

2008 Iowa State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

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

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

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

This annual report presents accomplishments and results from our five-year, rolling Plan of Work. Whereas the Plan of Work has 19 program areas, in this Annual Report we will include annual accomplishments and results for all 1862 Extension programs and on a rolling basis some 1982 Research programs. Table 1 presents the specific program areas under each of the seven themes and indicates those programs for which report is made in 2008 per our plan. The research expressed in the program areas is the result of cooperation among researchers within and between departments and colleges at all levels of activity.

Table 1. ISU Program Areas by Theme

- **Theme**
 - **Program Areas**
 - Animal Systems
 - *Iowa Beef Center*
 - *Dairy Team*
 - *Iowa Pork Industry Center*
 - Economics & Sociology
 - *Farm & Business Management*
 - *Community Resource Planning & Development*
 - *Economics, Markets & Policy*
 - *Economic & Social Welfare – NOT REPORTING IN 2008*
 - Family, Youth & Communities
 - *Community Services & Institutions*
 - *4-H Youth Development*

- *Families, Communities and Civic Engagement*
- *Money for Life*
- *Strengthening Families*
- Food & Nonfood Products
 - *Food and Nonfood Products – NOT REPORTING IN 2008*
- Human Nutrition & Health
 - *Food and Nutrition: Choices for Health*
 - *Human Nutrition, Food Safety, and Human Health and Well-being – NOT REPORTING IN 2008*
- Natural Resources
 - *Natural Resources and the Environment and Agricultural and Biosystems Engineering*
- Plant Systems
 - *Commercial and Consumer Horticulture*
 - *Corn and Soybean Production & Protection*
 - *Plants and Their Systems*

Here are select impacts and accomplishments arranged by theme.

Animal Systems:

Initiatives Support Small Meat Processors (Local Lockers). Small meat processors in Iowa have never had a greater opportunity for success than they have today, according to Joe Cordray, extension meat specialist. To support his statement, Cordray cites shifts in consumer preference and support for the industry generated by the Small Meat Processors Working Group. The working group, organized by ISU rural sociology graduate student Arion Thiboumery and Cordray three years ago, brings processors, regulators, extension educators, and business consultants to a discussion table where they identify small meat processor needs and the resources that can address those needs. The group's work has resulted in the development and distribution of the Meat Processors Resource Guide Book and teaming with CIRAS to offer local and area trainings, as well as training sessions at the Iowa Meat Processors Association Annual Convention on business sustainability. Meat Science Extension has broadened the scope of their interaction with meat processors—by expanding the traditional focus on meat product, processing, and food safety to include issues of business development and sustainability.

Age-verification Increases U.S. Beef Exports to Japan. To enter the Japanese market, American beef must be age verified; Japan will only accept beef from cattle 20 months old or younger. Historically, only 10 percent of carcasses presented to USDA graders have qualified. ISU Extension prepared quality systems assessment (QSA) documentation so beef producers in the Tri-County Steer Carcass Futurity (TCSCF) program could verify the age of their cattle and participate in the Japan Export Verification program. Everyone involved in the record keeping for the age-verified calves, including cow-calf producers, feedlots, TCSCF, and all employees, must receive QSA training. To date 481 people from 15 states and one Canadian province have received the QSA training. From March 19, 2007, to December 17, 2008, the TCSCF program marketed 15,719 head of steers and heifers, and 75 percent were eligible for export to Japan. The average premium paid was \$24.66 per head. The TCSCF cooperative retains \$1.50 per head for additional staff time required to receive and maintain proper documentation, so the additional net income to the producer is \$23.16 per head.

Barrier Dip Reduces Infection in Dairy Animals and Improves Profitability. Mastitis in dry cows and first-calf heifers costs the U.S. dairy industry \$1 billion per year in lost milk production and revenue and increased expenses. ISU developed and licensed the technology for external sealant teat dips that provide a "synthetic skin," protecting the animals' mammary glands from mastitis infection and organism penetration. Activity in this area has resulted in three peer-reviewed publications and seven ISU patents. ISU also has helped three companies develop similar products as well as an internal sealant. Extension is educating dairy farmers and agribusiness industries about these technologies via direct meetings and contacts, agri-industry continuing education, and published articles and materials. Over the past four years, use of these products has increased to 44 percent of the market, which would indicate potential annual savings of \$168 million due to reduced mastitis losses and an additional \$16 million of income.

Using preventive sealant technologies also could save U.S. dairy producers \$36 million in antibiotic costs and enhance food safety by reducing potential risks for antibiotic contamination of milk and meat.

Farm and Business Management:

More Women Empowered by Annie's Project. In Iowa and across the nation, women are getting more involved in farm management. As their numbers increase, so does their business knowledge and comfort level, thanks to Annie's Project, a program led in Iowa by Iowa State University Extension farm management specialists. Lisa Holmes, a Shenandoah farmer, pulls up the Board of Trade several times each the day, reads reports, and advises her farming partners—her husband and father-in-law—when she believes it is time to move some grain. She does it with confidence and some authority—because of Annie's Project and ISU Extension market trainings. Bob Wells and Tim Eggers, ISU Extension specialists providing Annie's Project leadership, are encouraging other states to offer the program by making best practices presentations—17 additional states have gone on to present the program. They work with Ruth Hambleton, creator of Annie's Project and University of Illinois Extension farm business manager, to expand the circle of empowered farm women through the Annie's National Leadership Team. The program continues to grow as relationships are built across state lines, best practices are shared, and new partners are brought onboard. While the outline of the course is the same in every state, it is localized according to the needs of participants, according to Wells. "We like to say that no matter what you produce—whether it is corn, cattle, carrots, carnations, or cotton—Annie's Project can help you make better risk management decisions."

