2010 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 Iowa State University (ISU) Combined Extension and Research Plan of Work for FY 2010 reflected an overall reorganization under eight broad, multidisciplinary programs:

- Iowa Youth Development
- Families: Expanding Human Potential
- Community and Economic Development
- Helping Rural Iowans Prosper
- Food Security, Human Nutrition, and Food Safety
- Ensuring Profitable Producers
- Natural Resources and Environmental Stewardship
- Biofuels and Biobased Products

The five USDA priorities were not part of our 2010 Plan of Work; however, the attempt to more fully incorporate those priorities has resulted in additional shifting in reporting on accomplishments and results. Specifically,

- **Ensuring Profitable Producers** is being reported as a subprogram under **Global Food Security and Hunger**
- **Climate Change** has been added but reporting on this program is limited
- **Biofuels and Biobased Products** is renamed **Sustainable Energy - Biofuels and Biobased Products**
- **Childhood Obesity** has been added but reporting on this program is limited
- **Food Security, Human Nutrition, and Food Safety** is divided among **Food Safety** and **Global Food Security and Hunger**, with a small portion remaining and renamed **Human Health and Well-Being**

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.

Here are select activities arranged by program.

Global Food Security and Hunger - Ensuring Profitable Producers

Free, online tool helps farmers earn more: A new, free, online tool to help farmers make better-informed operational decisions has been developed by software experts at Iowa State. The program, called I-FARM can be found at i-farmtools.org. It assists farmers, bankers, extension, cooperative

employees and anyone else interested in finding out more about farm management and in understanding how to get more out the land at the least cost.

Research improves seed health: Scientists are working to obtain a better understanding of the complex interaction between genes, physiology and seed quality. The knowledge generated in a freeze injury study helped Iowa seed companies make science-based business decisions following an early frost in the fall of 2009. The expected results and goal of the work are to increase efficiency and cost effectiveness of crop establishment.

Genetic testing to boost dairy cows well-being: Dairy cows devote so much energy to milk production they can't consume enough feed to meet the needs of production resulting in negative energy balance. Researchers are studying how negative energy balance might contribute to fertility problems and affect other "fitness traits" that influence cows' well-being. The research involves determining the cow's genotype across 50,000 locations of the cow's genome and calculating a breeding value to rank cows based on the energy balance trait.

Research helps producers feed ethanol co-products: Iowa State is at the forefront of studying the feeding of co-products from corn milling operations. The growth of the state's ethanol industry has accelerated this focus. Most research projects involve seeing how much of the corn in a typical ration can be replaced with ethanol plant co-products. Researchers are investigating the possibility of taking all the corn out of beef cattle rations for supplementing distillers grains with corn stalks or chopped grass hay. This alternative might help producers remain profitable despite increasing corn prices.

Sustainable Energy - Biofuels and Biobased Products

Wood studied as source of bioproducts: Research is seeking to develop biofuels from forest-based lignocellulose and to produce new ingredients useful in fiber-based composites. The overall goal is to enhance the use of wood and the development of sustainable and environmentally appropriate solutions to national energy problems. Methods for pre-treatment of biomass for biofuels production have been improved. Work is progressing to commercialize formaldehyde-free adhesive formulations for wood composites manufacturing.

Research seeks new uses for bio-products: The viability of corn-based biorefineries rests upon production of multiple products with a range of values. Iowa State is investigating protein-based products for material properties that can be used in surfactants, anti-fouling coatings, self-assembling films and fibers, adhesives and strong gel formers. One example is collagen, a natural protein that combines a potential pharmaceutical market with being widely used as a food product. Another is a small designer protein with biodegradable surfactant properties.

Project pursues biofuel payoff: A biofuel systems research project compares the agronomic and environmental performance of corn, soybean and plots of perennials composed of mostly native prairie species. Ultimately the project will assess the economics of how much the farmer would make if the corn and biomass were converted to ethanol, but also what a farmer might receive if compensated for carbon storage, improvements in water quality and reductions in greenhouse gas emissions.

Project saves soil and maintains yields: Two years into a study looking at methods of using a cover crop between corn rows shows that yield can be maintained at high levels using environmentally friendly practices. Researchers are testing between-row cover grasses as part of research looking at ways to reduce soil runoff and keep vital nutrients in the soils while crop residue, called stover, is removed from farm fields to produce biofuels. With U.S. government targets requiring a 30 percent displacement of petroleum consumption with fuels made from biomass by the year 2030, agronomy researchers are

studying methods of harvesting more and more stover, which previously was left on the field.

Food Safety

Research seeks quicker salmonella detection: Using technology available through a local company, Byron Brehm-Stecher, food science and human nutrition, is working on a faster method to detect and genetically identify salmonella from contaminated foods. The new approach can provide DNA sequencing-like results in hours rather than days.

Extension training provides safer meat: Improper animal handling and inadequate food safety can have serious negative consequences on our food supply. West Liberty Foods and Iowa State developed a program that trains meat plant employees in proper food safety and assists producers, animal transporters and plant delivery-site personnel in implementing animal handling and quality assurance procedures.

Improving food safety: Extension is the key provider of food safety education in Iowa. During this report period, 1,259 people took ServSafe® courses through ISU Extension. In addition, ISU Extension provided a non-certification SafeFood© 101 program in collaboration with the ISU Office of Risk management targeted to student organizations. Food safety certification from the national program was awarded to 742 participants reflecting an 85% pass rate on the certification exam. Over 1,100 ISU students earned a SafeFood© Food Handler card, issued by Office of Risk Management, documenting their attendance at food safety training. In addition, farm food safety training and farm to school efforts reached 381 food producers/farm workers/retail food buyers and 282 people attended food preservation trainings or canner gauge testing.

Childhood Obesity

Researchers study food choices and health: The food system is changing dramatically to meet the needs of consumers and to take advantage of new technologies and science related to food processes, control of food safety risks and knowledge about the links between food and health. Researchers are working to increase knowledge and improve understanding of factors that determine food choices, behaviors and health-related outcomes and related public policies.

Improving Iowan's health: Live Healthy Iowa had 19,700 participants in 2010 where they received weekly tips to increase consumption of nutrient rich foods including fruits and vegetables. EFNEP/FSNE enrolled 1,963 adults. Professional training has been provided through Current Issues in Nutrition, an interactive video webcast that is now offered twice a year. Programs in 2010 reached 326 participants (>35 different states). Professional training also included school wellness policy implementation and environmental change for school officials/staff. A survey sample of Live Healthy Iowa participants lost a total 80,000 pounds. Six month follow-up data indicate 69% of respondents were consuming three or more servings of fruits and vegetables daily. Based on 24 hour pre- and post-food recalls, 97% of EFNEP/FSNE program participants reported positive change in any food group at exit. Based on post-program evaluations more than 75% of childcare training participants felt prepared to apply or teach health promoting dietary behaviors.

Fighting childhood obesity: Live Healthy Iowa Kids had 10,800 participants this past year. Participants were encouraged to increase physical activity and improve nutrition choices. Weekly tips on nutrition and physical activity were received by participants. EFNEP/FSNE youth enrolled 13,029 participants this past year. Youth learned 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. Over 150 participants, representing 79 school districts and 20 child care centers attended Team Nutrition workshops offered by

ISUE partnered with the Department of Education. State and federal legislation (Healthy Kids Act, Child Nutrition and WIC Reauthorization) has resulted in changes to the school health environment. ISUE is partnering with the Iowa Department of Education to provide technical assistance and training for schools on school wellness policy implementation, HACCP-based food safety plan implementation, menus to meet 2005 Dietary Guidelines, compliance with Healthy Kids Act, and meeting Healthier US School Challenge standards. EFNEP youth received approximately 6 hours of nutrition education during school enrichment, after school or summer programs. Third through sixth grade EFNEP participants improved their nutrition knowledge in the following areas: eating a variety of foods 24%; nutrition 42%; healthy foods choices 27%; and food safety guidelines 35%.

Helping Rural Iowans Prosper

Project seeks boost for rural communities: Many rural communities need innovative strategies to improve their economies and quality of life. Iowa State research is examining the prospects, problems and impacts of entrepreneurship and self-employment as strategies for social and economic development of rural communities. The abilities of the self-employed and entrepreneurs to recognize opportunities and motivations for starting new ventures will be evaluated along with the types of support needed and received by founders of new businesses.

Natural Resources and Environmental Stewardship

Feed additives proven to improve air quality: Iowa leads the nation in egg production with close to 60 million laying hens at 65 locations around the state. A feeding demonstration showed reductions in the ammonia coming from those operations. A research team affiliated with ISU's Egg Industry Center tested how two alternative diets affect ammonia output. Preliminary findings showed about a 21 percent reduction from feeding a diet with 10 percent dried distiller's grain with solubles (DDGS) and approximately 42 percent using a commercial feed additive called EcoCal.

New outreach project provides research: Conventional tillage systems and row crops management can have great impact on soil organic matter and soil quality. Iowa State research has documented the value of conservation practices in increasing soil carbon sequestration. No-till practices led to an increase of soil carbon by a half ton an acre per year. The findings helped increase awareness of farmers in Iowa to adopt conservation practices and the development of a new outreach project, called the Iowa Learning Farm, for promoting conservation practices.

Team finds safer way to extract soybean oil: Iowa State researchers developed an environmentally friendly way to extract soybean oil for food or biodiesel uses. The team partnered with enzyme manufacturer Genecor International and soybean processor West Central Cooperative to develop and commercially adopt the new processing technology. The process uses water and enzymes to replace petroleum-derived hexane, a highly flammable, expensive and hazardous pollutant.

Small changes help reduce nutrient loss: Recent findings showed that by planting switchgrass and using certain agronomic practices, farmers can significantly reduce the amount of nitrogen and nitrates that leach into the soil. The researchers also found that phosphorus runoff into Iowa's rivers, streams and lakes can be slowed by farmers changing how they plant and fertilize their crops.

Researcher develops bio-based fuel additive: A new green, bio-based method for producing a much-used fuel additive and industrial chemical that is currently made from petroleum products has been developed by an ISU researcher. Thomas Bobik, professor of biochemistry, biophysics and molecular biology, invented a process for manufacturing isobutene by identifying a new, natural enzyme that

produces the chemical organically.

Families: Expanding Human Potential

Strengthening families: 937 Professionals were trained to deliver SFP 10-14, Family Story Teller, and other research-based parenting education curricula. A series of sequential parenting education workshops were delivered to parents, as well as workshops on individual parenting topics. Electronic and hard copy parenting education newsletters were delivered to parents, as well as websites with research-based parenting information. Youth ages 10-14 whose parents participate in an evidence-based parenting class report 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 SFP intervention communities reported 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 or strengthened parent/child communication and the ability to provide love and limits. Parents who participated in Family Story Teller reported improved parent/child communication, reading to their children more often, and incorporating suggestions on specific strategies to improve their children's literacy (e.g., read book cover, point to words on page as you read them).

Improving early childhood education: The Better Kid Care New Staff Orientation, the Early Childhood Environment Rating Scale program, the Early Childhood Consultant program, and 14 Early Learning Webinars were provided to improve early childhood education. A retrospective survey of 310 child care professionals participating in the Early Childhood Environment Rating Scale training indicated they were able to better identify strengths and limitations, prioritize changes, and develop a workable plan for program improvement. In a follow-up survey, 95% of respondents reported making significant improvements. Post-survey results of the Better Kid Care NSO program indicated that 88% of the participants felt they could better teach and model good healthy practices, 82% reported improved communication with parents, 75% could plan more appropriate learning activities for children, 70% could manage children's behavior more effectively and 82% could work more effectively with staff. Early Learning Webinar participant evaluations indicated a high level of satisfaction with webinar programming, and a significant gain in knowledge and improvement in practice. In a three month follow-up study of 127 respondents, 81% reported increased understanding of how children grow and learn, 86% of respondents reported in improvements in teaching skills, 50% of respondents reporting making 1-3 program improvements and an additional 35% reported making 4-7 program improvements.

Improving financial management for Iowans: Nearly 11,000 Iowans participated directly in family resource management Extension programs. On- going media and development of resources on the Web reach thousands of Iowans with research-based information and educational programs improved skills and changed behavior to enhance financial security: 1) 75% of respondents took steps to reduce debt, 2) 85% of respondents increased contributions to employer-based retirement plans, and 3) 70 community VITA volunteers were trained by ISU Extension to complete tax returns for 1,600 low-income Iowans who received $685,845 in EITC to bolster family incomes and local economies.

Horizons program works to reduce poverty: Extension specialists coached 35 Iowa communities to implement community action plans developed to reduce poverty. These Horizons communities have a population of 5,000 or less and a poverty rate of 10% or more. Teams from each community were invited to two statewide workshops (total 150 participants) where they learned about each other's efforts and about specific strategies related to asset building, leadership development and public policy. Twenty nine Horizons communities addressed food insecurity by establishing or expanding food pantries, distributed weekend backpacks of food to children in need, established community gardens, and new farmer's markets, home delivery of meals. Sixteen communities offered free income tax preparation for low to

moderate income residents. Thirteen communities addressed housing issues including establishment of a Housing Trust Fund, applied new roofs, weatherization funds, home repairs, mobile home refurbishment, and rent programs. Eight communities addressed at-risk youth through mentoring or tutoring programs and eight communities provided an improved environment for entrepreneurs. Six communities provided financial education or coaching, four communities provided free-cycle programs for clothing, furniture, and household items, four communities provided Individual Development Account information for residents, and four towns in one county are served through a Workforce Development grant to increase Career Access to Strengthen Rural Iowa, computer-based program to look for jobs. Two communities offered an emergency fund to provide for immediate needs like diaper, gas necessary for work or medical need, tires or other needs. One community built a day care center connected to their Charter School which serves 30 children and provides quality child care.

Iowa Youth Development

Iowa 4-H Center: Programs at the Iowa 4-H Center help young people develop work-force skills in the context of outdoor and science education. The Iowa 4-H Center hosted 833 resident and day campers during the summer of 2010. Youth ages 6-17 from across the state joined in 4-H programming during week-long sessions between June and August. These youth participated alongside highly trained caring adults to take healthy risks and master many life skills. Programming included robot building, using GPS units, redesigning a camp cabin interior with visual art elements, hiking deep into the camp's 1,100 acres, exploring Iowa's history, enjoying creek walks, arts and crafts, and canoeing. The Center also reached vulnerable youth populations such as children of military families through the Operation Military Kids camp. Eighty-four campers enjoyed interactive programming while meeting other military youth in a nurturing setting. Youth left camp saying "camp is the story of my year" and parents exclaiming "our camper became more independent and self confident with the support and guidance of the leaders".

Midtown Center- Sioux City: The lowest economic and most diverse neighborhood in Sioux City is an area called Midtown. In response to the need of providing youth and their families with a safe and fun learning environment a project called the Midtown Family Community Center was developed by the Jones Street Neighborhood Coalition. Today, the Center is supported in partnership by Iowa State University Extension 4-H-Woodbury County and the City of Sioux City. The Woodbury County 4-H program manages and staffs the Center that reaches over 200 youth per year through an extended afterschool program for minority youth, and a summer day camp program for the entire community. The Center prides itself as being a safe and welcoming place for youth in their own neighborhood, with staff that listen and act upon the needs of the youth and families. The extended 4-H afterschool program has seen an exponential increase in the number of youth served and time spent at the Center. The youth are learning about themselves and developing pride in their neighborhood through their activism in community service projects. The Center successfully helped youth who would have failed to return to school in the fall by offering school district-sponsored credit recovery classes during the summer. Parents have allowed staff and AmeriCorps members to become partners in the academic achievement of their children by giving staff permission to receive school achievement reports to identify needed tutoring for youth who have below a "C" in a class. 4-H day camps at the Center bring youth from across various Sioux City neighborhoods to learn science, technology and engineering through hands-on activities developed by ISUE 4-H (E-SET). These day camps also expose youth to a less affluent neighborhood, helping to break down cultural barriers. The Midtown Center will continue to grow and provide programming and services to youth and families wherever they find the need.

4-H connecting learning and living: Iowa Resource Enhancement and Protection Conservation Education Program grants, the Iowa Agriculture in the Classroom Partnership, and other partners provided energy for the ISUE Connecting Learning and Living (CLL) program to grow agricultural, environmental, and nutritional literacy across Iowa.

A new survey revealed that 227 educators used CLL's Growing in the Garden, Where We Live, and Food, Land and People curricula with 12,814 youth in school and after school settings, including 172 outdoor classrooms. The youth were more excited and engaged about learning during the CLL lessons. More than 80% had fun, made a new connection with nature, had a new understanding of the food they eat, and made comments reflecting new knowledge. At least ten hours of CLL lessons were delivered through training and networking sessions with196 caring adults and 142 pre-service teachers. The sessions led to an increased interest and confidence in teaching about agriculture, the environment and nutrition.

Operation military kids: The United States of America is at war. Iowa service members and their families are geographically dispersed throughout a state that does not have a military installation to support them. Iowa has 10,655 children with a parent or step-parent in the military. Many more children are affected by the deployment of their sibling, grandparent, aunt, uncle, or other caring adult in their lives. Operation: Military Kids (OMK) is a partnership between US Army's Child, Youth, and School Services, 4-H National Headquarters, and Iowa State University Extension/4-H Youth Development.

OMK's mission is to provide training and create awareness about the issues faced my military kids throughout the deployment cycle, help build community based support networks and provide educational, recreational, and social activities for military kids. OMK partners provide workshops, briefings, and displays at multiple training opportunities around Iowa, focusing on school and health related opportunities such as: Iowa School Counselors Association conference; Governor's Conference on Public Health; University of Northern Iowa graduate students in school and mental health counseling; Area Education Agency counselor training; and Iowa School Nurse Organization conference. Community based support networks are growing as evidenced by increased active community partners planning and implementing support activities for military kids and families in communities across the state.

Diversity outreach: 4-H Extension staff increase representation of historically underrepresented populations: In 2010 the Iowa 4-H Program increased the number of Hispanic youth reached through 4-H programming by 11%. Efforts relied on providing quality programming to all youth through volunteer led and staff coached programs. Efforts also focused on expanding the definition of 4-H clubs to long-term positive youth development experiences that focus on developing leaders, citizens, and good communicators. County highlights include:

- Scott County intentionally collaborated with schools and agencies that serve underrepresented populations. Their goal was to offer quality youth development programs that focus on experiential education, delivered by highly trained staff. As a result of these collaborations approximately 50% of the children and youth in grades K-5 reached in 4-H afterschool programs (groups and clubs) are ethnic minorities and receive free or reduced lunch. Approximately 75% of the youth reached through 4-H afterschool in grades 6-8 are ethnic minorities and receive free or reduced lunch.
- Sioux County had a 10% increase of Latino youth reached with 4-H programming by providing resources in Spanish.
- Woodbury County created 4-H clubs at Girls, Inc., Boys Club, and Midtown Family Community Center increasing the diversity of youth reached by Woodbury County 4-H programs by over 11%.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	247.5	0.0	109.5	0.0
Actual	380.0	0.0	174.8	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 2010 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, which help guide the Plan of Work and report of accomplishments.

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.

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 are conducted to obtain feedback.
• Team members are in regular contact with primary stakeholders at meetings and on an individual basis.
• Producers, suppliers, policy makers, and other interested parties are invited to 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.

In the spring of 2010, ISU Extension conducted a statewide needs assessment in addition to the traditional methods of securing stakeholder input (citizen advisory council meetings, county Extension council meetings). The findings provided information on current and potential users of ISU Extension, their programmatic preferences, the educational delivery methods they prefer, and the words that come to mind when they think of Extension. Three focus groups were conducted also around the state with citizens interested in providing feedback on 4-H and Families work. 4-H urban strategic planning was conducted with partners for a full day in the fall. Finally, ANR breakfasts were conducted with a variety of stakeholders to garner information related to programming and program direction.

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.

The statewide needs assessment survey was sent to a random sample of 6,000 citizens across the state. Intentional oversampling took place for underserved groups. Focus group participants were recruited by local hosts, urban 4-H partners were invited based on their involvement with youth work in Iowa's urban areas.

In addition:

- 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 though 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.

In addition to the ongoing needs assessment of ISU Extension stakeholders, a comprehensive needs assessment of Iowans was conducted in 2010 to get a representative sample of all Iowans over 18 years of age including an emphasis on engaging non-users of extension via a statistically designed survey. A parallel discussion was held via focus groups designed around topics and geographical regions. Once analyzed this information was shared with staff and is used in evaluating and adjusting existing programs.

There is also greater emphasis on working with county councils to identify programming needs. Given their new responsibilities since the ISU Extension reorganization, councils are being asked to provide ongoing needs assessment to help drive programming.

In addition:

• 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.

