programs. Community teams continue to be effective in acquiring funding to support programs and recruit families to participate in programs. The evidence-based programs continue to be delivered with greater than 90% fidelity. In addition, PROSPER conducts longitudinal surveys of youth in the participating communities and youth in communities that are not offering the evidence-based programs. Youth in the participating communities report later initiation and lower levels of substance use as compared with youth in non-participating communities.

Early Childhood professionals ($n=686$) participating in the Environment Rating Scale Training Program reported that they were also able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant ($p < .001$) indicating that the ERS training is indeed making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	247.5	0.0	114.9	0.0
Actual	443.2	0.0	155.4	0.0

II. Merit Review Process

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

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

2. Brief Explanation

There has been no change in our review processes.

Merit review: ISU Extension continued to monitor and adjust the plan of work in 2009 through use of self directed work teams, continuous needs assessment, and ongoing work with public and private partnerships. At

the state level, state staff worked closely with key statewide constituencies. Surveys of needs assessment were done at both the local and state level to inform selected plans. Iowa County Extension Councils and local stakeholder groups annually review, and prioritize needs, feeding the information back to the statewide plan of work teams. State POW merit review: North Central Regional Program Directors review plans across the region and are continuing to provide oversight, guidance, and course corrections on the logic models.

Scientific Peer Review: Project Proposals: Each project proposal is endorsed by the department chair and Associate Director of the Experiment Station. Each proposal is sent to peers internal to ISU (typically 2 to 4 faculty) for a thorough review of the scientific merit. Depending upon the reviews, the project is either approved, revised based on reviewer comments, or rejected.

III. Stakeholder Input

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

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

Brief explanation.

There has been no change in our process to encourage stakeholder participation.

The majority of programs use media to announce public meetings and listening sessions, and use targeted invitations to traditional stakeholder groups and individuals. In addition, the various programs have employed the following:

- Random surveys of residents in specific communities conducted to obtain feedback.
- Team members are in regular contact with primary stakeholders at meetings and on an individual basis.
- Invited producers, suppliers, policy makers, and other interested parties to a state-wide web casts.
- End of meeting surveys consistently seek input for future research and programming needs.
- Responding to stakeholder input to encourages additional input
- Identify existing stakeholder meetings, ask to be placed on the agenda, and ask stakeholders to answer questions or provide input.
 - Many faculty and staff have developed relationships, one key to quality interaction with stakeholder groups, and are very active in participation at a variety of events where stakeholders are present and interact.
 - Surveys, focus groups and on-going informal assessments attempt to match program delivery methods with the preferences of stakeholder groups. Decisions regarding content, delivery, and mechanisms to reduce barriers to participation are made with a goal of increasing participation.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions

- Needs Assessments
- Use Surveys

Brief explanation.

There has been no change in our process to identify individuals and groups.

- Formal advisory boards, by far the most common method employed, specifically invite representation from the organizations and agencies that work in a given area, and may also include producers nominated by extension field specialists, and representatives of the field specialists, campus specialists and campus researchers.
- Web-based needs assessment and listening sessions are open. Targeted groups are identified and contacted. Steering committees identify key individuals to ensure that the invitation list represents the broad spectrum of stakeholders.
- Use of developed mailing list or a random survey.
- External Focus groups includes information from peer groups. Conduct needs assessments informally via routine contacts with target audience or formally via surveys.
- Extension state and field specialists serve on multiple county and state advisory committees where needs are identified and used to shape program efforts.
- Extension specialists acquired a very good knowledge, increased through hundreds of personal contacts, telephone calls and e-mail messages received each year from potential clientele, of the individuals and groups that will have interest in their programs. Recommendations are also received from county-based Extension staff, campus faculty and staff, and commodity/producer organizations.
- Participants provide personal contacts that can be of service in our planning process; much attention is paid to our major client groups and their boards of directors and other key people. Suggestions from university administration are an excellent source of contributors also.
- Staff are members of coalitions and taskforces at the state and local level that continually review and check changing needs against operational plans.
- Meeting with representatives from state agencies regularly allows for input from consultants to districts throughout the state. Attendance at state and national meetings allow input from individuals, as do email contacts from the web site.
- Participation in monthly and quarterly meetings assists with identification of new stakeholders.
- Media and surveys are used to identify interested stakeholders. State staff hold conversations with individuals in more than 30 key state agencies and state organizations to share information and seek input.

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

1. Methods for collecting Stakeholder Input

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

Brief explanation.

There has been no change in our process to collect stakeholder input.

- Meetings with traditional stakeholder groups and individuals are by far the most common method used.
- Listening sessions were held.

- Conduct targeted and random surveys.
- Contacts are ongoing by field agronomists, county extension education directors, and state specialists who work with individual private sector partners.
 - Meetings are held with professional associations and advisory boards, and other various groups across the state, providing information and asking for input both on existing and emerging issues, and to assist in better understanding local needs.
 - Selected stakeholders are asked to serve on advisory boards, leadership councils and work teams to help set program direction, develop innovative programs to reach new audiences, and implement strategies to reach desired outcomes.
 - Webcasts serve to share information and new policy direction and receive input from stakeholders. Participants are often surveyed.
 - Participants are asked to complete a survey at the beginning and end of the training to assess their training needs and how the training series can be improved, as well as a self-assessment to identify specific knowledge and skills participants gained from the training. This data is continuously reviewed to modify the training as appropriate. Follow-up surveys sometimes occur, and website contacts for information are provided.
 - ISUE state and field specialists serve on multiple county and state advisory committees where the needs are identified. ISUE staff use this information to shape program efforts.
 - Personal contacts initiated by the stakeholders.
 - One-on-one interaction, surveys from clients at public meetings, discussions with Advisory Board members, e-mail communications including responses to Web and other origination sources.
 - Surveys allow those unable to attend meetings to voice opinions about needs and program planning processes. Follow-up meetings with selected individuals who might provide 'missing voices' are conducted in order to gather broad-based input.
 - Each community determines how they collect input, utilizing a variety of methods, including personal conversations, web surveys, speaking to individuals and groups, and work with the media.

3. A statement of how the input will be considered

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

Brief explanation.

There has been no change in how we use stakeholder input. Programs continue to shift to address needs expressed by stakeholders, to the extent possible given current budgetary constraints.

- Based on input from stakeholders, we continue to focus on Latino communities and businesses. To better communicate Extension programming to the public, we created the Program Builder Web site that lists all the programs offered by Community and Economic Development
 - We were able to identify a set of priority programs, and the information helped direct us in how we deliver programs.
 - Staffing decisions are based heavily on needs expressed by stakeholders. Stakeholders are members of some staff search committees.
 - Stakeholders are used as sources of ideas and for identification of emerging issues. They also react to potential courses of action, research, and educational programs. Stakeholders are influential in creating the multi-year program of work. Information gathered from stakeholders is used in making decisions on program planning and directions to go with special projects such as research or grant projects.
 - Information was used to assess staff and volunteer training needs and develop training plans; develop effective strategies to reach program outcomes; assess effectiveness of training programs and progress towards program goals; review program policy and clarify policy interpretations; and review and revise plan of work goals and planned implementation strategies.
 - Stakeholders helped determine program direction, assisted with development of innovative programs to reach new audiences, and helped implement strategies to reach desired program outcomes.
 - Evaluation surveys following webcasts were compiled and information was used to clarify policy interpretation

and plan future webcasts to share program information.

- Input from stakeholders resulted in new program offerings
- Stakeholder input was used to determine the subject matter content of the educational programs, time and place of public meetings, mass media utilized, and the formatting and design of decision aids.
- Input from stakeholders, was used to direct the activities targeted towards each of the major client groups. This includes the amount of funds and other resources to dedicate to each activity and the priority each is given. Furthermore, the programmatic content of each major POW activity was greatly impacted by the input from our stakeholder groups.
- We have used this input to bolster programming in financial education and to expand our work with limited resource audiences.

Brief Explanation of what you learned from your Stakeholders

Programs continue to shift to address many of the needs expressed by stakeholders, who tell us:

- Increase the use of technology such as webcasts, webinars, interactive web sites, blogging, ask the expert, etc. especially for audiences 20-40 years old.
- There is increased interest in and need for programming in financial literacy education, particularly how to manage during these tough times. Due to challenging economic times, there is interest in a return to the basics, simplicity, getting the most for the nutrition dollar, gardening, preservation. Also increased interest in sustainability education, which relates to "leaning our lives".
- We continue with efforts to understand alleviating poverty in Iowa and to identify and implement strategies for helping families earn, keep and grow their money.
- Availability and access to safe, nutritious food is a challenge in many rural, Iowa communities, with 'food deserts' existing in rural locations throughout the state.
- Parents, especially those experiencing poverty and those who have children with special needs, are interested in trying to meet such basic needs as basic understanding of child development and how to interact with their children to promote development, guiding children in developmentally appropriate ways, and strengthening family communication skills.
- Child care administrators need and value effective education opportunities that involve coaching and leadership. Peer learning and peer coaching opportunities were well received. Training that offered time for development of detailed action and implementation plans were considered very effective. Early care and education professionals desire credit based educational opportunities that can be tailored to meet their specific needs.
- There is a need for a more organized statewide approach to identifying, recruiting, and managing 4-H volunteers to expand extension resources.
- New families involved with 4-H and youth programs need more support and mentoring.
- Today's youth want vibrant, highly interactive, subject matter programs that interface web technologies with friends and caring adults.
- Volunteers for the 4-H program feel that their volunteer experience has direct benefits to youth and themselves. They feel the 4-H program has influenced their lives by allowing them to learn more about youth, giving them the chance to feel valued, increasing their organizational, public speaking and leadership skills, and increasing their connection to the community.
- A new generation of educational materials and programming are needed on farm energy conservation and efficiency.
- All citizens need to understand agriculture's capacity and role in producing food, feed, fiber, and fuel.
- Agricultural producers need to continue their development of risk management skills.
- The Small Meat Processors Working Group identified needs, resulting in 1) Meat Processors Resource Guide Book. 2) Local, area, and convention training sessions on business sustainability. 3) Extension has broadened the scope of their interaction with meat processors to include issues of business development and sustainability.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
8974327	0	6662885	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	9624070	0	5673561	0
Actual Matching	9624070	0	5673561	0
Actual All Other	16020226	0	51552339	0
Total Actual Expended	35268366	0	62899461	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from				
Carryover	930557	0	5014557	0

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Iowa Beef Center
2	Dairy Team
3	Iowa Pork Industry Center
4	Farm and Business Management
5	Community Resource Planning and Development
6	Economics, Markets, and Policy
7	Economic and Social Welfare
8	Community Services and Institutions
9	4-H Youth Development
10	Families, Communities and Civic Engagement
11	Money for Life
12	Strengthening Families
13	Food and Non-Food Products
14	Food and Nutrition: Choices for Health
15	Human Nutrition, Food Safety, and Human Health and Well-being
16	Natural Resources and Environmental Stewardship
17	Commercial and Consumer Horticulture
18	Corn and Soybean Production and Protection
19	Plants and their Systems
20	Food Safety
21	Sustainable Energy
22	Global Food Security and Hunger
23	Childhood Obesity

V(A). Planned Program (Summary)**Program # 1****1. Name of the Planned Program**

Iowa Beef Center

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
307	Animal Management Systems	39%		40%	
308	Improved Animal Products (Before Harvest)	7%		10%	
315	Animal Welfare/Well-Being and Protection	6%		5%	
403	Waste Disposal, Recycling, and Reuse	21%		20%	
601	Economics of Agricultural Production and Farm Management	16%		15%	
604	Marketing and Distribution Practices	11%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	4.1	0.0
Actual	15.0	0.0	5.4	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
552150	0	323955	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
552150	0	323955	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1159591	0	3991530	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

A primary Iowa Beef Center (IBC) educational program was for cattle producers on how to reduce feed cost of production by using ethanol co-products. This program included numerous meetings, articles in newsletters and trade magazines, radio interviews and one-on-one discussions to inform producers. Demonstration projects were conducted on low-cost methods of storing wet and modified distillers grains and solubles (DGS). Computer workshops were held to train farmers in the use of

BRaNDS, a nutrition decision software so they could evaluate alternative feedstuffs to reduce their cost. An inventor's contest was held to identify new ideas or strategies for utilizing wet DGS in cattle rations. The IBC partnered with the Coalition to Support Iowa Farmers to hold tours of feedlots that had made recent investments in deep-bedded cattle confinement and/or environmental control structures. The IBC facilitated discussions with Iowa Department of Natural Resources, Natural Resource Conservation Service, Iowa Soil and Water Conservation Districts and Iowa Cattlemen's Association that resulted in a grant proposal submission to develop a small feedlot education program targeted at improved environmental controls for beef and dairy cattle farmers. The IBC hosted field days to highlight research on riparian area management in pastures to improve water quality. Pasture field days were held to focus on profitable pasture management and watering systems. A feedlot conference was held emphasizing human resource management, controlling overhead costs and manure nutrient management. Workshops featuring production and price risk management for dairy beef producers were held. Partnered with the Iowa Pork Industry Center to deliver a state-wide webcast on feed price risk management for livestock producers. Factsheets and power point presentations with speaker notes were developed for the impact of cattle disposition on performance and carcass characteristics, corn stalk grazing to reduce winter feed cost, storage methods of high moisture corn co-products, alternative pasture watering systems. Authored or co-authored 12 Animal Industry reports on beef related topics.

2. Brief description of the target audience

Commercial cow-calf producers
 Commercial feedlot producers
 Veterinarians that serve cattle producers
 Feed company representatives
 State regulatory agencies
 Extension educators

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	8400	100000	0	0
Actual	13200	131500	2725	439

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

Patent Applications Submitted

Year: 2009
 Plan: 1
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	0	
Actual	3	13	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of applied research and demonstration studies on feeding DGS.

Year	Target	Actual
2009	5	3

Output #2

Output Measure

- Number of applied research and demonstration studies to extend forage resources using ethanol co-products for beef cows and grazing cattle.

Year	Target	Actual
2009	7	6

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Percent of Iowa feedlots that regularly feed DGS to reduce cost of gain.
2	Percent of feedlots over 100 head capacity that utilize solid manure settling structures or alternative technology treatment systems.
3	Percent of producers who adopt management systems to improve cost control and market access.
4	Percent of cowherd producers who utilize technologies to improve enterprise efficiency.
5	Number of intergenerational transfers.

Outcome #1**1. Outcome Measures**

Percent of Iowa feedlots that regularly feed DGS to reduce cost of gain.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	75	70

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Feeding wet DGS in feedlot rations can increase profits by \$20 per head or more for producers. The rapid growth of ethanol production in Iowa has created a large supply of DGS that when fed as wet or modified moisture have higher feed value than corn to feedlot cattle at levels up to 50% of the ration. Feeding it wet to cattle saves the ethanol producer drying costs and the use of fossil fuel. Cattle producers can gain \$20/head depending on transportation and storage cost and the price of DGS relative to corn. This cost advantage has encouraged Iowa farmers to invest in feedlot capacity resulting in increased employment and economic activity in rural Iowa.

What has been done

This program included numerous meetings, articles in newsletters and trade magazines, radio interviews and one-on-one discussions to inform producers. Demonstration projects were conducted on low-cost methods of storing wet and modified distillers grains and solubles (DGS). Computer workshops were held to train farmers in the use of BRaNDS a nutrition decision software so they could evaluate alternative feedstuffs to reduce their cost. An inventor's contest was held to identify new ideas or strategies for utilizing wet DGS in cattle rations.

Results

Feedlots have rapidly adopted the use of DGS in the rations they feed their cattle. They continue to look for new research on the optimal inclusion rate and follow university recommendations or have used software developed to evaluate ration decisions and economics. Producers are also following the research on the impacts of high levels of DGS for negative implications on animal health and carcass quality and have managed their rations accordingly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #2

1. Outcome Measures

Percent of feedlots over 100 head capacity that utilize solid manure settling structures or alternative technology treatment systems.
 Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Percent of producers who adopt management systems to improve cost control and market access.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Buyers are paying price premium for cattle that have proof that they qualify for specific high value markets and these premiums exceed the cost of qualifying resulting in increased producer profits.

What has been done

The Iowa Beef Center has held educational meetings for cattle producers to explain alternative programs to verify claims. The IBC also conducted research that showed more than a \$6/cwt value for third-party claims of cattle health management practices. IBC staff assisted the Tri-County Steer Carcass Futurity (TCSCF) to establish a Quality System Assessment program for age and source verification. Another IBC member helped educate cattle producers about the value of the Process Verification Program (PVP) for buyers and sellers.

Results

The USDA process verified program (PVP) age and source verified cattle are receiving \$25-\$35 per head from the harvest facilities if they qualify for shipment into the export market. More than 500 persons attended meetings about PVP and over 3000 head of cattle have been enrolled into a PVP program following the meeting. From March 19, 2007, to December 17, 2008, the TCSCF program marketed 15,719 head of steers and heifers. 11,775 head or 75% of the total head marketed were eligible for export to Japan. The average premium paid was \$24.66/head or an additional gross income of \$290,335 received by cow-calf producers who documented the age of their calves. The TCSCF cooperative retains \$1.50/head for additional staff time required to receive and maintain proper documentation so the additional net income to the producer is \$23.16/head or a total of \$272,672.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #4**1. Outcome Measures**

Percent of cowherd producers who utilize technologies to improve enterprise efficiency.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20	66

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Cowherd producers are estimating cost of production and adopt management practices that allow them to reduce their cost. Beef cow calf producers are the primary users of pasture in Iowa. There economic success is necessary to keep this often highly erodible land in permanent cover rather row crops. Technology adoption to improve value or reduce cost is essential to the long term success for beef cowherds. Separating and managing cows in groups with similar nutritional needs and utilizing low cost feedstuffs to meet nutritional requirements are important steps to reducing feed costs and improving herd performance.

What has been done

A series of workshops was held in December and January to discuss various tools cattlemen can use to control input costs focused mainly on controlling feed storage and feeding waste, and feed ration costs. Turning Point clickers were used at 15 locations with 291 participants to determine their interest in topics and their knowledge of production costs. Two-thirds of the participants responding knew their cost of production. Sixty-five percent sorted the herd into like-management groups for winter feeding and 63% were using DGS in their winter feeding program.

Results

Pre- and post- questions indicate that participants intend to adopt additional technologies to reduce their cost of production. The number of producers that intended to sort cows into like-management groups increased by 30%. The number intending to use DGS in diets increased 24% after learning about the cost advantage and how to store, handle and feed the product.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #5

1. Outcome Measures

Number of intergenerational transfers.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	15	19

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Young producers who want to get started or expand in the cattle business learned research based information from extension specialists and from the first hand experience of established cattle producers. Cattle enterprises are capital intensive and difficult for young producers to get started. In addition, experience is important, but mistakes can be very costly for beginning producers. As existing farmers age they often disperse their livestock operation to save on labor and minimize winter chores. As a result there are fewer cattle operations in rural communities and less economic activity associated with it.

What has been done

Two groups of beginning farmers with interest in cattle production were formed and meet regularly through the winter and once or twice in the summer. The groups determine which topics they want for the educational portion of the program and the Iowa Beef Center specialist coordinates university specialists and established farmers to speak to the group. In addition to coordination, the IBC staff members leads the groups through a systematic business plan development and provides much of the educational program delivery. A grant has been received to help support these activities.

Results

The two young cattlemens groups continue to meet and 32 of the participants were involved in the needs assessment and prioritization of the topics to be covered. They are a ready-made audience for educational programming. Forty-six of the participants reported to have learned from experienced producers and have attended other extension education events. The young cattlemen also benefit from contact with experienced producers and have attended field days and tours at these farms. Numerous participants have identified and made contact with an experience producer outside of the meeting and they have also made contact with other participants develop networks to share information. The educational program has resulted in a higher than expected number of participants making management changes on their operations as reported in their end of year evaluation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Other (Change in stakeholder priorities)

Brief Explanation

Cattle producers are suffering difficult economic times. Cattle feeders experienced their worst losses in history in 2008 and 2009 was the second worst. The reporting period for this report was the worst of the worst. The economic problems made recruiting for events difficult and new technology adoption almost impossible. Calf prices fell to their lowest levels since 2003 due in part to the down stream losses. Producers and organizations continue to focus on regulatory changes to drive their decisions and are less interested in management choices or education to make better decisions. Internally, budget cuts and reorganization of county extension offices caused major disruption of staff making it difficult for them to focus on program delivery. The low expected return rates from distracted producers and the budget cuts made it difficult to justify expensive program evaluation efforts.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

Much of the work we do with and for beef producers falls under the Global Food Security goal. The primary driver in these programs is increased efficiency of production and sustainability and protection of resources. A primary goal has been increased adoption of feeding ethanol co-products which supports renewable energy production by increasing ethanol company profits and reducing the carbon footprint of the plant because they do not have to dry the DGS to feed it to cattle.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 2****1. Name of the Planned Program**

Dairy Team

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
307	Animal Management Systems	20%		20%	
315	Animal Welfare/Well-Being and Protection	15%		80%	
401	Structures, Facilities, and General Purpose Farm Supplies	15%		0%	
601	Economics of Agricultural Production and Farm Management	25%		0%	
802	Human Development and Family Well-Being	25%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	2.6	0.0
Actual	7.0	0.0	4.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
257670	0	224136	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
257670	0	224136	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
373814	0	2742329	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

- Conducted research/demonstrations
- Conducted informational meetings and training workshops
- Provided services including herd/farm assessments, production record analysis, financial record analysis, herd health trouble-shooting, feed ration balancing

- Provided counseling on labor management, financial management, farm transfer or start-up
- Developed publications: research reports, technical reports, fact sheets, powerpoints, newsletters,
- Developed websites
- Collaborated with partners in dairy, agricultural, or educational organizations to facilitate organizational development and to plan/present educational events
 - Coordinated or conducted Dairy Farm Open Houses as educational events
 - Worked with partners and out-of-state Extension colleagues to coordinate multi-state educational events
 - Provided support or coaching to dairy producer organizations
 - Worked with media contacts to post press releases and conduct radio interviews/announcements

2. Brief description of the target audience

- Dairy producers
- Dairy employees
- Beginning farmers
- Dairy consultants: veterinarians, nutritionists, milk plant field representatives
- Bankers, financial advisors
- Agri-business suppliers
- Economic development partners
- Education partners
- Dairy producers associations/ag organizations
- Builders and contractors
- Consumers

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	10000	2500	2300	1050
Actual	17639	48398	2619	2330

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	0	
Actual	3	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Research/demonstration studies

Year	Target	Actual
2009	3	19

Output #2

Output Measure

- Publications

Year	Target	Actual
2009	6	76

Output #3

Output Measure

- Workshops

Year	Target	Actual
2009	32	110

Output #4

Output Measure

- Dairy Team Website regularly maintained and updated

Year	Target	Actual
2009	{No Data Entered}	1

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of new dairy farms established; number of existing farms remodeled or expanded; number of transitioned/transferred farms; quantify economic impact made by these changes.
2	Number of dairy producers who adopt more competitive dairy production systems and practices.
3	Number of Iowa producers who adopt integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.
4	Number of producers who will increase the awareness and use of interpersonal and organizational skills when managing family or non-family personnel.
5	Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality.
6	Number of energy efficient or conserving practices/technologies established.
7	Improve public awareness and knowledge about dairy food production and food safety, and about the sustainability initiatives of the US dairy industry.
8	Increase the number of dairy producers who access educational presentations via the dairy website.

Outcome #1**1. Outcome Measures**

Number of new dairy farms established; number of existing farms remodeled or expanded; number of transitioned/transferred farms; quantify economic impact made by these changes.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	50	32

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Dairy farmers care about sustaining their industry and livelihood, care about sustaining local milk markets, care about providing opportunities in agriculture for young people. Leaders and citizens in local communities care about maintaining the viability of local communities by maintaining and growing local economic activity, such as the strong economic activity generated by dairy farms.

What has been done

Number of new dairy farms established; number of existing farms remodeled or expanded; number of transitioned/transferred farms; quantify economic impact made by these changes. ** 7 new farms with 1624 additional cows (6 NE Iowa, 1 NW Iowa). ** New owner and re-start of 1 farm - 1500 cows (NW Iowa). ** 5 farm families assisted in farm transfer decisions. ** 13 farms assisted in financial planning (projects included adding heifer housing, planning new farms, forage contracts, manure handling facilities, overall finances, and comparison of organic verses conventional profitability). ** 5 Parlors remodeled, 580 cows. ** 5 Expanded freestalls, 1070 cows. ** 5 Built or expanded calf/heifer housing, 1380 cows. ** 2 Added sand lanes to manage manure, 600 cows.

Results

Adding farms and cows makes a positive impact on Iowa's economy. Economists describe the economic activity generated by dairies in this way: Each cow contributes \$17,000 to the local economy. Dairy owners tend to purchase goods and services locally, and the support or spin-off jobs connected to the dairy industry for building or remodeling projects, and for day-to-day goods and services, further contribute to the local economy, communities, and schools. Similarly, efforts that retain existing farm operations through farm ownership processes and modernization projects also contribute to economic well-being of the region.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management

Outcome #2**1. Outcome Measures**

Number of dairy producers who adopt more competitive dairy production systems and practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	187

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Good dairy farmers are always striving for better herd health, better production performance, better labor performance and satisfaction, stewardship of natural resources such as land and water, and overall profitability; this is what sustains their farms. Local communities benefits from local profitable dairy farms.

What has been done

Over 165 dairy cow and dairy goat producers participated in programming on financial analysis and improving profitability in their enterprise. The educational efforts included Dairy TRANS and Dairy GOAT TRANS financial programs and the Millionaire Model Farm project. Twenty dairy producers and consultants made improvements to their facilities which included building low-cost milking parlors, installing heat abatement sprinklers, extended day-time lighting and modernizing facilities. Staff worked with two herds having milk production and health issues by analyzing records, farm visits and recommendations.

Results

Producers have a better understanding of their financial situation and shared learning techniques to improve profits on their dairy farm. Modernization projects on existing dairies improved herd management and efficiencies, thereby improving the viability and competitiveness. Improved animal comfort and health and performance, improved labor efficiency. Two herds increased milk production 740# milk/cow. Reduced labor time and costs by one-third to one-half. Lower somatic cell count. One herd increased milk production by 900 lbs milk or \$117 per cow.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #3**1. Outcome Measures**

Number of Iowa producers who adopt integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	8

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Good dairy farmers are always striving for better herd health, better production performance, better labor performance and satisfaction, stewardship of natural resources such as land and water, and overall profitability; this is what sustains their farms. Local communities benefits from local profitable dairy farms.

What has been done

a) Worked with 4 herds (~900 cows) on farm troubleshooting mastitis/milk quality problems, some with full farm investigation and milk culture analysis. b) 3 dairy goat producers were counseled regarding Somatic Cell Count (SCC) and other herd management issues. c) A 59 cow dairy farm was faced with an increasing bulk tank somatic cell count. After a milking time evaluation of milking equipment, and milking protocols the herds SCC declined from 980,000 the day of the farm visit to 153,000 on their December 09 DHI report. d) Conducted 1 study evaluating 3 new persistent barrier teat dips for dry cows. e) *Conducted 11 studies on evaluating teat health and performance of potentially new lactating cow teat dips (hydrogen peroxide (9), and sodium chlorite (2)) using an intense observational applied research model. f) Evaluation of a novel natural antimicrobial product for treatment of subclinical mastitis.

Results

a) All herds improved their milk quality as evidenced by reduced somatic cell count. Average SCC pre and post troubleshooting were 565,000 (range 350-720,000) and 230,000 (range 190-280,000). These improvements transcribe into estimated milk production gains worth \$47,000 and increased milk quality premiums worth \$18,900. b) Those 3 producers agreed on steps needed to be taken to improve their SCC. c) With a \$0.00076/cwt premium for milk testing below 350,000 and the non-deduction of milk testing above this level, this dairy gained \$7,271 annually on the value of milk sold. d) New dips failed to perform as well as industry standard and accepted dips developed by our dairy team already. According to Hoard's Dairyman industry survey, 44% industry adoption rate of dry cow/ fresh cow mastitis control teat sealant technologies, with potential increased revenues of \$20 million dollars due to reduced clinical mastitis and SCC at calving, and reduced antibiotic risks and costs. e) Research results on teat and skin health provided final data prior to commercialization of 2 new teat dips. Other research led to modifications of new and existing products, while some products failed to meet commercialization criteria. Pre and post milking teat dipping is practiced by > 90% of all dairy farms and assurance of effective germicides and optimum teat health is critical. Our intense observational model to assure teat tissue health and reduce milk quality risks is used by the whole industry and is critical to successful pre and post harvest food

safety and animal and product quality assurance. f) Sometimes therapy is needed to treat animal diseases and improve animal health and welfare, with many therapies directed at mastitis. While this is essential, this enhances potential risks of antibiotic contamination of milk if proper procedures are not implemented. A national study to potentially license a new natural antimicrobial with zero milk withdrawal through FDA was conducted. This comprised 12 sites across the nation and ~ 400 cows with 30-40 cows/ site (one site at ISU Dairy) and was used to treat subclinical mastitis. Results: Data was completed and summarized and results showed significant improved cure rates and is now being submitted in an NADA at FDA.