Interactive GIS Allows Public to Participate in Community Planning. Public participation in planning new landscape designs, such as parks, fairgrounds and other public spaces, is becoming easier through the efforts of ISU Extension Landscape Architect Christopher J. Seeger. Seeger is at the forefront of a movement to use Geospatial Internet tools to collect input from community residents regarding new landscapes being planned and designed. The systems he is developing allow people to provide input on interactive maps from any computer connected to the World Wide Web. Users can suggest where certain park features should be located and add comments on why one site is preferred over another. The information collected in this manner can be automatically entered into a database and used by professional planners and designers as they work on new landscape designs. Having this data helps planners better understand important site features that may be well-known locally but are not obvious to outsiders. Armed with this "inside information," the designers are able to address potentially controversial issues during the planning process rather than learning about problems after the fact. Recent uses of collaborative mapping techniques in Iowa include the development of a master plan for the Old Threshers Reunion site for the City of Mount Pleasant and the ongoing redevelopment of the Wright County Fairgrounds in Eagle Grove. In Mount Pleasant, the public was invited to participate in the planning by taking an online survey. Respondents indicated the areas of interest on an interactive map. This information was placed in the GIS and used to develop the master plan for the site. Another example of how GIS can be used in planning was a project conducted for the City of Jefferson, where information collected in an online survey was transferred to an online map, allowing city officials to visualize where citizens thought improvements were needed in the city's water and sewer system. As a part of the Iowa's Living Roadways Community Visioning Program, Seeger developed an online survey that addresses transportation enhancement issues and allows respondents to indicate on interactive maps the routes they use for recreation and commuting. Respondents from the 12 visioning communities attended workshops where they took the survey and saw preliminary results automatically generated from the system.

Student-operated Statistical Service Reaches Out to Iowa Communities. Statistics in the Community, or STATCOM for short, offers statistical consulting services to community groups and organizations ranging from public libraries to city governments to non-profit organizations. Established by graduate students from ISU's Department of Statistics, STATCOM is an affiliate of the STATCOM Network, a growing consortium of college and university-based groups that share their statistical expertise with communities in need. "The premise of STATCOM is to provide statistical consulting to community groups, local governments and non-profits," said Jon Hobbs, a member of the group's executive committee. "The service is pro bono, and it gives us consulting experience and gets us involved in interesting projects." STATCOM's first client was the Volunteer Center of Story County (VCSC). With faculty assistance, the graduate students designed, conducted and analyzed an online survey that measured client satisfaction with VCSC's services. Since that first project, STATCOM has worked on several similar survey projects both locally and statewide. The group's efforts have attracted the attention of ISU administrators and led to a budding relationship with ISU Extension. STATCOM now has an entry on the ISU Extension Community and Economic Development Program Builder site, which the group hopes will lead to even more projects that serve Iowans' needs while providing graduate students with valuable practical experience.

Elderhostel Program Showcases Iowa's Unique Places to Tourists Nationwide. In its second year, ISU Extension's Elderhostel program—themed educational travel courses for persons age 55+—has expanded with the addition of two new programs: "Upper Mississippi River Reflections: Historic Towns, Trails and Tales," a popular Mississippi River program, and "If the Wooden Shoe Fits,

Where It! A Touch of Holland, a Taste of Pella," a Dutch ethnic educational program. The program also continued to offer the southwest Iowa program about utopian societies. Since the program began in 2007, 300 visitors from Canada and 32 states have been introduced to Iowa's unique places. Extension community development specialist and program director, Diane Van Wyngarden, was named the Individual Friend of Tourism by the Iowa Tourism Office and the Iowa Department of Economic Development in recognition of the success of the Elderhostel programs. The Individual Friend of Tourism, presented at the 2008 Iowa Tourism Conference in Sioux City, is awarded annually based on criteria including exemplary contributions to the Iowa tourism industry and pioneering new initiatives in local, regional or state tourism.

Planning Studio Fosters Lasting Impressions in Downtown Red Oak. In fall 2008, Alan Jensen, ISU Extension geospatial technology specialist and community development specialist, revisited a 1996 community and regional planning studio project conducted for Red Oak, Iowa, and found that in Downtown Red Oak, among other things, was an increase in property value of nearly \$500,000, a more attractive downtown area, community cooperation, and a sense of pride. In 1996 Jensen was an adjunct assistant professor of community and regional planning and an ISU Extension community development specialist teaching CRP 432/532, the community and regional planning senior- and graduate-level capstone studio course that worked in Red Oak. The Red Oak Chamber of Commerce asked ISU to propose ways to improve the appearance of the downtown. The students conducted in-depth research of the downtown, and employed public participation techniques to generate input from the community, including a written survey, a design workshop during which the public was invited to comment on proposed storefront redesigns, and a public presentation. The students' final report provided a base for the store owners and city to begin moving ahead with further design and development of an incentive program for storefront renovations.