Results from the stakeholder input venues was triangulated and used to shape current and future programming. For example, ISU Extension to families added three new initiatives based on the survey and focus group input (aging, reaching underserved families, family home ecologists).

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 use 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:

• ISU Extension is being used by one third of the Iowa population.
• All programming topics were rated as important.
• Support for 4-H youth work was rated highly in all focus groups.
• 4-H and Families foucs groups supported new partnerships for family and youth development and suggested we continue strong partnerships with schools.
• 4-H and Families focus groups supported a strong emphasis on food preservation.
• Continue to increase the use of technology such as webcasts, webinars, interactive web sites, blogging, ask the expert, etc. especially for audiences 20-40 years old.
• Risk management for agricultural producers is an increasing concern given the higher input costs in crop and livestock production and growing market volatility.
• The next generation of farmers continues to be a concern for agricultural stakeholders. How will young farmers get a start with in land and input costs and high risk.
• Increased interest in "local foods" often from non-traditional audiences such as new-Iowans and people that did not come from a farm background.
• Increased concern from agricultural producers and agribusiness about increasing regulation of their business, particularly in the area of environmental regulations.
• Increasing concern about the influence on activists that are opposed to modern agricultural production practices such as GMOs, confinement livestock, animal agriculture, synthetic fertilizers.
• Establish leadership in precision agriculture and robotics research.
• Clean water is a top priority for Iowa.
• Develop or identify a third crop for Iowa.
• Develop inbreds and varieties with greater cold tolerances that can compete with colder no-till soils and cover crops.
• Set a high priority for biobased and solar-based research and implementation of methods to reduce consumption of fossil fuels.
• Take advantage of a biorenewable energy opportunity for state; include providing science-based information to policy-makers.
• Need research that meets sustainability, defined as maintaining our soil and water without compromising future generations' ability to meet their needs.
• Keep on the cutting edge of animal production research that demonstrates appropriate animal care and welfare; disseminate research results to both producers and consumers; and be willing to counter misleading or nonscientific information.
• Provide ongoing assistance to livestock producers in implementation of sustainable practices.
• Provide timely information and advice for producers facing tough economic times.
• Embrace sustainability and life cycle analysis principles, and transfer this knowledge to industry to enable decision-making.
• Conduct research that focuses on problem-solving for industry.
• 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
9327790	0	6871719	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	6902342	0	6325533	0
Actual Matching	6902342	0	6325533	0
Actual All Other	11096762	0	47894361	0
Total Actual Expended	24901446	0	60545427	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	695729	0	6003880	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Iowa 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: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	49.0	0.0	0.0	0.0
Actual	43.0	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
867883	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
867883	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2453224	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

4-H Afterschool

• 169 Extension staff, 372 after-school staff, and 745 volunteers were trained in youth development principles and practices and 4-H curricula
• 14,120 children and youth K-12 engaged in 4-H Afterschool programming

- 64 4-H Afterschool Clubs developed statewide
- 559 community entities partnered with 4-H Afterschool programs
- Provided technical assistance to afterschool professionals with the Iowa Afterschool Alliance
- Developed and launched updated Clover Kids (K-3) web pages on the Iowa 4-H website

Urban 4-H

- 4-H staff brought science programming into urban long-term youth development environments
- Through meaningful community partnerships, 4-H staff expanded programming to underserved urban youth populations

4-H Program Delivery

- 114 innovative 4-H clubs developed statewide
- Created and implemented a multi-state 4-H partnership development online course reaching 120 staff the first year
- As a result of ARRA funds, Iowa 4-H went through a strategic planning process that resulted in:
  - 4-H project areas were reorganized and curriculum material delivery was streamlined
  - 4-H "Project Hotsheets" were created to provide 4-H members information about educational resources, project activities, and exhibit ideas
  - Transition to 4-H Online database allowing for streamlined member enrollment processes.
  - More efficient online 4-H livestock paperwork process
  - Strengthened volunteer training and plans to create a Master Volunteer Program
  - Revamped state member recognition program

4-H Volunteer Development

- 3543 volunteers trained in youth development principles and practices
- 8540 adult volunteers assisted in the implementation of youth development programs
- 106 volunteers attended state level training planned and implemented by volunteers
- 84 staff participated in Everyone Ready; on-line volunteerism professional development program
- 16 volunteers and 11 staff members participated in the North Central Region Volunteer Forum

Program Evaluation/Research

- **Iowa 4-H Campus Census Survey: Anticipated Outcomes**
  - Demonstrate breadth of 4-H influence on ISU campus
  - Obtain contact information for campus-based 4-H alumni
  - Increase the 4-H Program's campus-based volunteer pool
  - Broaden 4-H partnerships in areas such as marketing, research, and subject area expertise

- **(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 for recruiting a stratified sample of youth
  - Demonstrate congruity between NCR and national data regarding the presence of the 5 C's of positive youth development in the lives of 4-H'ers

- **(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
- Identify 4-H program practices and structures that contribute to networking and the development of social capital

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

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10387	60685	94421	18228

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	1	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2010	3741

Output #2

Output Measure

- Number of volunteers completing two trainings/yr
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of youth who participate in 4-H Afterschool

Year	Actual
2010	14120

Output #4

Output Measure

- Number of local partnerships initiated or strengthened
  Not reporting on this Output for this Annual Report

Output #5

Output Measure

- Number of new clubs developed using innovative and emerging 4-H club models

Year	Actual
2010	114

Output #6

Output Measure

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

Year	Actual
2010	9353

Output #7

Output Measure

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

Year	Actual
2010	40417

Output #8

Output Measure

- Number of pre-service teachers and educators trained in Connecting Learning and Living Curricula on connecting youth with MyPyramid concepts and understanding the origins of food.

Year	Actual
2010	628

Output #9

Output Measure

- Number of youth reached by educators trained in Connecting Learning and Living Curricula (agriculture, environmental, food, and nutrition emphasis).

Year	Actual
2010	12814

Output #10

Output Measure

- Number of youth and adults trained using climate curricula.

Year	Actual
2010	831

Output #11

Output Measure

- Number of youth and adults trained using sustainable energy curricula.

Year	Actual
2010	2534

Output #12

Output Measure

- Number of volunteers completing one training/yr

Year	Actual
2010	3543

Output #13

Output Measure

- Number of 4-H partnerships initiated or strengthened

Year	Actual

2010	3837

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Communication: 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	Communication: 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 demonstration 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.
7	As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge of the MyPyramid and making healthy food choices.
8	As reported by educators, percentage of youth participating in CLL lessons who made healthy food choices; tried new foods; and made healthier food choices during snacks, lunch, and class parties.
9	As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge regarding growing food from plants.
10	As reported by educators, percentage of youth gardeners participating in CLL lessons who improve their vegetable consumption and exercise habits.
11	Percentage of 4-H'ers ages 12-18 taking the FSQA certification test who self-report improved techniques and practices in livestock drug injections, record keeping, and food product safety and biosecurity.
12	Number of youth participating in 4-H programming and educational activities on sustainable energy to increase knowledge of what sustainable energy means, the importance of sustainable energy, and/or promising sustainable energy technologies.
13	Percentage of pre-service teachers and educators who participate in CLL training will self-report a 1 to 3-point increase in confidence/knowledge in teaching MyPyramid concepts and the origins of food.
14	Number of youth participating in 4-H programming and educational activities on climate change to increase their knowledge of the causes and/or consequences of climate change.

Outcome #1

1. **Outcome Measures**

Communication: 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.

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Communication: 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.

Not Reporting on this Outcome Measure

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.

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

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

Not Reporting on this Outcome Measure

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.

Not Reporting on this Outcome Measure

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.

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge of the MyPyramid and making healthy food choices.

2. **Associated Institution Types**

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity has more than tripled in 30 years. One in five adolescents is obese. If children are overweight between the ages of 12 to 21, they are 7 times more likely to be obese adults. From spring 2006 to spring 2007, the percentage of overweight/obese Iowa elementary-aged boys went from 18.4% to 36.3% and from 20.7% to 37.8% for girls. In 2007, the percentage of Iowa adults who were overweight or obese was 64.7% (1.9 million Iowans). In 2007, Iowa ranked

15th highest in obesity/overweight prevalence among all 54 states and territories. Iowa rankings on risk factors are slightly higher than national averages. Poor nutrition, lack of physical activity, family history, psychological factors, and family factors such as poverty level, food insecurity, and lack of understanding about how food and exercise affects health are prevalent across Iowa. This leads to increased prevalence of type 2 diabetes, metabolic syndrome, high cholesterol, high blood pressure, asthma, sleep disorders, early puberty, low self-esteem, bullying, behavior and learning problems, and depression.

Childhood obesity is everyone's problem. Individuals and families do not understand that they are the first line of defense against childhood obesity when it comes to choices about food and physical activity. The medical and insurance communities are ill equipped to handle the education and financial aspects of helping people deal with the complications of obesity. Obesity rates are higher in Iowa schools with higher participation in the free and reduced lunch programs and these same schools are the same ones that are "at risk" for academic achievement of their students. Only half of Iowa youth are meeting current recommendations of physical activity. One out of four adults in a study reported no leisure time physical activity in a one-month period. Local communities to the President and First Lady are coming together to combat this serious problem.

What has been done

CLL training participants receive at least ten hours of nutrition lessons that they can use with the youth they serve. More than 7,000 educators have received CLL nutrition lessons during the past decade. They have the ability to teach important nutrition concepts to more than 120,000 youth each year. CLL contains six extensive lessons that are focused directly on understanding and using MyPyramid. Dozens of other lessons tie other food-related concepts and activities back to MyPyramid and making healthy choices. All references to MyPyramid include elements regarding eating a variety of foods from all food groups, increasing physical activity, drinking plenty of water, and going outdoors to breath fresh air and connect with the natural resources that provide us with the things we need in order to survive and thrive. There are many gardening lessons that enhance youth's understanding and application of what they are learning. A 2009-2010 CLL on-line evaluation survey revealed knowledge outcomes reported by 227 educators representing 12,814 youth that participated in CLL lessons during that time.

Results

The CLL evaluation survey revealed that 80% of the 12,814 youth participating in CLL lessons increased their knowledge of MyPyramid and healthy food choices. Survey respondents voluntarily shared 296 examples that indicated changes in youths' knowledge. These youth successfully completed the evaluation activities written into each of the lessons, they were observed sharing what they learned with others including family and friends, they applied what they learned during lunch and snacks at the youth program or at home, and they asked more questions. There were 114 comments about knowledge changes that were directly mentioned nutrition topics such as food categories, MyPyramid, and trying and choosing healthy foods (as compared to general comments such as "transferred knowledge to something else"). Knowledge is the first step to changing attitudes and behaviors regarding healthy choices. Survey responses also indicated youth shared their knowledge with others, including family and friends. The increased enthusiasm and ability to learn and apply what is learned has a private value to children and youth of becoming capable, caring, contributing, and healthy individuals (and adults later in life) and a significant public value of health conscience citizens and leaders. Increasing nutritional literacy of children, youth, and adults can lower overweight/obesity rates, lower food borne illness rates, decrease health care costs, decrease school and work absences due to illness, increase interest in health and wellness fields, and strengthen efforts to sustain natural resources that provide us with the food we need to survive.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #8

1. Outcome Measures

As reported by educators, percentage of youth participating in CLL lessons who made healthy food choices; tried new foods; and made healthier food choices during snacks, lunch, and class parties.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	26

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity has more than tripled in 30 years. One in five adolescents is obese. If children are overweight between the ages of 12 to 21, they are 7 times more likely to be obese adults. From spring 2006 to spring 2007, the percentage of overweight/obese Iowa elementary-aged boys went from 18.4% to 36.3% and from 20.7% to 37.8% for girls. In 2007, the percentage of Iowa adults who were overweight or obese was 64.7% (1.9 million Iowans). In 2007, Iowa ranked 15th highest in obesity/overweight prevalence among all 54 states and territories. Iowa rankings on risk factors are slightly higher than national averages. Poor nutrition, lack of physical activity, family history, psychological factors, and family factors such as poverty level, food insecurity, and lack of understanding about how food and exercise affects health are prevalent across Iowa. This leads to increased prevalence of type 2 diabetes, metabolic syndrome, high cholesterol, high blood pressure, asthma, sleep disorders, early puberty, low self-esteem, bullying, behavior and learning problems, and depression.

Childhood obesity is everyone's problem. Individuals and families do not understand that they are the first line of defense against childhood obesity when it comes to choices about food and physical activity. The medical and insurance communities are ill equipped to handle the education and financial aspects of helping people deal with the complications of obesity. Obesity rates are higher in Iowa schools with higher participation in the free and reduced lunch programs and these same schools are the same ones that are "at risk" for academic achievement of their students. Only half of Iowa youth are meeting current recommendations of physical activity. One out of four

adults in a study reported no leisure time physical activity in a one-month period. Local communities to the President and First Lady are coming together to combat this serious problem.

What has been done
CLL training participants receive at least ten hours of nutrition lessons that they can use with youth. More than 7,000 educators have received CLL nutrition lessons during the past decade. They have the ability to teach important nutrition concepts to more than 120,000 youth each year. CLL lessons provide dozens of opportunities for youth to try new, healthy, easy-to prepare, fun foods in an effort to increase fruit and vegetable consumption and to eat a variety of foods from each of the MyPyramid food categories. If youth engage in gardening, they discover how sweet and wonderful fresh produce can be. Research indicates that kids are more likely to eat what they grow and/or prepare, try something new with peers rather than with parents, and eat tasty fruits and vegetables at the height of ripeness, all help to achieve this measured outcome. There are several CLL gardening lessons that enhance youths' understanding of their power to make healthy choices and promote healthy activities for their families and communities.

Results
In the 2009/2010 program year, 227 teachers and after school educators who completed an on-line survey indicated 26% of the youth who participated in CLL lessons tried new foods and made healthier food choices during lunch, snack breaks, and class parties. Specific healthier food choice changes included youth were more willing to try new foods (usually fruits and vegetables); chose healthy foods for meals, snacks, and parties; influenced others to choose healthy foods; and helped their parents shop for and plan meals around healthy foods. If the survey question had focused just on trying new foods, the actual percentage would have increased to over 75% because of the nature of the CLL curriculum that incorporates trying new foods within the lessons. In fact, 12,814 youth participants were reported to have tried the healthy food options incorporated within the CLL lessons and activities. Youths' positive experiences with healthy foods within CLL lessons translated into choosing to eat the same or similar healthy foods for lunch and snacks when meeting with friends at school and family members at home. The increased enthusiasm and ability to learn and apply what is learned has a private value to children and youth of becoming capable, caring, contributing, and healthy individuals (and adults later in life) and a significant public value of health conscience citizens and leaders. Increasing nutritional literacy of children, youth, and adults can lower overweight/obesity rates, lower food borne illness rates, decrease health care costs, decrease school and work absences due to illness, increase interest in health and wellness fields, and help reduce school lunchroom and home food waste.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #9

1. Outcome Measures

As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge regarding growing food from plants.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	94

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity has more than tripled in 30 years. One in five adolescents is obese. If children are overweight between the ages of 12 to 21, they are 7 times more likely to be obese adults. From spring 2006 to spring 2007, the percentage of overweight/obese Iowa elementary-aged boys went from 18.4% to 36.3% and from 20.7% to 37.8% for girls. In 2007, the percentage of Iowa adults who were overweight or obese was 64.7% (1.9 million Iowans). In 2007, Iowa ranked 15th highest in obesity/overweight prevalence among all 54 states and territories. Iowa rankings on risk factors are slightly higher than national averages. Poor nutrition, lack of physical activity, family history, psychological factors, and family factors such as poverty level, food insecurity, and lack of understanding about how food and exercise affects health are prevalent across Iowa. This leads to increased prevalence of type 2 diabetes, metabolic syndrome, high cholesterol, high blood pressure, asthma, sleep disorders, early puberty, low self-esteem, bullying, behavior and learning problems, and depression.

Childhood obesity is everyone's problem. Individuals and families do not understand that they are the first line of defense against childhood obesity when it comes to choices about food and physical activity. The medical and insurance communities are ill equipped to handle the education and financial aspects of helping people deal with the complications of obesity. Obesity rates are higher in Iowa schools with higher participation in the free and reduced lunch programs and these same schools are the same ones that are "at risk" for academic achievement of their students. Only half of Iowa youth are meeting current recommendations of physical activity. One out of four adults in a study reported no leisure time physical activity in a one-month period. Local communities to the President and First Lady are coming together to combat this serious problem.

What has been done
More than 100 CLL lessons reflect garden-based learning and growing plants for food. CLL started from an extensive study (1,400 Iowans) that revealed the lack of understanding by children and adults regarding where food comes from and their part in food systems and choices. Growing food from plants is addressed in almost every way possible in the CLL lessons. The most effective lessons/activities to teach this concept are those where youth actually plant and grow plants, both inside and outside, that produce food what they eat. These garden-based activities attract community partners such as Master Gardeners, avid gardeners, nutrition experts, local foods groups, and anyone interested in helping youth understand the importance of making connections with how food is grown and how youth can make healthy food and physical activity choices. A 2009-2010 CLL on-line evaluation survey revealed knowledge outcomes reported by

227 educators representing 12,814 youth that participated in CLL lessons during that time.

Results

In the 2009/2010 program year, 227 teachers and after school educators who completed an on-line survey indicated 94% of the youth who participated in CLL lessons and activities increase their knowledge regarding growing food from plants. Overwhelmingly, teach/educator responses to the on-line survey indicated youth were more engaged/participatory/attentive/excited during and after CLL lessons and activities as compare to prior health and food origin type lessons/activities. The CLL survey revealed that more than 3,000 youth planted gardens at 157 sites statewide. The CLL survey, along with other studies from Cornell, National Gardening Association, and garden programs across the U.S. and world reveal that gardening enhances children, youths', and adults' academic performance; physical activity; healthy eating; positive attitudes about environmental issues; social and moral development; vocational or subsistence skills; and life skills. Additionally, a $70 investment in seeds and plants in a well-maintained garden will produce nearly $600 worth of healthy foods making it a sustainable choice for families facing tough economic times. Shipping produce into Iowa uses 4 to 17 times more fuel and releases 5 to 17 times more CO2 from the burning of the fuel compared to Iowa-based regional and local food systems. Gardening also provides opportunities for communities to dialogue; build capacity; develop partnerships; organize individuals for action; promote food security; link people to sustainable development; prepare individuals for careers, hobbies and civic engagement in agriculture, natural resource management, nutrition and science; transform schools and other public and private areas into attractive and productive learning centers for everyone. Between 2008 and 2009, there was a 19% rise in gardening in the United States. Gardening is the number one leisure activity in the U.S. In 2008 gardeners spent a total of $2.5 billion to purchase gardening supplies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #10

1. Outcome Measures

As reported by educators, percentage of youth gardeners participating in CLL lessons who improve their vegetable consumption and exercise habits.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Childhood obesity has more than tripled in 30 years. One in five adolescents is obese. If children are overweight between the ages of 12 to 21, they are 7 times more likely to be obese adults. From spring 2006 to spring 2007, the percentage of overweight/obese Iowa elementary-aged boys went from 18.4% to 36.3% and from 20.7% to 37.8% for girls. In 2007, the percentage of Iowa adults who were overweight or obese was 64.7% (1.9 million Iowans). In 2007, Iowa ranked 15th highest in obesity/overweight prevalence among all 54 states and territories. Iowa rankings on risk factors are slightly higher than national averages. Poor nutrition, lack of physical activity, family history, psychological factors, and family factors such as poverty level, food insecurity, and lack of understanding about how food and exercise affects health are prevalent across Iowa. This leads to increased prevalence of type 2 diabetes, metabolic syndrome, high cholesterol, high blood pressure, asthma, sleep disorders, early puberty, low self-esteem, bullying, behavior and learning problems, and depression.

Childhood obesity is everyone's problem. Individuals and families do not understand that they are the first line of defense against childhood obesity when it comes to choices about food and physical activity. The medical and insurance communities are ill equipped to handle the education and financial aspects of helping people deal with the complications of obesity. Obesity rates are higher in Iowa schools with higher participation in the free and reduced lunch programs and these same schools are the same ones that are "at risk" for academic achievement of their students. Only half of Iowa youth are meeting current recommendations of physical activity. One out of four adults in a study reported no leisure time physical activity in a one-month period. Local communities to the President and First Lady are coming together to combat this serious problem. Gardening has many health benefits and is a proven method that addresses issues such fighting childhood obesity, increasing fruit and vegetable consumption, getting children outside, increasing physical activity, learning and practicing concepts and skills that will last a life time, engaging in sustainable practices, etc.