4. Associated Knowledge Areas

KA Code	Knowledge Area
315	Animal Welfare/Well-Being and Protection

Outcome #4

1. Outcome Measures

Number of producers who will increase the awareness and use of interpersonal and organizational skills when managing family or non-family personnel.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	300	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Dairy owners/managers, employed family members, and non-family employees all benefit from improved communication in the workplace, and from the development of work environments that foster respect for people, animals, and resources. Dairy leaders who serve on Boards of Directors for dairy associations build leadership skills, and engage peers in activities that address the needs and interests of the industry.

What has been done

a) ISU Extension Supports the Development of Leadership Capacity within the Iowa Dairy Industry: Extension staff serve in advisory roles to dairy organizations in the state to foster the growth of leadership skills and actions of Iowa's dairy producers. The organizations not only provide a way for dairy owners to present their interests and concerns to policy-makers, but also provide a structure whereby they can develop leadership skills needed to function effectively as agriculturalists facing national and global challenges. They learn the processes of setting common mission and goals, delegating organizational tasks, discussing conflicts and challenges, building networks and alliances, and promoting efforts that will sustain current and future farms. As they identify the skills and information they need, Extension staff help set up the learning venues and connections to resources. b) Dairy Farm Safety Workshops Help Dairy Owners Develop a "Culture of Safety" on Their Farms: The RME-Farm Safety Project - "A Farm Safety Training Program on Human Risk Management for Dairy Producers and Hispanic Employees" was designed to accomplish these 2 general goals: 1) Increase dairy owners' and dairy employees'

knowledge and awareness about safety risks, safe work practices, and resources for farm safety and worker well-being. 2) Inform and encourage dairy owners to create a "culture of safety" on their dairy farms as part of daily dairy farm operations. Dairy Extension specialists from the multi-state I-29 region, including NW Iowa, western Minnesota, South Dakota and eastern Nebraska, obtained a North Central Risk Management Education grant to deliver bilingual farm safety training to dairy owners and employees in the region. Grant funds enabled the group to hire a bilingual educator and dairy professional to prepare and teach the farm safety overview to Hispanic dairy employees, and to communicate with dairy owners about ways to improve safety practices on their farms. Through the Spring and Summer of 2009, this project delivered farm safety education to 619 dairy workers and owners in the region: 556 employees at 40 farms in a 4-state region participated in On-Farm Safety Workshops for Hispanic Employees at their worksite in the time period between March - August 2009; 20 people attended a Dairy Farm Safety break-out session at the Central Plains Dairy Expo in March 2009; 23 dairy owners and head herdsman attended a Dairy Farm Safety Workshop for Owners, Managers, and Key Herdsmen ("Developing a 'culture of safety' on Your Farm") in May 2009; 20 dairy owners and supervisors attended a Farm Safety presentation held at University of Nebraska Dairy meeting in August 2009.

Results

a) This past year has seen an increase in dairy leaders' confidence and willingness to take initiative on projects and conflict resolution. Dairy leaders in NE and NW Iowa gave inputs on education programs desired, planned and coordinated Dairy Open Houses to inform the public about the values and practices of modern dairy animal husbandry and food production, and engaged policy-makers in a forum to discuss issues related to local immigrant work force. Dairy organizations have increased communication and networking via e-newsletters, websites, and coalition meetings. Communication between leaders of organizations has increased, along with growing awareness of the need to build partnerships or alliances to get work done, and to present a more unified voice to the public and policy-makers. In the Dairy Farm Safety Project, post-project evaluations measured increased awareness and knowledge about safety practices on dairy farms, and many dairy owners implemented specific changes such as installing first aid kits and eye wash stations, posting safety signs, modifying chemical storage and use, creating or improving safety protocols and safety training checklists.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality.
Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of energy efficient or conserving practices/technologies established.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Improve public awareness and knowledge about dairy food production and food safety, and about the sustainability initiatives of the US dairy industry.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	2000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A large percentage of the US population lives in an urban or suburban environment, and are slightly disconnected from agriculture and food production. At the same time, there is increasing interest and concern in the general population about food safety, quality, and sustainability. It is imperative to develop sound, factual based, unbiased educational venues to address this issue and educate the public in these areas.

What has been done

A) Two dairy open houses as part of June Dairy Month events were conducted to provide the public the opportunity to experience and learn first-hand about the efforts made daily on modern dairies to achieve cow care, cow comfort and health, hygienic milking procedures, local cropping systems that provide quality feed for the dairy herd, manure management and land stewardship, respect for family and non-family workers, and overall quality and safety of milk and dairy products. These events were a product of industry partnerships. The two events reached 1700+ participants (1200 adults and 500 children). B) 5 interactive workshops discussing modern dairy practices and dairy sustainability as well as addressing emerging food issues and the positive role dairy plays in making sustainable food choices were developed and jointly conducted by ISU Dairy extension and Midwest Dairy Association. These included four 2 hr. workshops and an all day dairy academy (which included on farm tours and education). ** Iowa School Nutrition Association (ISNA) Annual Meeting: 65 attendees; ** Iowa Family and Consumer Science Teachers (IFCST) Ann. Conference: 70 attendees; ** Midwest Dairy Association Board Meeting: 50 attendees; ** South Dakota Dietetic Association (SDDA) Annual meeting: 60 attendees; ** Midwest Dairy Academy for Retail Excellence (Hy-Vee Dairy managers: 40). C) 7 peer reviewed technical factsheets and papers regarding dairy sustainability, dairy food and product safety, on farm dairy practices, and animal care were developed in conjunction with the Midwest Dairy Association scientific advisory committee and published in print and website, and dispersed through public education channels.

Results

A) Surveys performed at both events showed that many participants had trust in dairy farmers and the dairy industry prior to the event (85-90%), but post tour surveys showed enhanced trust in the industry and in their knowledge of modern dairy practices that assure animal health and comfort, product quality and safety, and environmental stewardship and preservation (8-10 very good, 90-91% excellent confidence). B) Evaluations following the meetings showed all participants better prepared to address dairy questions and issues (avg. 4.8 (0 = strongly disagree, 6 = strongly agree)), trust in credible information (5.33), learned new information (5.48) and would highly recommend this to peers and clients (4.97). ISNA, IFCST, and SDDA interact or impact ~ 300 students/clients each ~60,000 contacts while each Hy-Vee dairy case manager interacts with >1000 customers and are the sole person at the store to respond to dairy issues and questions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection

Outcome #8**1. Outcome Measures**

Increase the number of dairy producers who access educational presentations via the dairy website.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	865

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

As budgets impact number of field staff and travel resources of field/campus staff, university extension staff are encouraged to consider alternative ways to reach our target audiences. Putting information and educational presentations on the web is an effective way to reach dairy producers for education on their time schedule.

What has been done

The first Adobe Connect session on Building a Low Cost TRANS Iowa Parlor was placed on the ISU dairy website in 2007. The goal for learning that "using a low cost but highly efficient approach, dairy producers can milk cows in a very comfortable, safe and labor efficient way". Numerous other presentations are now being developed for the web and include: Managing Dairy Farm Finances, Dairy Goat Financial Study, Managing Feed Cost Benchmarks, Using Dairy Goat TRANS for Profitability, and What Do You Tell the Kids in Tough Times?

Results

Building a Low Cost TRANS Iowa Parlor received 2,170 hits with 689 viewers watching the entire 41-minute, 85 slide presentation. Since 2007, e-mail or phone follow-up contacts have revealed at least 12 TRANS Iowa Milking Parlors were built from the information in the adobe presentation. The second presentation, Beginning Dairy Grazing, has received 405 hits with 176 viewers watching in its entirety.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy

Brief Explanation

The global economic recession and the US dairy industry's financial crisis impacted progress on our first Target area/Outcome Measure: Number of new dairy farms established; number of existing farms remodeled or expanded; number of transitioned/transferred farms; quantify economic impact made by these changes.

Because of the financial crisis, we shifted our focus from assisting establishment of new farms and farm ownership transfer to a focus on providing financial, legal, and emotional support that would help current existing farms survive the crisis. Our response to the crisis is described in this excerpt from the project report:

ISU Dairy Team Helps Producers and Agri-business Respond to Dairy Financial Crisis"

The time period of 2007-2008 was a good year for dairy producers: Increased global demand for dairy products, increased international markets for whey protein, and a shortage of milk in international markets due to drought-caused lower production in New Zealand were factors that caused milk prices to rise to record levels (\$18-20/cwt). This scenario encouraged US dairy growth and high production. However, in late Fall 2008 a global recession led to opposite trends involving lower global consumption, lower demand for US milk, and return of milk supply from New Zealand to international markets. These factors combined to create a rapid drop of milk prices to lows in \$10/cwt range. Given costs of production at \$16-17/cwt, a long period of low milk prices in the face of high cost of production put pressure on all dairy producers nationwide, and created a scenario where many dairies were losing money and losing equity position.

Aware that the impending costs of harvest and manure-hauling season could put producers at a critical decision point to stay in business or exit, the ISU Dairy Team and Extension partners planned and delivered 10 workshops ("Dealing with Tough Times: The Dairy Financial Situation") through-out the state July and August 2009. The purpose of each workshop meeting was to get the word out about key financial, legal, and stress management strategies to help dairy producers and lenders through critical decision-making processes. Across the state, the workshops drew in not only dairy producers, but also bankers, FSA lenders, accountants, and attorneys who work with dairy clients.

Immediate short-term results in the form of increased knowledge and awareness were measured either by pre-post quizzes or post-meeting surveys. At the 3 sites that used a short 6-question pre-post quiz, 16 out of 32 people completed a pre-post quiz. Compared to their pre-quiz performance, all 16 improved their score by marking 4 or more correct answers, indicating a change in knowledge level on financial, legal, or stress management strategies. At the sites that used an end-of-meeting survey, dairy producers rated their increase in knowledge gained as 6.48 or above on a 10 point scale

Severe weather damaged forage crops. Special programs and projects were initiated to help producers respond to damaged crop scenarios or to feed shortage scenarios.

- Hail storms (4 severe) and resulting moldy corn problems resulting in mycotoxin contamination.
- 3 hail damage management meetings held. Attendance 211.
- 36 follow-up conversations held with producers on questions ranging from alternatives for damaged corn, to extent of forage bag damage, to use of damaged crops for haylage, to best methods of harvesting and drying damaged crops.
 - Assisted local coop in developing a corn silage exchange amongst impacted farmers
 - Developed the structure for an emergency haylift

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)

- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 3****1. Name of the Planned Program**

Iowa Pork Industry Center

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	10%		10%	
302	Nutrient Utilization in Animals	10%		10%	
306	Environmental Stress in Animals	10%		10%	
307	Animal Management Systems	10%		10%	
308	Improved Animal Products (Before Harvest)	10%		10%	
311	Animal Diseases	10%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
402	Engineering Systems and Equipment	10%		10%	
403	Waste Disposal, Recycling, and Reuse	10%		10%	
601	Economics of Agricultural Production and Farm Management	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	15.6	0.0
Actual	14.0	0.0	15.1	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
515340	0	908631	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
515340	0	908631	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
849858	0	11663325	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

National Animal ID Program: IPIC Associate Director serves on the national steering team for NAIS. (National Animal Identification System) Producers are targeted for sign-up at this program at the Iowa Pork Congress, and in IPIC/IPPA regional meetings around the state.

Group Pen Sow Gestation Systems: ISUE Swine Field Specialists are trained in this area at in-service training, and include this as a part of their farm visits, regional educational efforts, and PQA+ site assessments.

Sustainable environmental management: IPIC works closely with Iowa Manure Management Action Group (IMMAG) in development and implementation of standards and protocols for producer education in this area, particularly with the Field Specialist programs of work.

Cost of production records: For 2009 eight 'virtual' farm tours were developed to enable clients to better understand the workings of different niche markets, without having to create a bio-security risk from an on-site tour. We have completed a National Research Initiative research program working with niche market farms to assist them in accurately knowing their cost of production, and have held multiple educational events to disseminate the results of this project. The IPIC has offered Group Tracker software to assist producers in monitoring post-weaning performance of pigs, and Pig Profit Tracker can assist the producer in considering the component cost of production for their specific farm. Swine Field Specialists work with individual producers wanting to use the Swine Business Record software package to estimate annual costs and returns from pork production.

Quality (Environmental) Management Systems: These efforts focused in part on working with swine producers to better understand what an EMS consists of and how it can be of benefit to them. QMS strategies for responding to current areas of scrutiny are being field tested. A major swine harvest company recently announced that every swine producer selling hogs to their facilities must be PQA+ and TQA trained, and each site where the pigs originate must be PQA+ site-assessed. IPIC faculty have trained many advisors to assist in meeting this requirement. In 2009, IPIC and ISUE field staff conducted close to 100 PQA+ sessions for more than 1,300 individuals; more than 20 PQA+ site assessments; and more than 30 TQA sessions for more than 470 individuals.

Production systems and practices: To improve their profit through using state of the art production systems and practices, producers are offered educational opportunities through regional conferences, Iowa Pork Congress, PorkBridge, SowBridge, convention and trade show displays, and one on one client discussions.

Animal health improvement: Faculty members develop and communicate information for producers to improve the animal health of their farms. This information comes to the producer directly through regional conferences, educational meetings, teleconference series, and opportunities for swine veterinary practitioners in the annual Iowa Swine Disease Practitioners Conference.

2. Brief description of the target audience

Independent farms: these are farms that are owned by the individual operators and not by investor owned companies, although they may be incorporated for business reasons

Corporate farms: these are farms that are owned by investor owned companies

Attribute based farms: these are farms that are marketing a product based on a particular attribute that has appeal to a consumer segment and has a potential higher return

Peer support groups: these are groups of producers with common interests and concerns as it applies to pork production

Youth and next generation: these are our potential clients and include high school, college and young people newly entering the workforce

Commodity groups: these are the organizations that represent the pork producers of Iowa, such as Iowa Pork Producers Association, Iowa Farm Bureau Federation, National Pork Board, National Pork Producers Council, and National Swine Registry

Veterinarians: these are the animal health practitioners who serve the pork industry through on-farm service, through commodity groups or other organizations

Community colleges: these educational institutions are our partners in training potential swine farm personnel as well as consumers of pork

General population: as consumers of pork, this is a very important group

Policy makers: because the pork industry does not operate without impact from the policy makers of Iowa and the nation, we must communicate and cooperate with this client group

Allied industry: the production segment of the pork industry relies on allied industry to provide goods, services and information that allow the producers to meet their goals. Allied industry includes providers such as feed manufacturers, equipment suppliers, animal health product suppliers, software providers, consultants, and genetic suppliers

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	8000	16000	3000	3000
Actual	12500	25000	1800	1900

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

Patent Applications Submitted

Year: 2009

Plan: 1

Actual: 1

Patents listed

7,592,159: Antibiotic Alternatives

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	0	
Actual	28	35	63

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed.
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of porcine respiratory and reproductive syndrome (PRRS) epidemiologic studies.
Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of producer surveys related to porcine respiratory and reproductive syndrome (PRRS) management and impact.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of swine farms to participate in EMS training sessions.
2	Number of youth participating in the Iowa State Fair swine programs (annually).
3	Number of crop producers who broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business (annually).
4	Number of premises registered in the national animal ID program (cumulative).
5	Number of pork producers using manure testing information to manage swine manure application.
6	Number of producers trained PQA+ and youth trained in FSQA.
7	Number of pork production farms with accurate cost of production records.
8	Number of pork producers who adopt more competitive production systems and practices.
9	Number of producers who adopt improved animal health protocols or procedures.
10	Number of niche market farms with accurate cost of production records.

Outcome #1

1. Outcome Measures

Number of swine farms to participate in EMS training sessions.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of youth participating in the Iowa State Fair swine programs (annually).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Today's young people need to know how important livestock and crop production is to the world and learn how they can have an active role in maintaining our state's agricultural leadership. In order to be successful in agricultural production, youth must be well educated. We use a variety of methods to provide to youth accurate, timely and unbiased information in the areas of swine production and consumer information. In addition to personally useful information, we also encourage consideration of post-secondary enrollment at Iowa State University in animal science and human science fields.

What has been done

Iowa Pork Industry Center and Iowa State University Extension staff coordinate the Iowa State Fair 4-H Derby swine show and work with the premier swine exhibitor scholarship program; we coordinate with the ISU Animal Science Department staff in their recruitment and presentation efforts during the annual 4-H Roundup program; we coordinate and present three pork-related workshops during the annual Iowa State 4-H Youth Conference; we encourage enrollment in the ISU Pork Fellows program; we work with the Iowa Pork Producers Association in its Youth Ambassador Program and in arranging youth activities at the Iowa Pork Congress; and we offer ultrasound scanning services to Iowa county fair swine shows.

Results

More than 300 youth exhibited in the State Fair youth swine show; 57 youth participated in Roundup; more than 60 youth and adult State 4-H conference attendees participated in the workshops; 20 ISU students are part of the Pork Fellows program; 2,381 head of market hogs were scanned for county fair shows in 43 Iowa counties, and 358 derby hogs were scanned at the Iowa State Fair.

4. Associated Knowledge Areas

KA Code Knowledge Area

- 307 Animal Management Systems
- 308 Improved Animal Products (Before Harvest)
- 315 Animal Welfare/Well-Being and Protection

Outcome #3

1. Outcome Measures

Number of crop producers who broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business (annually).
 Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Number of premises registered in the national animal ID program (cumulative).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	6500	27204

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A national animal identification system is necessary to help protect American animal agriculture from disease threats. The ability to find potentially sick or exposed animals early in a disease outbreak is essential to controlling the outbreak quickly. The NAIS would allow for rapid trace back of animals in the event of an outbreak, helping to limit the outbreak and minimize the impact on markets. The NAIS may benefit producers in other areas as well, including providing additional marketing opportunities. The NAIS also helps uphold the reputation of Iowa and the United States as having healthy animals, and it will promote continued confidence in American agricultural and animal products.

What has been done

Producers and other landowners were encouraged to register their premises during the Iowa Pork Congress in the IPIC/ISU display. Producers were referred to the IDALS display at the same trade show for additional information. ISUE swine field specialists affiliated with livestock production have registered their own premises, and based on their experience, promote the program and its simple registration process to attendees at educational programs throughout the year.

Results

Our upwards adjusted target goal of 4,500 registered premises in Iowa was easily reached, because we still are in the early phases of the program. In fact, according to the latest numbers available from the USDA-APHIS Web site on the NAIS program, more than 57 percent of all premises in Iowa have been registered as of 1-10-10: 27,204 of an estimated 47,273 premises. This puts Iowa in 5th place nationally for number of premises registered and 8th place in percentage of estimated premises registered.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases
315	Animal Welfare/Well-Being and Protection

Outcome #5

1. Outcome Measures

Number of pork producers using manure testing information to manage swine manure application.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	3000	3604

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock nutrients are a valuable resource to farmers, supplying essential nutrients required for crop growth. However, it also is no secret that too much manure or manure improperly handled or land-applied can also be a detriment to soil and water quality. The agriculture community recognizes the need to provide information on regulations, best management practices, and neighbor relations to Iowa's farmers.

What has been done

ISUE field specialists with livestock and agricultural engineering specialties plan and present manure management certification meetings annually, and offer specialized manure management plan educational meetings and sessions on as-needed and as-requested bases in their respective geographical areas.

Results

IPIC and ISUE field specialists plan content for delivery of the annual confinement site manure application certification program to 70 county ISU Extension offices. IPIC works closely with IMMAG in development and implementation of standards and protocols for producer education in this area, particularly with the Field Specialist programs of work. Each year a higher percentage of pork producers test their manure for nutrient composition prior to land application. The reasons for this include the increasing value of manure dictates that less is wasted; pork producers are most always good stewards of the land, and over-application could harm water quality; and most producers realize that any over-application casts the industry in an unfavorable light. As more acres of Iowa cropland are being fertilized with animal nutrients, the Manure Applicator Certification (MAC) program is especially important to ensure producers understand the importance of testing manure prior to land application.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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- 403 Waste Disposal, Recycling, and Reuse
- 601 Economics of Agricultural Production and Farm Management

Outcome #6

1. Outcome Measures

Number of producers trained PQA+ and youth trained in FSQA.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Number of pork production farms with accurate cost of production records.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Number of pork producers who adopt more competitive production systems and practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10000	11000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Pork production, like all other agriculture enterprises, requires an ever increasing level of efficiency and product quality to survive and prosper. To accomplish this, pork producers must continually improve their production systems and practices to meet these goals. As a Land Grant University, ISU has a broad mission that includes discovery of new technology, assisting our clients' adoption of these technologies, and educating our students and industry clients in why these new ideas might help them and how to implement them

What has been done

Iowa State University has more than 50 Ph.D. or DVM scientists working to assist the pork industry of Iowa. In addition, we have access to technology developed at other locations which may be of service to the pork producers of Iowa. We also have the largest and most effective information delivery system in the nation. A coordinated effort between ISU administration, faculty and staff targeting the pork industry of Iowa is ongoing and extremely successful.

Results

Only pork producers who adopt more competitive production systems and practices can survive and prosper over the long term. The IPIC has had direct contact with more than 40,000 participants in the pork industry over the past year. Major activities (in terms of client contacts) include the Iowa Pork Congress, the World Pork Expo, Iowa Farm Bureau Federation annual convention, regional conferences and one-on-one interactions with clients. Another avenue of impact is through the IPIC website and the PORKLine. Programs of particular success have been the development of materials for assessment of sow condition (more than 5,000 distributed worldwide), guides to replacement gilt selection (more than 6,000 distributed worldwide), and Sow Longevity Spreadsheets (distributed to producers across Iowa and to 42 foreign countries worldwide, and available in three languages with plans to add at least two more languages).

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection

Outcome #9**1. Outcome Measures**

Number of producers who adopt improved animal health protocols or procedures.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2000	462

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

An essential part of efficient production of profitable pork is maintaining a healthy herd. With the increasing oversight over food safety and the tightening profit margins, it is imperative for pork producers to adopt optimal animal health programs and procedures for their herds. Information on these improved animal health protocols and procedures must come from unbiased sources of information who work with the most advanced discovery teams.

What has been done

Iowa State University has greatly re-invested in programs involving Food Supply Veterinarians and the Veterinary Diagnostic and Production Animal Medicine unit. These programs are designed to integrate a variety of disciplines

to effectively address the needs of producers and consumers, and provide veterinary students with needed skills, knowledge and problems solving ability to serve the needs of the pork industry of Iowa. These areas of discovery, education and technology transfer are essential needs of our clients in Iowa.

Results

The capabilities of the Veterinary Diagnostic Lab at ISU have been greatly enhanced over the past years. Major investments in facilities, faculty and staff have increased the capability to serve our clients. Ongoing programs, such as the Iowa Swine Disease Conference, continue to be the model for other universities across the nation. Furthermore, the cooperative activities between the College of Veterinary Medicine and the College of Agriculture and Life Sciences have been greatly enhanced recently. Cooperative efforts in areas such as PQA+ education, sow lifetime productive lifetime, animal well-being and care, and computerized data management systems have recently evolved and are having a tremendous impact on pork production in Iowa, the nation, and the world.

4. Associated Knowledge Areas

KA Code	Knowledge Area
311	Animal Diseases

Outcome #10

1. Outcome Measures

Number of niche market farms with accurate cost of production records.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	46

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Small farmers face challenges in being profitable. One way small farmers try to be profitable is to produce niche hogs for specialty markets. Examples are certified organic and antibiotic-free hogs. But raising these hogs is challenging, in part because of the lack of needed technical and research support. This project addressed this lack of support by examining niche pork production systems, including herd health issues, and by developing and delivering outreach to niche pork farmers and professionals working with these farmers.

What has been done

The project used a comprehensive record-keeping program to obtain usable records from 46 niche pork farms. In order to get the niche market producers to participate, multiple contacts between ISUE personnel and the producers were required. This involved individual meetings with the producers to discuss the project and its benefits to the producers, contacts to get the initial data, followed by contacts to be sure the data was being interpreted correctly, and follow-up contacts to explain the results and discuss the application of the results by the producers.

Results

Information from the results was used to develop educational materials and deliver outreach programming. Materials include a Niche Pork Production Handbook, research reports in the Iowa State University 2010 Animal Industry Report, and articles in various other publications. Presentations were given at various venues including the Iowa Pork Congress and the Swine Disease Practitioners Conference. The information from this project was incorporated into Pork Production and Farm Business Analysis course offerings at Iowa State University.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

External factors that influence the outcomes of our programs have centered on the public policy and governmental regulation areas, with other competing public priorities also having an impact. As the State and Federal legislative bodies implement policy and regulations that impact our pork industry, this then has a great impact on our programmatic activities and their impact. Examples for the current time include MCOOL, National Animal ID System, and the requirement of PQA+ site status of their vendors by the pork processors. These external factors will drive many of our programs for the upcoming year, however, they also will offer us the opportunity to engage new clients and have a positive impact of a larger number of clients than in previous years.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

Much of the pre-event/educational opportunity evaluations are done on an individual, in-person basis, as specified by the original NRI grant. These results are compared with the post-event results in the next paragraph. These comparisons also are used to estimate numbers of producers and different types of operations that were not in this program, but also might benefit from similar experiences, software and other resources developed through the original grant project.

Presentations on herd health events and related management problems were given to more than 400 niche pork producers using face-to-face and online methods. At least three months after these educational events, follow-up surveys were distributed to approximately half of these attendees (200), and 40 of these were returned for a 20 percent response rate. Specific behavioral changes were addressed in these surveys and measured by respondent completion. Of the 40 producers who returned surveys, 75% (30) said they were now adjusting feeders more often in attempts to reduce feed wastage. Fifty percent (20) said they cleaned waterers more often to provide more clean fresh water to their pigs. Forty-three percent (17)

reported making adjustments to their nutrition programs to help lower the cost of gain on their animals, and nearly one-third (12) had implemented a change in pig flow to batch-farrow sows when possible, leading to a narrower weaning age range within groups. Perhaps most importantly, nearly 40% decided to start keeping financial and other production records in their operations. As project team members continue to follow these initial participants, more positive changes in behavior are expected.

As a result of past work with niche pork producers, a need for software to help provide costs and other information was realized. Sow Group Tracker was developed by field staff with assistance from campus staff and faculty. This software is being field-tested with a variety of operations (herd size, geographic location, existing use of similar software, etc.) Early results and responses are helping staff and faculty fine-tune the program, and are offering cooperators the opportunities to look at the economic potential for bettering their financial position.

Key Items of Evaluation

Twenty percent of solicited survey respondents in an NRI grant project of niche pork producers returned completed surveys. These surveys were sent at least three months after an educational event to allow time for participants to decide whether to adopt behaviors learned during the event. More than 400 participants attended educational events in two different ways: producer meetings (in person) and via an Internet-provided venue, and roughly half were surveyed.

V(A). Planned Program (Summary)**Program # 4****1. Name of the Planned Program**

Farm and Business Management

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	60%		60%	
602	Business Management, Finance, and Taxation	10%		10%	
603	Market Economics	20%		20%	
605	Natural Resource and Environmental Economics	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	1.7	0.0
Actual	20.0	0.0	1.1	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
736200	0	106852	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
736200	0	106852	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1556964	0	31427	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Risk Management Education: 159 county level meetings discussing farm leasing agreements were held, with over 3,000 attendees. 25 radio interviews and mass media articles were disseminated. Approximately 4,000 personal consultations were carried out. A one-day continuing education seminar for crop insurance agents was held, with 375 people attending.

Women Decision-makers and Leaders: Approximately 10 Annie's Project groups were established in Iowa, in which 408 farm women attended 60 workshops that addressed financial and economic issues of their choosing.