On November 17, 1997, the Red Oak city council passed the Downtown Urban Renewal District ordinance to assist building owners and landowners in the retrofit, renovation, or new construction of properties or second story housing developments, within the designated area. The plan used tax increment financing (TIF) to generate grant funds that were awarded to store owners. Since 1998, more than 50 grants have been awarded to businesses in the Downtown Renewal District, many of which are located within the planning studio class design area. Renovation projects have been completed costing \$422,712, of which only \$75,234 was grant funding. For every dollar provided by a grant, \$4.62 was invested by the business/store owner. About half of the businesses around the square participated in the urban renewal program. According to the county assessor's records of taxable valuation from 1998 to 2008, those businesses accounted for 60 percent of the increased property value around the square. The valuations of participating properties increased by more than \$348,000 (\$20,500 average per participant), while the non-participating properties increased by approximately \$233,920 (\$13,760 per non-participant). More than 30 additional businesses in a two-block area around the square took part in the program, initiating renovation projects costing \$493,479, of which \$81,126 came from the grant program. For every dollar from the grant program there was approximately a \$5.08 investment by the business/store owner.

Since the appearance of this article in the Winter 2008 issue of *Community Matters*, the Extension Community and Economic Development newsletter, several communities have inquired about participating in such a program.

F amily, Youth & Communities

Families, Communities and Civic Engagement: Much of our work related to this plan grew out of our Horizons program. Horizons is a multi-state program focused on using study circles and building leadership to better understand community needs and set the stage for action related to reducing poverty in rural communities. *20 communities completed an 18 month program to develop leadership skills and reduce poverty.* Horizons is delivered by Iowa State University with funding support from the Northwest Area Foundation headquartered in St. Paul, MN. Early in 2007 communities used the 5-week Study Circles process to understand effective poverty reduction strategies and a 30 hour LeadershipPlenty® training course in preparation for community Visioning efforts completed between July–October, 2007 with 5,958 participants or 21.7% of the population in these 20 communities leading to Community Plan writing and implementation before the program ended on June 30, 2008. At least seven communities addressed housing needs of low-income residents; seven provided families opportunities to learn more about money management including tax preparation for low income residents; at least six communities addressed the need for food; at least communities mentored or tutored local children or youth; three communities developed centers to meet the needs of low income residents; while two communities increased day-care slots for working parents. An additional 4 communities (non-Horizons communities) implemented plans to reduce food insecurity at food pantry sites. Most Horizons communities believe they are "better off" because of the program and most would participate again.

Money for Life: Community classes offered in partnership with local agencies and organizations reached a wide range of families. 12,423 individuals improved personal and family financial management skills, evaluated by three month post sample surveys. 3710 consumers strengthened decision making skills, evaluated by three month post sample surveys. 1503 Iowans received a total of

\$752,617 in Earned Income Credits by using VITA programs, avoiding filing fees and potential costs associated with Refund Anticipation Loans.

550 households completed A Place of Your Own, ISU Extension's online homeownership education program. It meets USDA Rural Development's requirement that borrowers complete an educational course about homeownership to be eligible for loans.

Strengthening Families: Our Strengthening Families program evolved primarily around citizen needs related to parenting education, early childhood education and work with intergenerational families.

Both PROSPER (Promoting School-Community-University Partnership to Enhance Resilience) and CYFAR (Children, Youth and Families at Risk) collaborate with community teams to offer evidence-based programs for middle school students and their families. PROSPER is a randomized control study to evaluate the effectiveness of the community partnership model. Communities that can prevent risky behaviors by youth and prevent longer-term addictions, such as alcoholism, can save on rehabilitation costs. Children ages 10-14 whose parents participate in an evidence-based parenting class report that their parents better monitor their activities, administer more consistent discipline, and spend more time with their children than those whose parents do not participate in the class. The children in intervention communities report a lower likelihood of engaging in risky behaviors, such as substance use and violence than do children in control communities. The Strengthening Families Program for Parents and Youth 10-14 has been found to save \$9.60 for each dollar spent on program implementation. ISUE has certified 673 parent educators and other family support professionals in the SFP 10-14 program around the world during this reporting period.

4900 people were reached through parenting education efforts which included sequential parenting education workshops, one-session workshops, as well as training for professionals to deliver in-depth parenting education.

1430 parents improved parenting skills, evaluated by a pre and post self assessment sample surveys. 47 professionals participated in 55 hours of direct training in planning, delivering and evaluating parenting education through Partnering with Parents. 22 of these professionals participated in Partnering with Parents through online education. Program evaluation data reveal that participants strengthened their parenting education knowledge and skills after participating in Partnering with Parents, and actively implemented new information and strategies into their parenting education efforts. 33 individuals participated in a comprehensive training (13 days plus online homework) that included both the Partnering with Parents Training and the Family Development Certification Training. Partnering with Parents: Retrospective tests indicate that there is a statistically significant difference between the pre-test and post-test scores of professionals who participated in the Partnering with Parents training series, as well as the combined Partnering with Parents and Family Development Certification Training program. Thus, program participants significantly strengthened their knowledge and skills in planning, delivering, and evaluating parenting education program efforts. In addition, paired t-tests indicate that there is no statistically significant difference in the knowledge and skills gained.

2,488 Iowans participated in learning related to intergenerational family relationships in mid, later life, and aging families. 47 family caregivers participated in *Powerful Tools for Caregivers* and 52 adults participated in *Adult Children and Aging Parents*. 2,389 people attended additional aging-related information workshops including *Aging to Perfection*, generational differences, stress and emotions related to aging, and other diverse programming. ISUE continued to provide leadership for the eXtension Family Caregiving Community of Practice. For Iowa caregivers, ninety-five percent of those surveyed felt that as a result of the classes, they believed they were more confident caregivers than before taking the classes. They had improved their caregiving skills, such as using positive communication techniques, help manage stress, and bring balance into their lives. Ninety percent of the participants felt they had better information about community resources that were vital to caring for their loved one. One hundred percent said they would recommend the course to others.