What has been done
CLL includes a Growing in the Garden: Outdoor Classrooms for Young Gardeners guide, Leader's Guide, and Garden Journal. This is a Growing in the Garden curriculum supplement that includes more than 40 activities to work with a garden and young gardeners. The primary Growing in the Garden curriculum has six garden or outdoor classroom lessons. These lessons incorporate several strategies or activities that encourage youth to increase fruit and vegetable consumption and physical activity - beyond actually gardening and eating what they harvest. It would be nearly impossible to engage in these CLL gardening activities and not increase your vegetable consumption and physical activity. A 2009-2010 CLL on-line evaluation survey revealed knowledge outcomes reported by 227 educators representing 12,814 youth that participated in CLL lessons during that time.

Results
In the 2009/2010 program year, 172 teachers and after school educators who completed an on-line survey indicated 100% of the youth who participated in CLL lessons and activities and

engaged in outdoor or greenhouse gardening, improved their vegetable consumption and exercise habits. Survey responses indicated youth were filled with more excitement, were increasing vegetable consumption and physical activity, and were eager to share what they learned with family and others. Youth will eat what they grow or prepare, and the fresh, ready-to-eat garden vegetables taste extra sweet and delicious. This leads to youth and their families increasing their vegetable consumption. The act of gardening and getting outside provides a venue to increase physical activity. Observations and related studies reveal there is a slight decline in vegetable consumption after gardening activities conclude and the produce has been consumed. However, gardening excitement and eating foods fresh from the garden remain strong in youth until the next planting season. CLL evaluations support other research that indicates children are more likely to eat what they grow because of the satisfaction of growing it, home-grown food is fresher and tastes better, and trying new foods with friends is fun. Additionally, CLL evaluations reveal that parents often comment their children have never eaten vegetables and are now requesting them and helping to shop for them at the grocery store. Increasing fruit and vegetable consumption combined with the fact that gardening burns three times more energy than being sedentary leads to healthier children, youth, families, and communities. Reducing obesity, reducing risks of disease, lowering blood pressure and cholesterol levels, preventing diabetes and heart disease, and building stronger bodies is a win-win for children, youth, and adults. With 8- to 18-year-olds sitting in front of a screen on an average of 8 hours a day and spending less time outdoors, gardening is an excellent healthy and physical alternative. Economically, gardening directly saves on grocery bills, medical expenses, and makes people more active and productive citizens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #11

1. Outcome Measures

Percentage of 4-H'ers ages 12-18 taking the FSQA certification test who self-report improved techniques and practices in livestock drug injections, record keeping, and food product safety and biosecurity.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	92

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Providing a safe and healthy food supply has always been a key issue to the American consumer, but in recent years this issue has become even more important to consumers, wholesale distributors, restaurant chains, and foreign export markets with the recall of various foods and the outbreak of food-borne illnesses. Not only details on treatments and/or medications given to animals, but also how animals have been raised and treated throughout their lives has become front page news both locally and nationally. Consequently, livestock producers continually strive to improve management practices to ensure American citizens have the safest food supply in the world.

What has been done

A comprehensive food safety and quality assurance curriculum program (FSQA) is conducted each year for 4-H'ers in grades 4-12. Through the use of a variety of educational materials including video tutorials and hands-on learning, youth learn about animal identification, source verification (when and where the animals are born and raised), biosecurity measures (cleanliness techniques, disease contamination, on-farm disease transmission), drug treatments and injections, quality record keeping, and appropriate animal handling and welfare requirements.

Results

In the 2009/2010 program year, 125 randomly selected 4-H youth were surveyed regarding how their FSQA techniques and practices were changed in the areas of record keeping, drug injections/feed additives, food product safety, and biosecurity. 91.8% of the youth responded they changed their food security practices and techniques a little, some, quite a bit, or a great deal after participating in food safety and quality assurance (FSQA) training. Each year, the meat industry spends over $80 million nationally in meat inspection costs. Much of this cost could be reduced at the producer level by educating youth on how to appropriately treat and handle animals. Knowing that a single disease outbreak or a food recall can cause irreversible damage to the U.S. markets, it's imperative to continue educating youth on the important topics that are covered in the FSQA curriculum. For example, 4-H'ers and livestock producers are being rewarded for superior meat products and for raising animals in specific environmental conditions. 4-H'ers who sell beef animals with no antibiotic treatments can receive a premium increase of anywhere between $.05 -$.10/pound. Additionally, Iowa is the top state for both hog production and egg layer production producing more than $10 billion in livestock value across all commodities, and also generates millions of dollars in agricultural jobs within the state economy. As Iowa's future farmers and livestock producers, Iowa 4-H youth play a vitally key role in increasing Iowa's agricultural job growth and economic prosperity, and as such, require top notch food safety and quality assurance (FSQA) training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #12

1. Outcome Measures

Number of youth participating in 4-H programming and educational activities on sustainable energy to increase knowledge of what sustainable energy means, the importance of sustainable energy, and/or promising sustainable energy technologies.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2426

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The renewable energy sector is a major focus for the development and expansion of Iowa's economic engine. Currently Iowa is a leader in research and development of renewable energy technologies. With manufacturing (20.8% of Iowa's GDP) and agriculture (6.4% of Iowa's GDP) as two of Iowa's largest economic sectors, there is great potential for shifting much of Iowa's land and resources to the production of renewable fuels such as biofuels, wind, geothermal, and solar energy. Given Iowa's position, as well as the increasing national and global call for energy independence and sustainable energy practices, it is imperative that Iowa's youth become familiar with the science, research, and technology behind renewable energy sources. As our future workforce members; entrepreneurs; local community leaders; and as citizens of an increasingly interconnected, global community; Iowa's youth also need to develop the reasoning skills that will allow them to evaluate claims, research, and the pros and cons of current and future renewable energy science and technologies.

What has been done
Through 4-H programming, 2426 Iowa youth were provided educational opportunities to increase their knowledge of sustainable energy science, resources, uses, and technologies through workshops, school enrichment activities, sustainable energy themed camps, and club and individual project work on sustainable energy topics such as wind power, hydroelectric power, and technologies which reduce electricity consumption. Programming utilized 4-H curriculum such as The Power of Wind, Extension resources such as value added agriculture materials, and other science education resources such as the National Energy Education Development kits.

Results

In the 2009/2010 program year, 108 Iowa adult 4-H staff and volunteers were trained to engage youth in renewable energy concepts such as the science and technology behind renewable energy and the use, sources, and social/environmental consequences of renewable energy. Trained adults reached 2,426 Iowa 4-H youth with renewable energy programming. Through Iowa 4-H programming and educational activities, youth gained knowledge and skills that will help them grow into responsible employees, citizens, and decision makers. As future Iowa employees and entrepreneurs, these 4-H youth can use the scientific reasoning, engineering design skills, and background knowledge on renewable energy technologies and issues to open more career doors and broaden the success of Iowa-based renewable energy technology companies. Currently Iowa is the second largest wind energy producing state in the nation and is a major producer of biofuels. As Iowa companies look to expand Iowa's green economy, it benefits both Iowa and the nation for youth to acquire the knowledge and skills necessary to contribute to green industries as employees, researchers, innovators, and entrepreneurs. As Iowa's upcoming workforce, youth benefit from the foundation built through 4-H programming in the growing field of renewable energy. Additionally, as citizens of Iowa's communities, local communities benefit from youth who are current, and the future, decision makers and leaders to be more scientifically literate and to have the reasoning skills necessary to evaluate claims, research, and the pros and cons of current and future renewable energy science and technologies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #13

1. Outcome Measures

Percentage of pre-service teachers and educators who participate in CLL training will self-report a 1 to 3-point increase in confidence/knowledge in teaching MyPyramid concepts and the origins of food.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	63

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood obesity has more than tripled in 30 years. One in five adolescents is obese. If children are overweight between the ages of 12 to 21, they are 7 times more likely to be obese adults. From spring 2006 to spring 2007, the percentage of overweight/obese Iowa elementary-aged boys went from 18.4% to 36.3% and from 20.7% to 37.8% for girls. In 2007, the percentage of Iowa adults who were overweight or obese was 64.7% (1.9 million Iowans). In 2007, Iowa ranked 15th highest in obesity/overweight prevalence among all 54 states and territories. Iowa rankings on risk factors are slightly higher than national averages. Poor nutrition, lack of physical activity, family history, psychological factors, and family factors such as poverty level, food insecurity, and lack of understanding about how food and exercise affects health are prevalent across Iowa. This leads to increased prevalence of type 2 diabetes, metabolic syndrome, high cholesterol, high blood pressure, asthma, sleep disorders, early puberty, low self-esteem, bullying, behavior and learning problems, and depression.

Childhood obesity is everyone's problem. Individuals and families do not understand that they are the first line of defense against childhood obesity when it comes to choices about food and physical activity. The medical and insurance communities are ill equipped to handle the education and financial aspects of helping people deal with the complications of obesity. Obesity rates are higher in Iowa schools with higher participation in the free and reduced lunch programs and these same schools are the same ones that are "at risk" for academic achievement of their students. Only half of Iowa youth are meeting current recommendations of physical activity. One out of four adults in a study reported no leisure time physical activity in a one-month period. Local communities to the President and First Lady are coming together to combat this serious problem.

What has been done

Connecting Learning and Living (CLL) lessons and training are responsive to agricultural, environmental, and nutritional needs to sustain food supply systems and to live healthy and productive lives. CLL connects school classroom and out-of-school learning with real life circumstances by engaging youth in lessons and activities about Iowa's and the nation's food systems - from natural resources to making choices about the food we eat. During CLL training, pre-service teachers from across the state learn about CLL topics by completing curriculum lessons. Participants received nutrition lessons based on MyPyramid.

Results

In the 2009/2010 program year, CLL trainings provided 628 educators with deeply aligned educational and youth development lessons, confidence, and inspiration to effectively teach MyPyramid and the origins of food concepts. Every training participant received a nutrition lesson to do in his/her youth program. More than 70% of participants actually did one of the lessons such as "MyPyramid Hop 'n Shop" or "MyPyramid Awesome Armed Forces" during the training session. Pre and post workshop surveys were completed by training participants. Of the 628 participants who completed the pre-post survey, 63% indicated a 1-point increase or greater in their confidence/knowledge in teaching MyPyramid and the origins of food concepts. The percentage increase is lower than expected due to the fact that some pre-service teachers in agriculture education and educators only interested in environmental lessons did not participate in nutrition lessons during the training. This is likely why the actual percentage turned out lower than expected.

The experiential method (hands-on) of CLL trainings combined with providing educators with life skill based, comprehensive, flexible, deeply aligned lessons that are easy to facilitate, translates into increased annual use of the lessons with children. Teachers are 90% more likely to use the lessons they have experienced themselves. When 628 training participants use the lessons, they will reach and empower more than 12,000 children and youth each year with the knowledge and skills to make healthier food and physical activity choices that can reduce the primary factors

causing childhood obesity.

Additionally, CLL training costs and curricula development expenses are covered by grants, donations, and curriculum sales; a savings of approximately $94,000. Normally the cost of the training and curriculum would be incurred by educators, school districts, after school programs, communities, and nutrition and health partners.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #14

1. Outcome Measures

Number of youth participating in 4-H programming and educational activities on climate change to increase their knowledge of the causes and/or consequences of climate change.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	784

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In a recent collaborative report, including Iowa State contributors Gene Takle, professor of geological and atmospheric sciences and agronomy who directs ISU's Climate Science Program; Richard Cruse, professor of agronomy; Dave Swenson, associate scientist in economics; and Natalia Rogovska, a post-doctoral research associate in agronomy, scientists reported that global climate change is having significant detrimental effects on Iowa. More rainfall, higher temperatures, longer growing seasons, strengthened breeding conditions for agricultural pests, flooding, increased severe weather, and storm-induced property damage, have significantly impacted Iowa's largest economic sectors including: manufacturing (20.8% of Iowa's GDP - much of which is tied to Iowa's agricultural production), insurance (10.5% of Iowa's GDP), and agriculture (6.4% of Iowa's GDP). With issues surrounding climate change constantly in the news and significantly impacting Iowa's largest economic sectors, it is imperative to Iowa's economic growth that our youth become familiar with the science and research behind this field of study. Additionally, as Iowa's future workforce members, community leaders, and citizens of an

increasingly interconnected, global community in which decisions often have consequences felt across the globe, Iowa's youth need to develop a solid understanding of climate change concepts and reasoning skills that will allow them to evaluate climate change research and claims.

What has been done

Through 4-H programming, 784 Iowa youth were provided educational opportunities to increase their knowledge of climate change concepts such as environmental conditions that lead to climate change, the consequences of global warming, and the technologies used to collect climate data through workshops, school enrichment activities, climate themed camps, and club and individual project work. Programming provided during these in- and out-of-school opportunities utilized 4-H curriculum such as Antarctica's Climate Secrets, Extension resources such as environmental agriculture materials, and other science education resources such as those available through NASA and NOAA (National Oceanic and Atmospheric Administration).

Results

In the 2009/2010 program year, 47 Iowa adult 4-H staff and volunteers were trained to engage youth in the science of climate change research, consequences of climate change, sustainability practices, energy use reduction technologies and behaviors, and carbon footprint concepts. Trained adults reached 784 Iowa 4-H youth with climate change programming. Through Iowa 4-H programming and educational activities, youth gained knowledge and skills that will help them grow into responsible employees, citizens, and decision makers. As future employees and entrepreneurs, these 4-H youth can use the scientific reasoning skills and background knowledge on climate change issues to advance their careers and broaden the success of Iowa-based and national companies which must adapt to changing climate conditions, sustain limited resources, and reduce their environmental carbon footprint. As Iowa's upcoming workforce, youth benefit from the foundation built through 4-H programming in climate change fields of study. As Iowa companies look to protect and expand Iowa's largest economic sectors in manufacturing, agriculture, and insurance, it benefits both Iowa and the nation for youth to acquire the knowledge and skills necessary to contribute to climate change preventative sustainable practices and policies as employees, researchers, innovators, and entrepreneurs. Additionally, as citizens of Iowa's communities, local communities benefit from youth who are current, and the future, decision makers and leaders to be more scientifically literate and to have the reasoning skills necessary to evaluate climate change research and claims.

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, continue to impact the ability to maintain a critical level of 4-H program staff for priority needs. State

appropriations for FY 2010 were reduced approximately 11% from FY 2009. While supplemented in part with ARRA funds, the budget reductions resulted in elimination of positions, hiring delays, and required furloughs for all staff. ARRA funds were used primarily on several Kaizen events to improve efficiencies and lean program efforts. However, when combined with the continuing efforts to realign our system as a result of reorganization in FY 2010 and the integration of the Iowa 4-H and Families extension units, more efforts have been spent on improving system efficiencies and structure than on youth and volunteer outcomes. The previous POW teams were dissolved which impacted outcome assessment processes on some previously identified outcomes. Staff program emphasis is being placed on long-term 4-H experiences with less attention given to short-term, indirect youth contact experiences. We believe these efforts will position our program for future success.

Moreover, the Iowa K-12 youth and adult populations are continuing to steadily decrease cross 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. Acceptance by current 4-H staff and volunteers of innovative and emerging 4-H club models is critical to implementing county expansion plans as is often challenging. Despite these challenges, there was an increase in FY 2010 in the number of new innovative 4-H club models developed across the state, along with significant changes identified and implemented to improve program efficiencies.

Unmet Climate Change and Sustainable Energy Outcomes -

Iowa 4-H has not historically collected data on program impact relating to climate change and sustainable energy. In order to gather data a survey was developed and distributed to both 4-H staff and youth involved in these two program areas. The survey response was limited and did not yield significant data. A major problem that could be causal in response rate was that nature of youth program events relating to these areas. The youth involved were largely participants in single events such as camps or school enrichment and these youth were problematic to reach with a post event survey. Methods to reach youth in these events are in the process of being developed to remedy this deficiency in the 4-H data gathering system.

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

Evaluation Results

Program Evaluation/Research

- **Iowa 4-H Campus Census Survey: Anticipated Outcomes**
  - Demonstrate breadth of 4-H influence on ISU campus
  - Obtain contact information for campus-based 4-H alumni
  - Increase the 4-H Program's campus-based volunteer pool
  - Broaden 4-H partnerships in areas such as marketing, research, and subject area expertise

- **(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 for recruiting a stratified sample of youth
  - Demonstrate congruity between NCR and national data regarding the presence of

the 5 C's of positive youth development in the lives of 4-H'ers

- **(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
  - Identify 4 H program practices and structures that contribute to networking and the development of social capital

Key Items of Evaluation

CHILDHOOD OBESITY

Measure 1: Percentage of pre-service teachers and educators who participate in CLL training will self-report a 1 to 3-point increase in confidence/knowledge in teaching MyPyramid concepts and the origins of food.

Result:
In the 2009/2010 program year, CLL trainings provided 628 educators with deeply aligned educational and youth development lessons, confidence, and inspiration to effectively teach MyPyramid and the origins of food concepts. Every training participant received a nutrition lesson to do in his/her youth program. More than 70% of participants actually did one of the lessons such as "MyPyramid Hop 'n Shop" or "MyPyramid Awesome Armed Forces" during the training session. Pre and post workshop surveys were completed by training participants. Of the 628 participants who completed the pre-post survey, 63% indicated a 1-point increase or greater in their confidence/knowledge in teaching MyPyramid and the origins of food concepts. The percentage increase is lower than expected due to the fact that some pre-service teachers in agriculture education and educators only interested in environmental lessons did not participate in nutrition lessons during the training. This is likely why the actual percentage turned out lower than expected.

The experiential method (hands-on) of CLL trainings combined with providing educators with life skill based, comprehensive, flexible, deeply aligned lessons that are easy to facilitate, translates into increased annual use of the lessons with children. Teachers are 90% more likely to use the lessons they have experienced themselves. When 628 training participants use the lessons, they will reach and empower more than 12,000 children and youth each year with the knowledge and skills to make healthier food and physical activity choices that can reduce the primary factors causing childhood obesity.

Additionally, CLL training costs and curricula development expenses are covered by grants, donations, and curriculum sales; a savings of approximately $94,000. Normally the cost of the training and curriculum would be incurred by educators, school districts, after school programs, communities, and nutrition and health partners.

Measure 2: As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge of the MyPyramid and making healthy food choices.

Result:
The CLL evaluation survey revealed that 80% of the 12,814 youth participating in CLL

lessons increased their knowledge of MyPyramid and healthy food choices. Survey respondents voluntarily shared 296 examples that indicated changes in youths' knowledge. These youth successfully completed the evaluation activities written into each of the lessons, they were observed sharing what they learned with others including family and friends, they applied what they learned during lunch and snacks at the youth program or at home, and they asked more questions. There were 114 comments about knowledge changes that were directly mentioned nutrition topics such as food categories, MyPyramid, and trying and choosing healthy foods (as compared to general comments such as "transferred knowledge to something else"). Knowledge is the first step to changing attitudes and behaviors regarding healthy choices. Survey responses also indicated youth shared their knowledge with others, including family and friends. The increased enthusiasm and ability to learn and apply what is learned has a private value to children and youth of becoming capable, caring, contributing, and healthy individuals (and adults later in life) and a significant public value of health conscience citizens and leaders. Increasing nutritional literacy of children, youth, and adults can lower overweight/obesity rates, lower food borne illness rates, decrease healthcare costs, decrease school and work absences due to illness, increase interest in health and wellness fields, and strengthen efforts to sustain natural resources that provide us with the food we need to survive.

Measure 3: As reported by educators, percentage of youth participating in CLL lessons who made healthy food choices; tried new foods; and made healthier food choices during snacks, lunch, and class parties.

Result:
In the 2009/2010 program year, 227 teachers and after school educators who completed an on-line survey indicated 26% of the youth who participated in CLL lessons tried new foods and made healthier food choices during lunch, snack breaks, and class parties. Specific healthier food choice changes included youth were more willing to try new foods (usually fruits and vegetables); chose healthy foods for meals, snacks, and parties; influenced others to choose healthy foods; and helped their parents shop for and plan meals around healthy foods. If the survey question had focused just on trying new foods, the actual percentage would have increased to over 75% because of the nature of the CLL curriculum that incorporates trying new foods within the lessons. In fact, 12,814 youth participants were reported to have tried the healthy food options incorporated within the CLL lessons and activities. Youths' positive experiences with healthy foods within CLL lessons translated into choosing to eat the same or similar healthy foods for lunch and snacks when meeting with friends at school and family members at home. The increased enthusiasm and ability to learn and apply what is learned has a private value to children and youth of becoming capable, caring, contributing, and healthy individuals (and adults later in life) and a significant public value of health conscience citizens and leaders. Increasing nutritional literacy of children, youth, and adults can lower overweight/obesity rates, lower food borne illness rates, decrease healthcare costs, decrease school and work absences due to illness, increase interest in health and wellness fields, and help reduce school lunchroom and home food waste.