Financing Agriculture: 70 agricultural lenders and auditors enrolled in the 2009 Agricultural Credit School conducted by ISU Extension. They each received 35 hours of instruction on legal requirements of lending, financing crops, livestock and farm real estate, risk management, financing new businesses, and problem loan solving.

Next Generation of Agriculturalists: 24 aspiring farm operators enrolled in the AgLink program, a four-day seminar for multiple generations. It allows students, their parents and others with whom they will be farming the opportunity to explore transition options and plans. The FarmOn program is designed to match unrelated beginning and retiring farmers. Over 50 individual consultations were provided. Speeches, lectures, workshops, and short courses have been initiated. Materials have been developed. Extension has worked with other groups and organizations.

Farm Income Tax Education: ISU Extension and the ISU Center for Agricultural Law and Taxation conducted eight schools in Sheldon, Mason City, Denison, Ames, Muscatine, Waterloo, Griswold, and Ottumwa. Attendees received fourteen hours of continuing education credits. The Center has also been involved in continuing education in the area of taxation in the areas of women in agriculture, farm estate and business planning, and the Iowa Bar Association Tax School.

Farm Bill Education: Two new commodity programs were introduced in the 2008 Farm Bill. Farmers and landowners were informed of the details of these programs through meetings, mass media, newsletters, website postings. Electronic spreadsheet programs were made available to help evaluate the costs and benefits of each program.

Alternative Enterprises or Value Retained: Extension bulletins on vegetable and organic budgets, as well as how to use them in decision making were developed. A series of informational meetings on organic agriculture, long-term rotations, vegetable economics, and enterprise budgets were held throughout the state. Interactive decision making tools were developed and put on the ISU Agricultural Decision Maker website. Alternative agricultural information was added on the Agricultural Marketing Resource Center website.

2. Brief description of the target audience

- Grain, livestock and dairy producers
- Agribusiness professionals including USDA employees
- Agricultural lenders
- Farm employees
- Female farmers and farm partners
- On-farm and off-farm heirs
- Beginning farmers
- Landowners
- Tax practitioners
- Entrepreneurs
- Farm families
- State agencies and NGOs
- New food cooperatives, networks and consortiums

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	15000	3350000	0	0
Actual	40328	1091000	125	1000

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

Patent Applications Submitted

Year: 2009

Plan: 0

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	0	
Actual	10	9	19

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of crop and livestock producers who choose marketing, insurance and USDA program alternatives that are consistent with the risk bearing ability of their businesses and their personal preferences for managing risk.
2	Number of female farmers and farm partners who take a more active role in decision making for their businesses.
3	Number of agricultural lenders who finance the acquisition of new resources or implementation of new technology for their borrowers while maintaining liquidity and controlling financial risks.
4	Number of beginning farmers who objectively measure the likelihood of meeting their individual and family goals through entering a farm business.
5	Number of income tax practitioners that increase the accuracy and efficiency of the farm returns that they prepare.
6	Number of producers and landowners who make choices among CRP, CSP and commodity payment programs consistent with their goals of increasing profits and protecting agricultural resources.
7	Number of producers and other entrepreneurs who increase their awareness of alternative enterprises or value retained opportunities by either attending an educational program or downloading educational materials from a website.
8	Number of producers and other entrepreneurs who increase their awareness of renewable energy or climate change by either attending an educational program or downloading educational materials from a website
9	Number of producers and landowners who make choices among existing new commodity payment programs consistent with their goals of increasing profits and protecting against financial losses due to reduced production and/or lower commodity prices.

Outcome #1**1. Outcome Measures**

Number of crop and livestock producers who choose marketing, insurance and USDA program alternatives that are consistent with the risk bearing ability of their businesses and their personal preferences for managing risk.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	4929

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Two new financial risk management programs were introduced in the 2008 Farm Bill. In Iowa, 90 of 99 counties were declared eligible for disaster payments for 2008 crops under the SURE program. Producers need to know how to determine their individual eligibility and how to apply for benefits. Over 90% of Iowa farmers enrolled in the DCP program in 2003. They must all make a choice whether to remain in that program or enroll in the new ACRE program.

What has been done

Fact sheets about the new programs were written. Electronic spreadsheet programs were developed to help farmers analyze the benefits and costs of each program. These were posted to the Ag Decision Maker website and downloaded over 100,000 times. A total of 233 educational presentations were made. Additional information was disseminated through radio interviews, newsletter and magazine articles, webinars and news releases.

Results

Approximately 15% of Iowa farmers enrolled in the ACRE program. The remainder made the decision to remain in the DCP program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #2**1. Outcome Measures**

Number of female farmers and farm partners who take a more active role in decision making for their businesses.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	100	408

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Women who are independent farm operators, farm partners and farm owners all need information to make better management decisions. Experience has shown that they prefer receiving information in an all-female environment.

What has been done

Approximately 10 Annie's Project groups were formed where farm women received information about financial management, communication and business organization. Five larger workshops were organized to focus specifically on farm women and their concerns. An Iowa dairywomen peer group was formed.

Results

About 140 women participated in Annie's Projects in Iowa last year. They have increased their understanding of topics such as USDA farm programs, farm accounting and budgeting, interpersonal communication, machinery economics and leasing arrangements. An additional 600 women attended one-day and two-day conferences where they learned about similar topics.

Members of the Dairywomen Peer Group have taken leadership for their group, and have become officers in a new dairy producers group.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Number of agricultural lenders who finance the acquisition of new resources or implementation of new technology for their borrowers while maintaining liquidity and controlling financial risks.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	100	70

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural lenders need to understand the legal steps needed for making new farm loans, how to analyze and evaluate new loan applications, how to service and monitor existing credits, and how to meet the credit needs of beginning farm operators and new enterprises.

What has been done

70 agricultural lenders and auditors enrolled in the 2009 Agricultural Credit School conducted by ISU Extension and the Iowa Bankers Association. They each received 35 hours of instruction on legal requirements of lending, financing crops, livestock and farm real estate, risk management, financing new businesses, and problem loan solving.

Results

50% of the attendees rated the School as Excellent and 36% rated it as Good relative to meeting their educational needs. They expect that their credit institutions will be able to increase their agricultural loan portfolios with fewer delinquencies and nonperforming loans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #4

1. Outcome Measures

Number of beginning farmers who objectively measure the likelihood of meeting their individual and family goals through entering a farm business.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
------	---------------------	--------

2009

25

57

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The next generation of agriculturalists was identified as one of the top areas in both the survey and listening sessions held by Extension. The major concerns are the lack of young people on the farms, transitioning farms from one generation to the next and the difficulty getting started in today's capital intensive agriculture. Iowa land owners are aging and there will be a major shift in wealth over the next several years. Much of Iowa's land will be owned by people who do not live in the state.

What has been done

The AgLink program is a four-day seminar for multiple generations. It allows students, their parents and others with whom they will be farming the opportunity to explore transition options and plans. The FarmOn program is designed to match unrelated beginning and retiring farmers. Individual consultations have been provided. Speeches, lectures, workshops, and short courses have been initiated. Materials have been developed and disseminated. Extension has worked with other groups and organizations. Eleven radio interviews on Extension programs for beginning farmers were done.

Results

Currently there are matching files for 359 beginning farmers and 53 retiring farmers in the FarmOn program. There were 10 active matches facilitated. During the year approximately 800 calls were fielded regarding beginning farmer programs. The Ag Link seminar was attended by 16 families and their students, with 53 people being reached. Each of the students created a draft of a farm transition plan.

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

Number of income tax practitioners that increase the accuracy and efficiency of the farm returns that they prepare.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1000	1213

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Nearly all farm income tax returns filed in the state are completed by attorneys, CPAs and other professional preparers. Federal and state tax regulations are constantly changing, and new court cases affect how returns are completed. Errors in tax preparation can cost farmers thousands of dollars.

What has been done

ISU Extension and the ISU Center for Agricultural Law and Taxation conducted eight Farm Income Tax Schools throughout Iowa. Attendees are eligible for up to fourteen hours of continuing education credits. The Center has also been involved in continuing education in the area of taxation, women in agriculture, farm estate and business planning, and the Iowa Bar Association Tax School.

Results

1,127 professional tax preparers attended the eight 2008 Farm Income Tax Schools. They increased their knowledge of new tax regulations and court rulings. Implementation of this knowledge will lead to fewer errors and omissions in the preparation of farm income tax returns in Iowa and increased compliance with IRS policies and procedures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation

Outcome #6

1. Outcome Measures

Number of producers and landowners who make choices among CRP, CSP and commodity payment programs consistent with their goals of increasing profits and protecting agricultural resources.
 Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Number of producers and other entrepreneurs who increase their awareness of alternative enterprises or value retained opportunities by either attending an educational program or downloading educational materials from a website.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	300	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Commodity agriculture is historically a high volume, low margin industry. High land and machinery costs make entry into commodity agriculture difficult. Interest, therefore, is increasing in alternative agricultural farming

operations including, but not limited to: organic agriculture, fruit and vegetable production, and various livestock enterprises. Profit margins, however, vary a great deal and are based on what product is grown and how it is priced. Potential farmers need assistance in evaluating which alternative enterprise makes sense for them.

What has been done

New educational materials were created to inform producers and prospective producers about the opportunities and requirements for initiating alternative enterprises, and posted to ISU Extension websites. Educational meetings were held regarding production of meat goats and signing leases for wind energy turbines.

Results

Individual consultations increased due to the additional interest. Producers are changing practices as a result of their educational experiences. For example, a few vegetable growers told us they were changing product mix, production practices, and pricing and promotional strategies as a result of their educational experience. A few farmers are slowly transitioning their crops into organics (a field at a time) from conventional agriculture. Producers tell us that as they learn how to budget, price, and/or plan for a particular decision, they are learning how to use the same process for the other decisions they need to make within their farming operation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics

Outcome #8

1. Outcome Measures

Number of producers and other entrepreneurs who increase their awareness of renewable energy or climate change by either attending an educational program or downloading educational materials from a website

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	33941

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Renewable energy sources, particularly ethanol and biodiesel, continue to play an important role in the supply of fuel in the U.S. They help keep fuel prices and emissions lower. In addition, they constitute an important demand for corn, soybeans and other grains, which affects market prices for these commodities and overall profits for the farmers who grow them.

What has been done

The Ag Decision Maker and Ag Marketing Resource Center websites feature a large number of articles and data bases about renewable energy and climate change. In FY09 32 new articles were posted, as well as economic models of ethanol and biodiesel production plants that allow the public to track their profitability. Extension specialists also made 5 educational presentations about renewable energy and climate change.

Results

People who downloaded and read the articles or attended a presentation increased their knowledge and understanding of the economics of renewable energy fuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics

Outcome #9

1. Outcome Measures

Number of producers and landowners who make choices among existing new commodity payment programs consistent with their goals of increasing profits and protecting against financial losses due to reduced production and/or lower commodity prices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	4929

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The 2008 Farm Bill contained several provisions offering opportunities for farmers to improve their financial risk bearing position. The SURE program provides disaster payments to crop farmers in eligible counties who suffer at least a 10% yield loss for one or more crops. Ninety counties in Iowa are eligible for 2008, and 73 counties are eligible for 2009. Farmers need information about their potential benefits and how to apply for them. The ACRE program is offered as an alternative to the DCP program that over 90% of Iowa farmers enrolled in during 2003. ACRE offers some advantages as well as some costs compared to DCP. All farmers enrolled in DCP need to decide whether to switch to ACRE or not. They need information and analytical tools to make this decision.

What has been done

A total of 4,929 persons attended 233 presentations by Extension specialists. Some included workshops where participants used electronic spreadsheet programs to analyze their own farming operations. Additional information was disseminated through website postings, radio interviews, webinars, newsletters, and magazine articles.

Results

Farmers, landowners and agribusiness persons have more knowledge of the new commodity programs in the

2008 farm bill. 15% percent of Iowa farmers decided to enroll in ACRE, the remaining 85% decided to remain in the DCP. Applications for SURE payments will not be accepted until January 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
603	Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations

Brief Explanation

Delays in the implementation of the conservation programs authorized by the 2008 farm bill made it impossible to carry out the planned programming in the area of natural resource and environmental economics.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

Evaluation Results

A total of 77 people who attended a Farm Leasing Workshop presented by ISU Extension farm management specialists replied to a mail questionnaire sent approximately 6 months after the workshop to a random sample of participants. The data below show what actions they took related to their lease arrangements as a result of attending the workshop. The most common action taken was to adjust the cash rent to a level consistent with grain prices and costs of production. Nearly half of the respondents used the ISU fair rent calculator program to do this. The next most popular action was to change from an oral to a written lease. This will help reduce misunderstandings and disputes in the future, as well as provide documentation for future income and estate tax filings.

Actions:

A) Changed from a fixed to flexible rent

- 10% Have taken
- 36% Might
- 29% Will Not
- 12% Doesn't Apply
- 13% Did not answer

B) Changed from a cash to a crop share lease

- 1% Have taken
- 6% Might
- 58% Will Not
- 14% Doesn't Apply
- 19% Did not answer

C) Changed to a custom farming agreement

- 3% Have taken
- 10% Might
- 57% Will Not
- 14% Doesn't Apply
- 16% Did not answer

D) Adjusted the level of cash rent for 2009

- 66% Have taken
- 9% Might
- 5% Will Not
- 10% Doesn't Apply
- 9% Did not answer

E) Changed from an oral to a written Lease

- 45% Have taken
- 8% Might
- 5% Will Not
- 26% Doesn't Apply
- 16% Did not answer

F) Applied for the Beginning Farmer Income tax credit

- 1% Have taken
- 13% Might
- 10% Will Not
- 55% Doesn't Apply
- 21% Did not answer

G) Rented property to a different tenant

- 10% Have taken
- 16% Might
- 26% Will Not
- 29% Doesn't Apply
- 19% Did not answer

H) Gave up some land you were renting

- 3% Have taken
- 5% Might

- 12% Will Not
- 60% Doesn't Apply
- 21% Did not answer

I) Rented additional land

- 3% Have taken
- 6% Might
- 9% Will Not
- 61% Doesn't Apply
- 21% Did not answer

J) Reviewed soil test information

- 25% Have taken
- 18% Might
- 6% Will Not
- 32% Doesn't Apply
- 18% Did not answer

K) Used the ISU decision tool to estimate a fair rental rate

- 45% Have taken
- 29% Might
- 3% Will Not
- 12% Doesn't Apply
- 12% Did not answer

L) Used the ISU decision tool to analyze a flexible lease arrangement

- 22% Have taken
- 23% Might
- 16% Will Not
- 22% Doesn't Apply
- 17% Did not answer

Key Items of Evaluation

Respondents indicated that the changes they made to their lease arrangements increased their net income per acre by an average of \$35.23. Respondents reported that they rented in or rented out an average of 381 acres each. Thus, total increase in net income amounted to an average of \$13,428 per respondent. We believe that this represents a significant return on Extension resources expended.

V(A). Planned Program (Summary)**Program # 5****1. Name of the Planned Program**

Community Resource Planning and Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	2.6	0.0
Actual	17.6	0.0	4.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
414061	0	137692	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
414061	0	137692	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2320602	0	813484	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Workshops and educational efforts were conducted with community organizations, individuals and leaders to assist developing and implementing plans for physical and social community improvements. Research and outreach to communities was done on planning, zoning, resource management, and community and economic development activities using a variety of information dissemination methods. Training sessions were conducted to improve skills of local government officials, community leaders and individuals. Special services were developed to aid Iowa communities that suffered from flooding or other disasters during 2008.

2. Brief description of the target audience

- Individuals
- businesses

- organizations
- public officials
- community leaders in Iowa

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	5300	38500	0	0
Actual	45306	391283	0	0

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

Patent Applications Submitted

Year: 2009

Plan: 0

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	1	0	
Actual	3	2	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of articles, publications, reports, plans.

Year	Target	Actual
2009	73	351

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Community visioning and design: Organizations/communities participating in events.
2	Community visioning and design: Quality of life projects initiated
3	Community visioning and design: Communities completing quality of life projects.
4	Community planning: Communities participating in training sessions
5	Community planning: Community plans/projects initiated
6	Community planning: Communities with improved civic functioning
7	Community economic development: Communities participating in economic development events
8	Community economic development: Communities undertaking economic development activities
9	Community economic development: Number of businesses started
10	Community economic development: Number of jobs created or retained

Outcome #1

1. Outcome Measures

Community visioning and design: Organizations/communities participating in events.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Community visioning and design: Quality of life projects initiated

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Community visioning and design: Communities completing quality of life projects.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	8	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A gap exists between demand for design services to rural Iowa communities and the availability of those services. Many smaller communities in Iowa face enhancement related issues that they are unable to address due to lack of planning personnel and/or resources. In 2008, several communities experienced severe storm or flood damage, intensifying this deficiency.

What has been done

The Iowa's Living Roadways Community Visioning Program assists small Iowa communities to develop enhancement plans that reflect the values and identity of the community. The visioning process is sponsored by the Iowa DOT in partnership with ISU Extension and Trees Forever. In 2009, the Community Visioning Program conducted a special long-term planning process in 5 communities affected by natural disasters. The College of Design Extension offers community planning assistance through design studios and GIS imaging workshops. A series of tutorials and fact sheets on GIS software were developed for independent use and/or use in conjunction with short courses.

Results

In 2009, 12 communities participated in community visioning or community planning programs. Each community received a conceptual design plan, a project feasibility study and assistance in implementation planning. Impact assessments have shown that 94 percent of communities that participate in community visioning complete at least one project proposed during the process. The Community Visioning Program staff developed a two-year planning process for the five disaster communities addressing flood mitigation issues and other issues related to natural disasters. Types of projects completed include roadside plantings, signage or signage improvements, streetscape enhancements, downtown area improvements, parks and other infrastructure improvements such as storm water drainage, welcome centers and historic areas. ISU Extension conducted 16 GIS short courses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

Community planning: Communities participating in training sessions

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Community planning: Community plans/projects initiated

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many small Iowa communities also lack resources and expertise to develop comprehensive plans and individual community improvement projects. Issues facing communities include the growing bioeconomy, Iowa's aging population, and wellness issues such as adult and childhood.

What has been done

Design studios worked in the following communities/areas: Collins-Maxwell, Roland, Waukee, Atlantic, Story City, Prairie City, Onawa, Des Moines, Perry, Hamlin, Cedar Rapids, Elkader and Sioux City. The Town/Craft center in Perry hosted roundtable events to address housing issues, local food systems and Latino entrepreneurship in small towns.

Results

Comprehensive plans were developed for the Collins-Maxwell region and Prairie City. Community center plans were created for Waukee and Roland and Main Street/downtown plans were created for Perry, Story City and Onawa. Park plans were completed for Hamlin, Bloomfield and Elkader. Three plans for the Des Moines Area Community College urban campus were developed and two of the projects completed. Architecture students designed affordable, modular housing units for a flood-ravaged neighborhood in Cedar Rapids. Landscape architecture students worked with community leaders and engineers to develop a proposal to improve the dam system in Elkader; the proposal has been funded. ISU Extension published the information from the roundtable discussions on the Town/Craft Web site.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #6

1. Outcome Measures

Community planning: Communities with improved civic functioning

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rising fossil fuel costs and shrinking city budgets have created the need for communities to invest in alternative energy sources, such as biofuels and wind energy. In response to this environment, Fairfield, Iowa, developed a comprehensive plan that includes a sustainability component. Because of its ongoing relationship with ISU Extension, Fairfield collaborated with Extension to become a model of sustainability that can be applied to communities statewide.

What has been done

The ISU Extension Southeast Iowa Area began a "green initiative" three years ago and has been working with the community of Fairfield on sustainable living and energy efficient technology and in March 2009, held a wind energy conference. Fairfield applied for and received an Iowa Power Fund grant, with which it funded the development of single-family homes that operate off the grid. The grant was also used to fund part of a sustainability specialist position to be shared between ISU Extension and the City of Fairfield.

Results

ISU Extension and the City of Fairfield created a shared program specialist position. This specialist is based in the Jefferson County Extension Office and is encouraging and facilitating community sustainability programs initiated by businesses, industry and other organizations in Fairfield and in 23 counties in southeast Iowa.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #7

1. Outcome Measures

Community economic development: Communities participating in economic development events

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	9

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many communities in Iowa lack the resources necessary to develop innovative projects and initiatives designed to improve their economic growth. The current recession has further affected economic growth in these communities and they are looking for innovative ways to attract new residents, visitors and businesses.

What has been done

ISU Extension economists assessed the economic value of Iowa's natural resources for the Iowa General Assembly's Sustainable Funding for Natural Resources Study Committee. The assessment showed that creating new and maintaining existing recreational opportunities and natural resources will attract quality jobs and people to fill those positions. As part of the Northeast Iowa Food and Fitness Initiative, five counties in northeast Iowa are working to create an environment that supports physical activity and play.

Results

In 2005, Coon Rapids and the Whiterock Conservancy land trust earned the designation as one of Iowa's Great Places, and the CR-WRC Great Place committee began fund-raising to implement several community amenity and tourism projects. To conduct the impact analysis of its projects, the CR-WRC Great Place requested assistance from ISU Extension economists, who estimated primary and secondary economic impacts of already-realized or potential major infrastructure investments in community improvements and tourism-related facilities for the Coon Rapids-White Rock area. Since the initial report for the Iowa General Assembly was published, other communities and organizations have expressed interest in looking at the economic impacts of development of natural resources and amenities. ISU Extension Landscape Architecture used GIS mapping techniques to create trail maps that showcase physical activity opportunities in the area. These maps are being used to promote tourism in the area, along with physical wellness.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #8**1. Outcome Measures**

Community economic development: Communities undertaking economic development activities

Not Reporting on this Outcome Measure

Outcome #9**1. Outcome Measures**

Community economic development: Number of businesses started

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	50	128

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Due to housing crisis, financial crisis, and recessionary layoffs, a growing number of people are facing financial stress, credit issues, and loss of income. Many conventional lenders are not able to extend credit to entrepreneurs to the same extent as previously due to a tightening of underwriting standards. Extra technical assistance to small entrepreneurs with business plans that are realistic has been shown to reduce loan losses and enhance business success. Small business and jobs creation is particularly important for sustaining family income for many people during economic recovery.

What has been done

The Community Vitality Center (CVC) was created to identify policy topics of concern to rural communities; commission research to analyze the priority policy topics and impacts of public policy on rural areas; assess best practices, lessons learned and performance of alternative strategies to improve rural vitality; and foster collaborative partnerships to engage rural communities and diverse rural and urban interests in dialogue.

Results

CVC co-sponsored entrepreneurship training support projects in six communities. CVC developed collaboration projects with seven additional statewide networks including Iowa SBDCs, Main Street Development, Iowa Asian Alliance, Western Iowa Advantage, Northeast Iowa Food and Farm Coalition, MyEntrenet, and ISED Ventures. CVC organized a Microenterprise Coaching Academy for designated coaches representing the statewide networks. CVC provided technical assistance support for the Iowa Foundation for Microenterprise and Community Vitality (IFMCV) during first year of microloan and business technical assistance activities. IFMCV approved 21 small business loans for business startups and expansions and considered over 70 applications. A total of \$347,144 was advanced in closing 18 loans to 15 clients. All borrowers were entrepreneurs previously denied credit from conventional lenders. Average loan size was \$19,286. The portfolio was dispersed across 11 counties in Iowa. CVC created the Web-based application support process and drafted an individual TA plan for each micro-loan client. CVC coordinated first-year technical assistance to each client. Clients were balanced across

gender, across industries, between metro and non metro, between start-ups and expansions and proportional in minority ownership. An estimated 22 jobs were created or retained by the microenterprises for which the TA was provided.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #10

1. Outcome Measures

Community economic development: Number of jobs created or retained

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	318

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The current recession has had a negative affect on the entire state of Iowa. In particular, southwest Iowa is considered one of Iowa's economically distressed regions and is in need of assistance in economic development. The region's shares of the state income, jobs, and people are on a downward trend. The workforce is older; many younger workers have relocated.

What has been done

ISU Extension, with the Southwest Iowa Coalition, the Grow Iowa Foundation, and the Wallace Foundation for Rural Research and Development developed and secured funding for the Southwest Iowa Rural Development Resource Center (RDRC). RDRC is a communication hub that brings together resources and service providers for businesses in SW Iowa. RDRC worked with southwest Iowa businesses and entrepreneurs to develop the, Buy Iowa Online, an online marketplace for Iowa.

Results

An additional 19 small businesses/individual ventures trained to use the Buy Iowa Online Web site and loaded product for 2009 shopping season. In one month \$1,000 in sales from product sales were generated. From late December 2008 through October 2009 the total sales during the pilot launch was just more than \$535. With the retail component now fully functional and diverse sellers being added regularly, Internet marketing is creating awareness and attracting buyers as seen in the 100% increase in sales in just one month over 2008 total sales. 27 small business and individuals with product ventures were trained on Web site user technology and posted products for sale for the 2008 holiday season. 51 individual enterprises and small businesses have been assisted with technology training, product pricing/packaging and image/branding procedures in order to post products for sale on Buy Iowa Online which can contribute toward heightened success for Iowa businesses and increase wealth within local communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Time series (multiple points before and after program)
- Case Study

Evaluation Results

ISU Extension Community and Economic Development conducted three roundtable meetings at Town/Craft to address the following issues: gap between research and Extension, biofuels and the rural economy, and elder-friendly communities. For the Community Visioning Program, random surveys of residents in the twelve communities were conducted to obtain feedback for the development of transportation enhancement concepts.

Key Items of Evaluation

Need for better community programming. Community programming is often not intuitively related to what is seen as Agricultural Extension. In cooperation with the Southwest Iowa Latino Resource Center and the nonprofit educational corporation Experience Education, Community and Economic Development expanded its Spanish-language DVD series, *Éxito en el Norte*, designed to help immigrants adjust to life in Iowa and the United States. CED continued to publish its quarterly newsletter and improve the Program Builder Web site, and continues to develop ongoing programming into products. ISU Extension revamped its data services program with the development of ReCAP (Regional Capacity Analysis Program) to enhance the ability of communities to do economic development planning.

V(A). Planned Program (Summary)**Program # 6****1. Name of the Planned Program**

Economics, Markets, and Policy

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	20%		20%	
602	Business Management, Finance, and Taxation	10%		10%	
603	Market Economics	10%		10%	
604	Marketing and Distribution Practices	5%		5%	
606	International Trade and Development	10%		10%	
607	Consumer Economics	10%		10%	
609	Economic Theory and Methods	5%		5%	
610	Domestic Policy Analysis	10%		10%	
611	Foreign Policy and Programs	5%		5%	
803	Sociological and Technological Change Affecting Individuals, Fam	15%		15%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	2.5	0.0
Actual	0.0	0.0	2.9	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	102261	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	102261	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	663936	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

There are a myriad of initiatives underway where the insights, theories and methods of the social sciences are needed to integrate emerging markets and policies. We anticipate that our staff will be team members in exploring market opportunities and the potential economic benefits and related social and community effects of alternative policy development. Through theoretical model development, primary data collection, and analysis of existing secondary data, we will develop socio-economic impact study modules that can assist in local, regional and national development activities and monitor the effects of external and endogenous factors in individual producers and consumer well-being. Faculty associated with the Center for Agricultural and Rural Development (CARD), the Rural Policy Research Institute (RUPRI), the Community Development - Data Information and Analysis Laboratory (CD-DIAL), and the Office of Social and Economic Trend Analysis (SETA) will be at the forefront in developing economic social impact assessment models of policy options.