12,192 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. 711 early childhood educators received instruction and assistance to self assess the overall quality of care and educational services, develop improvement plans, and implement changes. 564 directors representing 34% of Iowa's child care and preschool programs received instruction in new staff orientation, staff feedback and coaching procedures. 1,664 child care preschool teachers received 16 hours of instruction and completed activity assignments specific to their worksite. 862 child care professionals completed self-study instruction.

Child Care that Works self-study video lessons were provided to assist child care providers in meeting state licensing requirements. 94% (n = 863) of individuals participation in Child Care That Works self study workshops indicated that they had made at least one improvement in the quality of their child care program.

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.

A retrospective survey of child care professionals (n = 711) participating in the Early Childhood Environment Rating Scale training indicated that they were able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant [$p < 0.001$] indicating that the ERS training is making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services. Professionals (n = 381) surveyed in a 3 month follow-up survey of child care quality training indicated improvement in learning environments and teaching strategies.

Post-survey results of the Better Kid Care NSO program indicated that 87% of the participants felt they could better teach and model good healthy practices, 80% reported improved communication with parents, 74% could plan more appropriate learning activities for children, 71% could manage children's behavior more effectively and 86% could work more effectively with staff.

Extension Provides Training Programs for Precinct Election Officials. Thanks in part to the efforts of ISU Community and Economic Development (CED) specialists, Iowa avoided pregnant, hanging or perforated chads, controversial recounts, or any other mishaps on election day. Since 2006, ISU Extension CED has conducted 177 training sessions for precinct election officials (PEOs) in 75 counties, training more than 4,200 PEOs around the state. The PEO training is funded with federal Help America Vote Act (HAVA) grant money, as well as some county funding. The Iowa Secretary of State's office, the Iowa State Association of County Auditors (ISACA) and ISU Extension partnered to develop and deliver the new certification training. The six-hour certification training was delivered jointly by the county auditor and Extension staff to enhance the skills, knowledge and confidence of front-line polling place officials. This type of training was critical during an election with record voter turnout, as well as on-site voter registration for the first time in Iowa. A week following the election, the Des Moines Register printed an editorial titled "Credit Iowa for taking steps to expand voting" praising the efforts of the Iowa Secretary of State and Iowa's 99 elected county auditors. (In Iowa, per the Iowa Code, the county auditor is responsible for administering elections in the county and is thus designated Commissioner of Elections for the county.) "[O]ne reason so many people showed up to vote in the 2008 general election is that Iowa has made it easier to do," the editorial stated.

Students Team Up with Town/Craft in Multicultural Community Planning Project. Students in CRP 432, the senior community and regional planning studio, addressed the issue of successful public participation in multicultural communities by employing public participation techniques in the multicultural community of Perry. Perry city leaders asked the students to enhance the city's downtown revitalization plan while integrating the immigrant community into the planning process. The class was led by Gerardo Sandoval, assistant professor of community and regional planning at Iowa State University, who joined the ISU faculty this fall.

To gather community input, the students enlisted help from the staff at Town/Craft, a center created by a partnership of the ISU College of Design, ISU Extension and Hometown Perry, Iowa. Town/Craft staff helped students organize community conversations at the facility to encourage public participation. These meetings were well-attended by the Anglo community; however, the students discovered that engaging the Latino community would require a different approach. The studio reached out to leaders and prominent members of the Latino community in order to hold a focus group. The goals and needs that the rest of the community felt echoed those put forth by the leaders of the Latino community.

Based on their findings, the students identified nine major needs to be addressed in the plan: increased downtown activities; centralization/integration of social services to better meet new immigrants' needs; increased social networks between stakeholders, residents and policy makers; increased retail businesses downtown; retention of Perry's youth; continuation and expansion of historic preservation; increased citizen involvement; code enforcement improvements; and incorporation of Latino immigrants into community development planning and activities. The students presented their plan to Perry residents at a public meeting at Town/Craft. By utilizing Town/Craft, the students were able to connect with the client community and had access to local resources.

Iowa's Living Roadways Community Visioning Program Makes Route Come Alive for 2008 RAGBRAI Riders. Thanks to the Iowa's Living Roadways Community Visioning Program, cyclists enjoyed a more beautiful Iowa during the 2008 Register's Annual Great Bicycle Ride Across Iowa (RAGBRAI). This year's RAGBRAI route passed through 15 communities that are making Iowa's roads and towns more visually appealing and environmentally diverse by participating in this unique program. Since 1996, the Visioning Program has provided 149 small Iowa communities access to professional landscape planning and design assistance.