Measure 4: As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge regarding growing food from plants.

Result:
In the 2009/2010 program year, 227 teachers and after school educators who completed an on-line survey indicated 94% of the youth who participated in CLL lessons and activities

increase their knowledge regarding growing food from plants. Overwhelmingly, teach/educator responses to the on-line survey indicated youth were more engaged/participatory/attentive/excited during and after CLL lessons and activities as compare to prior health and food origin type lessons/activities. The CLL survey revealed that more than 3,000 youth planted gardens at 157 sites statewide. The CLL survey, along with other studies from Cornell, National Gardening Association, and garden programs across the U.S. and world reveal that gardening enhances children, youths', and adults' academic performance; physical activity; healthy eating; positive attitudes about environmental issues; social and moral development; vocational or subsistence skills; and life skills. Additionally, a $70 investment in seeds and plants in a well-maintained garden will produce nearly $600 worth of healthy foods making it a sustainable choice for families facing tough economic times. Shipping produce into Iowa uses 4 to 17 times more fuel and releases 5 to 17 times more CO2 from the burning of the fuel compared to Iowa-based regional and local food systems. Gardening also provides opportunities for communities to dialogue; build capacity; develop partnerships; organize individuals for action; promote food security; link people to sustainable development; prepare individuals for careers, hobbies and civic engagement in agriculture, natural resource management, nutrition and science; transform schools and other public and private areas into attractive and productive learning centers for everyone. Between 2008 and 2009, there was a 19% rise in gardening in the United States. Gardening is the number one leisure activity in the U.S. In 2008 gardeners spent a total of $2.5 billion to purchase gardening supplies.

Measure 5: As reported by educators, percentage of youth gardeners participating in CLL lessons who improve their vegetable consumption and exercise habits.

Result:
In the 2009/2010 program year, 172 teachers and after school educators who completed an on-line survey indicated 100% of the youth who participated in CLL lessons and activities and engaged in outdoor or greenhouse gardening, improved their vegetable consumption and exercise habits. Survey responses indicated youth were filled with more excitement, were increasing vegetable consumption and physical activity, and were eager to share what they learned with family and others. Youth will eat what they grow or prepare, and the fresh, ready-to-eat garden vegetables taste extra sweet and delicious. This leads to youth and their families increasing their vegetable consumption. The act of gardening and getting outside provides a venue to increase physical activity. Observations and related studies reveal there is a slight decline in vegetable consumption after gardening activities conclude and the produce has been consumed. However, gardening excitement and eating foods fresh from the garden remain strong in youth until the next planting season. CLL evaluations support other research that indicates children are more likely to eat what they grow because of the satisfaction of growing it, home-grown food is fresher and tastes better, and trying new foods with friends is fun. Additionally, CLL evaluations reveal that parents often comment their children have never eaten vegetables and are now requesting them and helping to shop for them at the grocery store. Increasing fruit and vegetable consumption combined with the fact that gardening burns three times more energy than being sedentary leads to healthier children, youth, families, and communities. Reducing obesity, reducing risks of disease, lowering blood pressure and cholesterol levels, preventing diabetes and heart disease, and building stronger bodies is a win-win for children, youth, and adults. With 8 to 18 year-olds sitting in front of a screen on an average of 8 hours a day and spending less time outdoors, gardening is an excellent healthy and physical alternative. Economically, gardening directly saves on grocery bills, medical expenses, and makes people more active and productive citizens.

FOOD SAFETY

Measure 1: Percentage of 4-H'ers ages 12-18 taking the FSQA certification test who self-report improved techniques and practices in livestock drug injections, record keeping, and food product safety and biosecurity.

Result:

In the 2009/2010 program year, 125 randomly selected 4-H youth were surveyed regarding how their FSQA techniques and practices were changed in the areas of record keeping, drug injections/feed additives, food product safety, and biosecurity. 91.8% of the youth responded they changed their food security practices and techniques a little, some, quite a bit, or a great deal after participating in food safety and quality assurance (FSQA) training. Each year, the meat industry spends over $80 million nationally in meat inspection costs. Much of this cost could be reduced at the producer level by educating youth on how to appropriately treat and handle animals. Knowing that a single disease outbreak or a food recall can cause irreversible damage to the U.S. markets, it's imperative to continue educating youth on the important topics that are covered in the FSQA curriculum. For example, 4-H'ers and livestock producers are being rewarded for superior meat products and for raising animals in specific environmental conditions. 4-H'ers who sell beef animals with no antibiotic treatments can receive a premium increase of anywhere between $.05 -$.10/pound. Additionally, Iowa is the top state for both hog production and egg layer production producing more than $10 billion in livestock value across all commodities, and also generates millions of dollars in agricultural jobs within the state economy. As Iowa's future farmers and livestock producers, Iowa 4-H youth play a vitally key role in increasing Iowa's agricultural job growth and economic prosperity, and as such, require top notch food safety and quality assurance (FSQA) training.

SUSTAINABLE ENERGY

Measure 1: Percentage of youth participating in sustainable energy workshops who self-report increased knowledge of what sustainable energy means, the importance of sustainable energy, and/or promising sustainable energy technologies.

Result:

In the 2009/2010 program year, 108 Iowa adult 4-H staff and volunteers were trained to engage youth in renewable energy concepts such as the science and technology behind renewable energy and the use, sources, and social/environmental consequences of renewable energy. Trained adults reached 2,426 Iowa 4-H youth with renewable energy programming. Through Iowa 4-H programming and educational activities, youth gained knowledge and skills that will help them grow into responsible employees, citizens, and decision makers. As future Iowa employees and entrepreneurs, these 4-H youth can use the scientific reasoning, engineering design skills, and background knowledge on renewable energy technologies and issues to open more career doors and broaden the success of Iowa-based renewable energy technology companies. Currently Iowa is the second largest wind energy producing state in the nation and is a major producer of biofuels. As Iowa companies look to expand Iowa's green economy, it benefits both Iowa and the nation for youth to acquire the knowledge and skills necessary to contribute to green industries as employees, researchers, innovators, and entrepreneurs. As Iowa's upcoming workforce, youth benefit from the foundation built through 4-H programming in the growing field of renewable energy. Additionally, as citizens of Iowa's communities, local communities benefit from youth who are current, and the future, decision makers and leaders to be more scientifically literate and to have the reasoning skills necessary to evaluate claims, research,

and the pros and cons of current and future renewable energy science and technologies.

CLIMATE CHANGE

Measure 1: Percentage of youth participating in climate change workshops who self-report increased knowledge of the causes and/or consequences of climate change.

Result:

In the 2009/2010 program year, 47 Iowa adult 4-H staff and volunteers were trained to engage youth in the science of climate change research, consequences of climate change, sustainability practices, energy use reduction technologies and behaviors, and carbon footprint concepts. Trained adults reached 784 Iowa 4-H youth with climate change programming. Through Iowa 4-H programming and educational activities, youth gained knowledge and skills that will help them grow into responsible employees, citizens, and decision makers. As future employees and entrepreneurs, these 4-H youth can use the scientific reasoning skills and background knowledge on climate change issues to advance their careers and broaden the success of Iowa-based and national companies which must adapt to changing climate conditions, sustain limited resources, and reduce their environmental carbon footprint. As Iowa's upcoming workforce, youth benefit from the foundation built through 4-H programming in climate change fields of study. As Iowa companies look to protect and expand Iowa's largest economic sectors in manufacturing, agriculture, and insurance, it benefits both Iowa and the nation for youth to acquire the knowledge and skills necessary to contribute to climate change preventative sustainable practices and policies as employees, researchers, innovators, and entrepreneurs. Additionally, as citizens of Iowa's communities, local communities benefit from youth who are current, and the future, decision makers and leaders to be more scientifically literate and to have the reasoning skills necessary to evaluate climate change research and claims.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Families: Expanding Human Potential

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	5%		0%	
703	Nutrition Education and Behavior	40%		0%	
704	Nutrition and Hunger in the Population	5%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	10%		0%	
801	Individual and Family Resource Management	15%		0%	
802	Human Development and Family Well-Being	15%		0%	
805	Community Institutions, Health, and Social Services	10%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	60.0	0.0	0.0	0.0
Actual	58.7	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**
1357351	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1357351	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
3480120	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Training such as Partnering With Parents and Family Development Certification Training are five month educational opportunities and Parenting in Communities is 18 months long. Educational programs were directed toward individuals, families, professionals and community leaders through multiple methods -- classes, web-based programs, workshops, and mass media to strengthen their knowledge and skills.

117,772 adults and youth, directly and indirectly, were reached through ISUE parenting education efforts. 25,366 adults (parents and professionals) and youth were reached through direct contact and 92,406 were reached through indirect contact. 20,368 parents and 2,290 professionals who deliver parent/family education to parents were reached through sequential parenting education workshop series, one-session workshops, as well as parenting education/family development curricula and certification training programs. The trainings addressed understanding parent and child development; developmentally appropriate guidance; strengthening parent/child interaction and communication; family literacy; preventing substance abuse and core competencies for family and parenting professionals. Professionals trained by ISUE reached 14,500 parents through parenting education workshops and home visits. 15,580 parents participated in parenting fairs and ISUE online communities and received ISUE parenting newsletters. Another 7,000 parents and professionals were exposed to Strengthening Families Program 10-14 through presentations at national and local meetings and open houses at schools. 16,586 youth were involved in in-depth parenting/family education workshop series (i.e., Family Story Teller; Strengthening Families Program: Parents and Youth 10-14). An additional 40,236 youth were reached through parenting education programs conducted by professionals that ISUE trained to deliver parenting education.

9,960 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. 321 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 72% of all Iowa child care centers and preschools participated in the Iowa Better Kid care New Staff Orientation Program. 1,026 child care preschool teachers received 16 hours of instruction and completed activity assignments specific to their worksite. 138 child care center directors received instruction in new staff orientation, staff feedback and coaching procedures. 927 child care professionals participated in early learning webinars, 95 percent of these participants reported making one or more program improvements. There were 3,686,007 page views on the National Network for Child Care website, representing 2,315,432 visits. There were 118,253 page views and 26,285 visits to ISUE child care websites.

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 producers, 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. The Spend Smart Eat Smart website was revised according to a needs and preference study conducted on the target audience. Live Healthy Iowa (adult) and Live Healthy Iowa - kids (youth) programs encouraged physical activity and healthful eating using the team concept. Expanded Food and Nutrition Education and Food Stamp Nutrition Education Programs delivered basic nutrition information utilizing paraprofessional educators to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and 4-H Youth Development, with partnership and support of Extension faculty. Over 350,000 nutrition calendars were purchased by 35 states to support nutrition education for low income families. Cooking DVDs, a supplementary product for the calendar, sold over 2000 copies. 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 the growing problem of food availability. Approximately 750 childcare providers attended training over a nine-month period of time during this report. Professional development for food and nutrition professionals was delivered via Current Issues in Nutrition (CIN) webinar to participants in 32 states and 2 international sites. 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, included 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, allergen controls, cleaning and sanitizing, handwashing, food stands, canning and food preservation. Health fairs, 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.

2. Brief description of the target audience

Audiences included parents of young children and teens, young mothers, families with lower incomes, caregivers of children and adults, family support workers (including parenting educators), couples, athletes, coaches, health professionals, worksite employees, food service managers, food processors, policy makers, businesses, community citizens and leaders, home improvement contractors, caregivers of children and adults, school staff, food service, and commodity groups.

Certification and food safety educational programs were presented to adults and youths with an 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.

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 (food service personnel, nurses) and students, parents of young children participating in EFNEP/FSNE (limited income families), NEST(low income parent education program), and WIC programs, childcare workers including Headstart, HOPES(family support home visitor program) 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 people via the Iowa State University Extension food safety website. For example, in August 2010, there were 15,000 hits and close to 4,000 views to the school HACCP web pages, which includes training tools and HACCP Standard Operating Procedure templates. Kindergarten - Grade 12 schools are required to have a food safety plan based on HACCP principles; ISUE resources are widely used by districts throughout the country as part of their districts' plans.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	141562	1075469	29401	99481

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	18	4	0

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, couple relationships, aging and housing.

Year	Actual
2010	37244

Output #2

Output Measure

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

Year	Actual
2010	12250

Output #3

Output Measure

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

Year	Actual
2010	10895

Output #4

Output Measure

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

Year	Actual
2010	3632

Output #5

Output Measure

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

Year	Actual
2010	3886

Output #6

Output Measure

- Number of community groups formed to address a public issue.

Year	Actual
2010	11

Output #7

Output Measure

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

Year	Actual

2010	87765

Output #8

Output Measure

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

Year	Actual
2010	6192

Output #9

Output Measure

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

Year	Actual
2010	460

Output #10

Output Measure

- Number of youth participants in Extension programs on food, nutrition and health.

Year	Actual
2010	25377

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.
5	Number of individuals improving personal and family financial management skills.
6	Number of individuals strengthening consumer decision making skills.
7	Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.
8	Number of adult participants who improve their diet.
9	Number of adult participants who increase their minutes of activity.
10	Number of communities that take steps to reduce food insecurity.
11	Number of participants certified in food safety programs.
12	Number of youth participants in Extension programs on food, nutrition and health.

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
2010	3500	937

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Research reveals that lack of parenting knowledge and skills common among parents/caregivers who abuse children. Additionally, reading literacy is key to academic success for children and family well-being. Pressure has increased at the state and local level to fund family support and parenting programs with proven impacts. Increased delinquency and violence among adolescents alarmed the public during the past decade and challenged the juvenile justice system. Increases in delinquency and violence over the past decade are rooted in 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. Strengthening Families Program (SFP) 10-14, an evidence-based program brings together parents and their 10- to 14- year-old children, to reduce substance abuse and other problem behaviors in youth. Family Story Teller is an evidence-based family literacy program for parents and young children. Partnering with Parents is a professional development series shown to strengthen core knowledge and skills of parenting educators.

What has been done
Strengthening Families Program (SFP) 10-14, an evidence-based program brings together parents and their 10- to 14-year-old children, to reduce substance abuse and other problem behaviors in youth. Professionals were trained to deliver the Strengthening Families Program: For Parents and Youth 10 to 14, Family Story Teller, and other research-based parenting education curricula. A series of sequential parenting education workshops were delivered to parents, as well as workshops on individual parenting topics. Electronic and hard copy parenting education newsletters were delivered to parents, as well as websites with research-based parenting information.

Results

Youth ages 10-14 whose parents participate in an evidence-based parenting class report 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 SFP intervention communities reported 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 or strengthened parent/child communication and the ability to provide love and limits.

Parents who participated in Family Story Teller reported improved parent/child communication, reading to their children more often, and incorporating suggestions on specific strategies to improve their children's literacy (e.g., read book cover, point to words on page as you read them).

4. Associated Knowledge Areas

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

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
2010	120	2057

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Emerging research points to the need for strengthened competencies among professionals delivering family support services to families for effective delivery of parenting education and other family support programs. Federal guidelines restrict family support agencies and school districts receiving federal money to offer only evidence-based 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

ISUE has focused 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; 2) Family Development Certification Training - emphasizes a strengths-based, empowering approach for helping families move towards self-sufficiency/self reliance. 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 The ISUE Strengthening Families Program: For Parents and Youth 10-14 is a federally approved program.

Results
ISUE certified 2,000 parenting educators and other family support professionals in the SFP 10-14 program around the world during this reporting period. 57 professionals received certificates of completion/
certification in parenting education and family development from ISUE. The certificates/certification recognizes in-depth training (55 hours of direct learning activities) and demonstration of competencies related to parenting education and family development. Program evaluation data reveal that participants strengthened their parenting education and family development knowledge and skills after participation, and actively implemented new information and strategies into their work with families.

4. Associated Knowledge Areas

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

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
2010	1500	1952

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
ISU research examining Iowa's child care found much of Iowa's child care is poor or of mediocre quality. Overall, 20% of all observed Iowa child care was listed as good. Nearly 20% of the

observed infant child care centers in Iowa offered poor quality care, none were offering good quality care, and 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. The Early Childhood Consultant 15 hour skill-based training program was conducted for state child care resource and referral and nursing consultants. An Early Childhood Consultant peer mentor program was developed. 14 Early Learning Webinars were provided to help child care providers meet state licensing requirements.

Results
A retrospective survey of 310 child care professionals participating in the Early Childhood Environment Rating Scale training indicated they were able to better identify strengths and limitations, prioritize changes, and develop a workable plan for program improvement. In a follow-up survey, 95% of respondents reported making significant improvements. Post-survey results of the Better Kid Care NSO program indicated that 88% of the participants felt they could better teach and model good healthy practices, 82% reported improved communication with parents, 75% could plan more appropriate learning activities for children, 70% could manage childrens' behavior more effectively and 82% could work more effectively with staff. Early Learning Webinar participant evaluations indicated a high level of satisfaction with webinar programming, and a significant gain in knowledge and improvement in practice. In a three month follow-up study of 127 respondents, 81% reported increased understanding of how children grow and learn, 86% of respondents reported in improvements in teaching skills, 50% of respondents reporting making 1-3 program improvements and an additional 35% reported making 4-7 program improvements.

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
2010	500	4108

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
With the rapidly aging population it is essential that theory-based middle and late life preparation education programs be developed and implemented that provide community-residing baby boomers and older adults with the knowledge and skills necessary to stay well before and during retirement. Planning for later life is critical given the challenges that accompany this life transition including health, financial well-being, social and emotional changes. Iowa's growing older adult population and its rurality (63 out of 99 counties are classified as rural) presents many challenges as more than a third of the state's population nears retirement or is currently retired. Over one-third (37%) of Iowa's population is considered a baby boomer or older.

What has been done
ISUE has focused on strengthening the core competencies of relationship educators and caregivers for mid, later life, and aging families through programs such as Encouraging Healthy Relationships, Powerful Tools for Caregivers, Am I Losing My Mind?, and Who Gets Grandma's Yellow Pie Plate? Housing related education for later life focused on workshop presentations and individual consultations on universal design, home accessibility, housing finance, smart home technology, aging in place, indoor air quality, green issues, flood cleanup and housing construction. During the reporting year, 4,108 people participated in these programs.

Results
ISUE conducts two class leader trainings for Powerful Tools for Caregivers annually. Recent trainings now bring the number of trained class leaders to 67 for Iowa, 20 for Minnesota and 4 for Nebraska. The class leaders then facilitate classes throughout the state. Impact for participants in Powerful Tools for Caregivers indicates 100% believe they are a more confident caregiver as a result of taking the class. Likewise 100% say the class provided them with helpful information about community resources. Partnerships have been developed at the state and regional level with the Area Agencies on Aging to widen the visibility of the program.

4. Associated Knowledge Areas

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

Outcome #5

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
2010	6000	10895

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 for making financial decisions and are taking on increasing personal responsibility for making retirement planning decisions. Mismanagement of debt creates severe financial pressures that 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 11,000 Iowans participated directly in family resource management Extension programs. On- going media and development of resources on the Web reach thousands of Iowans with research-based information and educational programs aiming to improve skills and change behavior to enhance financial security.

Results
Financial management educational programs resulted in:
* 75% of respondents took steps to reduce debt
* 85% of respondents increased contributions to employer-based retirement plans
* 70 community VITA volunteers were trained by ISU Extension to complete tax returns for 1,600 low-income Iowans who received $685,845 in EITC to bolster family incomes and local economies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

1. Outcome Measures

Number of individuals strengthening consumer decision making skills.

Not Reporting on this Outcome Measure

Outcome #7

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
2010	8	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Poverty is often hidden in Iowa. The number of working poor is increasing and the rural urban gap is growing. Economic pressures have long term negative consequences for children and families. Solutions lie in both individual and collective/community response. Iowa's diversity is also changing, which affects communities and poverty threatens the well being of families. Citizens and community organizations together can make more informed decisions, collaborate, and take action to improve the quality of life of economically vulnerable families. For example, the overall poverty rate in Buena Vista is 10.5%, but the poverty rate for Hispanics is 21.5% and the African American poverty rate is at 60.8%. Waterloo in Black Hawk County has a poverty rate 13.9%. The poverty rate for African Americans is 35.9% for Hispanics is 21.5%.

What has been done
Extension specialists coached 35 Iowa communities to implement community action plans developed to reduce poverty. These Horizons communities have a population of 5,000 or less and a poverty rate of 10% or more. Teams from each community were invited to two statewide workshops (total 150 participants) where they learned about each other's efforts and about specific strategies related to asset building, leadership development and public policy. Buena Vista and Blackhawk Counties were also coached through the CYFAR project and the

Strengthening Families Program 10-14 to improve the ability of families at risk to raise children who are healthy, contributing citizens and to improve the well-being of children, youth, and families and to build community capacity to support these families.