2. Brief description of the target audience

- All traditional and non-traditional agricultural producers in Iowa
- All Iowa consumers
- Aspiring agricultural producers
- Retired Iowa agricultural producers
- Agricultural input suppliers
- Agricultural product processors
- Agricultural product retailers
- State of Iowa and national agriculture policy makers
- Non-government agricultural and agriculture-related organizations
- State and national agricultural information, service, and regulatory agencies
- High school, community college, and university students

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1350	3500	70	0
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	0	10	
Actual	0	10	0

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Extension Bulletins
Not reporting on this Output for this Annual Report

Output #2**Output Measure**

- Web page hits
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Proceedings
2	Book chapters

Outcome #1

1. Outcome Measures

Proceedings

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Book chapters

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Time series (multiple points before and after program)

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 7****1. Name of the Planned Program**

Economic and Social Welfare

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
603	Market Economics	10%		10%	
607	Consumer Economics	10%		10%	
608	Community Resource Planning and Development	10%		10%	
609	Economic Theory and Methods	10%		10%	
610	Domestic Policy Analysis	10%		10%	
803	Sociological and Technological Change Affecting Individuals, Fam	30%		30%	
805	Community Institutions, Health, and Social Services	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.3	0.0
Actual	0.0	0.0	4.1	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	105820	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	105820	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	1217727	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Through the institutional capacities of the departments of economics, sociology and agricultural education and studies, and research and outreach organizations such as the Center for Agricultural and Rural Development (CARD), the Office of Social and

Economic Trend Analysis (SETA), the Community Development - Data Information and Analysis Laboratory (CD-DIAL), the North Central Regional Center for Rural Development (NCRCRD), and the Rural Policy Research Institute (RUPRI) we will investigate the potential for technological change, government policy, and market reforms to enhance the competitive positions of Iowa firms, personal income for Iowa residents, and social well being for Iowa consumers. We will identify growth areas in the state and make extensive studies of the principles of local development efforts that might be replicated elsewhere. In those communities where job market reduction and out-migration are persistent, we will explore innovative ways that local leaders are addressing the issues of collaboration and cooperation with other units of government to finance the provision of local services.

2. Brief description of the target audience

- All traditional and non-traditional agricultural producers in Iowa
- All Iowa consumers
- Iowa entrepreneurs
- Iowa businesses
- Iowa agricultural leaders
- Iowa community and economic development practitioners
- Iowa researchers outside of the land grant system
- Iowa state and local government officials
- Iowa local community leaders
- State of Iowa and national policy makers
- Public and non-governmental community and economic development organizations and agencies
- High school, community college, and university students

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	900	3500	170	0
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	0	10	
Actual	0	10	0

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Extension bulletins
Not reporting on this Output for this Annual Report

Output #2**Output Measure**

- Web page hits
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Proceedings
2	Book chapters

Outcome #1

1. Outcome Measures

Proceedings

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Book chapters

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Time series (multiple points before and after program)
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 8****1. Name of the Planned Program**

Community Services and Institutions

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
805	Community Institutions, Health, and Social Services	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	7.2	0.0	7.6	0.0
Actual	4.4	0.0	7.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
103515	0	275076	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
103515	0	275076	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
580150	0	1383672	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

We conducted participatory research, outreach and training with leaders, workers and individuals to improve the effectiveness and skills of leaders and volunteers in community organizations.

2. Brief description of the target audience

- Individuals
- Public
- Not-for-profit organizations in Iowa

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	600	1250	0	0
Actual	11327	97821	0	0

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

Patent Applications Submitted

Year: 2009

Plan: 0

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	1	10	
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of reports & plans (Ag Ed & Studies).

Year	Target	Actual
2009	5	88

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Community institutions, health and social services: Number of organizations participating in projects
2	Community institutions, health and social services: Organizations undertaking projects
3	Community institutions, health and social services: Community improvements made

Outcome #1

1. Outcome Measures

Community institutions, health and social services: Number of organizations participating in projects

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Community institutions, health and social services: Organizations undertaking projects

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Community institutions, health and social services: Community improvements made

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	75	1493

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Iowa municipal employees must also deal with constantly changing legislation and procedures. In 2008, many communities in Iowa were affected by severe flooding or tornado damage, creating a new set of problems that local officials and organizations are still addressing. An added dimension has been the country's financial crisis, particularly in terms of housing. A 2007 report found that Iowa needs a statewide housing policy and that affordable housing programs are complex and uncoordinated.

What has been done

Extension Office of State and Local Government Programs conducted its annual municipal professionals' certification program. Extension CED partnered with the Iowa Finance Authority to develop a statewide housing policy, and Extension CED continued to assist in establishing local housing trust funds. Extension CED conducted a Land Use survey of 956 cities and 99 counties to determine the status of planning documents such as comprehensive plans, zoning ordinance, and other planning tools that the city/county are using. The purpose of the survey was to support a statewide comprehensive housing policy, as well as to follow up with studies that were done in 2000 and 1976.

Results

In 2009, 260 municipal professionals were trained at the Extension Office of State and Local Government

Programs municipal professionals' certification program. Extension CED partnered with the Iowa Finance Authority to develop a statewide housing policy. Extension and IFA hosted a housing roundtable with more than 50 experts to develop strategies for a comprehensive housing plan. The strategies developed at the roundtable were presented at to 123 people at six regional meetings across the state. Extension CED assisted 9 counties and 4 regions in establishing housing trust funds. Extension CED obtained input from 1,049 local and county officials through the inventory of land use survey. Findings of the survey were used in determining approaches to statewide housing policy in Iowa.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Other (focus groups)

Evaluation Results

Program evaluations indicate that precinct election officials and county auditors believe that elections are running more smoothly and effectively since some or all of the PEOs completed certification (reported in the 2008 POW). More than 95 percent of participants rated the program as very good and excellent and more than 97 percent said they would recommend training to others. PEO training received additional positive feedback from county auditors following the November 2008 election.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 9****1. Name of the Planned Program**

4-H Youth Development

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%		100%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	51.0	0.0	0.0	0.0
Actual	40.5	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1475872	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1475872	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2424643	0	0	0

V(D). Planned Program (Activity)**1. Brief description of the Activity****4-H Afterschool**

- 144 Extension staff, 561 after-school staff, and 739 volunteers were trained in youth development principles and practices and developmentally age appropriate youth curricula.
- 16,487 children and youth K-12 engaged in 4-H Afterschool programming in content areas such as leadership, citizenship, and communication.
- 267 4-H Afterschool Clubs reported as developed via the Blue Ribbon statistical.
- 562 community entities partnered with 4-H Afterschool programs.
- In partnership with Iowa Afterschool Alliance, provided technical assistance to afterschool professionals.
- Developed and launched updated Iowa 4-H Afterschool web pages on the new Iowa 4-H website.

Urban 4-H

- CEEDs serving designated urban counties met to identify unique characteristics of urban youth programming and discuss ways to partner in obtaining resources for urban programs.
- As part of the ISU Extension re-structuring, six designated 4-H Youth urban program specialists were placed in urban counties.

4-H Clubs

- 64 new clubs developed using innovative and emerging 4-H club models.
- 88 of 100 counties reported program efforts to improve club quality, including support for families, offering new 4-H family orientation, and increasing the number of project based workshops and training.
- 82 of 100 counties reported increasing efforts to transition Clover Kids into the 4-12 grade 4-H club program.
- Expanded efforts to involve volunteers in 4-H expansion.
- 84 of 100 counties used a "4-H County Action Plan" to guide 4-H club growth.

4-H Volunteer Development

- 2,122 direct youth service volunteers were trained in youth development principles and practices via face-to-face, self-study and online methods.
- 9,839 volunteers served to provide assistance for youth development work in various roles.
- All 99 Iowa counties initiated a volunteer development initiative on the yearly county work plans.
- Developed and launched updated volunteer web pages on the new Iowa 4-H website.

Program Evaluation/Research

- *Long-Term Outcomes of 4-H Club Participation*: Pilot tested a focus group process for obtaining self-reported long-term outcomes of 4-H participation post high school
- *Multi-state: Documenting the Contributions and Impact of North Central Region 4-H Volunteers*: Surveyed more than 8000 volunteers through a random sampling process stratified proportional to geographic locations. Iowa findings include 59% of direct service volunteers live on a farm; 52% are between the ages of 42-51; and 15% of volunteers are between 32-41 years old. Iowa 4-H volunteers had the highest educational attainment compared to the other NC states with 15% having an MS or doctorate. Iowa volunteers also give more time to 4-H than the other NC states; 70% volunteer between 1-5 hours per week during the school year; 34% of volunteers give 6-10 hours per week during the summer months. Most volunteers reach small numbers of youth (between 1-10). Iowa volunteers are also the most generous, giving a median contribution of \$55 per year of non-reimbursable supplies. 4-H Volunteers also volunteer significantly to other community organizations with only 8% sharing their sole volunteer activity was 4-H.

2. Brief description of the target audience

The target audience for Iowa 4-H youth programs are Iowa youth in grades K-12. Additional audiences are adult 4-H program volunteers, Extension educators, Iowa K-12 grade teachers, pre-service educators, youth workers in community and private organizations that serve youth audiences, and community and state youth development collaborations.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	4500	58000	90000	32000
Actual	6566	52080	107106	17340

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	4	0	
Actual	4	0	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of trainings on Youth/Adult partnerships
 Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of youth who retain membership in 4-H clubs after 1 year of membership

Year	Target	Actual
2009	4300	3688

Output #3

Output Measure

- Number of volunteers completing two trainings/yr

Year	Target	Actual
2009	2000	2182

Output #4

Output Measure

- Number of adults trained on 4-H afterschool

Year	Target	Actual
2009	300	1444

Output #5

Output Measure

- Number of children and youth who participate in 4-H afterschool

Year	Target	Actual
2009	11500	16487

Output #6**Output Measure**

- Number of partnerships initiated or strengthened

Year	Target	Actual
2009	60	3042

Output #7**Output Measure**

- number of new clubs developed using innovative and emerging 4-H club model

Year	Target	Actual
2009	{No Data Entered}	64

Output #8**Output Measure**

- Number of Iowa State Fair 4-H livestock exhibitors certified in Food Safety and Quality Assurance (FSQA)

Year	Target	Actual
2009	{No Data Entered}	1548

Output #9**Output Measure**

- Number of 4-H'ers enrolled in Foods, Nutrition, Physical Health, Fitness, and Sports project areas.

Year	Target	Actual
2009	{No Data Entered}	27799

Output #10**Output Measure**

- Number of pre-service teachers and educators trained in Connecting Learning and Living Curricula

Year	Target	Actual
2009	{No Data Entered}	851

Output #11**Output Measure**

- Number of youth and adults trained using Antarctica's Climate Secrets Curriculum

Year	Target	Actual
2009	{No Data Entered}	3834

Output #12

Output Measure

- Number of youth and adults trained using sustainable energy curricula

Year	Target	Actual
2009	{No Data Entered}	1373

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Communications: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of writing a speech/presentation, delivering a speech/presentation, developing supportive visuals, recognizing and utilizing active listening skills, asking clarifying questions, sharing ideas, communicating non-verbal messages and expressing feelings appropriately.
2	Communications: Percentage of youth who participate in a 4-H experience will self-report that they practice effective communication skills in sending and receiving written, visual and oral messages.
3	Citizenship: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of practicing good character, planning and organizing service learning events, and actively engaging in local, state and national issues.
4	Citizenship: Percentage of youth who participate in a 4-H experience will self-report that they demonstrate good character traits, service learning, planning and organizational skills, and engagement in community issues.
5	Leadership: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of setting goals, working cooperatively in a team, communication effectively, and making decisions based on data and the opinions of others, honoring individuals differences and handling conflict.
6	Leadership: Percentage of youth who participate in a 4-H experience will self report that they demonstrate the ability to influence and support others in a positive manner for a common goal.

Outcome #1**1. Outcome Measures**

Communications: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of writing a speech/presentation, delivering a speech/presentation, developing supportive visuals, recognizing and utilizing active listening skills, asking clarifying questions, sharing ideas, communicating non-verbal messages and expressing feelings appropriately.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	70

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Communication skills are important so that youth gain the ability to communicate effectively with others in interpreting information, expressing feelings and ideas, asking questions, and actively listening to others' views. Through communication skill development, youth can participate in learning experiences that assist young people in writing/delivering presentations, utilizing active listening skills, asking clarifying questions, communicating non-verbal messages, and expressing feelings.

What has been done

All 100 counties offered a county communication event program. 1,843 4-H members participated in public speaking and performance events at the Iowa State Fair. Increasing communication skills and communication opportunities in the local 4-H club continued to be emphasized at 4-H leader trainings.

Results

4-H Club members commonly indicated being involved in 4-H helped a young person gain communication skills through ... 1) creating demonstrations, presentations, and speeches; 2) speaking in front of groups; 3) writing effectively through recordkeeping, newsletters, and club secretary and historian positions; 4) working with new people and sharing ideas; 5) listening attentively to others' views; and 6) interviewing for scholarships and conference judging.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2**1. Outcome Measures**

Communications: Percentage of youth who participate in a 4-H experience will self-report that they practice effective communication skills in sending and receiving written, visual and oral messages.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	55	72

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Communication skills are important so that youth gain the ability to communicate effectively with others in interpreting information, expressing feelings and ideas, asking questions, and actively listening to others' views. Strengthening youths' communication behavior/practices assists youth in writing/delivering presentations, utilizing active listening skills, asking clarifying questions, communicating non-verbal messages, and expressing feelings.

What has been done

All 100 counties utilize conference judging for 4-H fair exhibits. All 100 counties hold a county communication event, including a member/evaluator conference. Iowa State Fair 4-H Communication Event participants are involved in a peer evaluation experience, providing opportunity to share what they have learned with other members. Keeping records and evaluating progress towards goals is an expectation of all 4-H members.

Results

4-H Club members commonly indicated being involved in 4-H helped a young person demonstrate quality communication behavior/practices through ... 1) communication events such as extemporaneous speaking, educational presentations, and working exhibits; 2) conference judging and showing projects at the fair; 3) giving presentations in front of groups; 4) recordkeeping, writing reports, setting goals, developing history books; and 5) organizing service projects that help others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3**1. Outcome Measures**

Citizenship: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of practicing good character, planning and organizing service learning events, and actively engaging in local, state and national issues.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	77

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Citizenship skills are important so that youth learn to develop a life-long commitment to actively contribute to the world around them. Through citizenship learning experiences, youth develop skills to effectively work with others to plan, organize, and implement community changes or improvements. Citizenship experiences also help youth foster a personal connection and sense of commitment to their local community and assists youth in better understanding government systems, laws, and voting.

What has been done

2,731 adults and youth contributed 13,653 volunteer hours to improve their communities through the State 4-H Youth Conference service projects, Iowa's Promise Youth grants and Pioneer Community Improvement grants. Iowa 4-H clubs leveraged \$14,833 of Iowa's Promise Youth grants and Pioneer Community Improvement grants into nearly \$100,000 in community improvement projects. 90 youth attended the national Citizenship Washington Focus program.

Results

4-H Club members most commonly indicated being involved in 4-H helped a young person gain citizenship skills through ...1) being involved in service learning projects to improve one's community; 2) understanding the importance of helping and caring about others; 3) showing respect to others, especially one's elders; 4) working with and learning from other individuals; and 5) emphasizing the importance of giving of one's time/volunteering.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4**1. Outcome Measures**

Citizenship: Percentage of youth who participate in a 4-H experience will self-report that they demonstrate good character traits, service learning, planning and organizational skills, and engagement in community issues.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	55	74

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Citizenship skills are important so that youth learn to develop a life-long commitment to actively contribute to the world around them. Strengthening youths' citizenship behavior/practices assists youth in effectively working with others to plan, organize, and implement community changes or improvements. Citizenship experiences also help youth foster a personal connection and sense of commitment to their local community and assists youth in better understanding government systems, laws, and voting.

What has been done

2,731 adults and youth contributed 13,653 volunteer hours to improve their communities through the State 4-H Youth Conference service projects, Iowa's Promise Youth grants and Pioneer Community Improvement grants. Iowa 4-H clubs leveraged \$14,833 of Iowa's Promise Youth grants and Pioneer Community Improvement grants into nearly \$100,000 in community improvement projects. 90 youth attended the national Citizenship Washington Focus program. Participation in a service activity is an expectation of Iowa 4-H members and Iowa 4-H clubs.

Results

4-H Club members commonly indicated being involved in 4-H helped a young person demonstrate quality citizenship behavior/practices through ... 1) working together as a team on service projects; 2) fundraising and writing grants for service projects; and 3) presenting to community groups.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5**1. Outcome Measures**

Leadership: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of setting goals, working cooperatively in a team, communication effectively, and making decisions based on data and the opinions of others, honoring individuals differences and handling conflict.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	68

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Leadership skills are important so that youth gain the ability to influence, motivate, inspire, and positively support others for a common goal or desired action. Through leadership skill development, youth can participate in learning experiences that assist young people in relationship building, communicating effectively, understanding group processes including obtaining others' viewpoints, making decisions based on principles, and organizing individuals and resources to get things done.

What has been done

2,013 youth are enrolled in the 4-H Leadership project. More than 1,500 community and project clubs provide leadership experiences for members. 659 youth received leadership training during the Iowa 4-H Youth Conference. 86 youth and 95 volunteers were trained to improve leadership skills through statewide Youth in Governance trainings.

Results

4-H Club members most commonly indicated being involved in 4-H helped a young person gain leadership skills through ...1) providing opportunities to have officer roles within 4-H Clubs and team leader roles within activities; 2) presenting and voicing personal opinions effectively in front of a group of people; 3) exhibiting characteristics of responsibility, dependability, character, and trustworthiness; 4) cooperating with others within team settings; and 5) role modeling and setting good examples, such as treating others fairly, for younger 4-Hers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6**1. Outcome Measures**

Leadership: Percentage of youth who participate in a 4-H experience will self report that they demonstrate the ability to influence and support others in a positive manner for a common goal.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	55	72

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Leadership skills are important so that youth gain the ability to influence, motivate, inspire, and positively support others for a common goal or desired action. Strengthening youths' leadership behavior/practices assists youth in relationship building, communicating effectively, understanding group processes including obtaining others' viewpoints, making decisions based on principles, and organizing individuals and resources to get things done.

What has been done

2,013 youth are enrolled in the 4-H Leadership project. More than 1,500 community and project clubs provide leadership experiences for members. 659 youth received leadership training during the Iowa 4-H Youth Conference. 86 youth and 95 volunteers were trained to improve leadership skills through statewide Youth in Governance trainings.

Results

4-H Club members commonly indicated being involved in 4-H helped a young person demonstrate quality leadership behavior/practices through ...1) holding officer roles within 4-H clubs; 2) presenting and voicing personal opinions effectively in front of a group of people; 3) organizing community service projects; 4) membership on local and state youth committees and councils; and 5) leading teams, committees, events, and fundraisers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Severely declining budgets, especially state appropriations, have dramatically impacted the ability to maintain program staff for critical needs. As a result of budget cuts, a major re-organization of ISU Extension was announced in April 2009. This caused a reduction in 4-H staff positions and required several staff to change program assignments. Staff and program efforts for the remainder of the program year were focused on implementing the new Iowa State University Extension system, and not on growth initiatives. As a consequence, Iowa 4-H Youth Development POW teams were reorganized and various data collection methods were put on hold including collecting data on the number of youth/adult partnership trainings. Additionally, due to the numerous changes resulting from the reorganization, the planned 4-H outcome evaluation study for year three was not conducted. Outcome data reported in this report are an average of the first two years of the study. Furthermore, increased staff emphasis was placed on long-term 4-H experiences and less attention was given to short-term, indirect youth contact experiences.

Moreover, the Iowa K-12 youth and adult populations are continuing to steadily decrease across the state. Implementation of new and innovative programs to reach new youth audiences is dependent on the number of youth residing in a given county and developing relationships with potential volunteer citizen pools. Despite an increase this past year in the number of new innovative 4-H club models developed across the state, acceptance by current 4-H staff and volunteers of innovative and emerging 4-H club models sometimes inhibits county expansion plans.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Evaluation Results

Long-Term Outcomes of 4-H Club Participation: Examples of Initial Outcomes
How has your 4-H club participation benefitted you in college?

- 4-H projects guided college minors and majors
- Ability to network with both adults and peers
- Multi-tasking and time management skills present
- Early start with leadership development
- Ease with giving presentations and speaking in front of others
- Setting academic goals and trying to reach goals
- Committee/group facilitation and know parliamentary procedure
- Stress management techniques learned; have a "Yes, I can do it" mentality

How has your 4-H club participation benefitted you socially?

- Create a sense of group belonging
- Understand importance to help one another
- Believe everyone has skills and can succeed
- Communicate with others of different ages

- Become a better listener; listen to others' ideas and perspectives
- Explain your point of view

How has your 4-H club participation benefitted you in the workforce?

- Active listening and learning skills
- Setting personal goals and monitoring performance
- Excellent speaking and writing skills
- Working in teams
- Time, financial, and material management

How has your 4-H club participation benefitted you economically?

- Showcase expertise within applications and interviews
- Strategies for developing entrepreneurial projects
- Work with what's available; recycle, reuse, and reduce
- Work with a personal budget
- Know how to organize fundraisers
- Skills to repair one's clothing and cook for oneself
- Knowledgeable about securing funding through grants and match donations

How has your 4-H club participation benefitted you civically?

- Awareness of community and state level issues
- Involvement in elections and events that affect the future
- Listen to others even if perspectives differ
- Importance of youth-adult partnerships to get things done
- Value taking responsibility for others and the community at-large
- Philanthropic mindset
- Habits to make environment better

(Multi-state) 4-H Study of Positive Youth Development: Anticipated Outcomes

- Assist North Central Region (NCR) 4-H programs to plan, deliver, and evaluate a protocol and procedures for recruiting a stratified sample of youth and work through issues of obtaining parental consent to take the pilot large-scale across all twelve states.
 - Demonstrate congruity between NCR and national data regarding the presence of the 5 C's of positive youth development in the lives of 4-Hers.

(Multi-state: NCERA215) Contribution of 4-H Participation to the Development of Social Capital within Communities Research Study: Anticipated Outcomes

- Results benefit individual 4-H programs as they plan, deliver, and evaluate programs
- Findings demonstrate the importance of 4-H to the overall health of the community.
- Extension specialists use results in facilitating successful community change efforts.
- Opportunity for cross-program and cross-state collaboration on strategies that grow healthy families and young people and build prosperous sustainable communities.
 - Identify 4-H program practices and structures that contribute to networking and the development of social capital.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 10****1. Name of the Planned Program**

Families, Communities and Civic Engagement

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
803	Sociological and Technological Change Affecting Individuals, Fam	30%		30%	
805	Community Institutions, Health, and Social Services	70%		70%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	9.3	0.0	0.0	0.0
Actual	6.2	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
466335	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Horizons is an eighteen-month program carried out by ISU Extension with funding from the Northwest Area Foundation headquartered in St. Paul, MN.

Fourteen Horizons III communities (Alden, Bancroft, Brighton, Columbus Junction, Correctionville, Dayton, Dunlap, Farmington, Hamburg, Hazleton, Lamont, Leon, Russell and Villisca) completed the 5-week Study Circles process to understand effective poverty reduction strategies with 512 community members participating. 348 people participated in the 30-hour LeadershipPlenty® training course early in 2009. 2875 or 19.8% of their population contributed to community wide Visioning efforts between October 1, 2008, and September 15, 2009.

"Low hanging fruit" type projects completed at the end of Study Circles include: 1) Ten communities increased communication in their community about how to access services locally, along with other items of community interest. Many people living in small towns feel isolated with no local newspaper or radio coverage. Columbus Junction produced a bilingual resource guide to better serve their Spanish speaking residents. 2) Food insecurity was addressed in four communities -- two expanded current food pantries while Farmington established a new food pantry. Hamburg, a town of 1240 established a "backpack" program to provide food for 80-90 children each weekend. Other local projects include: After school tutoring, working with entrepreneurs, a school supply/winter clothing program, expanding a farmer's market, establishing a school based youth mentoring program and a clothing exchange program to name a few. Horizons III communities completed their work plans early in September 2009 and are now engaged in efforts to better serve low income residents in their community.

Twenty-two Alumni Horizons I & II communities (Allerton, Alta, Bedford, Chariton, Corydon, Ellsworth, Elma, Emmetsburg, Grand Junction, Greenfield, Hartley, Humeston, Keosauqua, Marble Rock, Morning Sun, Olin, Oxford Junction, Rockford, Sac City, Seymour, Waukon and Woodbine) continue to work plans developed through their Horizons experience or new plans developed since completing the formal Horizons program.

Example of projects completed to date include: ten communities improved housing for low income residents; six communities provide resource information to low income residents; five communities provide free tax preparation to help more low income families receive the EITC without spending money on tax preparation or refund anticipation loans; five communities work with entrepreneurs and local businesses to increase family incomes; four communities provide clothing exchange opportunities for those in need; Elma and Hartley increased childcare capacity; Woodbine and Keosauqua provide mentoring to children in need; Grand Junction and Rockford provide after school tutoring.

Seventy individuals from the Horizons' communities participated in a first statewide Expanding Horizons workshop. Participants represented twenty communities and enjoyed sharing with other Horizons communities of the similar size along with learning from the sixteen presenters.

Poverty Simulations to increase awareness about the effects of poverty were held across the state reaching 1576 participants through 182 contact hours of education. Simulations were held in 23 communities from 20 Iowa counties.

2. Brief description of the target audience

Horizons was delivered in fourteen rural communities with populations between 503-1983 and poverty rates between 10.5-23.6%. We also worked with twenty-two alumni communities with population between 531-4573 and poverty rates from 10.4% to 22%. Adults and older youth were the primary audiences. The program stresses inclusivity across all socioeconomic and ethnic groups.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1400	1000	50	0
Actual	3317	2039	84	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	0	0	
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of participants in educational programs that increase awareness of public issues

Year	Target	Actual
2009	1400	5356

Output #2

Output Measure

- Number of community groups formed to address a public issue

Year	Target	Actual
2009	7	14

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.

Outcome #1**1. Outcome Measures**

Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	7	14

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Horizons helps communities take charge and build stronger leaders to address poverty, economic decline and the exodus of young adults. Poverty has long-term negative consequences for children and limits opportunities among other vulnerable groups. Poverty reduction efforts are investments in communities, directly benefiting the poor and reducing future problems.

What has been done

Fourteen communities participated in Horizons III this year with 2875 people sharing their ideas about how to best reduce poverty or at least reduce the impacts of poverty within their community leading to a written poverty reduction plan for their community. In addition, twenty-two alumni communities continue to engage their community to further their Horizons efforts. Forty-five participants learned strategies used by other communities to reduce the impact of poverty in other communities during the day long Expanding Horizons Workshop.

Results

Examples of Horizons results include: Twenty-nine communities worked to address food insecurity. Eleven either established or expanded food pantries. Four established "backpack" programs to supply weekend food for children who would not have adequate food otherwise. Hamburg, a town of 1240 provides food for 80-90 children each week. Seven communities worked to improve housing for low income residents. Five communities offered free volunteer tax preparation at VITA sites in 2009 to provide 290 low and moderate income residents an opportunity to file for EITC and tax refunds. As examples, at the Corydon and Chariton VITA sites \$68,405 in Federal and State ETIC dollars were claimed along with \$183,278 in Federal and State refunds. Four Horizons II communities either offer mentoring or tutoring programs to serve at risk local children or youth. Emmetsburg established a new industrial park; Bedford improved their telecommunication infrastructure while four communities reported new business start ups. Four communities helped residents build financial management skills. As a result of Horizons several communities had more community members run for elected office. Five communities saw new members to the City Council, new mayors, county supervisors or school board members.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Fam

V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The NWAFF grants provided dedicated funding for Extension staff to support a series of education programs and on-going Coaching efforts simultaneously in 14 Horizons III communities and 22 Alumni communities. Participation barriers including cost of child or dependent adult care, transportation and meals were reduced through the grant. Changes in the economy and public policy affect families living in our 36 Horizons communities and the state of Iowa.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- Case Study

Evaluation Results

Pre and post surveys were collected from participants involved in the Study Circles and Leadership Plenty phases.

- >86% of the Study Circle participants reported they either agreed or strongly agreed that they feel they can make a positive difference in their community.
- >85.1% of the Study Circle participants reported they either agreed or strongly agreed that they can work to reduce poverty in their community.
- >91.3% of the LeadershipPlenty® participants completing in before/after surveys reported an increased knowledge of leadership skills.
- >63.3% of the LeadershipPlenty® participants completing in before/after surveys reported that more people are aware of poverty in their community.
- >60.8% of the LeadershipPlenty® participants completing in before/after surveys reported that they are now discussing poverty and what to do about it.
- >41.6% of the LeadershipPlenty® participants completing in before/after surveys reported working to create changes in public policy regarding poverty reduction.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 11****1. Name of the Planned Program**

Money for Life

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
607	Consumer Economics	25%		25%	
801	Individual and Family Resource Management	75%		75%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	15.3	0.0	0.0	0.0
Actual	18.4	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1104705	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1104705	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
539771	0	0	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Staff activities included:

- face-to-face workshops/classes offering sequential series of sessions
- on-line courses
- mailed/correspondence courses
- small group consultation
- train-the-trainer workshops
- newsletters, radio, tv and electronic messages
- websites
- curricula and other teaching materials development

- partnering with local, regional and state organizations

2. Brief description of the target audience

Targeted audiences for financial and consumer education included:

- youth
- teachers
- community professionals, paraprofessionals and volunteers
- young families
- low-income families and those experience financial difficulties
- Gen X, Baby Boomers and retirees
- Volunteer Income Tax Assistance (VITA) volunteers
- mid-life and older women

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	11000	50000	9000	0
Actual	15992	64257	1413	7900

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	0	
Actual	3	0	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of adults participating in programs on improving personal and family financial management skills.