Through a series of planning meetings, a volunteer committee works with a Trees Forever facilitator, a professional landscape architect and a design team from Iowa State University to identify potential landscaping projects and to create images showing how finished projects might look. The communities along the RAGBRAI route are a mixture of current communities that are still developing concept plans, recent communities, and communities that were some of the first to go through the process. Jefferson, for instance, was one of three communities that went through community visioning when the program was a pilot program through ISU Extension Landscape Architecture. The visioning communities and their Visioning Program years along the route from west to east are: Missouri Valley, Shelby, Harlan, Kimballton, Exira, Jefferson, Grand Junction, State Center, Le Grand, Toledo, Belle Plaine, North Liberty, Solon, Lisbon and Tipton. Two of these communities, Exira and Kimballton, participated in a corridor enhancement pilot program that applied the visioning program participatory design process to the U.S. Highway 71 corridor in Audubon County. The types of completed projects that cyclists observed along the route include new entryway signage in Missouri Valley and Solon, roadside plantings in Exira, Jefferson, and Toledo, trail development in State Center, and downtown streetscaping in Lisbon. The Visioning Program is sponsored by the Iowa Department of Transportation in partnership with Iowa State University Extension Community and Economic Development and Trees Forever.

Human Nutrition & Health

Food and Nutrition: Choices for Health. Work within this plan focused primarily on improving health through diet and exercise, also food safety.

Lighten Up Iowa (adult) and Go the Distance (youth) programs (changing to Live Healthy Iowa and Live Healthy Iowa Kids in 2009), encourage physical activity and healthful eating using the team concept. WiseWoman, a CDC funded program, was a community-based intervention to decrease risk of cardiovascular disease among middle-aged women who lack health insurance and access to healthcare. This evidence-based program has been adapted for face-to-face statewide delivery as Habits for Healthy Hearts. Eat to Compete, a program consisting of three separate sports nutrition topics, was presented statewide to parents, coaches, school staff, and adolescent athletes. Several field staff serve as supervisors of Expanded Food and Nutrition Education Programs and Food Stamp Nutrition Education Programs educators who deliver basic food and nutrition information to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and Extension to 4-H Youth, with partnership and support of Extension faculty.

Through a variety of program offerings, 53,846 adults improved their diet; evaluated by 24 hour food recalls; pre and post self assessments and 3 month post sample surveys. And, 22,192 adults increased their minutes of activity (self reporting of 30,477 participants). Nearly 774 employers and employees passed certification requirements for food safety programs, improving food handling behaviors and decreasing the incidence of food borne illness (83% of 928 participants).

Natural Resources:

Iowa Learning Farm Teaches Iowans to Improve Soil and Water Quality. The Iowa Learning Farm (ILF) was launched in 2005 to generate public awareness about the importance of improved water and soil quality through conservation farming practices. The project began with 17 cooperators across the state conducting field demonstrations on various practices including reduced tillage, fertilizer application rates, and cover crops. Since then, 12 more cooperators and 13 conservationists have officially joined the project. ILF team members work with these farmers, studying the agronomics, economics, and the sociological aspects of these sites. Five water quality modeling studies also are being conducted. In addition, thousands of people have seen the ILF rainfall simulator, which demonstrates the effects of rainfall on different soil scenarios. Short educational videos about water and soil quality are being distributed throughout Iowa and will be in high school and community college classrooms with accompanying curriculum by fall 2009.

Partners include the Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Natural Resources Conservation Service, Conservation Districts of Iowa, Iowa State University Extension, Iowa Farm Bureau, and the Leopold Center for Sustainable Agriculture. Representatives from each of these agencies and offices work together overseeing the progress of the project. ILF expects to add 10 more conservationists in 2009. These farmers and non-farmers are leaders in their communities and among their peers, are good conservationists, and are passionate about soil and water quality issues.

Plant Systems:

Integrated Crop Management News Makes Crop Production Information Timely and Accessible. The Integrated Crop Management (ICM) Newsletter moved to electronic distribution in 2008, making reliable crop production news and information even

more accessible and timely to the 2,663 subscribers (a subscriber increase of 43 percent over the previous year). Articles, written by 27 extension researchers from 10 College of Agriculture and Life Sciences departments, contained science-based crop production information intended to increase productivity and global competitiveness of Iowa corn and soybean growers and their advisers while also conserving the environment. Articles were generated by specialists' research findings; grower and field agronomists' questions and concerns based on findings in local fields; and by weather, disease, and pest occurrences in and near Iowa. Respondents to an end-of-year subscriber survey indicated: more confidence in making decisions related to topics covered (96 percent); action taken to recommend changes or modify farming practices (89 percent); and new awareness of practices to improve farming operations (96 percent). ICM articles are frequently reprinted and referenced by other public and private agriculture websites – such as AgNetwork.com, Agriculture Online, AgriNews.com, AgWeb.com, Cattlenetwork.com, Dealer Update, Purdue Agronomy/Chat, and stopsoybeanrust.com.

Total Actual Amount of professional FTEs/SYs for this State

Year:2008	Extension		Research	
	1862	1890	1862	1890
Plan	247.5	0.0	119.4	0.0
Actual	247.7	0.0	113.3	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

Merit review: ISU Extension continued to monitor and adjust the plan of work in 2008 through use of self directed work teams, continuous needs assessment, and ongoing work with public and private partnerships. At the state level, state staff worked closely with key statewide constituencies. Surveys of needs assessment were done at both the local and state level to inform selected plans. Iowa County Extension Councils and local stakeholder groups annually review, and prioritize needs, feeding the information back to the statewide plan of work teams. State POW merit review: North Central Regional Program Directors review plans across the region and are continuing to provide oversight, guidance, and course corrections on the logic models.

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

III. Stakeholder Input

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

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

Brief Explanation

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

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

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief Explanation

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

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

1. Methods for collecting Stakeholder Input

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

Brief Explanation

- 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 was 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

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- 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.
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 - 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.