Results
Twenty nine Horizons communities addressed food insecurity by establishing or expanding food pantries, distributed weekend backpacks of food to children in need, established community gardens, and new farmer's markets, home delivery of meals. Sixteen communities offered free income tax preparation for low to moderate income residents. Thirteen communities addressed housing issues including establishment of a Housing Trust Fund, applied new roofs, weatherization funds, home repairs, mobile home refurbishment, and rent programs. Eight communities addressed at-risk youth through mentoring or tutoring programs and eight communities provided an improved environment for entrepreneurs. Six communities provided financial education or coaching, four communities provided free-cycle programs for clothing, furniture, and household items, four communities provided Individual Development Account information for residents, and four towns in one county are served through a Workforce Development grant to increase Career Access to Strengthen Rural Iowa, computer-based program to look for jobs. Two communities offered an emergency fund to provide for immediate needs like diaper, gas necessary for work or medical need, tires or other needs. One community built a day care center connected to their Charter School which serves 30 children and provides quality child care.

Eighty-two parents and 135 youth participated in CYFAR communities in the past year. Thirty-six youth responded to 14 paired statements of desirable behaviors engaged in before and after the program. All 14 items showed significant differences on self-reported behavioral changes. Twenty-two parents responded to a 20-item evaluation of positive parenting behaviors engaged in before and after the program. Sixteen of the twenty items indicated a statistically significant change in self-reported behaviors.

4. Associated Knowledge Areas

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

Outcome #8

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
2010	35000	15849

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 19,700 participants in 2010 where they received weekly tips to increase consumption of nutrient rich foods including fruits and vegetables. EFNEP/FSNE enrolled 1,963 adults. Professional training has been provided through Current Issues in Nutrition, an interactive video webcast that is now offered twice a year. Programs in 2010 reached 326 participants (>35 different states). Professional training also included school wellness policy implementation and environmental change for school officials/staff.

Results
A survey sample of Live Healthy Iowa participants lost a total 80,000 pounds. Six month follow-up data indicate 69% of respondents were consuming three or more servings of fruits and vegetables daily. Based on 24 hour pre- and post-food recalls, 97% of EFNEP/FSNE program participants reported positive change in any food group at exit. Based on post-program evaluations more than 75% of childcare training participants felt prepared to apply or teach health promoting dietary behaviors.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #9

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
2010	20000	10222

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 19,700 participants this past year, which included weekly physical activity tips and online monitoring of physical activity.

Results
More than 46% of EFNEP/FSNE graduates had a positive change in physical activity from beginning to end of program. A survey sample of Live Healthy Iowa participants logged 49 million minutes of activity. The LHI six month follow-up survey results indicate 47% of respondents stated they participate in 150+ weekly minutes of physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #10

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
2010	7	9

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Iowa surpassed the national average for those considered food insecure (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
Nine Iowa communities addressed food insecurity through extension efforts. In addition, 13 Horizons communities addressed food insecurity through a variety of means.

Results
Through the Horizons program:
* Small Steps to Health and Wealth was offered in two communities.
* A food security coalition was active in three communities.
* A Family Night Out reached 94 low resource families with information to serve healthier meals and snacks as well as increase physical activity.
* Farmers' markets were initiated and/or expanded in two communities.
* Community gardens expanded in one community from 22 to 39 plots. Surplus food was donated to a county home, two nursing homes and the local food pantry.
* A home meal delivery program was established in a Horizons community to serve low income residents over age 65.

4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

Outcome #11

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
2010	450	742

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Food borne disease in the U.S. affects the economy and human health. In Iowa, Norovirus is a leading cause of food borne illness and is mainly contracted in foodservice establishments. Attribution of food borne illness to produce has been in the national news since the fall of 2006. This association of outbreaks to fresh produce is a concern as consumers are encouraged by government agencies and health professionals to eat five to nine servings of produce daily; yet many consumers are fearful of produce contamination. Many fresh produce items are consumed in the raw state, and thus bacteria are not subjected to the "kill step" of cooking. There is increased interest in farm to school programs and local food systems. Proper handling of product at each steps of the food chain is necessary.

What has been done
Extension is the key provider of food safety education in Iowa. During this report period, 1,259 people took ServSafe(r) courses through ISU Extension. In addition, ISU Extension provided a non-certification SafeFood(c) 101 program in collaboration with the ISU Office of Risk management targeted to student organizations.

Results
Food safety certification from the national program was awarded to 742 participants reflecting an 85% pass rate on the certification exam. Over 1,100 ISU students earned a SafeFood(c) Food Handler card, issued by Office of Risk Management, documenting their attendance at food safety training. In addition, farm food safety training and farm to school efforts reached 381 food producers/farm workers/retail food buyers and 282 people attended food preservation trainings or canner gauge testing.

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 #12

1. Outcome Measures

Number of youth participants in Extension programs on food, nutrition and health.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	5000	3908

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 Kids had 10,800 participants this past year. Participants were encouraged to increase physical activity and improve nutrition choices. Weekly tips on nutrition and physical activity were received by participants. EFNEP/FSNE youth enrolled 13,029 participants this past year. Youth learned 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
Over 150 participants, representing 79 school districts and 20 child care centers attended Team Nutrition workshops offered by ISUE partnered with the Department of Education. State and federal legislation (Healthy Kids Act, Child Nutrition and WIC Reauthorization) has resulted in changes to the school health environment. ISUE is partnering with the Iowa Department of Education to provide technical assistance and training for schools on school wellness policy implementation, HACCP-based food safety plan implementation, menus to meet 2005 Dietary Guidelines, compliance with Healthy Kids Act, and meeting Healthier US School Challenge standards.

EFNEP youth received approximately 6 hours of nutrition education during school enrichment, after school or summer programs. Third through sixth grade EFNEP participants improved their

nutrition knowledge in the following areas: eating a variety of foods 24%; nutrition 42%; healthy foods choices 27%; and food safety guidelines 35%.

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

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

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

Federal and state legislation impacting school health environments has enhanced the interest and visibility of Extension nutrition and wellness programming.

Economic constraints continue to influence program planning and participation rates. Citizens and organizations may wish to participate in programs but lack resources of time and transportation.

Increasing interest in indirect delivery methods continue for individuals and work organizations. Several of the educational materials available via the food safety project website are in Spanish and/or limited text, such as the new Flash animations about proper glove use and hand washing posters.

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

Extension in Iowa continues to experience loss of staff in the Families unit. A loss of 17 field staff and three campus staff occurred during the time period covered by this report. Reductions in staff are fueling the demand for more programming via technology.

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

Evaluation Results

This state plan of work has identified and implemented priority programming during the past year. Priority programming criteria included timeliness, relevance, uniqueness (services not offered by other organizations), sequential educational opportunities, and impact. Sequential programming was prioritized based on the ability to demonstrate impact. To evaluate priority programs, online surveys are capturing evaluation/impact data. These evaluation methods were implemented with two programs mid-year. Certification programs continue to use post-program assessment success as one measure of impact; in many cases these are coupled with self identified changes in attitudes and knowledge.

Key Items of Evaluation

ServSafe® program results show effectiveness in delivery of food safety information with 89% of all participants earning national certification (through National Restaurant Association) for food safety knowledge.

Childcare training results suggest more than 75% of participants felt prepared to apply or teach health promoting dietary behaviors.

Live Healthy Iowa continues to monitor self-reports of health behaviors including dietary intake and physical activity; 70% and 47% of participants reported desirable change in dietary intake and physical activity, respectively.

Participants in Horizons Study Circles indicated in pre and post surveys that 23% took individual actions to reduce poverty, 28.5 % joined in community actions to reduce poverty, and 24% spoke up for/supported policies that would reduce poverty.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Community and Economic 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	85%		100%	
805	Community Institutions, Health, and Social Services	15%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	27.7	0.0	2.1	0.0
Actual	22.0	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
517576	0	223585	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
517576	0	223585	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
2828752	0	621825	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. Development of a process model that communities can use to determine residents' housing needs was initiated in response to the flooding in 2008. Focus groups were conducted to ensure that services meet the needs of Extension clients.

Faculty participated in relevant multistate research committees: NC1030 and NE1029.

2. Brief description of the target audience

Individuals, businesses, organizations, public officials and community leaders, and public and not-for-profit organizations in Iowa.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	72146	704898	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	1	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of articles, publications, reports, plans.

Year **Actual**

2010	206

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Community visioning and design: Communities completing quality of life projects.
2	Community planning: Community plans/projects initiated.
3	Community planning: Communities with improved civic functioning.
4	Community economic development: Communities participating in economic development events.
5	Community economic development: Number of jobs created or retained.
6	Community planning: Communities participating in training sessions.
7	Community institutions, health and social services: Community improvements made

Outcome #1

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
2010	50	32

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. Many small Iowa communities also lack resources and expertise to develop comprehensive plan and individual community improvement projects. Issues facing communities include the growing bioeconomy, Iowa's aging population, and wellness issues such as adult and childhood. In 2010, many communities were still recovering from severe storm or flood damage that occurred in 2008, intensifying this deficiency. On July 24, 2010, the Delhi Dam on the Maquoketa River in eastern Iowa collapsed under pressure from rising floodwaters. The breach drained a nine-mile recreational lake behind the dam, and the resulting flash flood destroyed 16 homes, caused significant damage to more than 70 others and released tons of accumulated sediment.

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 2010, the Community Visioning Program provided technical landscape and transportation planning assistance to 13 Iowa communities. Design studios worked 14 communities/areas in 2010. The Town/Craft center in Perry hosted a roundtable on creating a sustainability index for Iowa. ISU Extension CED and a community design studio worked with the Governor's Task Force on Lake Delhi to develop alternative futures for the dam and the surrounding area.

Results
In 2010, 13 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. 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 6 GIS short courses for 44 participants. PLaCE projects completed included Main Street storefront designs for 3 cities, comprehensive plans for 2 projects involving 4 cities and 1 school district, 2 public facility interior designs, 3 park/public outdoor space designs, 1 affordable architecture project, graphic Identity design for 3 public organizations and nonprofits. Landscape architecture students worked with community leaders and stakeholder in the Lake Delhi area to develop proposals for the Lake Delhi dam and surrounding areas. A report was submitted to the Governor's Task Force in December 2010.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Community planning: Community plans/projects initiated.

Not Reporting on this Outcome Measure

Outcome #3

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
2010	30	9

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Rising fossil fuel costs, the current recession, shrinking city budgets, and disaster recovery expenses have created the need for communities to invest in alternative energy sources, such as biofuels, wind energy, and low-cost sustainable housing opportunities. When planning new community development, local governments need to take into account possible disasters, particularly flooding, before they take place, rather than just mitigating the effects after the fact.

What has been done
The ISU Extension Southeast Iowa Area began a "green initiative" in 23 counties four years ago and has been working with the community of Fairfield on sustainable living and energy efficient technology Fairfield applied for and received an Iowa Power Fund grant, with which it funded a development of single-family homes that operates 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. Following through on the 2009 Housing Policy Roundtable and workshops, ISU Extension CED and IFA conducted a study to create a methodology for examining housing needs following a local disaster. Researchers worked with 8 Iowa communities that were flooded in 2008: Cedar Rapids, Iowa City, Coralville, Mason City, Waterloo, Columbus Junction, Charles City, and Waverly.

Results
ISU Extension and IFA conducted an online survey of residents in the 8 communities, as well as an online survey of housing stakeholders. Face-to-face and telephone interviews and focus groups were also conducted to collect information. The results are being used to create training modules for distribution and use by councils of governments. Fairfield held several workshops for residents on backyard projects in sustainability, and showcased sustainability during local events.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

Community economic development: Communities participating in economic development events.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	180	2

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. Because it has many experienced foreclosures and abandonment's, Corning, Iowa, received $312,000 grant from the Neighborhood Stabilization Program, and needed assistance in determining the best way to use the grant money to make the town more viable. Buchanan County Conservation, Story County Health and Human Services, and the City of Ames requested assistance from CD-DIAL in conducting quality of life assessments.

What has been done
The ISU College of Design Bridge Studio worked with stakeholders in Corning to develop affordable, sustainable housing. CD-DIAL conducted needs assessment surveys for Buchanan County, Story County Health and Human Services, and the City of Ames. CD-DIAL also conducted an online survey of stakeholders in urban forestry for the Iowa Department of Natural Resources Forestry Bureau and Trees Forever.

Results
Groundbreaking for the first sustainable housing unit took place in Corning in September 2010, and the Center of Sustainable Communities offered training on affordable green building for professionals. CD-DIAL produced needs assessment reports for Buchanan County, Story County, and the City of Ames. The results of the forestry survey have been presented to the Iowa Legislature.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #5

1. Outcome Measures

Community economic development: Number of jobs created or retained.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	358

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 sponsored entrepreneurship projects in 5 communities and regions including Keokuk County, Marshall County Extension District, Northeast Iowa Food and Farm Coalition, Pathfinders RC&D, and Ida County Community Betterment Foundation. CVC continued development of several collaboration projects, including a national Main Street Development Loan Program Pilot with the Iowa Department of Economic Development (IDED), Preservation Iowa, National Trust for Historic Preservation, and Iowa MicroLoan. CVC partnered with the Community Foundation of Greater Des Moines and Iowa MicroLoan on an Iowa Microenterprise Assistance Project cluster involving 7 rural community foundations affiliates: Adair, Greene, Boone, Story, Hardin, Mitchell, and Okoboji Foundation. CVC worked with Iowa MicroLoan, Rural Development Partners, and Ag Ventures Alliance to successfully apply for the USDA Rural Microentrepreneur Assistance Program (RMAP) and received a $400,000 loan fund and $100,000 technical assistance grant. CVC collaborated with Iowa MicroLoan the Iowa Small Business Development Centers (SBDCs) and IDED to implement a $5 million Iowa Small Business Loan Program. CVC worked with Iowans for Social and Economic Development to reinvigorate a dormant Community Development Financial Institution certified by the US Treasury and tendered an application for a $600,000 project that includes a $450,000 equity fund for a ten county regional local food project in Southeast Iowa. CVC organized a Fast Trac certification workshop for 30 potential facilitators from Main Street Programs, Extension, Horizon Communities, New Iowans Center, and Iowa MicroLoan. CVC provided technical assistance support for the Iowa Foundation for Microenterprise and Community Vitality (IFMCV) during its second year of operation. All Microloan borrowers are entrepreneurs who have previously been denied credit from conventional lenders. IFMCV approved 15 MicroLoans and 25 Iowa Small Business Loans spread across Iowa during 2010. These direct loans were leveraged with local loans to create nearly $2.5 million in new investment during a recessionary period in which the recovery lacked momentum. In turn, the technical assistance and new investment generated or retaining approximately 102 direct jobs and 179 direct, indirect and induced jobs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #6

1. Outcome Measures

Community planning: Communities participating in training sessions.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Community institutions, health and social services: Community improvements made

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	927

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Iowa municipal employees must also deal with constantly changing legislation and procedures. Many communities in Iowa are still recovering from severe flooding or tornado damage that created a new set of problems local officials and organizations are still addressing. An added dimension has been the country's financial crisis, particularly in terms of housing. State, county, and local government revenues are down because of the slow economy as well and need information about planning fiscal year budgets. As part of its restructuring process, ISU Extension was required to assess whether or not it is meeting client needs.

What has been done
Extension Office of State and Local Government Programs conducted its annual municipal professionals' certification program. ISU Extension CED and the Iowa League of Cities conducted

six budget workshops throughout the state to help Iowa's city clerks and finance officers prepare for the fiscal 2012 budget. 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.

Results

In 2010, 293 municipal professionals were trained at the Extension Office of State and Local Government Programs municipal professionals' certification program. Five hundred city clerks and finance officers attended budget workshops conducted by Extension CED and Iowa League of Cities. Extension CED partnered with the Iowa Finance Authority to develop a statewide housing policy. Extension CED assisted 1 city and 5 regions in establishing housing trust funds. Extension CED conducted 8 thematic focus groups with 52 attendees from IDED, Iowa DOT, Iowa Workforce Development, Manpower, councils of government, and other stakeholders. CED held 10 regional focus groups with 82 attendees, consisting of nutritionists, local vegetable growers, and fitness professionals.

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)

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 six 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 website, 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 # 4

1. Name of the Planned Program

Helping Rural Iowans Prosper

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	5%		5%	
608	Community Resource Planning and Development	15%		4%	
609	Economic Theory and Methods	0%		5%	
801	Individual and Family Resource Management	60%		0%	
802	Human Development and Family Well-Being	20%		34%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%		20%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%		2%	
805	Community Institutions, Health, and Social Services	0%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.0	10.0	0.0
Actual	14.3	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**
606625	0	238889	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
606625	0	238889	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
340487	0	818233	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the following associated multistate research committees: NC1100, NC1030, NC1033, NC1034, NC1036, NC1171, and S1043.

The Small Farm Sustainability Program focused on providing beginning farmers with assessment tools so they could gauge their ability to successfully enter small-scale, diversified farming to provide local and niche market products.

Many rural communities need innovative strategies to improve their economies and quality of life. Iowa State research is examining the prospects, problems and impacts of entrepreneurship and self-employment as strategies for social and economic development of rural communities. The abilities of the self-employed and entrepreneurs to recognize opportunities and motivations for starting new ventures will be evaluated along with the types of support needed and received by founders of new businesses.

2. Brief description of the target audience

Extension field specialists are the local change agents to initiate a series of educational activities and events to improve the ability of beginning farmers to enter niche farming at the local level. Targeted groups were those aspiring to start alternative farming enterprises and municipalities that desired to stimulate alternative local food options.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9500	3000	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of local leaders and citizens who attend face-to-face educational activities, including individual consultations.
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of local leaders and citizens who subscribe to newsletters and access web-based resources.
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of community-based programs provided.
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of local leaders and citizens who attend programs related to preserving the rural landscape through agrotourism.
  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 acreage owners who learn how to establish or manage small agricultural enterprises, rural water and waste disposal systems.
2	Number of Iowans who learn how to improve the rural/urban interface within their communities.
3	Number of local leaders who learn about the associated benefits and risks associated with regionalization and globalization.
4	Number of communities involved in planning activities that increase their economic and social productivity, diversity and resiliency.
5	Number of beginning farmers who understand how to assess their chances of succeeding in establishing a diversified farm venture.

Outcome #1

1. **Outcome Measures**

   Number of acreage owners who learn how to establish or manage small agricultural enterprises, rural water and waste disposal systems.

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Number of Iowans who learn how to improve the rural/urban interface within their communities.

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Number of local leaders who learn about the associated benefits and risks associated with regionalization and globalization.

   Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

   Number of communities involved in planning activities that increase their economic and social productivity, diversity and resiliency.

   Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

   Number of beginning farmers who understand how to assess their chances of succeeding in establishing a diversified farm venture.

2. **Associated Institution Types**

   - 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The interest in starting up small-scale, diversified farm ventures to produce differentiated products for the local and niche food marketplace continues to escalate among early- and mid-career Iowans. Many consider this their in-road into a lost connection with the land and a fulfilling agricultural lifestyle. However, this desire often needs to be re-framed in the realistic, practical considerations of strategic business planning, rather than conjured expectations that are overly idealistic or optimistic. Small and alternative Iowa farm businesses that start up with their destination in mind, smart goals that will keep them on track, and a network of resources to support them along the way, will be that much more likely to succeed and provide the food system, lifestyle, and community development benefits that they hope for.

What has been done
The ANR Extension program in Small Farm Sustainability, with the financial support of the Leopold Center for Sustainable Agriculture, organizational support from local resource personnel, and teaching collaboration with the Beginning Farmer Center, developed and delivered half-day workshops around Iowa in 2010/2011 during which beginning and aspiring farmers looking to enter sustainable and alternative agriculture began and/or refined the early stages their strategic farm business planning process, with input from their peers and colleagues.

Results
As a result of these workshops, post-event evaluation surveys show that 71% of respondents increased their understanding of creating a vision for their farm/business; 71% of respondents increased their understanding of setting goals for their farm/business; 52% of respondents said they are "more prepared" to get started in farming. Within the next year, 67% of respondents are "very likely" to share information from the workshop with others, while 71% of respondents are "very likely" to seek out further agri-entrepreneurial training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics
608	Community Resource Planning and Development
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

- Land prices (as effected by commodity markets, development pressure, etc)
- Accessibility of capital (most Iowa ag lenders are unfamiliar with alternative enterprises)
- Market demand for intended enterprise (often related to proximity of a metro area)
- Infrastructure to support intended enterprise (processing, distribution, etc)
- Regulations designed for large operations that don't translate well for small, diversified enterprises

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

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
721	Insects and Other Pests Affecting Humans	0%		45%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%		55%	
	Total	0%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	17.0	0.0
Actual	0.0	0.0	0.8	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	38618	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	38618	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	343599	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Sample mosquito and tick populations in Iowa, exploring abundance and infection rates, such that the public can be informed about when and where they are at greatest risk of exposure to associated diseases. Characterize the ability of 2 different mosquito species, Aedes vexans and Ochlerotatus triseriatus, to become infected with and to transmit West Nile Virus,

and determine the ability of specific mammalian species to serve as a source of West Nile Virus for mosquitoes. Identify and characterize specific genes and proteins that function to allow parasitic pathogens to evade the host immune response.