Year	Target	Actual
2009	7500	11994

Output #2

Output Measure

- Number of adults participating in programs on strengthening consumer decision making skills.

Year	Target	Actual
2009	2500	3998

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of individuals improving personal and family financial management skills.
2	Number of individuals strengthening consumer decision making skills.

Outcome #1**1. Outcome Measures**

Number of individuals improving personal and family financial management skills.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	6000	9835

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

A deepening recession, stagnant incomes, and growing unemployment created a critical need to improve personal and family financial management skills. Families face a complex market in which to make financial decisions and are taking on increasing personal responsibility for making retirement planning decisions. Mismanagement of debt creates severe financial pressures that have spillover effects that erode family well-being. Free tax preparation and outreach increase low-income workers abilities to access tax credits, avoid filing fees and increase available income to meet basic family needs.

What has been done

Nearly 12,000 lowans participated directly in family resource management Extension programs. On-going media and development of resources on the Web reach thousands of lowans with research-based information and educational programs aiming to improve skills and change behavior to enhance financial security.

Results

Financial management educational programs have resulted in 64% taking steps to reduce debt, and 82% increasing contributions to employer-based retirement plans. About 50 community VITA volunteers were trained by ISU Extension to complete tax returns for 1,224 low-income lowans who received \$602,924 in EITC to bolster family incomes and local economies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2**1. Outcome Measures**

Number of individuals strengthening consumer decision making skills.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1875	3038

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Consumer choices have a direct effect on the utility gained from family resources. Informed decisions increase the probability that high levels of satisfaction will result. Virtually all consumers face a challenge of being informed decision makers given the rate of change in the marketplace. Vulnerable consumers need to develop skills to assess and seek out reliable and timely information.

What has been done

More than 3000 lowans participated in programs that teach consumer decision making skills and encourage use of reliable information sources. Low-income and other vulnerable groups have been targeted for programs on identity theft and consumer protection. Moderate income families facing saving and investing decisions for retirement have participated in Smart Investing@your library classes sponsored in partnership with public libraries. Youth audiences have been taught comparison shopping skills.

Results

Consumer decision-making educational programs have resulted in 76% making a point to read articles on finances and investing. Workshops and individual consultations with low-income families have resulted in increased confidence to use credible information sources and avenues for redress of consumer problems. ISU Extension provides volunteer training for mentors of domestic violence victims and on-going technical assistance for Volunteer Representative Payee Programs. Program volunteers provide referrals to consumer protection and support consumers in building consumer decision-making skills.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Natural disasters and deteriorating economic conditions in the state increased the salience of family resource management programs. Floods displaced many families and businesses and the recovery process has been slow. The recession has resulted in increasing unemployment, stagnant or declining incomes, and growing uncertainty for many. The collapse of financial markets and drop in family asset values caused many lowans to reassess financial decisions. Growing immigrant populations in a number of communities create new opportunities for Extension programs and challenges to address cultural and language differences. A major grant-funded project, Horizons, has shifted time allocations of staff who work under this plan of work to another plan: Families, Communities and Civic Engagement. This program is addressing a very closely related issue: poverty reduction in rural communities. A Rural Family Economic Success initiative has grown out of Horizons and should foster increased financial literacy education in Horizons communities in future years.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)

Evaluation Results

Surveys conducted with a sample of financial management workshop program participants after completion of the class indicate that the majority of participants make significant changes:

- 64% took steps to reduce debt
- 82% increased contributions to employer-based retirement plans

Pre and post surveys of participants in investment education workshops document significant change in knowledge, attitudes and behaviors:

- average score on a 15-item knowledge test increased from 9.6 to 12.2
- average score on a satisfaction with ability to discuss investments with family members increased from 2.5 to 3.8 (with 5 as highly satisfied)
- proportion of participants who had developed an investment philosophy and assessed risk tolerance increased from 39% to 87%

Key Items of Evaluation

Consumer debt reduction
Contributions to retirement plans
Investment knowledge
Confidence in discussing investments
Investment philosophy
Risk tolerance

V(A). Planned Program (Summary)**Program # 12****1. Name of the Planned Program**

Strengthening Families

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	95%		95%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Res	5%		5%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	18.5	0.0	0.0	0.0
Actual	22.5	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1367223	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1367223	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
894671	0	0	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

16,990 child care and early childhood education professionals received training to improve child care quality in a variety of care settings. Education included basic first aid, health and safety, guidance and discipline, development, nutrition, learning environments, curriculum, new staff orientation, childhood obesity, and active play. 721 early childhood educators received instruction and assistance to self assess the overall quality of care and educational services, develop improvement plans, and implement changes. Over 67% of all Iowa child care centers and preschools participate in the Iowa Better Kid care New Staff Orientation Program. 1015 child care preschool teachers received 16 hours of instruction and completed activity assignments specific to their worksite. 178 child care center directors received instruction in new staff orientation, staff feedback and coaching procedures. 733 child care professionals completed self-study instruction. There were 3,468,013 page views on the National Network for Child Care website, representing 2,034,929 visitors. There were 32,349 page views and 15,798 visits to ISUE child care websites.

Both PROSPER (Promoting School-Community-University Partnership to Enhance Resilience) and CYFAR (Children, Youth and Families at Risk) collaborate with community teams to offer evidence-based programs for middle school students and their families. PROSPER is a randomized control study to evaluate the effectiveness of the community partnership model.

3602 people were reached through sequential parenting education workshop series, one-session workshops, as well as training for professionals to deliver sequential in-depth parenting education. Key components of these trainings were understanding parent and child development; developmentally appropriate guidance; strengthening parents/child interaction and communication; preventing substance abuse. An additional 18,725 parents/caregivers participated in parenting education workshops, home visits and group education that professionals ISUE trained to deliver parenting education reached. An additional 1295 parents/caregivers participated in parenting fairs. 249 youth were involved in in-depth parenting/family education workshop series (specifically Strengthening Families Program: Parents and Youth 10-14). An additional 20,022 youth were reached through parenting education programs conducted by professionals that ISUE trained to deliver parenting education. 59,899 calls were made to parenting/teen hotlines, 83,000 received parenting newsletters, 21,000 downloads from the web and 13,613 visits to ISUE websites on parenting issues.

940 participants were reached during 38 workshops, demonstrations, and other events to help lowans learn ways to make homes more convenient and accessible. There were 20,409 visits to the website and 36,670 page views.

2177 lowans participated in learning related to intergenerational family relationships in mid, later life, and aging families. 99 family caregivers participated in the six-week, 15 hour *Powerful Tools for Caregivers* and 433 adults participated in *Who Gets Grandma's Yellow Pie Plate: Transferring Non-Titled Property*. 1645 people attended additional aging-related information workshops including *Memory: Am I Losing my Mind?*, caregiving, stress and aging, emotions and aging, and other diverse programming focused on local needs. ISUE continued to provide leadership for the eXtension Family Caregiving Community of Practice. There were 731 indirect contacts through poster presentations and information displays. 80 educational workshops, including 135 total sessions, covering 24 different topics, were presented on intergenerational and aging family issues. 18 conferences and meetings included presentations and displays associated with aging Iowa families.

2. Brief description of the target audience

Early childhood audiences included family child care home providers, preschool and child care center directors and administrators, kindergarten, preschool, school-age and infant and toddler teachers.

PROSPER and CYFAR projects targeted families of 10-14 year olds.

Parents of children 0-14 years and professionals who work with parents of children 0-14 years were the target audience for parenting education efforts.

Older lowans, people with disabilities, service providers, and policy makers were the target audiences for housing education.

Intergenerational and aging families programming was directed toward and served a variety of ages of adults from multiple generations living in Iowa families. More specific audiences included adults of any age who care for family members and older adults experiencing physical, social, and familial transitions in their lives.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	15500	60000	6000	0
Actual	22769	20751	249	20022

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	2	10	
Actual	2	4	12

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of parents and family members in educational programs related to child care, parenting, aging and housing.

Year	Target	Actual
2009	5000	7451

Output #2

Output Measure

- Number of professionals involved in programs related to childcare, aging, parenting and housing programs.

Year	Target	Actual
2009	5000	18252

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of parents improving parenting skills (child-parent communication and providing love and limits).
2	Number of professionals trained to assist families (certification programs).
3	Number of early child care programs improving learning environments and teaching strategies.
4	Number of participants better able to manage later life issues.

Outcome #1**1. Outcome Measures**

Number of parents improving parenting skills (child-parent communication and providing love and limits).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	3500	3344

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Research reveals that lack of basic parenting knowledge and skills (e.g., understanding basic developmental needs of children; ability to manage stress effectively) is common among parents/caregivers who abuse children. In addition, pressure has increased at the state and local level to fund family support and parenting programs that have proven impacts. Trends of increased delinquency and violence among adolescents have alarmed the public during the past decade and challenged the juvenile justice system. It is widely accepted that increases in delinquency and violence over the past decade are rooted in a number of interrelated social problems -- child abuse and neglect, alcohol and drug abuse, youth conflict and aggression, and early sexual involvement -- that may originate within the family structure. SFP 10-14 is a 7-week curriculum designed to bring parents together with their 10- to 14-year-old children, with the goal of reducing substance abuse and other problem behaviors in youth.

What has been done

Communities that can prevent risky behaviors by youth and prevent longer-term addictions, such as alcoholism, can save on rehabilitation costs. The Strengthening Families Program for Parents and Youth 10-14 has been found to save \$9.60 for each dollar spent on program implementation.

Results

Youth ages 10-14 whose parents participate in an evidence-based parenting class report that their parents better monitor their activities, administer more consistent discipline, and spend more time with them than those whose parents do not participate in the class. The youth in intervention communities report a lower likelihood of engaging in risky behaviors, such as substance use and violence than do youth in control communities. The majority of parents who participated in Extension educational programming have improved/strengthened parent/child communication and the ability to provide love and limits.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Res

Outcome #2**1. Outcome Measures**

Number of professionals trained to assist families (certification programs).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	120	424

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Nick Carter in 1996 wrote, "Probably the most critical issue facing the development of parenting education is that of how practitioners are trained, supervised, and supported in their work with parents." In addition, Carter stated that the demands on practitioners are huge and include: expectation to work across cultures, disciplines, and systems; master a growing and diverse body of knowledge; be adept at the processes and methods that truly strengthen families; and produce dramatic results in shorts periods of time with ever-decreasing dollars. Federal guidelines restrict family support agencies and school districts who receive federal monies to offer only evidence-based federally approved programs. The ISUE Strengthening Families Program: For Parents and Youth 10-14 is one of these federally approved programs. As pressure has increased at the state level to fund family support and parenting programs that have proven impacts, recognition has increased among state and local organizations for the need for quality professional development for individuals who deliver family support and parenting education.

What has been done

SFP 10-14 Master Trainers have conducted 3-day certification trainings to personnel employed by agencies and school districts around the country. These facilitators then implement the program with families in their communities. ISUE has focused specifically on strengthening the core competencies of parenting educators/family support workers, through two in-depth training programs: 1) Partnering with Parents, focused on core competencies identified for effective parenting education delivered in face-to-face and online formats; 2) Family Development Certification Training -- emphasizes a strengths-based, empowering approach for helping families move towards self-sufficiency/self reliance and is delivered primarily face-to-face. ISUE has also trained 185 professionals (who each reach more than 50 families a year through home visitation programs and group based education) to deliver research- and evidence-based parenting curricula. Thus, these 185 professionals use the knowledge and skills they developed through the ISUE in-depth parenting training and ISUE parenting education curricula to reach a minimum of 9,250 parents and their children.

Results

ISUE has certified 125 parenting educators and other family support professionals in the SFP 10-14 program around the country during this reporting period. 87 professionals received certificates of completion/certification in parenting education and family development from ISUE. The certificates/certification recognize in-depth training and demonstration of competencies related to parenting education and family development. 30 family support professionals participated in 52 hours of direct training in delivering strengths-based family development education and services through the Family Development Certification Training. 57 professionals participated in 65 hours of direct training in planning, delivering and evaluating parenting education through Partnering with Parents.

22 of these professionals participated in Partnering with Parents through online education. Program evaluation data reveal that participants strengthened their parenting education knowledge and skills after participating in Partnering with Parents, and actively implemented new information and strategies into their parenting education efforts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Res

Outcome #3

1. Outcome Measures

Number of early child care programs improving learning environments and teaching strategies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1500	941

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Iowa State University research examining Iowa's child care found that much of Iowa's child care is of poor or mediocre quality. Overall, 20% of all observed Iowa child care was listed to be good. Nearly 20% of the observed infant child care centers in Iowa offered poor quality care; none were offering good quality care 40% of the observed family child care homes offered poor quality. 34% of family child care providers reported receiving NO child care training within a 12-month period.

What has been done

The Better Kid Care New Staff Orientation (NSO) program provided 16 hours of instruction for child care center staff. The Early Childhood Environment Rating Scale (ERS) program provided child care center directors, preschool teachers, infant toddler teachers and school-age teachers with self assessment, intensive instruction and guidance in developing a program improvement plan to strengthen the quality of early childhood education. Early Childhood Consultant 15-hour skill-based training program was initiated during 2008-2009 for state child care resource and referral and nursing consultants. Child Care that Works self-study video lessons were provided to assist child care providers in meeting state licensing requirements.

Results

A retrospective survey of child care professionals (n=7686) participating in the Early Childhood Environment Rating Scale training indicated that they were able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant [$p < .001$] indicating that the ERS training is making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services. Professionals (n=247) surveyed in a 3 month follow-up survey of child care quality training indicated improvement in learning

environments and teaching strategies. Post-survey results of the Better Kid Care NSO program indicated that 85% of the participants felt they could better teach and model good healthy practices, 81% reported improved communication with parents, 73% could plan more appropriate learning activities for children, 74% could manage children's behavior more effectively and 88% could work more effectively with staff. 93% (n = 766) of individuals participation in Child Care That Works self study workshops indicated that they had made at least one improvement in the quality of their child care program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

Number of participants better able to manage later life issues.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	854

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Homes that are convenient and accessible for elders and people with disabilities promote independence, eliminate or postpone institutionalization, and reduce caregiver burden. Estimates show that the United States has approximately 28.8 million caregivers; they provide more than 30 billion hours of care valued at more than \$306 billion. The percentage of older adults is growing faster than at any other time in our history. Two factors -- longer life spans and the large cohort of aging baby boomers -- will combine to significantly increase the population of lowans aged 60 and older during the next 25 years. By 2030, there will be more than 824,000 lowans, roughly 28% of the state population, who are 60 or older. In Iowa, a state that already ranks as one of the "oldest" states in the U.S. in terms of population age, the demand for caregivers will only increase.

What has been done

34 different presentations and workshops were conducted on universal design and home accessibility issues, including a Webinar on "Consumer Perspectives on Home Remodeling for Accessibility" that featured the home remodeling stories of 11 households. The Webinar is archived at: <http://connect.extension.iastate.edu/p53505583/> and the home remodeling stories, including photos, can be viewed at: www.extension.iastate.edu/universaldesign. In FY2009, Powerful Tools for Caregivers class leaders conducted the educational series of workshops for family caregivers in nine communities, caregiver stress, emotion, and support programming was offered in another thirteen communities. A variety of intergenerational programming was offered in twenty-six additional communities.

Results

A follow-up evaluation of Webinar participants indicated that 92 percent of respondents were "very likely" or "likely" to tell others about ideas learned in the Webinar and another 72 percent were "very likely" or "likely" to help

consumers they work with make a home modification. Ninety-four percent of those surveyed for the Powerful Tools for Caregivers felt that as a result of the classes, they believed they were more confident caregivers than before taking the classes. They had improved their care giving skills, such as using positive communication techniques, help manage stress, and bring balance into their lives. Ninety-three percent of the participants felt they had better information about community resources that were vital to caring for their loved one. One hundred percent said they would recommend the course to others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Res

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration,new cultural groupings,etc.)

Brief Explanation

Decreased state revenues has resulted in less funding for professional development and direct service delivery to families. As a result fewer professionals have been able to afford participation in some of the fee based trainings ISU Extension offers. In addition, the state portion of the ISU Extension budget has decreased resulting in fewer FTEs to deliver educational programming, thus leading to a decrease in participation in ISUE programs.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

A pilot study of the Partnering with Parents (PWP) training (Greder, K. , et al., 2009) examined three groups: current PWP participants (N = 24), those who had never participated in PWP (N = 13), and those who had participated in PWP in the past (N = 40). Participants completed videotaped role plays and the Parenting Educators' Self Assessment (PESA). Findings revealed that study participants who had participated in PWP (current and past participants) assessed their parenting education knowledge and skills higher after participating in PWP compared to before the training, as well as higher than study participants who had never participated in PWP. In addition, those who participated in PWP had higher mean scores on competencies related to providing accurate information regarding nurturing children ($p < .05$) than those who had not participated in PWP. Also, there was a positive statistically significant difference ($p < .05$) in role play

rating scores for PWP participants (pre to post scores) pertaining to providing information related to creating a rich learning environment for children and understanding developmental expectations of children.

A program evaluation of the PWP training (Greder, et al., 2010) instructed in the face-to-face setting and online was conducted. There was a statistically significant increase in all participants' (n=146) ratings of their parenting education competencies (i.e., knowledge and skills) from before to after the training. Those who participated in the online training rated their competencies before the training higher than those who participated in the face-to-face setting; however, they also rated their competencies after the training modestly lower than those who participated in the face-to-face setting. Qualitative analysis revealed that regardless of program delivery format, participants reported a paradigm shift in how they viewed themselves as parenting educators, as well as broadened their understanding of parenting education.

The PROSPER research continues to evaluate the quality of implementation of evidence-based programs offered to middle school students and their families. It also evaluates the quality of team functioning of the community teams charged with delivering those programs. Community teams continue to be effective in acquiring funding to support programs and recruit families to participate in programs. The evidence-based programs continue to be delivered with greater than 90% fidelity. In addition, PROSPER conducts longitudinal surveys of youth in the participating communities and youth in communities that are not offering the evidence-based programs. Youth in the participating communities report later initiation and lower levels of substance use as compared with youth in non-participating communities.

Early Childhood professionals (n=686) participating in the Environment Rating Scale Training Program reported that they were also able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant [$p < .001$] indicating that the ERS training is indeed making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services.

Key Items of Evaluation

Parenting Educators' Self Assessment (PESA). Greder, K., Schnurr, M., Browder, D. and Weigel, C. (2009). Findings From a Pilot Study to Measure the Effectiveness of the Partnering with Parents Training Program. Unpublished manuscript, Iowa State University Extension.

Greder, K., Diers, J., and Schnurr, M. "Evaluation of the effectiveness of online and traditional classroom delivery format for training parenting educators." *Family Science Review*, 15(1). pp. 40-63.

V(A). Planned Program (Summary)**Program # 13****1. Name of the Planned Program**

Food and Non-Food Products

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	15%		15%	
502	New and Improved Food Products	15%		15%	
503	Quality Maintenance in Storing and Marketing Food Products	10%		10%	
504	Home and Commercial Food Service	10%		10%	
511	New and Improved Non-Food Products and Processes	15%		15%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	15%		15%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residu	10%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	7.5	0.0
Actual	0.0	0.0	8.2	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	425100	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	425100	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	3816498	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research into the development of new products, processes, and storage conditions are a focus area for this program. Foods and non-foods also are important focus areas of this program. This focus includes research into new processes that improve the quality and ensure the safety of foods (microbial, chemical, physical); rapid methods to determine the quality and detect biological, chemical, and physical hazards associated with food and non-foods; development of storage systems for commodities, food and non-food ingredients, and finished goods from animal and plant origin.

2. Brief description of the target audience

The outputs from this program will be conveyed to professionals, policy makers, and consumers using publications, workshops, conferences, electronic and print media, and through personal interactions.

V(E). Planned Program (Outputs)**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	0	0	0	0
Actual	0	0	0	0

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

Year: 2009

Plan: 1

Actual: 0

Patents listed**3. Publications (Standard General Output Measure)****Number of Peer Reviewed Publications**

2009	Extension	Research	Total
Plan	0	5	
Actual	0	5	0

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Number of research studies completed per year.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of refereed publications per year.

Outcome #1

1. Outcome Measures

Number of refereed publications per year.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 14****1. Name of the Planned Program**

Food and Nutrition: Choices for Health

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service	10%		10%	
703	Nutrition Education and Behavior	60%		60%	
704	Nutrition and Hunger in the Population	10%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa	20%		20%	
Total		100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	18.5	0.0	0.0	0.0
Actual	24.7	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1109594	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1109594	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
440985	0	0	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Nutrition and health programs were offered in every major community and most counties in Iowa. The program focused on improving nutrition education and behavior to reduce negative health consequences brought about by overweight, obesity and inactivity; improving food handling behaviors and practices by consumers, food processors, and foodservices for the purpose of reducing the incidence of food borne illness; and mitigating food insecurity within communities in the state. Programs were directed to professionals, volunteers, community leaders, individuals and families through multiple delivery methods. Direct delivery methods included educational classes, workshops, discussions, webinars, one-on-one interventions and hotlines. Indirect delivery methods included public service announcements, billboards, newsletters, radio/television media programs and

websites. A new website, Spend Smart Eat Smart, was started to provide information for consumers and educator about how to eat nutritiously on a budget. Live Healthy Iowa (adult) and Live Healthy Iowa - kids (youth) programs encourage physical activity and healthful eating using the team concept. Eat to Compete, a program consisting of three separate sports nutrition topics, was presented statewide to parents, coaches, school staff, and adolescent athletes. Several field staff serve as supervisors of Expanded Food and Nutrition Education Programs and Food Stamp Nutrition Education Programs educators who deliver basic food and nutrition information to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and Extension to 4-H Youth, with partnership and support of Extension faculty. Audiences learned about the myriad of factors in the current socioeconomic environment contributing to overweight and obesity including genetics, the feeding relationship, lack of physical activity, technology, portion distortion, and food availability. Community advocacy for public and environmental policy change was promoted as a measure to meet the demands of this growing problem. Food safety education included certification programs and training sessions delivered via direct and indirect methods. The ServSafe® food safety certification program, developed by the National Restaurant Association, consists of at least 8 hours of direct training and successful completion of a certification exam. Other food safety programs focused on safe food handling from farm to fork, grilling safely, allergen controls, cleaning and sanitizing, handwashing, food stands, canning and food preservation. Health fairs, Germ City and interactive web-based lessons, streaming videos, Flash animations, SafeFood® Blog, downloadable signage, and podcasts on the Extension Food Safety web site were examples of indirect educational efforts. Food processors were served by direct contact in person to person meeting in plant to develop HACCP, GMP, and other food safety programs.

2. Brief description of the target audience

Targeted audiences included adults and youth, parents of young children, teens and young moms, low income families, caregivers of children and adults, school staff, athletes, coaches, health professionals, worksite employees, food service managers and workers, food processors, and commodity groups.

Certification and other food safety educational programs were presented to adults and youths with interest or need to learn more about safe food practices from farm to fork. These included adults employed in the retail food industry as managers or line workers; non-managerial staff and volunteers at food stands; and fresh produce growers. Managerial and production personnel from food processing plants were involved in food safety training and activities.

Nutrition education programs were provided to adults and youth of all ages -- more specifically health/nutrition professionals, older adults at congregate meals sites, adults participating in worksite wellness programs, school staff (teachers, coaches, food service personnel, nurses) and students, parents of young children participating in EFNEP/FSNE (limited income families), NEST, and WIC programs, childcare workers including Headstart, HOPES and Parents as Teachers, adults and youth attending health fairs, and adults/youth with an interest or need to learn about nutrition seeking out community programs and internet resources.

Indirect contacts were made with approximately 9 million via food safety website, with over 1 million contacts made in the month of September, 2009, suggesting training tools and HACCP Standard Operating Procedure templates are used by those in educational settings.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	45000	20000	5000	5000
Actual	77296	9752996	29504	11499

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed**3. Publications (Standard General Output Measure)****Number of Peer Reviewed Publications**

2009	Extension	Research	Total
Plan	10	2	
Actual	17	7	24

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Number of adults who participate in Extension programs on food, nutrition and health.

Year	Target	Actual
2009	55000	40947

Output #2**Output Measure**

- Number of adult participants in Extension programs on food safety.

Year	Target	Actual
2009	1000	7907

Output #3**Output Measure**

- Number of adult participants in Extension programs on food insecurity.

Year	Target	Actual
2009	300	442

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of adult participants who improve their diet.
2	Number of adult participants who increase their minutes of activity.
3	Number of communities that take steps to reduce food insecurity.
4	Number of participants certified in food safety programs.
5	Measure number of youth increasing nutrition and/or physical activity knowledge/behavior

Outcome #1**1. Outcome Measures**

Number of adult participants who improve their diet.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	35000	29263

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Iowans are practicing behaviors that lead to a high risk of obesity, which has increased to 26.5% of all adults in the state. This leads to increased incidence of heart disease, diabetes, certain types of cancer, and chronic diseases that can lead to disability. BRFSS data suggest less than 20% of adult Iowans consume the recommended servings of fruits and vegetables.

What has been done

Live Healthy Iowa had 28,000 participants in 2009 where they received weekly tips to increase consumption of nutrient dense foods including fruits and vegetables. EFNEP/FSNE enrolled 2,401 adults. Professional training has been provided through Current Issues in Nutrition, an interactive video web-cast that is now offered twice a year. Programs in 2009 reached 503 participants (>35 different states and ~10 international). Professional training also included school wellness policy implementation and environmental change for school officials/staff, and Eat to Complete programs for teacher re-certification and coaching authorization.

Results

A survey sample of Lighten Up Iowa participants indicates increased intake of fruits and vegetables by one serving daily. Based on 24 hour pre- and post-food recalls, 98% of EFNEP/FSNE program participants reported positive change in any food group at exit. A work-site wellness program using newsletter conducted collaboratively with Farm Bureau insurance resulted in increased daily fruit and vegetable servings ($p < 0.05$). This same program documented a significant increase in the intake of Vitamin C, magnesium, fiber, and potassium. In addition, a significant decrease in the intake of total fat, saturated fat, and cholesterol was noted. Further analysis determined that many of the improvements were primarily among male participants -- a challenging audience to meet with nutrition and health extension programming. Another program, Habits for Healthy Hearts, found that over 50% of participants (N=22) noted that eating vegetables, fruits, whole grains, low fat dairy products, lean meats, low fat foods, and low sodium foods were considered a habit after participating in the program. Follow-up with a random sample of program participants (N=379) found 86% (N=325) of participants improving their diet in two or more ways.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2**1. Outcome Measures**

Number of adult participants who increase their minutes of activity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20000	20268

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Iowans are practicing behaviors that lead to a high risk of obesity, leading to increased incidence of heart disease, diabetes, certain types of cancer, and chronic diseases that can lead to disability. BRFSS data suggest that only 52% of adults are performing regular exercise meeting national recommendations. It is likely this number will decrease further as activity patterns are compared to new physical activity guidelines.

What has been done

Activity guides incorporated into all the EFNEP/FSNE lessons covering aerobic, strength, and flexibility exercises. Live Healthy Iowa had 28,000 participants this past year, which included weekly physical activity tips and online monitoring of physical activity.

Results

More than 47% of EFNEP/FSNE graduates had a positive change in physical activity from beginning to end of program. A survey sample of Lighten Up Iowa participants indicates approximately 70% of participants increasing frequency and/or intensity of activity/exercise throughout/after the program. Among Habits for Healthy Hearts participants (N=22), 23% reported 30-60 minutes of physical activity daily was habit and another 64% were meeting this recommendation sometimes, but working on making it a habit. Follow-up with a random sample of program participants (N=187) found 48% (N=89) of participants increasing their minutes of physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3**1. Outcome Measures**

Number of communities that take steps to reduce food insecurity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	7	35

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Iowa surpassed the national average for those considered food insecure a year ago (national average 10.6%; Iowa 11.6%). Iowa has almost 90,000 households with 100,000 children who are food insecure.