Brief Explanation of what you learned from your Stakeholders

Programs are shifting to address many of the needs expressed by stakeholders, who tell us:

We are being encouraged to use technology—webcasts, webinars, interactive web sites, blogging, ask the expert, etc. especially for audiences 20–40 years old.

Increased interest 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 need to continue to understand alleviating poverty in Iowa and working in depth coaching communities 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
8460476	0	6397175	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	7325094	0	10203148	0
Actual Matching	7325094	0	10203148	0
Actual All Other	19953649	0	47435980	0
Total Actual Expended	34603837	0	67842276	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	551947	0	8820533	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME	
1	Dairy Team	16
2	Iowa Beef Center	25
3	Iowa Pork Industry Center	34
4	Farm and Business Management	46
5	Community Resource Planning and Development	60
6	Economics, Markets, and Policy	70
7	Economic and Social Welfare	77
8	Community Services and Institutions	82
9	4-H Youth Development	87
10	Families, Communities and Civic Engagement	99
11	Money for Life	105
12	Strengthening Families	112
13	Food and Non-Food Products	121
14	Food and Nutrition: Choices for Health	125
15	Human Nutrition, Food Safety, and Human Health and Well-being	135
16	Natural Resources and Environmental Stewardship	140
17	Commercial and Consumer Horticulture	153
18	Corn and Soybean Production and Protection	160
19	Plants and their Systems	171

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

Dairy Team

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	7.0	0.0	5.1	0.0
Actual	7.0	0.0	2.6	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
204113	0	231409	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
204113	0	231409	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
664341	0	2107692	0

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

New Milk Quality Training Modules Developed

To respond to the need by dairies and dairy service-providers for modular and flexible educational materials on improving milk quality, Milk Quality Modules and Materials were developed, including examples from 20+ herds and 5 case studies including SCC, culture, and on farm data and information. 4 workshops have been conducted to date involving 160 ag professionals. Each professional represents ~ 60-70 herds. Workshops were evaluated as excellent, and the top workshop was presented at both state field conferences.

New Dry Cow Barrier Dip Reduces Infection and Improves Profitability

A new dry cow barrier teat dip, a mastitis control technology, was commercialized. This offers a significant benefit to the industry: According to Hoard's Dairyman industry survey, there is 44% industry adoption rate of dry cow/fresh cow mastitis control technologies, resulting in potential \$20 million dollars of increased revenue due to reduced clinical mastitis at calving, improved SCC at calving, and reduced antibiotic residue risks and costs.

Dairy Focus Group Series on Decision-Making Processes

Three Dairy Focus Groups involved 25 dairy producers in the process of learning about decision-making and financial management skills. At the end of the 4-session series, 13 were able to formulate long-range vision statements and identify short range goals. Follow-up interviews and visits 6-9 months post-series found that many had taken actions to achieve short term goals.

Milker Training Workshop

Milker training analysis of one farm using PC-DART records showed 4 pounds of milk increase following the training. On this 330 cow dairy, a milker training workshop resulted in \$85,994 of added milk income, and \$1,100 of increased income from milk premiums per year. 75% of milkers who attended the workshop reported increased understanding and knowledge of the following: mastitis, importance of udder cleanliness, the impact on good milking routines on SCC, and the role milkers play in ensuring milk quality.

Dairy Producers Show Community Leadership on Immigration Issues

Dairy owners and managers in a top dairy county were instrumental in bringing issues related to the immigrant workforce and flaws in current immigration policy to the public forefront for discussion and problem-solving. As a result of their courage in bringing this issue to the attention of elected county leaders, a focus group was started to further examine the issues and provide leadership to citizens.

Facility Design Planning and Implementation Results in Improved Production and Efficiencies

Five dairy owners who received farm building design assistance completed a new or modernization project for freestall cow housing barn. One completed a milking parlor. All reported improved animal comfort and health, improved labor efficiency, and 2 herds report increased milk production (900 lbs/cow).

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)**1. Standard output measures****Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	10000	2500	2300	1050
2008	12353	4942	1513	1980

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	0	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Research/demonstration studies

Year	Target	Actual
2008	3	8

Output #2

Output Measure

- Publications

Year	Target	Actual
2008	6	49

Output #3

Output Measure

- Workshops

Year	Target	Actual
2008	32	44

Output #4

Output Measure

- Emergency Response to tornado damage

Year	Target	Actual
2008	{No Data Entered}	13

Output #5

Output Measure

- Dairy Team Website developed

Year	Target	Actual
2008	{No Data Entered}	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of new dairy farms established.
2	Percent of dairy producers who adopt more competitive dairy production systems and practices.
3	Percent of Iowa producers who adopt integrated dairy herd and health management practices that result in improved profitability, enhanced food quality and safety, and improved environmental stewardship.
4	Percent of producers who will increase the awareness and use of interpersonal and organizational skills when managing family or non-family personnel.
5	Percent of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run-off and preserving ground water and air quality.