2. Brief description of the target audience

Target audiences for mosquito surveillance include the Iowa Department of Public Health, participating local public and environmental health agencies, mosquito control professionals, and the general public. Target audiences for tick surveillance include the Iowa Department of Public Health, ISU satellite extension offices, hospitals and clinics (human and veterinary), and the general public. Information from this project also is used by similar state agencies, academic institutions, and vector control programs in surrounding states. Target audiences for the West Nile Virus include researchers; city, county, state and federal public health individuals; and those individuals involved in mosquito surveillance and control activities.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of consumers and producers attending workshops on trends and opportunities related

to local and regional food systems.
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of consultations with small farmers to match their strengths, weaknesses, and personal situations with particular local food enterprises and markets.
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of consumers and producers who subscribe to newsletters and access web-based resources.
  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 small farmers who understand how to participate in local and regional food markets and how to establish new food production enterprises in their farm businesses.
2	Number of producers who integrate local food production into their businesses and grow that enterprise.
3	Number of consumers who learn how to make informed choices regarding the opportunities offered by local and regional food systems.
4	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 small farmers who understand how to participate in local and regional food markets and how to establish new food production enterprises in their farm businesses.

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

Number of producers who integrate local food production into their businesses and grow that enterprise.

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Number of consumers who learn how to make informed choices regarding the opportunities offered by local and regional food systems.

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

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

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Global Food Security and Hunger - Ensuring Profitable Producers

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%		0%	
131	Alternative Uses of Land	3%		0%	
307	Animal Management Systems	20%		0%	
311	Animal Diseases	5%		0%	
315	Animal Welfare/Well-Being and Protection	5%		0%	
401	Structures, Facilities, and General Purpose Farm Supplies	5%		0%	
601	Economics of Agricultural Production and Farm Management	20%		11%	
602	Business Management, Finance, and Taxation	5%		20%	
603	Market Economics	0%		23%	
604	Marketing and Distribution Practices	0%		30%	
605	Natural Resource and Environmental Economics	15%		0%	
606	International Trade and Development	0%		14%	
611	Foreign Policy and Programs	0%		2%	
802	Human Development and Family Well-Being	2%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	78.8	0.0	58.9	0.0
Actual	62.5	0.0	2.2	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**
2660635	0	181216	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
2660635	0	181216	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1493364	0	194664	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Continue to be a leading research institution on basic and applied questions impacting Iowa agriculture. Maintain and strengthen extension education programs targeted to Iowa farmers that develop their skills to evaluate and adopt emerging technologies and best management practices. Provide appropriate educational opportunities and resources for agribusinesses and financial institutions that support farming enterprises. Collaborate with industry and agency partners to increase awareness and knowledge of applied research. Hire and retain faculty and staff that are committed to the success of Iowa agriculture. Form integrated research/extension teams to address priorities facing Iowa farmers. Support professional development of faculty and staff to ensure that they are competitive in external funding, respected by peers and producers, and proud and productive colleagues.

Faculty participate in a number of related multistate research committees, including

NC0213, NC1030, NC1034, NC1036, NC1177, S1043, and W2177.

2. Brief description of the target audience

Agricultural crop and livestock producers, both beginning and existing, in Iowa and the agribusinesses and agencies that interact with them. Policy makers that impact agriculture. Financial institutions and tax practitioners associated with farming operations and supporting businesses. Landowners who have decision-making responsibilities. Consumers who are involved in local food enterprises.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	115259	1077527	3520	1550

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

Patent Applications Submitted

Year: 2010

Actual: 3

Patents listed

7,763,428: Identification of protective antigenic determinants of porcine reproductive and respiratory syndrome virus and uses thereof

7,714,101: Identification of protective antigenic determinants of porcine reproductive and respiratory syndrome virus and uses thereof

7,622,254: Identification of protective antigenic determinants of porcine reproductive and respiratory syndrome virus and uses thereof

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	193

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers and agribusiness professionals who attend face-to-face educational activities, including individual consultations.

Year	Actual
2010	64704

Output #2

Output Measure

- Number of producers and agribusiness professionals who subscribe to newsletters and access web-based resources.

Year	Actual
2010	45611

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of producers who adopt livestock management and production systems and practices to improve cost control and market access.
2	Number of intergenerational transfers or new farm businesses established.
3	Number of crop and livestock producers who choose marketing, insurance or USDA program alternatives that are consistent with the risk bearing ability of their businesses and their personal preferences for managing risk.
4	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.
5	Number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.
6	Number of producers and service providers attending crop production and protection programming that focuses on improving agronomic practices.
7	Number of producers who adopted dairy management and enterprise practices and/or modified dairy farm facilities to improve animal performance, health, and profitability.
8	Number of dairy producers who increased their knowledge on dairy farm safety and adopted practices to improve on farm safety.
9	Number of dairy producers who increased their understanding of farm succession strategies and resources.
10	Percent of beef cow-calf producers understand the relationship between calf health and economic value.
11	Number of niche market farms with accurate cost of production records.
12	Number of pork producers who adopt more competitive production systems and practices.

Outcome #1

1. Outcome Measures

Number of producers who adopt livestock management and production systems and practices to improve cost control and market access.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10000	1546

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 to integrate a variety of disciplines that effectively address the needs of livestock producers and consumers, and provide veterinary students with needed skills, knowledge and problems solving experiences.

Results
Cooperative educational efforts in Pork Quality Assurance Plus (PQAPlus) education, sow lifetime productive lifetime, animal well-being and care, and computerized data management systems increase producer awareness about the importance of maintaining the highest food safety system in order to insure long-term market access. The knowledge gained improves management practices at the farm level and long-term market access. The increased usage of computerized data management systems enables pork producers to better identify strengths and opportunities in their production system and minimizes challenges to food safety and animal well-being. The cumulative impact is long-term market access at harvest facilities that require the highest food safety and animal well-being. This impact is currently measured in the demand for Iowa pigs by the harvest facilities in the Midwest, currently at an all-time high.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of intergenerational transfers or new farm businesses established.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of crop and livestock producers who choose marketing, insurance or 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
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	7500	5065

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A) Two new financial risk management programs were introduced in the 2008 Farm Bill. 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 were eligible for 2008 crop losses, and 73 counties were eligible for 2009 crop losses. 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 option that over 90% of Iowa farmers enrolled in during 2003. ACRE offers some advantages as well as some costs compared to the traditional 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.

B) Beginning farmers often lack access to credit at reasonable rates and terms, to use for

purchasing operating inputs and financing purchases of land, livestock, and equipment. The Farm Service Agency (FSA) offers targeted loans to beginning farmers, and makes direct loans or guarantees loans from private lenders to high-risk producers. To be eligible for financing from FSA each applicant must show knowledge of financial management principles by completing an approved course in farm financial management.

What has been done
A) Four fact sheets about the new programs were written. Three 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 48 educational presentations were made, with over 5,000 attendees. Additional information was disseminated through radio interviews, newsletter and magazine articles, webinars and news releases.

B) An Internet-based home study course titled Financial Decision Making (FDM) was created as part of the course catalog for the Ag Management e-School (AMES). An agreement was reached with Iowa FSA that satisfactory completion of the FDM course would meet borrower requirements for loan eligibility. The course consists of 11 modules covering topics such as developing financial statements to financing long-term assets. Enrollees must satisfactorily complete 17 on-line quizzes and 8 homework assignments.

Results
A) Approximately 16% of Iowa farm units were enrolled in the ACRE program for the 2009 crop year. Others made the decision not to enroll, and thus did not forfeit 20% of their USDA direct payments. A random sample of 3,384 Iowa farmers who participated in USDA commodity programs was surveyed regarding their decision to enroll or not enroll in ACRE. Of the 365 who replied (10.8%), 61% reported that they received information from ISU Extension about the ACRE program, either from an Extension newsletter, web site or live presentation. Survey respondents who did not enroll in the ACRE averaged 645 crop acres. The average USDA direct payment in Iowa is $20.09 per crop acre. Thus, farmers who obtained information from ISU Extension about ACRE received an estimated average net benefit of $8,578 each (645 acres x $20.09) from their ACRE decision. This amounted to a total of $1,912,894 for the farmers who returned the survey.

B) 260 FSA loan applicants had completed the Financial Decision Making (FDM) course as of June 30, 2010, 35 during the 2010 reporting year. A follow-up survey was sent to the entire population of course graduates, 1 to 6 years after they completed the course. Forty-nine surveys were returned (19%). Twenty respondents (41%) had been farming 10 years or less, and would generally be considered 'beginning farmers.' Two-thirds of the respondents purchased land with FSA financing (average of 120 acres), 41% purchased machinery, 12% financed buildings, and 47% bought operating inputs. Respondents were asked to estimate their annual gross farm income and farm net worth before and after completing the FDM course. The average change reported was an increase of $247,101 in gross income and $381,458 in net worth. Applying average rates of return to the average increases reported results in an estimated increase in net income per operator of $38,982 based on gross income, and $37,383 based on net worth. Both these estimates give an estimated increase in annual net farm income of $38,182 per operator.

4. Associated Knowledge Areas

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

605 Natural Resource and Environmental Economics

Outcome #4

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.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of producers and service providers attending crop production and protection programming that focuses on improving agronomic practices.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Number of producers who adopted dairy management and enterprise practices and/or modified dairy farm facilities to improve animal performance, health, and profitability.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	320

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
2009 was a difficult year for the dairy industry. Low milk prices and high feed prices combined to give losses on many farms between $500 - $1,000 per cow for the year causing both negative cash flows and losses of equity position. Because of the serious profit issues, dairy producers needed to fine-tune not just their financial management but their herd management, facility management, and their personnel management as well.

What has been done
The ISU Dairy Team initiated meetings around the state on the Dairy Financial Crisis and also presented the issue at their Dairy Days. As a follow-up to these meetings, dairy specialists highly encouraged farm visit follow-ups to further deal with the broad array of issues that can help producers survive the current financial crisis, as well as subsequent workshop sessions on managing dairy farm finances. 157 farm consultations were conducted. A follow up survey (55 dairy producers) or subsequent DHI dairy records data (45 producers - different than survey producers) were used to evaluate farm consultation impact (3-12 mo. post consultation), while post meeting evaluations of financial workshops / consultations were conducted (n = 183).

Results
A post-consultation survey was responded to by 67% of producers (36/55) with 100% rating teaching and consulting highly effective (78% excellent), valuable, and profitable (had profit impact on their dairy enterprise). Survey results showed increases of $217/cow, $45/acre, and $90,000/farm (n = 5,2,4 respectively; avg = 104 cows, 245 operated acres) or net increased income of $494,890. Milk production increases (#/cow or FTE -- 12 herds) resulted in $535,137 increased income (survey data). Milk quality improvement (decreased avg. SCC by 146,000 -- 6 herds) increased income $85,020 (survey). Decreases in feed costs (per day or cwt. Milk -- 3 herds) resulted in $67,144 increased income (survey). Overall economic impact (increased income potential) of surveyed herds = $1,182,191. Milk production increases (11 herds, avg. 165 cows and 7.4 lb increase) increased income $735,347 (DHIA). Milk quality improvement (decreased avg. SCC by 300,000 -- 12 herds) increased income $255,410 (DHIA). Increased pregnancy rate (8%, $22.50/ 1% increase, 3 herds, 680 cows) increased income $122,400 (DHIA). Overall economic impact (increased income potential) of herds (using their DHI data) = $1,143,157. 26 dairy producers / consultants were counseled on building a low cost milking parlor or housing facilities. Four producers proceeded to build one / make adjustments with an average increase in throughput of 50%. 183 dairy producers (20 individual consultations, 163 in workshops) completed training on evaluating dairy farm finances and using Dairy TRANS financial analysis program. 100% improved their understanding of their financial situations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management
802	Human Development and Family Well-Being

Outcome #8

1. Outcome Measures

Number of dairy producers who increased their knowledge on dairy farm safety and adopted practices to improve on farm safety.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	67

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
On farm health and safety issues and practices are critical for both animal and personnel performance and safety, as well as overall farm safety, profitability, and liability. Proper training and education of farm owners, managers, and all personnel is critical and essential to assuring optimum farm safety principles and practices.

What has been done
In collaboration with the High Plains Intermountain Center for Agriculture Health and Safety (HICAHS), the I-29 Dairy Consortium sponsored five health and safety workshops for the dairy industry titled What You Need to Know About OSHA Before OSHA Needs to Know About You. The workshops were designed to present information on employer obligations to ensure worker health and safety on dairy farm operations. Prior to initiation of the workshop, a pre test was administered to each participant. After a brief introduction, dairy workers went to a separate room for safe animal handling training, demonstration, and practice with dairy cows. Remaining dairy owners and managers received OSHA safety and health information. At the conclusion of the workshop, each participant completed a post-test and workshop evaluation.

Results
Sixty-seven participants attended the sessions representing 35 dairies and 574 total employees. 100% of participants were satisfied (85-90% extremely satisfied) with workshop content, speaker quality and competency, and program venue. 100% stated workshop was interesting and thought provoking. 100% agreed the workshop fulfilled their needs and reason for attending (80% absolutely). 97% were interested in follow up dairy health and safety workshops. 57% were interested in OSHA-10-Hour Certification. 100% stated they gained new knowledge and understanding regarding OSHA regulations and dairy safety. 100% stated they would apply the knowledge and practices when they returned to the dairy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
401	Structures, Facilities, and General Purpose Farm Supplies
601	Economics of Agricultural Production and Farm Management
802	Human Development and Family Well-Being

Outcome #9

1. Outcome Measures

Number of dairy producers who increased their understanding of farm succession strategies and resources.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	29

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In both informal and formal needs assessment surveys, people in agriculture frequently cite the need or request for ways to bring the next generation into the farm or family business. One of the most recent indications for a need for assistance in farm succession processes came in Dec 2009 at a NW Iowa Young Producers Dairy Peer Group meeting. Of the 20 young people attending, all but 1 identified issues and interests in farm succession processes. While ISU Extension - Beginning Farmer Center has successfully delivered Ag-Link Seminars in a 2-weekend format based in Ames, the location and time-frame put the resource out of reach of many.

What has been done
In January 2010, ISU Extension staff began discussions on feasibility of adapting the Ag-Link material to format for afternoon /evening delivery to target audiences. Planning discussions involving ISUE Beginning Farmer Center staff, ISUE Dairy Field Specialist, and ISUE Communications staff resulted in a template for a new format for a 2-session Farm Succession Workshop. The planning group devised a curriculum that could be delivered at any point in the state, and a brochure template that could be revised easily to facilitate program promotion and

recruitment. A pilot session of the new format was held June 23-24, 2010 in NW Iowa to provide a site nearby to the young dairy producer target audience, as well as to other farm or business families seeking succession planning information. A 4 question post meeting survey was completed.

Results
Five families enrolled in the pilot session. Attendees were involved in small group and family group discussions, and presentations on clarifying wants/needs/fears/expectations, effective communication processes, transfer, retirement, and estate planning, forming a family Statement of Intention and Vision for the Future, and creating a Critical Path or timeline to do the work needed. Participants were surprised about the legal aspects and work involved, and that each generation wanted similar outputs. Participants found it difficult to comprehend and keep track of all the information, and discuss leaving the farm with parents. Participants stated they would work on farm succession plans including dates and timelines, need help with this planning and details, and would need further family meetings, training, and workshops. Workshop was rated highly successful by 100% of participants and materials. Workshop template will be adopted and used statewide. An added outcome of the dairy pilot was the recognition among Extension personnel of the importance of developing educational programs that address transitioning from one generation to the next, not only for dairy enterprises, but also for small town businesses and other types of farming operations. By crossing disciplines and going beyond dairy families, Extension was able to quickly respond by conducting 3 additional transition sessions for business and farming families, adding to Extension's repertoire of educational programs. Several County Extension Councils had also identified business and farm succession as a need in their counties and support the concept by helping to fund programming. The dairy pilot set the stage for yearly programming for families to chart their succession plans.

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
802	Human Development and Family Well-Being

Outcome #10

1. Outcome Measures

Percent of beef cow-calf producers understand the relationship between calf health and economic value.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Verified systems of cattle health and management are a means of documenting the enhanced value of certain production practices. Verified production systems are necessary for beef producers to access certain markets such as age-verified beef for export to Japan. Improved knowledge of best management practices, health technology and verification systems is the first step in implementing management change and herd profitability.

What has been done
In 2010, 11 workshops were held across Iowa for beef cow-calf producers and consultants titled "Doing Business in an Information-based Marketplace." The workshops focused on management, nutrition, economic and health practices that add value to the calf crop. Research results were presented on how verified production and health programs improve calf value and may be required to access certain markets.

Results
Participants were surveyed approximately four months after the workshops were completed. Of the respondents, 42% indicated that the workshop improved their knowledge significantly on health programs that increase the value of feeder cattle. Over 50% noted significant knowledge gains in factors that affect profits, backgrounding and weaning management strategies and the value of providing focused education to the marketing program. Also, 52% of the responders indicated that they planned to adopt practices that will enhance the potential for price premiums for their calves as a result of the workshops. Over 90% of the responses indicated that the workshop improved or had a positive impact on the profit potential of their beef operations and improved their awareness of "Value-Added" opportunities. Over 80% reflected the program improved their knowledge of marketing opportunities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
311	Animal Diseases

Outcome #11

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 Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	48

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 because of the lack of technical and research support. ISU Extension initiated a project to address 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
A comprehensive record-keeping program was initiated to obtain usable records from 46 niche pork farms. To get the niche market producers to participate, multiple contacts between ISUE personnel and the producers were made through individual producer meetings to discuss the benefits to producers, contacts to get the 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
Results were 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
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #12

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 Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2454

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Pork production requires an ever increasing level of efficiency and product quality to survive and prosper. Pork producers must continually improve their production systems and practices to be profitable. The pork industry is under attack from activist groups with an agenda against animal agriculture. One way they have attacked the animal industries is the method of penning females during reproduction. The traditional method of housing sows in environmentally controlled individual crates has been a target of criticism and legislative action (to ban such pens). As a result, pork producers need to be aware of alternative group sow housing systems and their strength and weaknesses.

What has been done
A coordinated effort between ISU administration, faculty and staff targeting the pork industry of Iowa is ongoing and extremely successful. The ISUE Swine Field Specialists held one of their semi-annual in-service training events in North Carolina. Because the nation's largest pork producer has committed to use group sow housing and has been a leader in developing these housing systems, ISU Extension field specialists and faculty had the chance to learn about these systems and evaluate how they might be used in Iowa. Each field specialist developed a PowerPoint presentation targeted towards group sow housing that was used for multiple audiences. This topic was presented to producers at regional Advanced Reproductive Management Conferences.

Results
The Iowa Pork Industry Center (IPIC) has had direct contact with more than 40,000 participants in the pork industry through the Iowa Pork Congress, the World Pork Expo, regional conferences and one-on-one interactions with clients, and the IPIC website and the PORKLine. Programs have been developed 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 across Iowa and to 42 foreign countries, and available in three languages with plans to add at least two more languages). More than 5,000 of IA pork producers and allied industries have been exposed to the concepts of group sow housing, and the strengths and limitations of these facilities. ISUE-sponsored Reproductive Management Conferences were attended by 200 in the past year. The outcome is an increased awareness of alternative sow housing systems, and the knowledge that pork producers in Iowa could be required by legislation and or retail demand to alter their sow housing systems in the direction of more group housing for sows. An important outcome is the increased knowledge by ISUE Swine Extension Specialists on options for group housing of sows and the steps required for producers to adopt these systems, enabling them to assist producers when required to make this change.

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

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

Brief Explanation

Early and record snowfall and cold temperatures in the winter of 2009-10 disrupted harvest and created hardships for cattle producers. Prolonged wet weather in the spring of 2010 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. Cattle and hog producers returned to profitability after more than two years of losses and dairy producers continued to struggle financially. The national recession resulted in continued budget cuts to state appropriations to Iowa State University, resulting in difficulty in financially supporting the replacement of staff that have left the system, resulting in fewer available resources, both human and non-human, for meeting the needs of Iowans.

The complex nature of the new USDA ACRE program and the relative high corn and soybean prices in FY2009 influenced many producers to decide to not enroll in ACRE. The higher grain prices were bid into land rents and other crop inputs and significantly increased feed prices for animal agriculture all of which increases risk for farmers.