What has been done

Six communities in Iowa addressed food insecurity because of extension efforts. In addition, 29 of 36 Horizons communities are addressing food insecurity. A variety of means have been used to address food insecurity by communities.

Results

Food Pantries serve 12 communities in different ways. Three established new local food pantries. Eight expanded existing food pantries. Two marketed and/or contributed to county wide or neighboring community food pantries to support emergency needs. SHARE or the Angel Food Network helps low income families stretch their food budget in seven communities. Community garden projects of various types were established in eleven communities to provide food to those living in poverty. Summer breakfast and lunch programs opened in three communities to provide food for low income children and youth. A "backpack" program was established to provide food for the weekend to children school officials felt would not have adequate food between hot lunch on Friday and the breakfast program on Monday in four communities. Some type of home meal delivery program was established in three communities to serve low income residents over age 65.

4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

Outcome #4

1. Outcome Measures

Number of participants certified in food safety programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	450	818

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The burden of food borne disease in the United States is significant on both the well being of the economy as well as human health. Mitigation of the high rates of food borne illness must start at frequently identified sources -- handling practices by consumers and retail food workers. In Iowa, Norovirus is a leading cause of food borne illness and is mainly contracted in food service establishments. Enteric bacteria such as Salmonella and E.coli cause significant amounts of illness also.

What has been done

Extension has been the key provider of food safety education in the state of Iowa. During this report period, 963 people have taken ServSafe(r) courses through ISU Extension. In addition, ISU Extension has been provider of a non-certification SafeFood(c) 101 program in collaboration with the Office of Risk management targeted to student organizations.

Results

Food safety certification was awarded to 818 participants reflecting an 85% pass rate on the certification exam. Over 1,300 ISU students earned a SafeFood(c) Food Handler card, issued by Office of Risk Management, documenting their attendance at food safety training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa

Outcome #5**1. Outcome Measures**

Measure number of youth increasing nutrition and/or physical activity knowledge/behavior

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	4618

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Obesity among youth has tripled or quadrupled, depending on sex and age, since the early 1970s according to NHANES data. YRBSS data indicate that 13.5% of Iowa youth are overweight, while 11.3% are obese; WIC data suggests overweight/obesity in Iowa will outpace the national average. Obesity among youth increases the risk of developing chronic diseases such as type 2 diabetes, hypertension, cardiovascular disease, and joint disorders. These chronic diseases among youth place a financial strain on the health care budget.

What has been done

Live Healthy Iowa had 11,200 participants this past year. Participants are encouraged to increase physical activity and improve nutrition choices. Weekly tips on nutrition and physical activity are received by participants. EFNEP/FSNE youth enrolled 15,605 participants this past year. Youth learn the importance of making smart choices from every food group, physical activity as part of daily life, and food safety as it relates to food handling.

Results

Go the Distance teams logged 32,538,200 minutes of activity in the 2008 program. Third through sixth grade EFNEP participants improved their nutrition knowledge in the following areas: eating a variety of foods 19%; nutrition 39%; healthy foods choices 24%; and food safety guidelines 33%. In addition, improvement in health behaviors reported included: breakfast consumption 8%; daily physical activity 5%; fruit consumption 8%; vegetable consumption 7%; milk consumption 15%; and use of nutrition facts food label 10%. Over 150 participants, representing 79 school districts and 20 child care centers attended Team Nutrition workshops offered by ISUE in partnership with Department of Education. ISUE provided technical assistance and continued education to help districts work toward goal of meeting US Healthier School Challenge standards. All reported implemented changes in school meals preparation, marketing and/or delivery. The Team Nutrition Local Wellness Demonstration project finished collecting data to explore implementation of local wellness policies and impact of training/technical assistance. The report will be filed with the USDA 1/2010. EFNEP youth received approximately 6 hours of nutrition education during school enrichment, after school or summer programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

A number of programs promoting increased physical activity continue to compete with Live Healthy Iowa (Shape Up America, Walk Across America, etc...).

Federal mandate requiring all school districts have a local wellness policy have enhanced the interest and visibility of Extension nutrition and wellness programming. State legislated nutrition standards for competitive foods in schools has increased interest and opportunities for extension in schools.

Economic constraints related to rising food and utility costs resulted in the development of a new website on buying nutritious food and increased visibility and interest in ISUE programming in foodservice management program areas.

Increases in indirect delivery were noted with continued high interest in web delivery of food safety

information and interest by consumers in response to several national foodborne illness outbreaks and concerns about the H1N1 flu. Over one million hits to the food safety project web site were made in September. Several educational materials available via the food safety project web site are in Spanish, such as the new Flash animations about proper glove use.

The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to ethnic cultures.

Extension in this state experienced significant restructuring, which impacted staff coverage in the field. Further reductions in staff are anticipated in 2010, which will challenge traditional methods of program delivery and increase the likelihood of programming via technology.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- Time series (multiple points before and after program)

Evaluation Results

Live Healthy Iowa is a 100-day challenge to motivate and teach individuals and organizations how to make lasting health-promoting lifestyle changes through improved diet, physical activity and weight loss. The data collected during the LHI campaign is compiled with the national data set; therefore Iowa specific data is not available. In 2009, participants increased their vegetable and fruit servings by about one (2.11 pre-program; 3.10 post-program) while BMI decreased (30.6 pre-program; 29.6 post program). Six-month follow-up data were not available at the time of this report.

ServSafe® program results show effectiveness in delivery of food safety information with 85% of all participants earning national certification (through National Restaurant Association) for food safety knowledge.

A survey complete by 219 respondents (33%) from a blog mailing list of 670 connected to the Spend Smart website indicated that 88% thought they had increased food buying skills and 83% felt they had increased their ability to identify and include more nutritious foods in the family diet.

Key Items of Evaluation

Live Healthy Iowa conducts a survey of participants pre-, post- and 5-months-post-program on health behaviors including dietary intake and physical activity. The USDA funded Team Nutrition Demonstration project will be reporting in 2010. ServSafe® certification of participants will be monitored as a continued measure of program effectiveness.

V(A). Planned Program (Summary)**Program # 15****1. Name of the Planned Program**

Human Nutrition, Food Safety, and Human Health and Well-being

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
603	Market Economics	5%		5%	
610	Domestic Policy Analysis	5%		5%	
701	Nutrient Composition of Food	10%		10%	
702	Requirements and Function of Nutrients and Other Food Components	15%		15%	
703	Nutrition Education and Behavior	10%		10%	
704	Nutrition and Hunger in the Population	15%		15%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residu	10%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa	10%		10%	
722	Zoonotic Diseases and Parasites Affecting Humans	10%		10%	
724	Healthy Lifestyle	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	9.1	0.0
Actual	0.0	0.0	12.4	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	518709	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	518709	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	4957999	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

The Iowa Agricultural and Home Economics Experiment Station and Iowa State University Cooperative Extension have provided strong leadership in facilitating interdisciplinary work to protect and promote the health of Iowans and beyond. This is evidenced by participation of over 120 ISU faculty members from six colleges and 22 academic departments working in interdisciplinary teams and centers to create and transfer knowledge on nutrients and bioactive components in food, factors related to food security (availability), factors related to nutritional well being, and prevention and control of foodborne diseases. In addition, governmental laboratories (USDA, Ames Laboratory) provide important collaborative research support in the form of funding, personnel and facilities. These ties will be expected to continue, expand and strengthen. Collaboration with industry partners to mitigate the risks of food safety incidents and to develop functional and improved nutritional characteristics of foods and ingredients are an important driver of food and nutrition related research. The proposed plan of work will conduct programs on interrelated aspects of food from farm to fork building on the work of this existing network of scientists and communicators with strengths in plant and animal sciences, toxicology, food science, animal and human nutrition, veterinary medicine, engineering, economics, and business. This will enhance Iowa's role as a reliable producer and supplier of high quality, safe and nutritious food and food products and will aid in ensuring Iowa's economic future.

2. Brief description of the target audience

- parents of children aged 0-5, youth
- pregnant and perimenopausal women
- teens and young adults
- low income families with young children
- caregivers of children and adults
- athletes, coaches
- health professionals
- worksite employees
- retail foodservice, grocery store, and other foodservice managers and workers
- food processors
- commodity groups
- community leaders and managers

V(E). Planned Program (Outputs)**1. Standard output measures**

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	0	0	0	0
Actual	0	0	0	0

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

Year: 2009

Plan: 1

Actual: 2

Patents listed

7,470,777: Compositions and Methods Related to Modified Retroviral Vectors for Restricted, Site Specific Integration

7,524,888: Biorational Repellants Obtained from Terpenoids for Use Against Arthropods

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	0	10	
Actual	0	8	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of non-peer reviewed publications.

Year	Target	Actual
2009	10	8

Output #2

Output Measure

- Number of workshops/presentations.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of proceedings and published abstracts.
2	Number of theses produced.
3	Number of individuals certified to implement Hazard Analysis and Critical Control Point (HACCP) in meat, poultry, and egg production plants.

Outcome #1

1. Outcome Measures

Number of proceedings and published abstracts.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of theses produced.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of individuals certified to implement Hazard Analysis and Critical Control Point (HACCP) in meat, poultry, and egg production plants.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is an ongoing need for training on the philosophy and principles of the Hazard Analysis and Critical Control Point system and how to implement HACCP in meat, poultry, and egg production plants.

What has been done

Iowa State University annually offers a "HACCP Workshop for Meat, Poultry and Egg Plants". This course is designed for individuals that have little or no knowledge of HACCP and individuals that would like to have a refresher on HACCP and learn of the changes that have taken place in HACCP during the last 2-3 years. Topics that will be covered in the workshop include: HACCP Overview; Definition of HACCP Terms; Chemical and Physical Hazards; Microbiological Hazards; Developing SOPs and GMPs; Critical Limits, Monitoring Methods and Corrective Action; Record Keeping and Verification; HACCP Plan Validation; and HACCP Plan Reassessment. One of the working groups is designated an "Advanced HACCP Training Working Group." This working group, which is limited to those that are already HACCP trained, will discuss Validation, Verification, Reassessment, Lethality, Stabilization and Listeria Control.

Results

Individuals that complete the course receive a certificate indicating they are a HACCP trained individual and their name is added to a registry of HACCP trained individuals that is maintained by the International Meat & Poultry HACCP Alliance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residu
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa
722	Zoonotic Diseases and Parasites Affecting Humans

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

To improve the nutrition and well-being of Iowans

- Define the role of nutrients and bioactive components of foods.
- Reduce barriers to acquiring and utilizing an adequate and nutritious diet.
- Increase awareness, participation, and cost effectiveness of food assistance, nutrition education, and community based wellness programs.
- Increase the likelihood of people making healthy food choices consistent with current recommendations.
- Improve the nutritional value of the food supply.
- Reduce the prevalence of inadequate or excessive dietary intake.
- Reduce the prevalence of obese or overweight individuals.

To mitigate and manage the risks of food and vector borne diseases and chemical hazards in foods.

- Reduce the incidence of food and vector borne illness in humans.
- Increase the ability to rapidly detect and implement control strategies for food and vector borne pathogens.
- Reduce the incidence of food and vector borne pathogens through environmental and animal/plant pre and post-harvest controls.
- Evaluate the economics of food and vector borne illness and control.

Dissemination of research findings will be through a variety of mechanisms including peer reviewed journals, symposia, Extension publications, policy briefs, electronic and print media, presentations to commodity, industry, government, consumer and community groups.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Comparisons between program participants (individuals, group, organizations) and non-participants

- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 16****1. Name of the Planned Program**

Natural Resources and Environmental Stewardship

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	15%		15%	
104	Protect Soil from Harmful Effects of Natural Elements	5%		5%	
112	Watershed Protection and Management	10%		10%	
123	Management and Sustainability of Forest Resources	8%		8%	
131	Alternative Uses of Land	5%		5%	
133	Pollution Prevention and Mitigation	15%		15%	
134	Outdoor Recreation	10%		10%	
141	Air Resource Protection and Management	15%		15%	
402	Engineering Systems and Equipment	10%		10%	
405	Drainage and Irrigation Systems and Facilities	7%		7%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	13.0	0.0	19.8	0.0
Actual	13.0	0.0	23.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
478530	0	810866	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
478530	0	810866	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1145386	0	7771100	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Curriculum for each targeted group, fact sheets, and web-accessible tools for decision making.
- Targeted programming to address policy issues as they arise including response to public comment documents, development of hard copy materials and resources for regulators and policymakers.
- Produce, update or revise handbooks, newsletters, and bulletins as appropriate.
- Hold workshops, field days, farm/field visits, and satellite and web-based sessions as appropriate.
- Develop strategies and programs to increase community (citizen) involvement.
- Develop and execute educational programs about indices and diagnostic tools (e.g. P-Index) that can be used to improve nutrient management.
- Develop and execute educational programs on methods to conserve energy.
- Develop educational programs to preserve environmental benefits of the Conservation Reserve Program (CRP) and other conservation programs when the programs change.
- Research will be conducted that focuses on source control of emissions to air and/or water using diet modification as the primary mitigation strategy. Studies will be multi-species in nature and will address emissions from housing and manure storage and application with emphasis on the immediate (housing) and long-term (storage and land application) impacts of dietary changes.

Examples of some specific activities:

- 2009 Comprehensive Nutrient Management Plan Development Program -- Iowa State University's agricultural and biosystems engineering department offered a three-day national course in Des Moines, IA during April 2009 for consultants working in nutrient management. This course was designed to prepare consultants for U.S. Department of Agriculture certification as Technical Service Providers (TSP). The 2009 CNMP Development course was based on the CNMP Core Curriculum developed under a joint effort by Iowa State, the University of Tennessee, Michigan State University, Purdue University, the University of Idaho and the Natural Resources Conservation Service.
- Understanding and Working with Nutrient Management Plans under the Concentrated Animal Feeding Operations (CAFO) Final Rule was a one-day training course developed to address the updated requirements released on Dec. 22, 2008, for the National Pollutant Discharge Elimination System (NPDES) permit process. Development of a nutrient management plan remains an integral part of the NPDES permit process and is also now a requirement for the "no-discharge" certification option. The course was held in Des Moines, IA, during April 2009.
- Drainage Design Workshops, 2nd Iowa Drainage School, and the IA-MN Drainage Research Forum were conducted to educate producers, contractors, and agency personnel about environmentally friendly drainage design and management along with current research efforts to reduce the nitrate export from tile drained lands.
- The Iowa Learning Farm project that has a goal of educating producers and other stakeholders about the important benefits of in-field and edge-of-field conservation practices has continued. The project is a joint partnership of Iowa State University Extension, Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, and USDA Natural Resources Conservation Service with primary leadership by Iowa State University Extension.
- Through a collaborative effort, the Community Assessment Model (CAM) is being used to help producers site new livestock facilities in a way which accounts for size of facilities, local wind incidents, the presence of other livestock in the neighborhood and actual neighbor location.
- The Leadership and Performance-based Watershed Management project has built a strong partnership over time among diverse team members consisting of multiple disciplines with applied research to extension functions, the Iowa Learning Farm, state agencies with water quality missions, SWCD as well as agricultural groups with water quality goals. This partnership has

actively engaged producers in developing farmer-led watershed groups with a focus on performance-based management for improved environmental outcomes.

2. Brief description of the target audience

- Crop and livestock producers
- Private citizens
- Public health officials
- State agencies
- Conservation planners
- Landowners
- Homeowners
- Agricultural Economists
- Agricultural and Biosystems engineers
- Foresters
- Fish and wildlife biologists
- Agronomists
- Policy makers

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	7000	89000	0	0
Actual	14283	444125	667	0

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

Patent Applications Submitted

Year: 2009
 Plan: 1
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	3	0	
Actual	19	7	26

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed to identify site-specific strategies and application of these strategies in order to improve air quality and address related concerns.

Year	Target	Actual
2009	3	2

Output #2

Output Measure

- Number of research studies completed to identify strategies and application of these strategies in order to improve water quality and address related concerns.

Year	Target	Actual
2009	4	6

Output #3

Output Measure

- Number of research studies completed to understand and evaluate the economic impact of management of natural resources.

Year	Target	Actual
2009	2	2

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of producers that participate in programming directly focused on increasing the adoption and implementation of conservation practices.
2	Number of producers that participate in programming directly focused on adoption of practices that reduce nitrate export from subsurface drainage.
3	Number of landowners participating in programs to increase their understanding of water quality issues and related adverse consequences following poor stewardship practices.
4	Number of producers that participate in programming directly focused on utilization of indices and diagnostic tools along with other performance measures to document progress toward improved nutrient management.
5	Number of producers that participate in programming directly focused on increasing the number of livestock production sites that adopt practices that reduce impacts to air resources.
6	Number of lowans that participate in programming directly focused on the adoption of practices that protect natural resources including woodlands, wildlife, energy, and community resources.
7	Number of lowans that participate in programming directly focused on increasing the adoption of energy conservation practices.
8	Number of lowans that participate in programs focused on community water quantity issues.

Outcome #1**1. Outcome Measures**

Number of producers that participate in programming directly focused on increasing the adoption and implementation of conservation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1100	2774

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Increased usage of conservation tillage practices reduces soil erosion; thereby reducing sediment loading of streams and lakes. Improved water quality is of interest to the general public. Farmers need to know that conservation practices don't reduce crop stands or yields.

What has been done

Education programs and field demonstrations were held. The Iowa Learning Farm Project rainfall simulator visited approximately 30 locations in late 2008 and early summer 2009 and demonstrated the impact of residue cover on soil erosion to broad stakeholder groups. No-till or reduced tillage field days were conducted in various areas of Iowa with attendance totaling approximately 1050. The Iowa Learning Farm Project continued field demonstrations on producers' fields where conventional tillage to conservation tillage systems were compared. The Iowa Learning Farm organized a display at the Farm Progress show in August 2008 entitled "Operation Strip Till" where farmers could visit with a variety of individuals on how to make strip-till work.

Results

Consistent with previous reporting there continues to be an increasing number of producers interested in adoption of conservation practices, specifically reduced tillage practices that have the potential to save natural resources and provide some economic benefit for the producer. From Iowa Learning Farm Field Days for which approximately seven field days were held (~600 participants) approximately 49% of respondents indicated they would consider adopting high-surface residue crop management on some of their acres and 32% indicated they would network conservation ideas with other farmers. The no-till or reduced tillage field days provide producers hands-on learning opportunities and most incorporated opportunities for interested producers to talk to experienced producers. There has been increased interest in how to setup equipment for reduced tillage systems and various planter clinics have been organized. Follow-up articles on planter preparation for no-till and reduced tillage were being produced for Farm New (with Renae Vander Schaaf) and Wallace's Farmer (with Rod Swoboda). Planter preparation tips were also discussed within Monsanto's training for Iowa seed dealers.

4. Associated Knowledge Areas

KA Code Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
134	Outdoor Recreation
141	Air Resource Protection and Management
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities

Outcome #2

1. Outcome Measures

Number of producers that participate in programming directly focused on adoption of practices that reduce nitrate export from subsurface drainage.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	904

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Subsurface drainage has been used for many years to remove excess soil water and improve crop yields. In the past several decades concern has increased about the amount of nitrate-nitrogen that is delivered to our surface waters from subsurface drains. There is a need for more research and education on what can be done with subsurface drainage systems to reduce environmental impacts and potentially increase yields.

What has been done

To educate producers, contractors, agency personnel, and other interested stakeholders about drainage practices, workshops and field days have been conducted throughout the state. These include two drainage design workshops, drainage water management field day, Iowa Drainage School, and the IA-MN Drainage Research Forum. Additionally, various extension presentations have been made on the impact of land management practices on nitrate-nitrogen losses.

Results

Evaluation results from different activities show that the educational efforts have helped participants to better understand drainage design and nitrate loss concepts. When asked how the knowledge gained in the school will be applied, participants responded as being better able to design the tile drainage, and be able to evaluate problems with current drainage system. As a response to an economic evaluation, participants indicated a

monetary benefit ranging from \$.10 to \$.50 per acre from the application of knowledge gained.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
405	Drainage and Irrigation Systems and Facilities

Outcome #3

1. Outcome Measures

Number of landowners participating in programs to increase their understanding of water quality issues and related adverse consequences following poor stewardship practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1200	2258

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Water quality in Iowa is of increasing concern and is receiving increased attention. Agricultural non-point source pollution is a major contributor to sediment and nutrient loads in Iowa waterbodies. Implementation of agricultural best management practices have the potential to reduce sediment and nutrient loading to downstream waterbodies. Human and social factors are important influencers of landowner decisions. However technical agency staff and educators often do not understand these factors and, as a result, are less effective.

What has been done

Educational programs on the impacts of agricultural practices on water quality were conducted including working with youth, rural, and urban audiences. ISU Extension worked with watershed groups to understand issues and assist in developing watershed management plans as part of the Performance-Based Watershed Management project. A series of six DVDs were developed on conservation related issues by the Iowa Learning Farm project. These videos have been provided to all the SWCD commissioners in Iowa for use in public events and they have been distributed to educators throughout Iowa. Nearly 1000 DVDs have been distributed.

Results

As part of the Iowa Learning Farm project the Conservation Systems Rainfall Simulator was used at educational events throughout the state to demonstrate how maintaining residue cover on the land can decrease nutrient and

sediment loss from agricultural fields. Numerous watershed groups were supported in their organizational development and land practices decisions as part of the performance based management project. Bringing together and assisting watershed organizations is expected to have benefits in educating stakeholders about the impact of land management on water quality and in ultimately fostering action to improve practices. As part of the Performance-Based Watershed Management projects farm operators are learning learned to evaluate on-farm environmental performance of their livestock and crop management practices. The project has had a major impact on social capacity for citizen-led water quality efforts in Iowa by developing a network of local leaders acting on environmental initiatives. The watershed groups have developed strong local leadership.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
405	Drainage and Irrigation Systems and Facilities

Outcome #4

1. Outcome Measures

Number of producers that participate in programming directly focused on utilization of indices and diagnostic tools along with other performance measures to document progress toward improved nutrient management.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	4603

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Appropriate management of land applied nutrients is important both for crop production and the environment. To ensure proper management for minimizing water quality impacts, Iowa law requires use of various indices and diagnostic tools. This is done to minimize the risk of nutrient losses to surface waters from manure application. Producers are faced with understanding the new requirements, gathering the needed information including soil type maps, soil sampling, and upgrading their Manure Management Plans, Nutrient Management Plans, and Comprehensive Nutrient Management Plans to include indices and diagnostic tools.

What has been done

Educational programming focused on indices, diagnostic tools, and application rates addressing manure nutrient management planning were conducted throughout the state. These programs targeted professionals, service providers, and producers. Programming conducted included RUSLE2 and the Iowa P-Index workshops, Nutrient

Management Trainings, Comprehensive Nutrient Management Plan Development course, Midwest Composting School 2009, New Digitized Soil Survey Workshops, and one-on-one consultations.

Results

Evaluations received from participants attending the trainings indicated that 44% changed their manure application rate due to a manure analysis and 36% calibrated their manure application equipment to protect the environment and optimize the use of their valuable manure resource.

Participants in the RUSLE2 and Iowa Phosphorus Index workshops reported working with or managing approximately 450,000 acres and 1,130 clients on an annual basis. They also reported developing over 850 nutrient management plans annually in which such indices are used in making manure application rate decisions. Participants indicated an average gain of \$0.74 per acre serviced.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

Outcome #5

1. Outcome Measures

Number of producers that participate in programming directly focused on increasing the number of livestock production sites that adopt practices that reduce impacts to air resources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	71

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nuisance issues related to exposure to agricultural odors and gaseous emission are a prominent concern in rural Iowa. Each year swine are lost to hydrogen sulfide (H₂S) poisoning during slurry removal and application. While increased ventilation is necessary due to slurry application occurring post-harvest during colder temperatures, this can lead to stressful conditions impacting swine health or increased heating costs. A portable H₂S detection system adapted for use during slurry removal would prove valuable to both swine producers and slurry removal businesses.

What has been done

The Community Assessment Model (CAM) is helping producers site new facilities to minimize the impact on neighbors. A total of 8 clients were served through use of CAM. ISU (Muhlbauer, Swestka, Burns, Xin, Hoff, and Li) developed and tested a wireless H₂S detection system for use in swine housing with funding provided by the National Pork Board. From lab and field results a prototype was developed to be tested by commercial slurry applicators. Initial testing was conducted in previous reporting period but project activities extended into FY09.

Results

Siting for new swine facilities reduce the impact of odors on neighbors continued through FY09. Numbers of participants were down due to poor swine production returns. Eight users took advantage of the modeling program with a total of 15 options explored. The total capacity of the facilities was approximately 24,000 head with an investment value of \$6 million. Analysis of the model use, needs for improvement and impact continues though a project funded by the Iowa Pork Producers Association. Results indicate a portable, wireless H₂S detection system based on currently available sensors and wireless technology can be used to monitor H₂S concentrations and manage ventilation to disperse H₂S bursts during slurry agitation and removal from swine houses with sub-floor slurry storage. The system has proven to be robust and able to withstand the rigors of daily manure slurry pumping activities. Operating recommendations have been developed for swine producers and slurry removal businesses during manure slurry removal and application events. The hydrogen sulfide detection system has importance for human and animal health in these swine housing facilities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
141	Air Resource Protection and Management
402	Engineering Systems and Equipment

Outcome #6**1. Outcome Measures**

Number of Iowans that participate in programming directly focused on the adoption of practices that protect natural resources including woodlands, wildlife, energy, and community resources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	1000	1743

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Of the 7% of forestland in Iowa, over 90 percent is owned by private citizens. Given this fact, and the fact that natural resources add tremendous amounts of goods and services to the national economy (several hundred billion dollars annually for forestry, and ~110 billion for wildlife), ISU's Extension to Ag and Natural Resources needs to

make it a high priority. NREM Extension directly serves the clientele that traditional ISU Ag and Natural Resources Extension has passed over, marginalized, and failed to effectively engage. As the intergenerational transfer of Iowa homesteads increase over the next 20 years, those returning to the family farm are generally not in need of income generated by traditional row crop agriculture and are more likely to invest in natural resource planning and management. These are the clients that NREM Extension will focus on as they will play a major role in redefining both natural resource management at the landscape level and traditional ag.

What has been done

18 Forestry Field Days attracted 799 Iowans to learn about woodland management and stewardship. Master Woodland Manager, one Tri-State Forestry Conference, and several forestry workshops and invited presentations reached another 700 adults. Indirect contacts through newsletters, emails, and phone calls exceeded 28,500 contacts in FY 2009 for forestry extension. Fisheries extension had 220 participants at four workshops and handled nearly 880 direct and indirect contacts from constituents.

Results

Natural resource knowledge and its application on the land as a result of educational efforts are difficult to measure short-term, but we are constantly striving to find better measures of impact. Given the number of direct and indirect contacts in fiscal year 08-09 and the increasing call for more workshops, field days, and publications shows the value of this programming. Our clientele are diverse and as such the programming will strive to expand and meet these changing needs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
112	Watershed Protection and Management
123	Management and Sustainability of Forest Resources
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
134	Outdoor Recreation
141	Air Resource Protection and Management
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities

Outcome #7

1. Outcome Measures

Number of Iowans that participate in programming directly focused on increasing the adoption of energy conservation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	600	1030

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Energy makes up an ever-increasing portion of operating costs for farmers. Costs for natural gas, propane, diesel, and gasoline can vary greatly and spike unexpectedly. Electricity costs also continue to increase. Renewable energy resources need to be developed or harvested while adopting conservation practices with currently available resources.

What has been done

Seven meetings with focus on energy efficiency and alternative energy options, and two conferences on wind as an alternative energy source were delivered

Results

At a wind energy conference in SE Iowa, 230 participants from 46 counties indicated that 86% had a better understanding of wind energy and regulations after attending the meeting and 93% indicated that they were able to determine if their situation was appropriate for wind energy. Ninety seven percent indicated that they would recommend the program to a friend. Those considering long term leases for wind towers on their property called the meeting "A must for anyone near a potential wind farm" and indicated that the information presented at the meeting would not only cost them over a thousand dollars to obtain but should save them 20 times that amount.