Outcome #1**1. Outcome Measures**

Number of new dairy farms established.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	8	10

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

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

What has been done

1. Number of new dairy farms established: 10 farms (8490 cows)
2. Number of farms undergoing an ownership transition/transfer: 7
3. Number of farms facilities or farm financial planning projects completed: 14

Results

1. With the start-up of 10 new dairies in the state involving 8490 cows, total cow numbers increased or were maintained in the two primary dairy regions. The result is added employment (1 FTE/25 cows in a community) and increased economic activity. The estimated value of the increased economic activity is \$14,000+/cow, or \$118,860,000.
2. At 3 of 6 farms involved in ownership transitions/transfers planning sessions, farm families brought in a son, added acreage to bring in young family member, or completed a five-year business plan.
3. 3 dairy producers a completed a business plan.
4. 6 producers who attended focus group meeting about importance of financial planning, signed up for a hands-on workshop to calculate cost of production using Dairy Trans spreadsheet.
5. 12 attended a workshop to complete the Dairy Trans Cost of Production spreadsheet and to understand the farm financial analysis component of the Dairy Trans tool. 2 producers made major investment decisions because of what they learned in the workshop.

4. Associated Knowledge Areas

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

Outcome #2**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20	95

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

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

What has been done

1. 4 dairy producers constructed Compost Barns with drive-by bunks to improve and expand housing for lactating cows.
2. 11 producers expanded free stall housing space to improve cow housing and cow comfort for lactating cows.
3. 2 dairy owners built commodity sheds to improve feed storage, reduce waste, and allow opportunities for better feed purchasing decisions.
4. 8 dairy owners improved space for heifers through new or remodeling construction projects.
5. 1 dairy producer installed a robotic milking system to reduce on-farm labor, and to improve consistency in the milking routine.
6. 1 dairy owner constructed a new special needs barn to house cows during the transition period.
7. 1 dairy owner constructed a new dry cow barn.
8. 5 farms received planning assistance on designs for new or modernization projects; 2 owners completed a new facility, and 3 completed modernizations with net result of 5 freestall barns and 1 milking parlor completed.
9. 4 dairy owners constructed a low-cost milking parlor to increase labor efficiency and production efficiencies

Results

Modernization/expansion projects on existing dairies improved herd management and efficiencies, thereby improving the viability and competitive advantage of these farms. These are some of the reported changes observed by dairy owners who made facilities changes:

1. Improved feed efficiency
2. 900lb average milk/cow increase seen at 2 farms that improved cow housing by adding new or modernized freestall facilities
3. Improved milk production of 5lb/cow/day in herd with new compost barn, and milk production maintained despite severe weather
4. Improved milking time throughput increased by 50% at farm with remodeled milk parlor
5. Decreased mastitis cases by one half, valued at \$1200 savings at farm with new compost barn
6. Decreased feed losses valued at \$15,000/year due to bunk line feeding in improved cow housing barn

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20	25

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

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

What has been done

1. Worked with 13 herds (~ 4500 cows) to accomplish on-farm troubleshooting to solve mastitis/ milk quality problems; some investigations included full farm investigation and milk culture analysis
2. Biological Risk Management Assessment conducted on 20 farms; follow-up on 8
3. Calf Care Workshop conducted for 14 participants
4. Milker training session PC Dart record analysis for 330-cow farm

Results

Milk Quality Troubleshooting: Over 92% of herds improved their milk quality as evidenced by reduced somatic cell count. Average SCC pre and post troubleshooting were 581,000 (range 310-1,100,000) and 321,000 (range 190-500,000). These improvements transcribe into estimated milk production gains worth \$288,000 and increased milk quality premiums worth \$237,000.

Biological Risk Management Assessments: 20 farms completed the BRM Assessment, with follow-up visits and analysis done on 8 farms, with a special focus on risk factors to udder health. On 7 of the 8 herds, involving 1474 cows, average herd SCC improved from 410,000 to 285,000 between June 07 and Jan 09. The dollar value of increased revenue from quality premium payments amounts to \$50/cow/year for these 7 herds.

Calf Care Workshop: Calf Care Workshop pre-post survey of 14 attendees showed "Better understanding" rated an 8 on a 1-10 scale.

Milker Training & PC Dart records analysis: Milker training analysis of one farm using PC-DART records showed 4 pounds of milk increase following the training. On this 330 cow dairy that resulted in \$85,994 of added milk income and \$1,100 of increase milk premiums per year. 75+ % of milkers reported increased knowledge of importance of udder cleanliness, their impact on SCC, and what mastitis is and their impact on milk quality

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
315	Animal Welfare/Well-Being and Protection

Outcome #4**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10	50

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

Dairy owners/managers, employed family members, and non-family employees all benefit from improved communication in the workplace, and from the development of work environments that foster respect for people, animals, and resources.

What has been done

1. Workshop conducted on understanding personality types - 110 attendees
2. Coaching provided on interpersonal communication to 6 farm families engaged in process of farm ownership transition/transfer

Results

1. 110 dairy producers learned how to more effectively manage personnel on their farms through the Personality Box learning and assessment tool. Post surveys showed increased understanding of personality temperaments.
2. 6 dairy families learned and applied interpersonal communication skills to the process of completing family farm ownership transfers, cow ownership arrangements, farm partnership agreements, or future farm plans.

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

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

Not reporting on this Outcome for this Annual Report

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

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

Brief Explanation**V(I). Planned Program (Evaluation Studies and Data Collection)****1. Evaluation Studies Planned**

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

Evaluation Results

Barrier Dip Reduces Infection in Dairy Animals and Improves Profitability. Mastitis in dry cows and first-calf heifers costs the U.S. dairy industry \$1 billion per year in lost milk production and revenue and increased expenses. ISU developed and licensed the technology for external sealant teat dips that provide a "synthetic skin," protecting the animals' mammary glands from mastitis infection and organism penetration. Activity in this area has resulted in three peer-reviewed publications and seven ISU patents. ISU also has helped three companies develop similar products as well as an internal sealant. Extension is educating dairy farmers and agribusiness industries about these technologies via direct meetings and contacts, agri-industry continuing education, and published articles and materials. Over the past four years, use of these products has increased to 44 percent of the market, which would indicate potential annual savings of \$168 million due to reduced mastitis losses and an additional \$16 million of income. Using preventive sealant technologies also could save U.S. dairy producers \$36 million in antibiotic costs and enhance food safety by reducing potential risks for antibiotic contamination of milk and meat.