State and Federal legislators and government agencies implement policy and regulations that impact the livestock industry. ISU Extension educates producers to remain profitable.

Examples include changes or changes in interpretation of the Clean Water and Clean Air Acts, rules on manure application, FDA food safety rules and marketing agreements under GIPSA. In addition, vendors are implanting requirements for market access such as PQAPlus (pork quality assurance) site status 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)

Evaluation Results

2010 Crop Advantage Series Survey: 73.4% of respondents said they scouted frequently for soybean aphids, and 81.8% said they scouted or had their fields scouted before deciding whether to apply an insecticide for soybean aphids as a result of what they learned. Improved skills in scouting were reported by 56.5% of the respondents, and 56.4% reported increased confidence in decision-making skills.

"Financial Decision Making" (FDM) Home Study Course Survey: 260 FSA loan applicants completed the FDM course offered by ISU Extension. After the course, 61% of enrollees completed a current set of financial statements for their farming operation, 90% said they would use these statements for financial planning, 83% completed a cash flow budget for their farming operation, and 49% plan to make changes in their farming operation as a result of completing the course. A follow-up survey was sent to all course graduates, 1-6 years post-course. 19% of the surveys were returned. 41% of respondents are "beginning farmers" (farming 10 years or less); 2/3 purchased land with FSA financing, 27% purchased beef or dairy cows, 41% purchased machinery, 12% financed buildings, and 47% bought operating inputs. When asked to estimate their annual gross farm income and farm net worth before and after completing the FDM course, the average change reported was an increase of $247,101 in gross income and $381,458 in net worth. Per the Iowa Farm Business Association, average net farm income as a % of gross during the years enrollees completed the course was 25% and the average return on net worth was 9.8%. Applying these rates to the average increases reported results in an estimated increase in net income per operator of $38,982 based on gross income, and $37,383 based on net worth, for an estimated increase in annual net farm income of $38,182/operator. While it is impossible to know how much of this increase was a direct result of completing the FDM course, none of the enrollees would have received financing from FSA if they had not taken the course. Thus, it is highly unlikely they would have achieved the same increase in net farm income or even have continued in farming without taking the FDM course.

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, with a 20% response rate. Specific behavioral changes were addressed in these surveys and measured by respondent completion. Of the 40 producers who returned surveys, 75% said they were now adjusting feeders more often in attempts to reduce feed wastage; 50% said they cleaned waterers more often to provide more clean fresh water to their pigs; 43% reported making adjustments to their nutrition programs to help lower the cost of gain on their animals, and nearly 1/3 had implemented a change in pig flow to batch-farrow sows when possible, leading to a narrower weaning age range within groups. Nearly 40% decided to start keeping financial and other production records in their operations.

Key Items of Evaluation

The producers that attended the Crop Advantage Series are responsible for approximately 20% of all the row-crop acres in Iowa (approximately 4.5 million acres). This series of meeting is one of several venues through which unbiased, research-based information and education is delivered to Iowans. The implications are that the applied research information presented through the Crop Advantage Series and other venues is very important to the decision-making that occurs on a large portion of Iowa farms, and better decisions are being made with positive economic, emotional, and environmental consequences due to these Extension educational activities.

A total of 260 farmers completed an on-line home study course from Iowa State University in order to qualify for financing from the Farm Service Agency. Forty-one percent were beginning farmers. After completing the course their annual net farm income increased by an estimated $38,182 per operator.

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. The 2010 regional conference series focused on energy and water usage and conservation, including proper building ventilation considerations and techniques to use energy more efficiently and effectively. Participants who completed post-meeting evaluation forms were positive and complimentary of the program focus and speakers, with 100 percent of the participants rating two sessions on correct ventilation system usage and methods of measuring and evaluating farm energy consumption as excellent or good. Ninety-eight percent of respondents rated the entire program as excellent or good. Ten percent of respondents said they had attended all 10 previous regional conferences and 14 percent were attending for the first time. All of the first-time attendees rated the overall program as excellent or good. Providing information on energy consumption, including measuring, monitoring and evaluating changes in usage, is essential in helping producers learn about practices that can help improve their operation's financial bottom line and possibly assist in increasing profitability.

V(A). Planned Program (Summary)

Program # 7

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
102	Soil, Plant, Water, Nutrient Relationships	10%		0%	
205	Plant Management Systems	30%		10%	
212	Pathogens and Nematodes Affecting Plants	30%		5%	
213	Weeds Affecting Plants	20%		5%	
302	Nutrient Utilization in Animals	0%		15%	
303	Genetic Improvement of Animals	0%		30%	
305	Animal Physiological Processes	0%		10%	
311	Animal Diseases	0%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		5%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
702	Requirements and Function of Nutrients and Other Food Components	0%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	2.5	0.0	70.9	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**
106000	0	3675111	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
106000	0	3675111	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
59496	0	35569056	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the following associated multistate research committees: NC0007, NC0140, NC0205, NC1023, NC1025, NC1029, NC1035, NC1037, NC1038, NC1040, NC1131, NC1168, NC1170, NE1020, NE1028, NE1034, NE1042, NRSP4, NRSP8, S0294, S1025, S1027, S1032, S1033, S1039, S1040, W1009, W1045, W1173, W2168, W2177, and others.

Research is conducted across most disciplines in agriculture, defined in its broadest sense, from basic to applied, to make advances in feed, food, fiber and fuel production to help increase capacity and provide an adequate and nutritious food supply.

Research and extension faculty and staff disseminate research-based information at presentations (meetings, workshops, invited presentations, field days) and through radio spots, TV interviews, printed and electronic fact sheets and pod casts. They make use of electronic media coverage (website, e-newsletters, FAX newsletters, CDs), conduct online courses, and provide individual consultations (phone, e-mail, and in-person) as needed to share knowledge. Research discoveries are published in peer-reviewed journals and popular press, in a variety of formats.

Additional information is reported under the program "Global Food Security and Hunger - Ensuring Profitable Producers."

2. Brief description of the target audience

Crop and livestock producers, certified crop advisors, agribusiness personnel, chemical manufacturers, horticulture professionals, fruit and vegetable producers, 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, media.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	13131	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 5

Patents listed

7,625,703: Calpastatin (CAST) alleles
7,696,410: Rps-1-.kappa. nucleotide sequence and proteins
7,700,291: Genetic test for the identification of dwarfism in cattle
7,722,909: Terpene ester compounds as autoxidation inhibitors for frying oils
7,833,748: Identification of syn-stemodene synthase

United States Patent Application 20100005547: January 7, 2010: BACKBONE-FREE LOW TRANSGENE COPY TRANSGENIC PLANTS

United States Patent Application 20100122375: May 13, 2010: COMPOSITIONS AND METHODS FOR ENHANCING DISEASE RESISTANCE IN PLANTS

United States Patent Application 20100151097: June 17, 2010: OPTIMIZATION OF COLICIN PRODUCTION

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	0

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 acres where an herbicide weed resistance management program has been implemented.
2	Number of acres impacted by soybean protection management strategies.

Outcome #1

1. Outcome Measures

Number of acres where an herbicide weed resistance management program has been implemented.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4400000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Glyphosate is used on more than 75% of the corn and soybean acres in Iowa. Over-reliance on glyphosate is resulting in the evolution of glyphosate-resistant bio-types. This will result in an increased use of other herbicides and tillage to manage the weed populations.

What has been done
Research on fields across Iowa confirmed the presence of glyphosate-resistant weeds. ISU Extension produced press releases, newsletters, and radio spots, and educational events to educate producers and agribusiness personnel on how to implement weed management programs to minimize the risk of selecting for resistant weeds.

Results
Producers, agribusiness personnel, and the manufacturer have become more aware of this developing problem. Heightened grower awareness has prompted more inquiries on appropriate procedures to minimize risk from ISU Extension. The seed company who produces Roundup Ready soybean is paying farmers up to $3/A for applying a preemergence product that offsets the potential problem of glyphosate resistance, a strong endorsement for something Extension has promoted since the introduction of Roundup-Ready soybean since 1996. Observations suggest that there has been a 20% reduction in acres relying solely on glyphosate over the previous two years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

213 Weeds Affecting Plants

Outcome #2

1. Outcome Measures

Number of acres impacted by soybean protection management strategies.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In Iowa soybean sudden death syndrome (SDS) caused yield losses in nearly 9,000,000 acres, with losses exceeding 50% on some fields during 2010.

What has been done
Iowa State University (ISU) initiated new applied research involving seed treatments, cultural practices and understanding the biology of this disease. Several publications (PM 3009, fact sheets for ISA and Farm Progress Show, CSI 0004) and news articles were developed to help growers and agribusiness professionals better understand how to manage this disease.

Results
Educational presentations reached more than 2,000 producers and 1,000 agribusiness professionals. Extension field agronomists estimated the percent of acres in their counties that had SDS. Multiplying those percents by the number of acres to be planted to soybean as reported by NASS in those counties equals 2M acres. Anecdotal responses from producers regarding field observations made late in the growing season resulted in ISU researchers initiating research plots on SDS and Goss's Wilt in the 2011 growing season to answer questions that arose during the 2010 season. Articles about SDS in the Integrated Crop Management newsletter were viewed 7,424 times between Sept 2010 and Jan 2011. An SDS video on the College of Agriculture and Life Sciences website was viewed 1037 times between September 1, 2010 and January 31, 2011, making it the most accessed video to date.

4. Associated Knowledge Areas

KA Code	Knowledge Area

205 Plant Management Systems

212 Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 8

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%		18%	
111	Conservation and Efficient Use of Water	10%		2%	
112	Watershed Protection and Management	0%		11%	
121	Management of Range Resources	0%		2%	
124	Urban Forestry	0%		2%	
131	Alternative Uses of Land	5%		5%	
132	Weather and Climate	0%		5%	
133	Pollution Prevention and Mitigation	15%		12%	
134	Outdoor Recreation	0%		14%	
135	Aquatic and Terrestrial Wildlife	0%		17%	
136	Conservation of Biological Diversity	0%		10%	
205	Plant Management Systems	15%		0%	
402	Engineering Systems and Equipment	10%		0%	
403	Waste Disposal, Recycling, and Reuse	10%		1%	
601	Economics of Agricultural Production and Farm Management	10%		0%	
605	Natural Resource and Environmental Economics	10%		1%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	17.6	0.0
Actual	10.9	0.0	14.8	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**
462738	0	735581	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
462738	0	735581	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
259726	0	5577175	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the following associated multistate research committees: NC1032, NC1034, S1025, S1028, S1032, S1042, W1045, W1082, W2128, W2133, and W2188.

Developed curriculum for each targeted group; developed fact sheets; developed web-accessible tools for decision making.

Targeted programming to address policy issues as they arose, including response to public comment documents and development of hard copy materials and resources for regulators and policymakers. Produced and updated handbooks, newsletters, and bulletins. Workshops, field days, farm/field visits, and satellite and web-based sessions. Developed strategies and programs to increase community (citizen) involvement.

Developed and conducted educational programs about indices and diagnostic tools (e.g. P-Index) to improve nutrient management, programs on methods to conserve energy. Research was conducted on source control of emissions to air and/or water using diet modification as the primary mitigation strategy. Drainage Design Workshops, 3rd 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, with a goal of educating producers and other stakeholders about the benefits of in-field and edge-of-field conservation practices, has continued with partner agencies. 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.

A Manure Expo that showcased new equipment for environmentally friendly application of manure was held. This event was regional with attendance from surrounding states and international visitors. Nearly 600 visitors attended the multi-day event.

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

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	61576	394290	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	30

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of producers, agribusiness professionals, and land-owners who attend face-to-face educational activities, including individual consultations.

Year	Actual
2010	54319

Output #2

Output Measure

- Number of producers, agribusiness professionals and land-owners who subscribe to newsletters and access web-based resources.

Year	Actual
2010	6257

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 number of livestock production sites that adopt practices that reduce impacts to air resources.
2	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.
3	Number of producers and service providers who participate in programs designed to increase the adoption of conservation systems on Iowa's crop acreage.
4	Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run off and preserving ground water quality.
5	Number of Iowa citizens who participate in learning activities that focus on improving water quality and quantity.
6	Number of Iowans that participate in tools that improve nutrient management through the adoption of conservation practices.
7	Number of pork producers learning how to use environmentally friendly swine management production practices.

Outcome #1

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.

Not Reporting on this Outcome Measure

Outcome #2

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.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of producers and service providers who participate in programs designed to increase the adoption of conservation systems on Iowa's crop acreage.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	10000	3628

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. Increased adoption of conservation practices is necessary to reduce negative downstream water quality impacts from agricultural production. 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 Farms Project rainfall simulator and conservation station visited approximately 50 locations in late 2009 and early summer 2010 and demonstrated the impact of residue cover and use of conservation practices on soil erosion to broad stakeholder groups. No-till or reduced tillage field days were conducted in various areas of Iowa. The Iowa Learning Farm Project continued field demonstrations on producers' field where conventional tillage to conservation tillage systems were compared.

The Iowa Learning Farms project has produced two separate educational video series as an additional outreach tool. The How To/Why video series provides in-depth explanations and instructions for implementing various agricultural best management practices. The first video in this series, Converting Your Planter for No-Till, has been hugely successful; requests for this film have been received from states across the U.S. as well as internationally. This video has also been especially popular on YouTube, with over 2300 views from 24 countries.

Results

Consistent with previous reporting there continues to be an increasing number of Iowa 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 14 field days or workshops were held (~1050 participants), follow-up surveys indicated approximately 30% of respondents increased the use of surface residue management on some of their acres, 33% discussed using no-till or strip till with landowners, and 72% indicated they discussed conservation ideas with other farmers in the area. In addition, 26% of respondents from two field days were no-till management was the primary focus indicated they were modifying an existing planter or purchasing a new planter to facilitate no-till management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
131	Alternative Uses of Land
205	Plant Management Systems
402	Engineering Systems and Equipment

Outcome #4

1. Outcome Measures

Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run off and preserving ground water quality.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Number of Iowa citizens who participate in learning activities that focus on improving water quality and quantity.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of Iowans that participate in tools that improve nutrient management through the adoption 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
2010	{No Data Entered}	6135

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The need exists to increase the adoption and implementation of conservation practices as related to utilization of indices and diagnostic tools for improved nutrient management. This is important not only for environmental quality but also for economic utilization of manure resources.

What has been done
Twenty workshops on the Revised Universal Soil Loss Equation, Version 2 (RUSLE2) and Iowa Phosphorus Index have been conducted since 2005 targeted towards service providers with the goal to educate about the use of nutrient management indices. Over 500 participants representing more than 5,500 clients and servicing 2.51 million acres have been trained on utilization of nutrient management indices. This group represents more than 3,700 nutrient management plans, manure management plans, and comprehensive nutrient management plans.

Results
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.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
131	Alternative Uses of Land
205	Plant Management Systems
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics

Outcome #7

1. Outcome Measures

Number of pork producers learning how to use environmentally friendly swine management production practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	889

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
ISU Extension 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. Swine field specialists have worked with many producers on installation of biofilters to improve the air quality around the farms. IPIC staff has worked in close conjunction with the Coalition to Support Iowa Farmers to aid producers putting in new facilities to site them in areas of least odor potential. This is done using CAM software developed at ISU.

Results
The Iowa Pork Industry Center (IPIC) and ISU Extension field specialists will plan content for delivery of the annual confinement site manure application certification program to 70 county ISU Extension offices. IPIC works closely with the Iowa Manure Management Action Group (IMMAG) in development and implementation of standards and protocols for producer education in this area. 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. The Manure Applicator Certification (MAC) program is especially important in making sure that manure is tested prior to land application. As more of the acres of Iowa cropland are fertilized with animal nutrients, and more pork producers either qualify for the MAC.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
403	Waste Disposal, Recycling, and Reuse

V(H). Planned Program (External Factors)

External factors which affected outcomes
- 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. Budget cuts to Extension have impacted level and extent of programming.

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Sustainable Energy - Biofuels and Biobased 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
101	Appraisal of Soil Resources	0%		7%	
102	Soil, Plant, Water, Nutrient Relationships	0%		13%	
131	Alternative Uses of Land	5%		0%	
202	Plant Genetic Resources	0%		11%	
205	Plant Management Systems	0%		10%	
206	Basic Plant Biology	0%		7%	
302	Nutrient Utilization in Animals	50%		0%	
307	Animal Management Systems	10%		0%	
402	Engineering Systems and Equipment	20%		4%	
404	Instrumentation and Control Systems	0%		16%	
511	New and Improved Non-Food Products and Processes	0%		15%	
601	Economics of Agricultural Production and Farm Management	5%		10%	
605	Natural Resource and Environmental Economics	10%		7%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	6.0	0.0
Actual	2.4	0.0	9.9	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**
101743	0	517777	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
101743	0	517777	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
57106	0	2309837	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Research activities included :

- Studying biofuel production impacts on soil and water.
- Improving maize grain quality, sustainable production of maize, and transposon biology.
- Determining starch yield and feasibility of recovery of novel proteins followed by ethanol production.
- Impacts of crop residue removal for biofuel on soils.
- Wood utilization: biofuels, bioproducts, hybrid biomaterials composites production, and traditional forest products.
- Improving production of Miscanthus and switchgrass for dedicated biomass feedstock in the Midwest.

Faculty participate in the following associated multistate research committees: NC213, NC1016, NC1178, NE1037, and SERA38.

The Biobased Industry Center at Iowa State University organized a Bioenergy Bootcamp for academic researchers, industry representatives, and government employees working on biobased energy production.

ISU Extension has provided assistance to livestock producers who have been affected by increases in feed costs as a result of the ethanol industry expansion by offering programs on managing co-products efficiently.

The ISU Farm Energy Conservation & Efficiency Initiative has facilitated a coalition of collaborators to keep abreast of relevant farm energy issues and has produced numerous publications on conservation practices.

The Center on Agricultural Law and Taxation has conducted seminars, workshops and webinars on legal considerations involving wind energy.

2. Brief description of the target audience

The focus is on basic human needs for environmentally sustainable energy particularly to help producers understand how to convert to more efficient crops and production systems, processing companies with advanced conversion technologies, and all consumers because we all need inexpensive and environmentally acceptable forms of energy. Target audiences include academia, industry, agricultural

professionals, farmers, extension educators, and state and federal agency personnel.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	5770	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 1

Patents listed

7,731,578: Air movement unit for biomass conveyance, separation, or combine performance enhancement.

United States Patent Application 20100248801: September 30, 2010: AIR MOVEMENT UNIT FOR BIOMASS CONVEYANCE, SEPARATION, OR COMBINE PERFORMANCE ENHANCEMENT

United States Patent Application 20100227042: September 9, 2010: Enzyme-Assisted De-Emulsification of Aqueous Lipid Extracts

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Biorenewable companies and agricultural producers attending on-site educational activities: workshops, conferences, industry roundtable discussions, field events, and professional development.

Year	Actual
2010	2020

Output #2

Output Measure

- Biorenewable companies and agricultural producers attending off-site educational activities.

Year	Actual
2010	750

Output #3

Output Measure

- Number of individuals interested in biorenewables who subscribe to newsletters and access web-based resources.

Year	Actual
2010	3000

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 bioenergy production.
2	Number of Iowa feedlots that regularly feed DGS to reduce cost of gain.
3	Number of individuals representing biorenewable companies and agricultural producers who learn new technologies related to biomass production, harvest, storage, and transportation.
4	Number of individuals representing biorenewable companies who learn new technologies related to biomass processing/refining.
5	Number of participants in educational programs who improved knowledge and reduced costs through effective use of ethanol co-products by beef producers.

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 bioenergy production.

Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

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

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Number of individuals representing biorenewable companies and agricultural producers who learn new technologies related to biomass production, harvest, storage, and transportation.

Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

Number of individuals representing biorenewable companies who learn new technologies related to biomass processing/refining.

2. **Associated Institution Types**

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1000	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Iowa's energy service providers and farmers need education regarding on-farm energy efficiency and conservation practices to improve efficiencies in energy use, equipment and the use of technology. The ISU Farm Energy Conservation & Efficiency Initiative was established to lead that effort.

What has been done
ISU Farm Energy Conservation & Efficiency Initiative has gathered input from Farm Energy Task Force collaborators through quarterly meetings on relevant farm energy efficiency and conservation topics, especially for conventional farm fuel sources (diesel, gasoline, electricity, propane, natural gas). The Farm Energy fact sheet series (7) addresses on-farm energy efficiency and conservation practices, equipment, and technology. A train-the-trainer webinar was presented to raise awareness of farm energy efficiency and conservation practices among Iowa State University Extension field staff and Iowa's energy service providers, of which 51 participated.