As a result of a informational meeting in SW Iowa, a group was formed by farmers in southern Page and Fremont counties where new wind energy development is in the works. Craig Harris, a landowner on the steering committee, said "Our goal is to make sure it's a good deal for everyone: landowners, tenants, the community and the developer."

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

Outcome #8**1. Outcome Measures**

Number of Iowans that participate in programs focused on community water quantity issues.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
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2009

200

900

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Excess rainfall in the summer of 2008 produced record flooding in much of Iowa. Especially hard hit was eastern Iowa with many homes damaged or destroyed and major impacts to area crops. There was an immediate need for information on preparing for and coping with the aftermath of the flooding.

What has been done

Local media, was used extensively to provide information to producers and homeowners and information was provided to the national media about flooding affects on farmers. In addition, National Public Radio did a special program on the activities of an ISU Extension Agronomist in the aftermath of the flood that aired on 170 stations around the country.

ISU Ag Extension purchased 30 moisture meters in early July. These were distributed for checkout to Extension Offices in 9 eastern Iowa counties hardest hit by the flooding. Information sheets were provided on how to use the meters and the safe moisture content of building materials before reconstruction should start.

Results

While use of the moisture meters varied, they were used extensively in Benton, Linn, Louisa, and Des Moines Counties. In Louisa County, they were in use almost daily from early July until cold weather arrived. In total, over 550 locations were checked for moisture levels for adequate drying before rebuilding. In many locations, readings were taken multiple times before it was found dry enough for rebuilding.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Programmatic Challenges

Brief Explanation

Continued uncertainties associated with agricultural commodity prices continue to influence producer decision making. The extreme precipitation events and flooding in early 2008 throughout much of Iowa influenced interest in conservation relate programming in late 2008 and early 2009. In addition, there were increased questions about water quantity.

Made more difficult in FY 08-09 was the retirement of Jim Pease. Forestry and Fisheries extension essentially covered the wildlife aspect to the best of our abilities but there was a direct loss of contact between ISU NREM Extension and the Iowa public. We are happy to report that the new wildlife extension specialist is now on campus and our numbers will reflect this addition next year.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)

Evaluation Results

As a part of programming related to increasing the adoption and implementation of conservation practices and related to utilization of indices and diagnostic tools along with other performance measures to document progress toward improved nutrient management, two evaluations can be summarized.

One is an in-depth five-year evaluation of programming associated with the RUSLE2 and Iowa Phosphorus Index Workshops where the goal is to educate participants about the use of nutrient management indices. The other is an evaluation that was conducted as part of the Iowa Learning Farm Project. The overall goal of programming in this general area is to increase the understanding of the role of conservation practices and nutrient management indices in improving water quality. In addition, the ultimate goal is to increase the number acres where appropriate conservation practices are utilized.

Twenty workshops on RUSLE2 and Iowa Phosphorus Index have been conducted since 2005 targeted towards service providers. Over 500 participants representing over 5,500 clients and servicing 2.51 million acres have been trained on utilization of nutrient management indices. This group represents over 3,700 nutrient management plans, manure management plans, and comprehensive nutrient management plans. An in-depth phone survey of a random representative sample of participants was conducted followed by on-line survey of all participants. Surveyed participants (72) indicated making changes to plans to meet nutrient management standards. Number of plans needing changes ranged between 10 to 60 percent based on individual fields included in the plan. Recommended changes, on an individual field basis, include modifications to the tillage practices, no manure application, implementation of buffer strips, and changes to crop rotations. No-till farming practices, terraces, and contour farming have also been recommended to reduce nutrient transport associated with soil loss. Surveyed participants indicated between 30 to 100 percent of recommended changes have been followed by producers on individual plan and affected field basis.

Another evaluation that can be summarized is ongoing evaluation being conducted as part of the Iowa Learning Farm Project where in-depth two-week and six-month evaluations are being conducted. As part of Iowa Learning Farm Field Days conducted in the summer of 2008, 142 producers completed comment cards. The two-week evaluations had a response rate of 44% to the mailed questionnaires, and the six-month evaluation had a 49% response rate. From the evaluations, 49% at two weeks and 32% at six months indicated that they planned to increase the use of surface residue management (no-till or strip till) on some of their acres in the coming year. At two weeks, 39% of the respondents indicated they discussed using no-till or strip till with their landowners and this number was 32% at the six-month evaluation. Also, 70% and 29% of the respondents at two weeks and six months, respectively, indicated that they discussed conservation ideas with other farmers in their areas. Additionally, the percent of respondents that indicated that they purchased strip-till equipment, made a joint purchase of strip-till equipment with a neighbor, or leases equipment from an ag supplier was 14% and 37% at two weeks and six months, respectively.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 17****1. Name of the Planned Program**

Commercial and Consumer Horticulture

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
124	Urban Forestry	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	20%		20%	
205	Plant Management Systems	40%		40%	
216	Integrated Pest Management Systems	20%		20%	
502	New and Improved Food Products	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	6.4	0.0
Actual	14.0	0.0	6.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
515340	0	402719	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
515340	0	402719	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
822272	0	1161879	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conducted research experiments at the Hort Research Station, 4 Golf Courses, and one Community College
- Conducted workshops and meetings
- Partnering with Kirkwood Community College to develop research facility and curriculum
- Conducted research experiments on grape cultivar adaptation and productivity at five sites
- Conduct a field trial on apple rootstock performance

- Presented educational materials on cultural practices for fruit crops at conferences, workshops and grower meetings, and educator workshops
- Interpreted soil test results and tissue analysis for potential and existing fruit producers
- Provided training to Master Gardeners and homeowners

2. Brief description of the target audience

Pesticide users
 Extension educators
 Commercial producers
 Home owners
 Master Gardeners
 Policy makers

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	40000	150000	0	0
Actual	68879	3680	0	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	4	8	
Actual	5	9	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed.

Year	Target	Actual
2009	6	8

Output #2

Output Measure

- Number of research progress reports published.

Year	Target	Actual
2009	{No Data Entered}	14

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Increase the number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.
2	Increase the number of new horticulture businesses and the expansion of existing horticulture businesses assisted through county offices.
3	Increase producer/consumer awareness of IMP practices through subscriptions to home pest newsletter and contacts to Plant Disease and Insect Clinic.
4	Increase the quality and quantity of horticulture information accessible to the public. (Measure number of peer-reviewed extension publications).
5	Increase involvement of Master Gardener volunteers in their communities. (Measure the number of volunteer hours per year).
6	Increase the involvement of winery owners and grape growers in educational opportunities designed to grow Iowa's grape and wine industry.
7	Increase the percentage of first time exam takers who pass the Certified Nursery Professional certification test.

Outcome #1

1. Outcome Measures

Increase the number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2500	1950

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The landscape industry has been identified by OSHA as high risk for personal injury because of the use of power equipment by untrained personnel.

What has been done

Employers and employees of landscape companies were trained in the safe use of mowers, chainsaws, and loading equipment.

Results

80 percent of the 300 trained participants indicated that they gained valuable information to reduce their chance of personal injury.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
502	New and Improved Food Products

Outcome #2

1. Outcome Measures

Increase the number of new horticulture businesses and the expansion of existing horticulture businesses assisted through county offices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	20	47

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Establishing a commercial fruit enterprise requires a major financial investment that can fail if either non-adapted cultivars are selected or site conditions are unfavorable for the crop. Selecting sites with proper soil conditions and, because of poor nutrient mobility, optimizing soil pH, phosphorous and potassium content before planting are absolutely critical for perennial crops.

What has been done

Through seminars and educational materials, people considering investing in a commercial fruit enterprise are highly encouraged to test their soil before planting to determine if it is suitable for the crop and what measure would need to be undertaken to optimize the nutritional status of the soil.

Results

In 2009, 47 potential commercial fruit growers submitted soil samples to the ISU Soil and Plant Analysis Laboratory or to a commercial laboratory. Thirty-nine clients were encouraged to amend their soils and plant fruit crops, and 8 were encouraged not to plant and consider another location. This effort has increased the potential success of commercial fruit enterprises and directed clients with unfavorable soil conditions away from fruit production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
502	New and Improved Food Products

Outcome #3**1. Outcome Measures**

Increase producer/consumer awareness of IMP practices through subscriptions to home pest newsletter and contacts to Plant Disease and Insect Clinic.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	150

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Sustainable/organic fruit, vegetable, and herb production systems continued to be developed for Iowa conditions in 2009. Effective pest management practices and new cultivars will be necessary for the continued viability of sustainable/organic agriculture in Iowa. Research developed through this project included organically-approved spray treatments for codling moth in organic apples, with a multi-pronged approach of mating disruption, a spinosad-based natural insecticide, and codling moth granulosis virus affording the best control.

What has been done

Field trials were conducted and three organic Field Days were held in 2009, covering topics ranging from organic crop rotations to no-till vegetable production, reaching over 150 people. The ISU Organic Ag webpage <<http://extension.agron.iastate.edu/organicag/>> hosts all research reports and organic information covered in this project, with main page viewing averaging 9,430 hits/year, while viewing of full site pages (with research reports) has averaged 60,459 total hits/year. The Iowa Organic Conference had 178 people in attendance from five states in the Midwest on December 5, 2009.

Results

Organic crops fertilized with compost produced similar yields to conventional crops, and where organic corn followed alfalfa, yields improved. Soil health parameters, including organic carbon pools and microbial biomass, remained high in organic systems, even under multiple tillage operations. A new organic No-Till system developed in 2006 for organic tomatoes, corn and soybean crops was tested again in 2009. Organic soybeans yielding 43 bushels/acre were obtained without any additional weed control. Corn yields were reduced due to drought and competition with the cover crop.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #4**1. Outcome Measures**

Increase the quality and quantity of horticulture information accessible to the public. (Measure number of peer-reviewed extension publications).

Not Reporting on this Outcome Measure

Outcome #5**1. Outcome Measures**

Increase involvement of Master Gardener volunteers in their communities. (Measure the number of volunteer hours per year).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	80000	60347

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Master Gardeners are important in their communities. Their volunteer service in their counties helps educate and increase awareness on gardening practices and environmental issues. Collecting hours, however, has always been difficult and time consuming for county staff.

What has been done

In 2009, Master Gardeners and Master Gardener Interns were asked to report their volunteer service hours and continuing education hours online in a new state-wide reporting system. Master Gardeners from 75 out of 99 counties reported hours into the new system.

Results

Iowa Master Gardeners volunteered over 60,000 hours with an estimated value of over \$1.2 million to their communities (\$20.25/hour 2008 estimate). Almost 16,000 hours of continuing education was also reported for 2009.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry
205	Plant Management Systems

Outcome #6**1. Outcome Measures**

Increase the involvement of winery owners and grape growers in educational opportunities designed to grow Iowa's grape and wine industry.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2000	1260

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

As the grape industry in Iowa and other cold climates continues to expand, there is a need to know which cultivars are best adapted to regional areas, exhibit good productivity and make quality wines. In recent years, several new cultivars have been released and potential releases from breeding programs have been made available for testing. Before these cultivars and selections can be recommended for planting, they need to be thoroughly tested for adaptation, productivity and wine making potential under local climatic and soil conditions.

What has been done

Three trials evaluating 42 grape cultivars and advanced selections have been established at five strategic locations in Iowa representing different climatic and soil conditions. The plantings serve as a valuable resource for on-site programs and field days.

Results

Results of the trials are being reported in annual progress reports. In 2009, results were reported at 3 field days, a research farm meeting, a state-wide conference, an extension educators meeting, an international symposium, two timely newsletter articles documenting winter bud injury following a severe January freeze, and cultivar maturity testing for determining when to harvest was made available to grape growers on a web site. In addition, information gained from the trials on cultivar characteristics was included in five educational meetings held in Iowa and surrounding states.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
502	New and Improved Food Products

Outcome #7**1. Outcome Measures**

Increase the percentage of first time exam takers who pass the Certified Nursery Professional certification test.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Help industry professionals prepare and pass the Iowa Certified Nursery Professional certification exam.

What has been done

20 online asynchronous modules were developed in 2008 and revised in 2009 based on user feedback.

Results

On average the percent of individuals who pass the certification exam the first time is 40%. In the two years the modules have been available as study materials, the pass percentage for first time exam takers increased to almost 60%. From January 1 to December 31, 2009, over 200 INLA members accessed the online training modules. The average length of time spent reviewing the modules per visit is 46 minutes. Evaluation of the modules by participants has averaged 4.8 (1=poor; 5=excellent).

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
502	New and Improved Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

For farmers utilizing organic practices, savings from avoiding petroleum-based fertilizers and pesticides in growing organic crops will result in input cost savings of \$300/acre, in addition to countless environmental benefits. In November 2007, a four-page survey of 20 questions was distributed to a mailing list of 500 organic and transitioning producers and processors in Iowa, and by July 1, 2008, 206 surveys were received and analyzed (41% response). Among the impacts were that 20% reported an 11-20% increase in farm income, 28% of respondents reported an increase in soil quality on their farms, and 54% of respondents supported expansion of organic research/Extension at ISU.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 18****1. Name of the Planned Program**

Corn and Soybean Production and Protection

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	20%		20%	
112	Watershed Protection and Management	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	20%		20%	
206	Basic Plant Biology	20%		20%	
216	Integrated Pest Management Systems	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	27.0	0.0	8.2	0.0
Actual	27.0	0.0	11.6	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
993870	0	442374	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
993870	0	442374	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2445184	0	5459535	0

V(D). Planned Program (Activity)**1. Brief description of the Activity**

- Presentations (meetings, workshops, invited presentation, field days, etc.)
- Publications
- Research
- Media (radio, television, print, refereed pubs, interviews, videos, pod casts)
- Electronic (web, e-mail newsletters, FAX newsletters, CDs, etc.)

- Individual consultations (phone, e-mail, in-person)
- On-line courses

2. Brief description of the target audience

- Crop producers
- Livestock producers
- Certified Crop Advisors
- Agribusiness personnel
- Commodity organizations
- Agencies -- Federal, State and Local
- Commercial manure applicators
- Land owners
- Agricultural lenders
- Beginning and returning farmers
- Policy makers
- High school, college, and community college students and instructors

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	20000	10000	0	0
Actual	32190	15000	0	0

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

Patent Applications Submitted

Year: 2009
 Plan: 0
 Actual: 1

Patents listed

7,473,822: Soybean Transformation and Regeneration Using Half-Seed Explant

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	10	0	
Actual	17	49	66

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of applied-research experiments and demonstrations at ISU research farms, grower fields, agribusiness partner locations.

Year	Target	Actual
2009	100	404

Output #2

Output Measure

- Number of monitoring programs for appropriate crop pests.

Year	Target	Actual
2009	4	14

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of producers and service providers attending corn and soybean programming that focuses on improving agronomic practices.
2	Number of producers and service providers attending programs to learn and apply Integrated Pest Management practices.
3	Number of producers and service providers who participate in programs designed to increase forage production and profitability and forage-based production systems.
4	Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.
5	Number of producers and service providers who participate in programs designed to increase the adoption of conservation systems on Iowa's corn and soybean acreage.
6	Number of landowners and producers attending programs that focus on applying best management practices to land coming out of the Conservation Reserve Program.
7	Number of producers and service providers trained to use diagnostic and other resource tools related to crop nutrient management.
8	Number of farmers and service providers trained in managing the nitrogen and phosphorus content of animal manure in relation to the appropriate cropping system.
9	Number of producers and service providers attending Pesticide Applicator Training programming that focuses on safe use of pesticides.

Outcome #1**1. Outcome Measures**

Number of producers and service providers attending corn and soybean programming that focuses on improving agronomic practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10000	8132

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Iowa producers and agribusinesses demand the most relevant and current research data to maximize profit, practice environmental stewardship, and help meet global demand for food and energy. Iowa corn and soybean producers faced a cool growing season, hail and other adverse climatic factors in 2009, as well as higher input prices.

What has been done

ISU Extension meets this demand by conducting, interpreting, and disseminating research relevant to the needs specific to Iowa growers and agronomic service providers in the arena of corn and soybean production practices. This information transfer and education was accomplished through presentations (meetings, workshops, invited presentations, field days, etc.), publications, research, media (radio, television, print, refereed pubs, interviews, videos, pod casts), electronic (web, CDs, etc.), individual consultations (phone, e-mail, in-person), and on-line courses.

Results

Because of timely response by ISU Extension, producers were able to make better critical decisions that reduced losses in profitability. Participants in Extension programming were better able to address weather related losses like hail due to timely meetings and publications from ISU Extension personnel. This included issues related to grain quality issues related to delayed harvest and wet grain moisture. Articles in the Integrated Crop Management News, ICM, were well received and timely. One respondent indicated: "ICM is an excellent source to cite when talking about current growing conditions and recommendations when talking to growers." Surveyed ICM subscribers acted on information regarding soybean planting populations and row spacing that improved profitability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
204	Plant Product Quality and Utility (Preharvest)

205	Plant Management Systems
206	Basic Plant Biology
216	Integrated Pest Management Systems

Outcome #2**1. Outcome Measures**

Number of producers and service providers attending programs to learn and apply Integrated Pest Management practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10000	8495

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Every year, pests (weeds, insects, and diseases) are a major constraint to crop profitability in the state of Iowa. Corn and soybean producers are confronted by pest-related challenges that negatively impact profitability and the capacity to help meet global demand for food and energy. For example, soybean yields can be reduced by at least 40% by soybean aphids without proactive tactics. Although most pests in Iowa can be managed with pesticides, well-timed treatments are essential for protecting yield and profitability. In addition, integrated pest management (IPM) tactics are encouraged to prolong the sustainability of crop production in Iowa. Pesticide applications raise both citizens' and producers' concerns regarding environmental stewardship and responsible pesticide use.

What has been done

Iowa State University conducts, interprets, and disseminates research that demonstrates accurate and effective IPM insect management. ISU reaches growers, members of industry and other extension personnel through face-to-face consultations, presentations (field days, winter meetings), mixed media (radio, television, newspaper, podcasts, trade magazines, internet, video, phone), and printed publications. Specifically in 2009, entomologists addressed soybean aphid, aphids in corn, and corn rootworm in addition to secondary pests and their management. Plant pathologists addressed corn and soybean diseases, focusing especially on corn ear rots and molds in a severely hail-damaged portion of the state, and determined the level of mycotoxins present. Weed scientists documented the presence of glyphosate resistant weeds in Iowa.

Results

Since May 2009, entomologists published 22 extension articles and 7 podcasts, presented 21 talks to 1,214 people, created 5 researched-based teaching videos, and interviewed for 11 radio/newspapers. Participants are learning the importance of sampling and identification, implementing economic thresholds, and using effective products. Perhaps most importantly, growers are understanding IPM concepts that promote agriculture sustainability to protect yield and reduce overall input costs. Twenty-seven subscribers to the Integrated Crop Management News reported they altered their soybean aphid management practices based on the Integrated Crop Management News. Management of glyphosate resistant weeds has been discussed at 20 meetings with

producers and agribusinesses, world wide web, and a publication co-sponsored with the Iowa Soybean Promotion Board. Surveyed ICM News subscribers increased their awareness of soybean cyst nematode monitoring and testing as a decision tool.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Number of producers and service providers who participate in programs designed to increase forage production and profitability and forage-based production systems.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	400	361

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Quality forages are important for Iowa's ruminant livestock nutrition. Forage production is a vital cropping option to maintain the soil resource in fields that are not well suited for row-crop production. Growers and agribusiness demand research-based information on best management practices for forages in Iowa. Integrated crop and livestock production systems improve farm profitability and environmental quality and are an essential component in food production. However, high fertilizer prices have caused some to consider liquidating beef herds.

What has been done

ISU Extension meets this demand by conducting, interpreting, and disseminating research results that are relevant to Iowa growers and agronomic service providers' needs. This has been accomplished through presentations (meetings, workshops, invited presentations, field days, etc.), publications, research, media (radio, television, print, refereed pubs, interviews, videos, pod casts), electronic (web, CDs, etc.), individual consultations (phone, e-mail, in-person), and on-line courses. Meetings and publications that addressed the unique challenges that occurred in 2009 were included. Specifically, pasture walks and pasture weed management demonstrations were conducted, and several presentations to producers and agribusiness were made at ISU's Field Extension Education Laboratory.

Results

One ICM News subscriber stated, "This newsletter is valuable to me as a University of Missouri Extension Agronomist in Northern Missouri to keep up on insect and disease problems in crops and forages." Another ICM

News subscriber stated, "[After flood waters receded, I] Planted beans for forage but the ICM News helped me decide to harvest as grain. The decision paid off!" The most recent National Agricultural Statistics Service (NASS) estimates are that there are 13.3 million acres of corn in Iowa and 10.4 million acres of soybean, for a total of 23.7 million acres of row crops. In contrast, NASS estimates 1.57 million acres of hay. Of the attendees at the Field Extension Education Laboratory (FEEL) Crop Clinics, 49% rated the forages portion as good or excellent. Considering the dominance of row crops on attendees' "radar screens," having this many rate the presentation as good or excellent suggests the information was both timely and useful.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	400	361

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Bioenergy is of interest to Iowa producers and natural resource managers because it can diversify traditional markets for their products. Bioenergy is of interest to Iowa's ethanol providers as they urgently strive to transition from grain to cellulosic ethanol production and meet looming government mandates. Stakeholders rely on ISU Extension to learn how to consistently and sustainably grow and harvest biomass from Iowa land without jeopardizing ecosystem services (e.g., soil and water quality) or core farm income (e.g. grain yield).

What has been done

Field trials were conducted at ISU research farms to investigate: sustainability of corn stover removal (impact on soil quality, grain and biomass yield, harvest logistics and economics, role of cover crops); management of mixed and monoculture prairie species for biomass energy (impact on soil, water and greenhouse gasses; economics compared to corn/soy); potential of new dedicated energy crops (*Miscanthus x giganteus*, *Camelina*, productivity, management and likelihood of integration into Iowa production systems). Results and experience have been shared with stakeholders through conferences, field days, publications and web sites in addition to one-on-one conversations.

Results

Awareness of the role of biomass energy has been raised in Iowa as indicated by attendance at outreach events, the number of information requests received, stories published in the popular press and on the web and due-diligence interest from businesses considering biomass activities for their enterprise. Results of research trials are still preliminary, but early information has been generated and provided to the public. Good relationships have been developed with producer and industrial stakeholders, allowing ISU Extension to focus on issues that are timely and critical if Iowa is to continue to benefit from bioenergy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #5**1. Outcome Measures**

Number of producers and service providers who participate in programs designed to increase the adoption of conservation systems on Iowa's corn and soybean acreage.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	500	910

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Over 70% of water quality problems are caused by sediment. Soil erosion is a major concern for soil quality degradation and loss of productivity. No-till and other conservation measures have proven to be very effective in mitigating such problems. The implementation and adoption of conservation practices in agriculture production systems should be used in a site-specific, system approach where economic and environmental returns are significant and effective. Economic incentives are needed to encourage farmers to adopt conservation practices and mitigate some economic losses, especially in early years of adoption.

What has been done

Significant effort has been devoted to increase the adoption of conservation practices through the Iowa Learning Farm model. Large scale field demonstrations were conducted, which promoted conservation practices and involved producers as planners and presenters. Field days, workshops, and publications were produced. A train-the-trainer program was launched addressing the issue of residue management and removal, and the resulting impact on soil quality, water quality, and production sustainability. Through this training 10 workshops and field training sessions were conducted in five locations.

Results

Over 61% of Iowa Learning Farm Field Day respondents indicated they would consider adopting high-surface residue crop management on some of their acres and 51% indicated they would actively share conservation ideas with other farmers. The outcomes of the train-the-trainer workshops were effective in increasing the awareness and understanding the role of conservation practices in addressing agricultural production and environmental challenges in the state. These training programs reached more than 500 producers and agricultural professionals and 400 agribusiness professionals acquired CCA credits for maintaining their professional credentials. Over 65% of the attendees indicated that their level of knowledge of conservation practices has improved from good to excellent after attending such programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #6

1. Outcome Measures

Number of landowners and producers attending programs that focus on applying best management practices to land coming out of the Conservation Reserve Program.
 Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Number of producers and service providers trained to use diagnostic and other resource tools related to crop nutrient management.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	400	729

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Rapidly changing fertilizer prices and product availability have challenged producers' and agribusiness's profitability and ability to successfully achieve proper nutrient management. Compounding these limitations are high crop yields and the resultant nutrient removal in harvested crops, requiring fertilizer inputs to maintain adequate soil fertility levels. In addition, off-site movement of plants nutrients is a continuing environmental concern.

What has been done

Articles were published related to soil fertility and nutrient management: seven Integrated Crop Management News articles, ten CURRENT TOPIC articles in the Soil Fertility on-line Web site, nine research progress reports in the Iowa State University Research Farm reports, and nine conference proceeding reports; sixty presentations at producer and agribusiness meetings; nine self study courses developed for CCA's and the Master of Science in Agronomy and videotapes for lectures in Agronomy/Animal Science courses; four Agronomy Extension nutrient management web sites updated, including the Corn Nitrogen Rate Calculator where users were able to use the prices of corn and fertilizer nitrogen to determine the most economical nitrogen rates. There were 10,800 visits to the Soil Fertility web site and 32,351 page views; 5,690 visits to the Corn Nitrogen Rate Calculator web site and 28154 page views. Presentations were made to 4,135 producers, agribusiness, and crop advisers. Twenty soil nutrient management meetings were conducted.

Results

Evaluations from one of the soil nutrient manage meetings showed an impact of over \$2 million in saving of soil fertilizer costs. Surveyed ICM News subscribers indicated greater confidence in making decisions on applying nitrogen fertilizer under adverse soil or weather conditions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #8

1. Outcome Measures

Number of farmers and service providers trained in managing the nitrogen and phosphorus content of animal manure in relation to the appropriate cropping system.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	2500	3604

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Overuse and misapplication of animal wastes can lead to water pollution. The increasing cost of commercial fertilizer is increasing the economic incentive to consider the nutrient content of animal manure when making plant nutrient plans. Producers need to be able to utilize the animal manure resource in a manner that is both economically and environmentally sound.

What has been done

Materials developed for the 2009 Confinement Site Manure Applicator program (delivered 82 times in 74 locations, reaching 1,678 applicators) focused on 1) Review of Rules, Land Application Separation Distances, Fees, Paperwork and Recordkeeping Requirements; 2) Hydrogen Sulfide Safety during Deep-Pit Pumping; and 3)

Valuing, Pricing and Selling Manure. The 2009 Commercial Manure Applicator program (delivered to 76 locations, reaching over 1,140 applicators) included: 1) A Review of Rules, Land Application Separation Distances, Recordkeeping Requirements, Employee Substitution, Paperwork and Fees; 2) Economics of Hauling Manure; 3) Road Safety and Personal Protective Equipment Considerations; and 4) Hydrogen Sulfide Safety during Deep-Pit Pumping.

Results

- ** 19% of the Confinement site applicators reported they plan to adopt and implement an applicator safety program. 61% reported they already have a plan in place.
- ** 15% of Confinement site applicators reported they would consider hauling manure greater distances, where 49% of Confinement site applicators already do.
- ** 12% of the Confinement site applicators plan to adopt the practice of selling manure to maximize nutrient use, where 21% already have adopted the practice.
- ** 56% of Commercial applicators adopted a plan for a spill response as a result of the previous year's program while 8% responded they did not adopt a plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management

Outcome #9

1. Outcome Measures

Number of producers and service providers attending Pesticide Applicator Training programming that focuses on safe use of pesticides.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	24000	20454

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state law requires that all people who purchase and apply restricted use pesticides and any applicator who applies pesticides for hire or as a part of their job responsibilities in the public sector be certified according to established standards. As part of the training they need to understand pesticide best management practices, safe handling, use storage and disposal of pesticides, understand the risks associated with pesticide use including acute and chronic health concerns and environmental effects.

What has been done

During the period of July 1, 2008, through June 30, 2009, a total of 6,066 commercial applicators received recertification training, 14,388 private applicators were recertified, and 112 applicators received initial pesticide

applicator training. Approximately 325 different trainings were delivered either live, by satellite, webcast or videotape. Also during that time there were 330,561 visits to the Pest Management and Environment website.