Results
The Farm Energy Conservation & Efficiency Initiative formed a Task Force made up of collaborators that includes the Iowa Energy Center, Iowa Farm Bureau Federation, USDA Rural Development, Iowa Office of Energy Independence, Iowa Association of Electric Cooperatives, Consumers Energy (REC), Central Iowa Power Cooperative, Alliant Energy, and MidAmerican Energy. Primary leadership is provided by Iowa State University Extension. The webinar provided participants with educational resources. Feedback from participants was solicited to determine the most relevant issues of concern and provide guidelines for topics of future webinars.

4. Associated Knowledge Areas

KA Code	Knowledge Area
131	Alternative Uses of Land
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management
605	Natural Resource and Environmental Economics

Outcome #5

1. Outcome Measures

Number of participants in educational programs who improved knowledge and reduced costs through effective use of ethanol co-products by beef producers.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	91

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The rapid expansion of the corn ethanol industry has contributed to increases in feed costs for beef producers. Co-products of the ethanol fermentation process can be cost effective feeds but have unique characteristics and present challenges in handling storage and delivery. In recent years 10% or more of the revenue of corn-based ethanol plants is derived from the sale of co-products, distiller's grains and solubles. As such, it is essential that plants are able to generate additional value from the co-products to improved profitability and sustainability for the biofuel producer. An example would be capturing multiple uses from the kernel in biofuel production to help sustainability of biofuels. Helping cattle producers better store and utilize co-products will improve their value for the farmer.

What has been done
A comprehensive, integrated research and educational program was conducted over the period 2006-2009. Activities included cattle feeding research, feeding and long term storage demonstrations, workshops, meetings, software development, factsheets newsletters and consultations. In 2007 alone, over 67 meetings were held for producers and consultants on these topics.

Results
In 2011, participants in educational programs were surveyed on changes in their knowledge, behavior and cost outcomes as a result of educational activities conducted by ISU Extension on ethanol co-product feeding for beef cattle during the period 2006-2010. Of those surveyed, 69% had received information or attended an educational event during that time period. Of those that had obtained education about research on this topic from ISU Extension, 88% indicated that the information improved their knowledge of effective ways to incorporate these feeds into the diets of cattle. During that time period, 57% of those surveyed increased the usage of ethanol co-products in cattle diets. Of those surveyed 91% reported either improved cattle performance or reduced costs of at least 10% as a result of the information received. Of that group, 27% reported a 10% or more reduction in feed costs without decreasing animal performance, 19% reported a 10% or greater improvement in animal performance, and 45% reported both a 10% improvement in animal performance and a 10% decrease in cost of production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
307	Animal Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

What happens to future demand and supply of traditional energy sources, and federal policy on reducing greenhouse gasses will impact outcomes of energy programs. Price volatility in petroleum and farm commodities also adds complexity, financial risk and business uncertainty. The current economic climate does not provide much profitability. Prolonged low margins could damage investor confidence. Feedstock commodities must be produced at attractive prices; draught and other natural disasters could be devastating to these new ventures. Government support and regulatory programs are important in the early stages to compete against well-established industries and gain market footholds. Unwarranted adverse publicity has plagued the biofuels industry and the populace must be better educated, which will require investment in education and extension outreach. Most of all, funding for research and outreach activities is paramount.

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 10

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
213	Weeds Affecting Plants	15%		0%	
307	Animal Management Systems	5%		0%	
308	Improved Animal Products (Before Harvest)	15%		0%	
315	Animal Welfare/Well-Being and Protection	10%		0%	
404	Instrumentation and Control Systems	10%		0%	
503	Quality Maintenance in Storing and Marketing Food Products	5%		0%	
604	Marketing and Distribution Practices	5%		0%	
703	Nutrition Education and Behavior	10%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	5%		4%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	10%		77%	
723	Hazards to Human Health and Safety	5%		19%	
806	Youth Development	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	5.2	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**
221791	0	209798	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
221791	0	209798	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
124487	0	1269879	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activities included conducting research in areas where knowledge gaps exist. For example, 1) the development of resistant weed species as a result of overuse of herbicides to identify alternative control measures, and 2) ensuring the health of Iowa's food animals. Dissemination of research findings as new or continuing extension programming is a way individuals, agricultural related industries, and communities learn about applying research so they can change. Maintaining an open dialogue with food professionals in the private food industry helps ISU focus on which wellness, nutrition, and food safety issues are current priorities. From the industry perspective, the main protector of our food supply is not regulatory authorities but the food industry itself. Dairy specialists have conducted educational workshops, developed publications, technical reports, fact sheets, and collaborated with industry partners to plan and present educational events, such as Dairy Farm Open Houses. Food professionals have availed themselves of training opportunities provided by ISU Extension, which have included topics such as HACCP training for food and animal products processors.

Faculty participate in the following associated multistate research committees: NC213, NC1023, NC1025, NC1031, S294, S1027, S1033, and W1009.

2. Brief description of the target audience

Target audiences include farmers, food processors, youth, media, retail managers and food services, food industry professionals and suppliers, dietary professionals such as nutritionists and dieticians, health professionals such as doctors and nurses, retail managers, and consumers.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	11617	9162	2000	2000

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	0	24

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of consumers attending workshops and educational events that enhanced their knowledge of modern dairy practices which assures animal health and comfort, product quality and safety, and environmental stewardship and preservation.

Year	Actual
2010	4200

Output #2

Output Measure

- Number of dietary professionals attending workshops and educational events that enhanced their knowledge of modern dairy practices which assures animal health and comfort, product quality and safety, and environmental stewardship and preservation.

Year	Actual
2010	1015

Output #3

Output Measure

- Number of retail store personnel (specific managers like dairy case managers and / or dietary professionals) attending workshops and educational events that enhanced their knowledge of modern dairy practices which assures animal health and comfort, product quality and safety, and environmental stewardship and preservation.

Year	Actual
2010	180

Output #4

Output Measure

- Number of youth aged 7-12 and their teachers attending school based curriculum workshops and educational events that enhanced their knowledge of modern dairy practices which assures animal health and comfort, product quality and safety, and environmental stewardship and preservation.

Year	Actual
2010	1000

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of consumers that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.
2	Number of dietary professionals that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.
3	Number of retail store personnel (specific managers like dairy case managers and / or dietary professionals) that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.
4	Number of youth aged 7-12 and their teachers that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.
5	Dollars saved throughout the food supply chain due to implementing Quality Management Systems and Food Safety/Quality Management Systems by educational programs presented through the Iowa Grain Quality Initiative (IGQI), which reduced redundant audits.
6	Number of swine farm personnel participating in QMS/EMS (Quality management systems/Environmental Management Systems) training sessions.
7	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 consumers that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A large percentage of the U.S. population lives in an urban or suburban environment and are disconnected from agriculture and food production. At the same time, there is increasing interest and concern in the general population about food safety and quality, animal health and well being, farm systems that produce food, and sustainability. Consumers and the public need access to unbiased information and educational events that increase their awareness and knowledge of these topics to make sound decisions regarding nutrition and practices.

What has been done
ISU Extension Dairy Team partnered with Iowa's dairy producer and industry associations, other farm and commodity organizations (ISU site) and the Midwest Dairy Association (regional dairy check-off organization), to plan and host 3 Dairy Farm Open House workshops. The purpose was to provide experiential events incorporating a tour of a dairy with designated stations to showcase and educate on specific attributes of dairy farms (animal comfort and health, milking practices, product safety and quality, environmental stewardship). A post workshop survey was conducted to rate their experience of the dairy tour, assess their knowledge and trust of dairy practices, and evaluate their interests in the dairy industry and dairy products.

Results
A total of 4200+ participants were involved in the 3 events with many families and young children, and most participants from non-agricultural backgrounds and 600+ surveys were completed. Prior to the event, 86% had a positive (70% extremely positive) opinion and trust in dairy farms. Participants' opinion of modern dairy farms following the event was positively and significantly increased. More results included under Evaluation.

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
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #2

1. Outcome Measures

Number of dietary professionals that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	1015

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many people rely on and trust dietary professionals for reliable, factual, unbiased educational information, guidelines, and recommendations for dietary principles, practices, and health. This information includes how and where the food is produced, as well as an understanding and assurance of the nutrition, health, and safety of the animals and systems producing the food, and the final milk and dairy products produced. Most dietary professionals have never been exposed to agriculture, farms, and different dairy production systems and practices.

What has been done
Five interactive workshops for dietary professionals (different delivery methods and settings) 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 one 2 hr. face to face workshop with dieticians (n =65), three dairy on-farm interactive workshops for

school nutrition professionals (n = 300), and one webinar (direct and archived) for Midwest dieticians (350 direct webinar contacts; 300 indirect (completed workshop via website only within one week post webinar)). All workshops had post workshop evaluations completed.

Results
Dietician face to face workshop: Post workshop evaluations showed all participants 1) better prepared to address dairy questions and issues (avg. 4.75 [0 = strongly disagree, 6 = strongly agree]), 2) had learned new information (5.58), 3) rated the information highly credible (5.50) and would highly recommend this to peers and clients (4.97). Eighty-five to ninety-six percent of all responses were >/= 4 (above average to strong agreement and satisfaction).

Dairy on-farm interactive workshops for school nutrition professionals: 100% of participants learned new information and 96% ranked the information highly credible. 100% stated they had a greater understanding of dairy practices and dairy sustainability and would use the information with their peers and clients. 100% fully endorsed the on-farm experiential learning modules and highly ranked the hand and farm-on approach.

"Dairy Conversation" webinar for dieticians and nutrition professionals: 88% found the webinar materials and content highly informative and relevant to their practice and clients. 80% strongly agreed the information was presented in an interesting, easy-to-follow manner. Ninety-four percent plan to share the information, resources, and recommendations as part of their client practice. Ninety-seven percent were highly interested in attending related future webinars. The dairy farm practices and sustainability presentations and materials delivered by ISU extension dairy specialists were ranked highest among participants.

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
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #3

1. Outcome Measures

Number of retail store personnel (specific managers like dairy case managers and / or dietary professionals) that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	180

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There are a wide variety of highly nutritious, safe and affordable dairy products that meet and exceed all milk quality standards and tests. Differential labeling is sometimes confusing to consumers, and they also have many interests and questions regarding how their food is produced, and the quality, safety, and assurance of animal well being, farm sustainability, and dairy product quality and safety. Dairy grocer case managers and in- store dietary professionals (only some stores) are often the front line and only source of credible information and recommendations for consumers and the public. Many of these professionals have never been exposed to agriculture, farms, and different dairy production systems and practices which form the basis for the great variety of dairy products as well as consumers' attitudes, understandings, and choices.

What has been done
Three all-day dairy academies (which included both on-farm and milk processing plant tours and education modules, as well as other presentations on dairy practices, dairy sustainability, and animal health and well being) were conducted for dairy grocer case managers and in-store dieticians and health professionals by ISU Extension and Midwest Dairy Association. Pre and post tests on attendees understanding of dairy facts and knowledge were conducted as well as a personal satisfaction survey.

Results
100% ranked this as a highly effective educational event and a highly credible, understandable source of dairy practices and information. There was a 73% increase in post workshop test scores compared to pre-workshops scores. Dairy grocer case managers rated this as the most highly effective educational training and workshop of their careers. 100% stated they had greater understanding of dairy practices and dairy sustainability, and would use this information with their peers and clients. Grocer case managers estimated individual interactions with > 1000 customers/ year and felt they were the sole person at the store to respond to dairy issues and questions. In store dieticians also highly ranked the information and education very highly, 100% planned future use with peers and clients, and estimated 300+ individual clients and contacts/year.

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
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #4

1. Outcome Measures

Number of youth aged 7-12 and their teachers that understand modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and safety, and environmental stewardship and preservation.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	1000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Many young children are formulating and implementing nutritional principles and practices that will affect them now and many years to come. Many of these children have never been exposed to agriculture, farms, and food production systems. Many of these children enhance their knowledge primarily through school based curriculums and teachers. However, many teachers have also never been exposed to agriculture, farms, and food production systems. These teachers and children need access to unbiased information and educational modules and curriculum that can enhance their knowledge in these subject areas in order to make sound nutrition decisions and practices.

What has been done
Iowa's Dairy Story program workshop and curriculum was established 10 years ago and is coordinated by a three way partnership between Iowa State University Extension and its county Extension Councils, Northeast Iowa Community College, and the Northeast Iowa Dairy Foundation (grassroot dairy farm / industry organization). Iowa's Dairy Story is a one day field trip to the Northeast Iowa Dairy Foundation educational facility and dairy farm with curriculum to educate students, primarily 3rd, 4th, and 5th graders, and their teachers about modern dairy practices and the role they play in assuring animal health and comfort, dairy product quality and

safety, and environmental stewardship and preservation. Curricular materials and knowledge gained in these workshops provide the foundation for multiplicative education to other students and peers outside these workshops.

Results
Over 10,000 students and teachers have been educated on modern dairy practices over the past decade with 1000+ in 2010. A total of 38 schools have participated in this program, plus some additional after school and summer programs. Students and teachers rank knowledge learned and educational success of the program extremely high. Teachers highly rank the curricular materials and use them for multiplicative education with other students and people in their schools and communities.

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
703	Nutrition Education and Behavior
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
806	Youth Development

Outcome #5

1. Outcome Measures

Dollars saved throughout the food supply chain due to implementing Quality Management Systems and Food Safety/Quality Management Systems by educational programs presented through the Iowa Grain Quality Initiative (IGQI), which reduced redundant audits.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Several food safety recall events stemming from bulk food products have demonstrated the need for more precise food safety management and for improved ability to trace products through their supply chain. Other procedures-based activities require the same documentation and tracking skills; such as environmental foot printing, worker safety, and biosecurity. Agricultural operations will become increasingly monitored and precise to satisfy safety precautions.

What has been done
Systems were developed for process mapping, geo-location of traceable units, bulk grain tracking, and cost-benefit analysis that simplified quality or food safety/quality management systems (QMS or FS/QMS). This allowed collaborating grain firms to report significant economic benefits for operational improvements/efficiencies. Enhanced public health through compliance to new food safety legislation results from organized QMS or FS/QMS. Findings were published and presented in relevant professional venues. The end of project conference proceedings, and the end of project report were released and web-published (www.iowagrain.org). IGQI partnered with a company to submit a grant for the development of a web-based electronic quality manual/compliance program to simplify and automate supply chain firms' ability to apply FS/QMS management systems. ISU staff is participating in the AACC/Food Industry Task Force on Food Safety Audit to develop a uniform audit schema around the ISO22000 Standard. A study of the connection between quality climate and occupational safety climate in a company was initiated.

Results
Food safety, quality management, and occupational safety compliance support each other at significant cost savings to the organization. Savings in the $ billions from reduced redundant audits could result through development of a uniform audit schema around the ISO22000 Standard. Food chain organizations facing global customer pressures and national regulatory scrutiny show benefit cost ratios of 2:1 because of the economic sustainability of QMS and FS/QMS. Closer contact, communication and trust among supervisors and employees appear to have simultaneous benefits in worker safety and product quality.

4. Associated Knowledge Areas

KA Code	Knowledge Area
404	Instrumentation and Control Systems
503	Quality Maintenance in Storing and Marketing Food Products
604	Marketing and Distribution Practices
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
723	Hazards to Human Health and Safety

Outcome #6

1. Outcome Measures

Number of swine farm personnel participating in QMS/EMS (Quality management systems/Environmental Management Systems) training sessions.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	700

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Swine producers are undergoing increased scrutiny about the environment, animal well-being and food safety by consumers, retailers, and processors and are being asked to document performance in these areas, sometimes with third party verification. 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. Most swine harvest facilities in Iowa now require all suppliers to be certified in the Pork Quality Assurance Plus (PQAPlus®) and the Transport Quality Assurance® (TQA) systems designed by the National Pork Board. Also, suppliers will soon be required to pass a site assessment in order to assess compliance. These programs are very important as they relate so closely to market access.

What has been done
A "Quality Management Systems" approach has been found to be most effective in meeting producers' educational needs, as well as having other benefits such as increased market access, lower cost of production, and enhanced employee management capabilities. Funding from the Smithfield-State of Iowa settlement supports QMS educational activities, such as environmental management systems; premise ID, national animal identification system, PQAPlus certification of producers, TQA, ISO9000/14000 certification and other process verification based programs. Producers and other landowners were encouraged to register their premises during the Iowa Pork Congress in the IPIC/ISU display. ISUE swine 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
More than 60 educational meetings have resulted in more than 700 certified PQAPlus advisors. The target goal of 4,500 registered premises in Iowa was easily reached. More than 75 percent of all premises in Iowa have been registered. The positive outcomes from this program include an increased awareness by the producers for 1) the importance of maintaining the highest level of food safety, and 2) the increasing importance of animal well-being to the consumer.

4. Associated Knowledge Areas

KA Code	Knowledge Area

308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #7

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
2010	{No Data Entered}	64

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. ISU's HACCP training program is consistent with the intent and scope of the USDA, FSIS regulation.

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
Sixty-four people successfully completed the October 21-23, 2010 HACCP Workshop for Meat, Poultry and Egg Processing Plants at the Iowa State University Meat Laboratory. Topics covered

during the workshop included; developing GMPs and SOPs, principles of HACCP, microbiological hazards, chemical hazards, physical hazards, validation, verification and reassessment. As a result of completing this course attendees were classified as HACCP Trained Individuals enabling them to develop or reassess HACCP Plans for their companies. Also, Individuals that complete the course will receive a certificate indicating they are a HACCP trained individual and their name will be 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
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities

Brief Explanation

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

Evaluation Results

ISU Extension Dairy Team partnered with Iowa's dairy producer and industry associations, other farm and commodity organizations (ISU site) and the Midwest Dairy Association (regional dairy check-off organization), to plan and host 3 Dairy Farm Open House workshops. 100% rated the 3 dairy events successful and educational with 88% rating excellent and 9% rating very good. Post workshop, 99% believed dairies provided the best care and handling of animals. Post workshop, 97% believed dairies are protective of the environment and excel at environmental stewardship. Post workshop, 99% stated dairies provided extremely safe and wholesome milk and dairy products. 100% supported growth of the dairy industry in Iowa. Post workshop, 99+% stated modern dairies and dairy practices were impressive and had extreme confidence and trust in dairy farms and the dairy industry.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Climate Change

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
132	Weather and Climate	100%		54%	
135	Aquatic and Terrestrial Wildlife	0%		11%	
136	Conservation of Biological Diversity	0%		3%	
202	Plant Genetic Resources	0%		28%	
303	Genetic Improvement of Animals	0%		4%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	3.2	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	422824	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	422824	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	544973	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the associated multistate research committees, NC7 and NC1179. They are working to enhance the understanding of crop-climate-soil interaction at a regional scale.

In addition, NC7, CONSERVATION, MANAGEMENT, ENHANCEMENT AND UTILIZATION OF PLANT GENETIC RESOURCES, is an ongoing effort to ensure sustainable production of crops for food, feed, fiber, industrial or medicinal/nutriceutical uses is threatened by many forces, including climate change. Plant genetic resources (or germplasm) in the form of seeds and plants provide the raw materials that scientists use to address crop production challenges, develop new crops, and identify new uses for existing crops. Scientists use these resources to develop knowledge or products valuable in coping with inadequate water or nutrient supplies, diseases or insect pests, heat and cold tolerance, understand their nutritional properties, and for many other purposes. Much of the world's naturally occurring plant genetic resources are threatened by loss of habitat, climate change, or disasters caused by nature or the activities of mankind such as development and overgrazing. Conservation of plant genetic resources, coupled with collection of information that helps us understand their nature, helps assure their availability to benefit society in the future.

2. Brief description of the target audience

Target audience includes scientists, agribusinesses, policy makers, agricultural producers, agricultural economists, state agencies, local government officials, and community planners.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	10	0

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

Outcome #1

1. **Outcome Measures**

{No Data Entered}

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)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 12

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%		50%	
724	Healthy Lifestyle	50%		50%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	1.4	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	82134	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	82134	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	645120	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faculty participate in the relevant multistate research committees, NC1171 and W1005.

The research team continued to investigate the simultaneous influences of biological, psychological, economic, and contextual factors; e.g., family, schools, and neighborhood, on a

childs propensity for becoming overweight or obese. They are working to understand the associations between food insecurity and childhood obesity using three data sets: the National Health and Nutrition Examination Survey; the Panel Study of Income Dynamics; and Welfare, Children, and Families: A Three City Study, and to understand the effects of household financial stress on childhood obesity and how financial management skills help alleviate the effects of financial stress on childhood obesity.

2. Brief description of the target audience

This work is designed to reach: a) researchers in the fields of economics, public health, and nutrition; b) policymakers charged with improving family well being; c) program administrators overseeing food assistance and other assistance programs; and d) Extension field staff charged with improving the well being of families in Iowa and elsewhere.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	0

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

Outcome #1

1. **Outcome Measures**

{No Data Entered}

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)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}