Results

As a result of pesticide applicator training, the importance of safe handling of pesticides was reinforced. Eighty-six percent of respondents indicated they have taken steps to reduce pesticide exposure and contamination in their home. In addition, 86% also indicated they review the pesticide label of restricted use products to determine the particular hazards associated with the product. Ninety-six percent of the participants rated the program as good or excellent and the information presented was useful to their farm operation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

The prolonged wet weather in the spring significantly delayed planting and crop development and altered normal patterns of pest (insects, weeds, and diseases) incidence and populations. Fertilizer prices remained high, causing challenges for soil fertility management and impinging on producer and agribusiness cash flows. Other crop production input costs also remain very high. Meanwhile, grain prices sagged, adding to the economic and emotional stress in the industry. The national recession resulted in significant budget cuts to state appropriations to ISU resulting in a large re-organization of Extension with many positions lost, resulting in fewer available resources, both human and non-human, for meeting the needs of the people.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparisons between program participants (individuals, group, organizations) and non-participants

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 19****1. Name of the Planned Program**

Plants and their Systems

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	10%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	10%		10%	
206	Basic Plant Biology	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
213	Weeds Affecting Plants	10%		10%	
215	Biological Control of Pests Affecting Plants	10%		10%	
216	Integrated Pest Management Systems	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	22.9	0.0
Actual	0.0	0.0	9.6	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	889370	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	889370	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	5877898	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

In order to fulfill the goals of the Plants and their Systems Program in the College of Agriculture at Iowa State University, personnel will necessarily engage in a wide range of research activities. Research will be designed to address each stated goal in detail and will encompass laboratory studies, experiments conducted in the growth chamber, glasshouse and research farms. As appropriate, some field research may be conducted on grower fields, public lands, and other locations. Collaborative efforts will be required and will include cross-disciplinary studies, partnering of ISU departments and Centers, and the involvement of private industries, seed suppliers, agribusinesses and grower commodity organizations. The synergy gained from an inclusive perspective in developing research that will address important goals will allow the leverage of funds and facilitate research programs that are greater and more effective in scope.

- Establish hypotheses to address the critical research issues that encompass Plants and Their Systems
- Develop a broad range of research experiments to evaluate the hypotheses
- Construct/modify research equipment and facilities needed to effect the efficient completion of research experiments
- Create new innovative procedures to address important research questions and circumvent problems encountered
- Train staff and students to participate in cutting-edge research programs
- Objectively evaluate results from research experiments
- Publish the results of research experiments in high impact scientific journals and facilitate the use of the research results in various forms of influential media
- Present data at professional scientific regional, national and international conferences and symposia
- Deliver science-based objective information to state, regional, national and international user groups

2. Brief description of the target audience

National and international peer scientists

Agribusinesses

Commodity groups

Certified Crop Advisors

Crop producers

USDA agencies

State politicians

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	0	0	0	0
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009

Plan: 2

Actual: 3

Patents listed

7,524,678: Materials and Methods for the Alteration of Enzyme and Acetyl CoA Levels in Plants

7,547,677: Plant Virus Transmission Inhibitor and Methods

7,579,150: Mobile RNA Acts as a Signal to Regulate Plant Growth and Development

3. Publications (Standard General Output Measure)**Number of Peer Reviewed Publications**

2009	Extension	Research	Total
Plan	0	40	
Actual	0	0	0

V(F). State Defined Outputs**Output Target****Output #1****Output Measure**

- Number of non-peer reviewed publications.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of theses completed.
2	Number of abstracts published.

Outcome #1

1. Outcome Measures

Number of theses completed.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of abstracts published.

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 20****1. Name of the Planned Program**

Food Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service	25%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.	25%		50%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%		50%	
903	Communication, Education, and Information Delivery	25%		0%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	0.0	0.0

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Programs were offered on improving food handling behaviors and practices by consumers, food processors, and foodservices for the purpose of reducing the incidence of food borne illness. These food safety programs focused on safe food handling from farm to fork, grilling safely, allergen controls, cleaning and sanitizing, handwashing, food stands, canning and food preservation. Health fairs, Germ City and interactive web-based lessons, streaming videos, Flash animations, SafeFood© Blog, downloadable

signage, and podcasts on the Extension Food Safety web site were examples of indirect educational efforts. Food processors were served by direct contact in person to person meeting in plant to develop HACCP, GMP, and other food safety programs.

2. Brief description of the target audience

Certification and other food safety educational programs were presented to adults and youths with interest or need to learn more about safe food practices from farm to fork. These included adults employed in the retail food industry as managers or line workers; non-managerial staff and volunteers at food stands; and fresh produce growers. Managerial and production personnel from food processing plants were involved in food safety training and activities. Indirect contacts were made with approximately 9 million via food safety website, with over 1 million contacts made in the month of September, 2009, suggesting training tools and HACCP Standard Operating Procedure templates are used by those in educational settings.

Independent farms, corporate farms, attribute based farms, peer support groups, youth and next generation, commodity groups, veterinarians, community colleges, general population, policy makers, allied industries.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual	7907	9000000	0	0

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

Patent Applications Submitted

Year: 2009

Plan:

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan			
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of participants in Extension programs on food safety.

Year	Target	Actual
2009	{No Data Entered}	7907

Output #2

Output Measure

- Number of Iowa State Fair 4-H livestock exhibitors certified in Food Safety and Quality Assurance (FSQA).

Year	Target	Actual
2009	{No Data Entered}	1548

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of swine farms to participate in Environmental Management System training sessions (cumulative).
2	Number of premises registered in the National Animal Identification System (NAIS) (cumulative).
3	Number of producers who adopt improved animal health protocols or procedures
4	Number of participants certified in food safety programs.
5	Number of individuals certified to implement Hazard Analysis and Critical Control Point (HACCP) in meat, poultry, and egg production plants.

Outcome #1**1. Outcome Measures**

Number of swine farms to participate in Environmental Management System training sessions (cumulative).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	600

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Swine producers are undergoing increased scrutiny from external partners in a number of areas. Concerns about the environment, animal well-being and food safety are major areas of interest to consumers, retailers, and processors as well as producers of pork. Increasingly pork producers are being asked to document their performance in these areas, in many cases with third party verification of the results. A "Quality Management Systems" approach has been found to be most effective in meeting the producer's needs in these areas, as well as having other benefits such as increased market access, lower cost of production, and enhanced employee management capabilities.

What has been done

The IPIC has identified QMS as a priority program for the next period of time. Working with funding from the Smithfield-State of Iowa settlement, support for ISUE Field Specialists to work in this area has been augmented. Areas of QMS activities include environmental management systems; premise ID, national animal identification system, PQA+ certification of producers, TQA, ISO9000/14000 certification and other process verification based programs.

Results

A pilot group of 12 farms is participating in an Environmental Management System initiation program. One major program is the PQA+ program coordinated by the National Pork Board. This requires that producers successfully complete an educational program aimed at ensuring the highest food safety and animal well-being results from their farms. The IPIC has four persons who have become certified PQA+ trainers. Their job is to train PQA+ advisors, who will then certify producers in this industry-based program. To date, the IPIC has conducted more than 20 meetings resulting in more than 300 certified PQA+ advisors. As producers are required to become PQA+ certified, it will be the job of these advisors to conduct either group or individual training for producers. To date, three of the major processors in Iowa now require that all suppliers be PQA+ certified within the next three years or sooner. ISUE and IPIC have the largest and most active program in this area in the nation. People trained in PQA+ by IPIC include veterinarians, educators, and producers directly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other

	Sources.
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
903	Communication, Education, and Information Delivery

Outcome #2**1. Outcome Measures**

Number of premises registered in the National Animal Identification System (NAIS) (cumulative).

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	27204

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

A national animal identification system is necessary to help protect American animal agriculture from disease threats. The ability to find potentially sick or exposed animals early in a disease outbreak is essential to controlling the outbreak quickly. The NAIS would allow for rapid trace back of animals in the event of an outbreak, helping to limit the outbreak and minimize the impact on markets. The NAIS may benefit producers in other areas as well, including providing additional marketing opportunities. The NAIS also helps uphold the reputation of Iowa and the United States as having healthy animals, and it will promote continued confidence in American agricultural and animal products.

What has been done

Producers and other landowners were encouraged to register their premises during the Iowa Pork Congress in the Iowa Pork Industry Center/Iowa State University (ISU) display. Producers were referred to the Iowa Department of Agriculture and Land Stewardship display at the same trade show for additional information. ISU Extension swine field specialists affiliated with livestock production have registered their own premises, and based on their experience, promote the program and its simple registration process to attendees at educational programs throughout the year

Results

Our upwards adjusted target goal of 4,500 registered premises in Iowa was easily reached, because we still are in the early phases of the program. In fact, according to the latest numbers available from the USDA-APHIS Web site on the NAIS program, more than 57 percent of all premises in Iowa have been registered as of 1-10-10: 27,204 of an estimated 47,273 premises. This puts Iowa in 5th place nationally for number of premises registered and 8th place in percentage of estimated premises registered.

4. Associated Knowledge Areas

KA Code Knowledge Area

711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
903	Communication, Education, and Information Delivery

Outcome #3**1. Outcome Measures**

Number of producers who adopt improved animal health protocols or procedures

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	35

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

An essential part of efficient production of profitable pork is maintaining a healthy herd. With the increasing oversight over food safety and the tightening profit margins, it is imperative for pork producers to adopt optimal animal health programs and procedures for their herds. Information on these improved animal health protocols and procedures must come from unbiased sources of information who work with the most advanced discovery teams.

What has been done

Iowa State University has greatly re-invested in programs involving Food Supply Veterinarians and the Veterinary Diagnostic and Production Animal Medicine unit. These programs are designed to integrate a variety of disciplines to effectively address the needs of producers and consumers, and provide veterinary students with needed skills, knowledge and problems solving ability to serve the needs of the pork industry of Iowa. These areas of discovery, education and technology transfer are essential needs of our clients in Iowa.

Results

The capabilities of the Veterinary Diagnostic Lab at ISU have been greatly enhanced over the past years. Major investments in facilities, faculty and staff have increased the capability to serve our clients. Ongoing programs, such as the Iowa Swine Disease Conference, continue to be the model for other universities across the nation. Furthermore, the cooperative activities between the College of Veterinary Medicine and the College of Agriculture and Life Sciences have been greatly enhanced recently. Cooperative efforts in areas such as PQA+ education, sow lifetime productive lifetime, animal well-being and care, and computerized data management systems have recently evolved and are having a tremendous impact on pork production in Iowa, the nation, and the world.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.

712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
903	Communication, Education, and Information Delivery

Outcome #4**1. Outcome Measures**

Number of participants certified in food safety programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	818

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The burden of food borne disease in the United States is significant on both the well being of the economy as well as human health. Mitigation of the high rates of food borne illness must start at frequently identified sources -- handling practices by consumers and retail food workers. In Iowa, Norovirus is a leading cause of food borne illness and is mainly contracted in foodservice establishments. Enteric bacteria such as Salmonella and E. coli cause significant amounts of illness also.

What has been done

Extension has been the key provider of food safety education in the state of Iowa. During this report period, 963 people have taken ServSafe(r) courses through ISU Extension. In addition, ISU Extension has been provider of a non-certification SafeFood(c) 101 program in collaboration with the Office of Risk management targeted to student organizations.

Results

Food safety certification was awarded to 818 participants reflecting an 85% pass rate on the certification exam. Over 1,300 ISU students earned a SafeFood(c) Food Handler card, issued by Office of Risk Management, documenting their attendance at food safety training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #5**1. Outcome Measures**

Number of individuals certified to implement Hazard Analysis and Critical Control Point (HACCP) in meat, poultry, and egg production plants.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	60

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

There is an ongoing need for training on the philosophy and principles of the Hazard Analysis and Critical Control Point system and how to implement HACCP in meat, poultry, and egg production plants.

What has been done

Iowa State University annually offers a "HACCP Workshop for Meat, Poultry and Egg Plants". This course is designed for individuals that have little or no knowledge of HACCP and individuals that would like to have a refresher on HACCP and learn of the changes that have taken place in HACCP during the last 2-3 years. Topics that will be covered in the workshop include: HACCP Overview; Definition of HACCP Terms; Chemical and Physical Hazards; Microbiological Hazards; Developing SOPs and GMPs; Critical Limits, Monitoring Methods and Corrective Action; Record Keeping and Verification; HACCP Plan Validation; and HACCP Plan Reassessment. One of the working groups is designated an "Advanced HACCP Training Working Group." This working group, which is limited to those that are already HACCP trained, will discuss Validation, Verification, Reassessment, Lethality, Stabilization and Listeria Control.

Results

Individuals that complete the course receive a certificate indicating they are a HACCP trained individual and their name is added to a registry of HACCP trained individuals that is maintained by the International Meat & Poultry HACCP Alliance.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Evaluation Results

ServSafe® program results show effectiveness in delivery of food safety information with 85% of all participants earning national certification (through National Restaurant Association) for food safety knowledge. ServSafe® certification of participants will be monitored as a continued measure of program effectiveness.

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 21****1. Name of the Planned Program**

Sustainable Energy

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	15%		15%	
204	Plant Product Quality and Utility (Preharvest)	15%		15%	
205	Plant Management Systems	20%		20%	
307	Animal Production Management Systems	20%		20%	
601	Economics of Agricultural Production and Farm Management	15%		15%	
605	Natural Resource and Environmental Economics	15%		15%	
Total		100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	0.0	0.0

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

A primary Iowa Beef Center (IBC) educational program was for cattle producers on how to reduce feed cost of production by using ethanol co-products. This program included numerous meetings, articles in newsletters and trade magazines, radio interviews and one-on-one discussions to inform producers. Demonstration projects were conducted on low-cost methods of storing wet and modified distillers grains and solubles (DGS). Computer workshops were held to train farmers in the use of

BRaNDS a nutrition decision software so they could evaluate alternative feedstuffs to reduce their cost. An inventor's contest was held to identify new ideas or strategies for utilizing wet DGS in cattle rations.

2. Brief description of the target audience

Commercial cow-calf producers, commercial feedlot producers, feed company representatives, Extension educators.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009

Plan:

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan			
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of applied research and demonstration studies on feeding DGS.

Year	Target	Actual
2009	{No Data Entered}	3

Output #2

Output Measure

- Number of applied research and demonstration studies to extend forage resources using ethanol coproducts for beef cows and grazing cattle.

Year	Target	Actual
------	--------	--------

2009 {No Data Entered} 6

Output #3

Output Measure

- Number of youth and adults trained using sustainable energy curricula.

Year	Target	Actual
2009	{No Data Entered}	1373

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.
2	Percent of Iowa feedlots that regularly feed DGS to reduce cost of gain.
3	Number of producers and other entrepreneurs who increase their awareness of renewable energy or climate change by either attending an educational program or downloading educational materials from a website.
4	Number of Iowans that participate in programming directly focused on increasing the adoption of energy conservation practices.

Outcome #1**1. Outcome Measures**

Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	540

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Bioenergy is of interest to Iowa producers and natural resource managers because it can diversify traditional markets for their products. Bioenergy is of interest to Iowa's ethanol providers as they urgently strive to transition from grain to cellulosic ethanol production and meet looming government mandates. Stakeholders rely on ISU Extension to learn how to consistently and sustainably grow and harvest biomass from Iowa land without jeopardizing ecosystem services (e.g., soil and water quality) or core farm income (e.g. grain yield).

What has been done

Field trials were conducted at ISU research farms to investigate: sustainability of corn stover removal (impact on soil quality, grain and biomass yield, harvest logistics and economics, role of cover crops); management of mixed and monoculture prairie species for biomass energy (impact on soil, water and greenhouse gasses; economics compared to corn/soy); potential of new dedicated energy crops (*Miscanthus x giganteus*, *Camelina*, productivity, management and likelihood of integration into Iowa production systems). Results and experience have been shared with stakeholders through conferences, field days, publications and web sites in addition to one-on-one conversations.

Results

Awareness of the role of biomass energy has been raised in Iowa as indicated by attendance at outreach events, the number of information requests received, stories published in the popular press and on the web and due-diligence interest from businesses considering biomass activities for their enterprise. Results of research trials are still preliminary, but early information has been generated and provided to the public. Good relationships have been developed with producer and industrial stakeholders, allowing ISU Extension to focus on issues that are timely and critical if Iowa is to continue to benefit from bioenergy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #2**1. Outcome Measures**

Percent of Iowa feedlots that regularly feed DGS to reduce cost of gain.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	70

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Feeding wet DGS in feedlot rations can increase profits by \$20 per head or more for producers. The rapid growth of ethanol production in Iowa has created a large supply of DGS that when fed as wet or modified moisture have higher feed value than corn to feedlot cattle at levels up to 50% of the ration. Feeding it wet to cattle saves the ethanol producer drying costs and the use of fossil fuel. Cattle producers can gain \$20/head depending on transportation and storage cost and the price of DGS relative to corn. This cost advantage has encouraged Iowa farmers to invest in feedlot capacity resulting in increased employment and economic activity in rural Iowa.

What has been done

This program included numerous meetings, articles in newsletters and trade magazines, radio interviews and one-on-one discussions to inform producers. Demonstration projects were conducted on low-cost methods of storing wet and modified distillers grains and solubles (DGS). Computer workshops were held to train farmers in the use of BRaNDS a nutrition decision software so they could evaluate alternative feedstuffs to reduce their cost. An inventor's contest was held to identify new ideas or strategies for utilizing wet DGS in cattle rations.

Results

Feedlots have rapidly adopted the use of DGS in the rations they feed their cattle. They continue to look for new research on the optimal inclusion rate and follow university recommendations or have used software developed to evaluate ration decisions and economics. Producers are also following the research on the impacts of high levels of DGS for negative implications on animal health and carcass quality and have managed their rations accordingly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Production Management Systems

Outcome #3**1. Outcome Measures**

Number of producers and other entrepreneurs who increase their awareness of renewable energy or climate change by either attending an educational program or downloading educational materials from a website.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	33941

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Renewable energy sources, particularly ethanol and biodiesel, continue to play an important role in the supply of fuel in the U.S. They help keep fuel prices and emissions lower. In addition, they constitute an important demand for corn, soybeans and other grains, which affects market prices for these commodities and overall profits for the farmers who grow them.

What has been done

The Ag Decision Maker and Ag Marketing Resource Center websites feature a large number of articles and data bases about renewable energy and climate change. In FY09 32 new articles were posted, as well as economic models of ethanol and biodiesel production plants that allow the public to track their profitability. Extension specialists also made 5 educational presentations about renewable energy and climate change.

Results

People who downloaded and read the articles or attended a presentation increased their knowledge and understanding of the economics of renewable energy fuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics

Outcome #4**1. Outcome Measures**

Number of Iowans that participate in programming directly focused on increasing the adoption of energy conservation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	1030

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Energy makes up an ever-increasing portion of operating costs for farmers. Costs for natural gas, propane, diesel, and gasoline can vary greatly and spike unexpectedly. Electricity costs also continue to increase. Renewable energy resources need to be developed or harvested while adopting conservation practices with currently available resources.

What has been done

Seven meetings with focus on energy efficiency and alternative energy options, and two conferences on wind as an alternative energy source were delivered.

Results

At a wind energy conference in SE Iowa, 230 participants from 46 counties indicated that 86% had a better understanding of wind energy and regulations after attending the meeting and 93% indicated that they were able to determine if their situation was appropriate for wind energy. Ninety seven percent indicated that they would recommend the program to a friend. Those considering long term leases for wind towers on their property called the meeting "A must for anyone near a potential wind farm" and indicated that the information presented at the meeting would not only cost them over a thousand dollars to obtain but should save them 20 times that amount.

As a result of a informational meeting in SW Iowa, a group was formed by farmers in southern Page and Fremont counties where new wind energy development is in the works. Craig Harris, a landowner on the steering committee, said "Our goal is to make sure it's a good deal for everyone: landowners, tenants, the community and the developer."

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

V(H). Planned Program (External Factors)**External factors which affected outcomes****Brief Explanation**

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 22****1. Name of the Planned Program**

Global Food Security and Hunger

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
704	Nutrition and Hunger in the Population	30%		0%	
803	Sociological and Technological Change Affecting Individuals, Families and Communities	30%		0%	
805	Community Institutions, Health, and Social Services	40%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	0.0	0.0

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

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

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Nutrition and health programs were offered in every major community and most counties in Iowa. The focus included on improving nutrition education and behavior to mitigate food insecurity within communities in the state.

Also, fourteen Horizons III communities (Alden, Bancroft, Brighton, Columbus Junction, Correctionville, Dayton, Dunlap, Farmington, Hamburg, Hazleton, Lamont, Leon, Russell and Villisca) completed the 5-week Study Circles process to understand effective poverty reduction strategies with 512 community members participating. 348 people participated in the 30-hour LeadershipPlenty® training course early in 2009. 2875 or 19.8% of their population contributed to community wide Visioning

efforts between October 1, 2008, and September 15, 2009.

One of the "low hanging fruit" type projects completed at the end of Study Circles was addressing food insecurity was in four communities -- two expanded current food pantries while Farmington established a new food pantry. Hamburg, a town of 1240 established a "backpack" program to provide food for 80-90 children each weekend. Another local project included expanding a farmer's market. Horizons III communities completed their work plans early in September 2009 and are now engaged in efforts to better serve low income residents in their community.

2. Brief description of the target audience

Nutrition education programs were provided to adults and youth of all ages -- more specifically health/nutrition professionals, older adults at congregate meals sites, adults participating in worksite wellness programs, school staff (teachers, coaches, food service personnel, nurses) and students, parents of young children participating in EFNEP/FSNE (limited income families), NEST, and WIC programs, childcare workers including Headstart, HOPES and Parents as Teachers, adults and youth attending health fairs, and adults/youth with an interest or need to learn about nutrition seeking out community programs and internet resources.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009

Plan:

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan			
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of participants in Extension programs on food insecurity.

Year

Target

Actual

2009

{No Data Entered}

442

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.
2	Number of communities that take steps to reduce food insecurity.

Outcome #1**1. Outcome Measures**

Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	14

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Horizons helps communities take charge and build stronger leaders to address poverty, economic decline and the exodus of young adults. Poverty has long-term negative consequences for children and limits opportunities among other vulnerable groups. Poverty reduction efforts are investments in communities, directly benefiting the poor and reducing future problems.

What has been done

Fourteen communities participated in Horizons III this year with 2875 people sharing their ideas about how to best reduce poverty or at least reduce the impacts of poverty within their community leading to a written poverty reduction plan for their community. In addition, twenty-two alumni communities continue to engage their community to further their Horizons efforts. Forty-five participants learned strategies used by other communities to reduce the impact of poverty in other communities during the day long Expanding Horizons Workshop.

Results

Examples of Horizons results include: Twenty-nine communities worked to address food insecurity. Eleven either established or expanded food pantries. Four established "backpack" programs to supply weekend food for children who would not have adequate food otherwise. Hamburg, a town of 1240 provides food for 80-90 children each week.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services

Outcome #2**1. Outcome Measures**

Number of communities that take steps to reduce food insecurity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	35

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Iowa surpassed the national average for those considered food insecure a year ago (national average 10.6%; Iowa 11.6%). Iowa has almost 90,000 households with 100,000 children who are food insecure.

What has been done

Six communities in Iowa addressed food insecurity because of extension efforts. In addition, 29 of 36 Horizons communities are addressing food insecurity. A variety of means have been used to address food insecurity by communities.

Results

Food Pantries serve 12 communities in different ways. Three established new local food pantries. Eight expanded existing food pantries. Two marketed and/or contributed to county wide or neighboring community food pantries to support emergency needs. SHARE or the Angel Food Network helps low income families stretch their food budget in seven communities. Community garden projects of various types were established in eleven communities to provide food to those living in poverty. Summer breakfast and lunch programs opened in three communities to provide food for low income children and youth. A "backpack" program was established to provide food for the weekend to children school officials felt would not have adequate food between hot lunch on Friday and the breakfast program on Monday in four communities. Some type of home meal delivery program was established in three communities to serve low income residents over age 65.

4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

V(H). Planned Program (External Factors)**External factors which affected outcomes****Brief Explanation**

{No Data Entered}

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)**Program # 23****1. Name of the Planned Program**

Childhood Obesity

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	50%		0%	
704	Nutrition and Hunger in the Population	50%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	0.0	0.0

Actual	0.0	0.0	0.0	0.0
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2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

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

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Nutrition and health programs were offered in every major community and most counties in Iowa. These programs included those focusing on improving nutrition education and behavior to reduce negative health consequences brought about by overweight, obesity and inactivity. Live Healthy Iowa (adult) and Live Healthy Iowa - kids (youth) programs encourage physical activity and healthful eating using the team concept. Eat to Compete, a program consisting of three separate sports nutrition topics, was presented statewide to parents, coaches, school staff, and adolescent athletes. Several field staff serve as supervisors of Expanded Food and Nutrition Education Programs and Food Stamp Nutrition Education Programs educators who deliver basic food and nutrition information to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and Extension to 4-H Youth, with partnership and support of Extension faculty. Audiences learned about the myriad of factors in the current socioeconomic environment contributing to overweight and obesity including genetics, the feeding relationship, lack of physical activity, technology, portion distortion, and food availability. Community advocacy for public

and environmental policy change was promoted as a measure to meet the demands of this growing problem.

2. Brief description of the target audience

Targeted audiences included adults and youth, parents of young children, teens and young moms, low income families, caregivers of children and adults, school staff, athletes, coaches, health professionals, worksite employees, food service managers and workers, food processors, and commodity groups.

Nutrition education programs were provided to adults and youth of all ages -- more specifically health/nutrition professionals, older adults at congregate meals sites, adults participating in worksite wellness programs, school staff (teachers, coaches, food service personnel, nurses) and students, parents of young children participating in EFNEP/FSNE (limited income families), NEST, and WIC programs, childcare workers including Headstart, HOPES and Parents as Teachers, adults and youth attending health fairs, and adults/youth with an interest or need to learn about nutrition seeking out community programs and internet resources.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2009

Plan:

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan			
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of adults who participate in Extension programs on food, nutrition and health.

Year

Target

Actual

2009 {No Data Entered} 40947

Output #2

Output Measure

- Number of 4-H'ers enrolled in Foods, Nutrition, Physical Health, Fitness, and Sports project areas.

Year	Target	Actual
2009	{No Data Entered}	27799

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of youth increasing nutrition and/or physical activity knowledge/behavior.

Outcome #1**1. Outcome Measures**

Number of youth increasing nutrition and/or physical activity knowledge/behavior.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	4618

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Obesity among youth has tripled or quadrupled, depending on sex and age, since the early 1970s according to NHANES data. YRBSS data indicate that 13.5% of Iowa youth are overweight, while 11.3% are obese; WIC data suggests overweight/obesity in Iowa will outpace the national average. Obesity among youth increases the risk of developing chronic diseases such as type 2 diabetes, hypertension, cardiovascular disease, and joint disorders. These chronic diseases among youth place a financial strain on the healthcare budget.

What has been done

Live Healthy Iowa had 11,200 participants this past year. Participants are encouraged to increase physical activity and improve nutrition choices. Weekly tips on nutrition and physical activity are received by participants. EFNEP/FSNE youth enrolled 15,605 participants this past year. Youth learn the importance of making smart choices from every food group, physical activity as part of daily life, and food safety as it relates to food handling.

Results

Go the Distance teams logged 32,538,200 minutes of activity in the 2008 program. Third through sixth grade EFNEP participants improved their nutrition knowledge in the following areas: eating a variety of foods 19%; nutrition 39%; healthy foods choices 24%; and food safety guidelines 33%. In addition, improvement in health behaviors reported included: breakfast consumption 8%; daily physical activity 5%; fruit consumption 8%; vegetable consumption 7%; milk consumption 15%; and use of nutrition facts food label 10%. Over 150 participants, representing 79 school districts and 20 child care centers attended Team Nutrition workshops offered by ISUE in partnership with Department of Education. ISUE provided technical assistance and continued education to help districts work toward goal of meeting US Healthier School Challenge standards. All reported implemented changes in school meals preparation, marketing and/or delivery. The Team Nutrition Local Wellness Demonstration project finished collecting data to explore implementation of local wellness policies and impact of training/technical assistance. The report will be filed with the USDA 1/2010. EFNEP youth received approximately 6 hours of nutrition education during school enrichment, after school or summer programs.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Government Regulations

Brief Explanation

Federal mandate requiring all school districts have a local wellness policy have enhanced the interest and visibility of Extension nutrition and wellness programming. State legislated nutrition standards for competitive foods in schools has increased interest and opportunities for extension in schools.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Evaluation Results

Key Items of Evaluation