Key Items of Evaluation

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Iowa Beef Center

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	10.3	0.0
Actual	15.0	0.0	5.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
437385	0	456141	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
437385	0	456141	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1434301	0	4506191	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conducted two co-product storage and one feeding applied research projects and reported results at producer meetings.
- Held several educational meetings on storing and handling distillers grains and solubles. •Organized and sponsored an Inventors Contest to surface innovative, low-cost and practical ways to handle, store and feed wet co-products for low volume users.
- Conducted workshops to teach producers to use BRaNDS software to develop and evaluate their rations and feed costs and how ethanol co-products may be used to reduce their costs.
- Partnered with Iowa Cattlemen's Association and Coalition to Support Iowa Farmers to hold four feedlot facility tours attended by over 350 producers. These field days featured expansion and facilities and improvements, focusing on environmental protection and water quality.
- Held or co-sponsored additional field days focusing on environmental structures and management to protect water quality and increase manure nutrients applied to land for crop production.
- Conducted two workshops for newly permitted feedlots on strategies for meeting regulatory compliance and increasing the economic value of manure nutrients. Partnered with Kansas State University to delivery risk management workshops for cow-calf and feedlot producers. These nine, four-hour workshops were attended by 153 participants provided hands-on computer simulations to experiment with futures, options and insurance products. Four additional workshops conducted by ISU staff during the reporting period. The simulation program developed for this extension program was also used on campus as part of a livestock marketing course.
- Conducted producer meetings on beef cowherd management to reduce pasture and winter feed costs. These pasture walks, demonstrations, workshops and meetings focused on reducing feed cost through improved grazing management, nutritional planning and use of ethanol co-products.
- Conducted applied research on alternative production beef cow-calf systems that may be a more efficient use of resources during times of high feed costs and rising land price/rent. The output is a series of Plows and Cows publications that explain and evaluate alternatives systems and their costs and benefits.
- Coordinated two young cattlemen peer groups. Participants selected topics and IBC provided technical expertise and organized speakers and mentors. These groups are learning about production and economic management strategies, record keeping and visiting with successful producers to learn effective ways to start and/or operate a small beef cattle operation.
- The Small Meat Processors Working Group organized by ISU three years ago brings processors, regulators, extension educators, and business consultants together to identify small meat processor needs and the resources that can address those needs.

Results:

- 1) Meat Processors Resource Guide Book.
- 2) Local and area trainings, and training at the Iowa Meat Processors Assn. Annual Convention on business sustainability.
- 3) Extension has broadened the scope of their interaction with meat processors to include issues of business development and sustainability.

2. Brief description of the target audience

- Beef feedlot producers and managers
- Cowherd producers and managers
- Allied industries and service providers
- Ethanol plants and managers
- State agencies
- Beginning farmers

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	8200	95000	0	0
2008	4746	103000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	0	
2008	17	1	18

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	5	4

Output #2

Output Measure

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

Year	Target	Actual
2008	5	4

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	73	75

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

Distillers grains and solubles (DGS) have increased dramatically as the ethanol production has increased in Iowa. These are excellent feedstuffs for cattle feedlots and have feed value greater than or equal to corn at up to 50% of the ration in their wet or semi-wet form. As corn prices increased with increased demand from ethanol plants, these co-products are an effective way to manage feed costs. The ethanol plant also benefits from a local market for the wet DGS because it reduces drying and transportation costs.

What has been done

The Iowa Beef Center (IBC) developed a comprehensive program to increase cost effective utilization of DGS. It builds on years of research that has been explained to cattle producers and incorporated into recommendations and decision support software. Applied research and demonstration on storage and handling wet DGS has found practical solutions for producers.

Results

A survey of Iowa cattle producers indicated that they are utilizing more corn co-products to combat rising feed prices. Producers are actively searching for knowledge about methods of feeding corn co-products by reading published articles and attending Extension sponsored meetings. Over 50% of beef cowherds and over 70% of beef feedlots fed corn co-products. When asked what the producers felt the primary advantages were for feeding corn co-products, the advantage of price was noted by an overwhelming majority (77%). The notable disadvantage on the other hand was the issue of storing co-products and their rapid quality deterioration. Of the producers evaluated in this survey, 56% replied that they have read IBC newsletters or attended an extension meeting (36.5%) to learn about feeding DGS. A total of 45% of the respondents also indicated they have attended an IBC DGS workshop while 31% have visited the IBC webpage about ethanol co-products. When asked what impact the information provided by the Iowa Beef Center has had on how these producers plan on using corn co-products, 61.5% say they plan on using more co-products and 51.7% say they will compare the price paid for co-products on a delivered dry matter basis.

4. Associated Knowledge Areas

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

Outcome #2**1. Outcome Measures**

Percent of feedlots over 100 head capacity that utilize solid manure settling structures or alternative technology treatment systems.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	32

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

Rainfall induced run-off from open beef feedlots is a risk to surface water quality. Producers and the general public want to have streams and lakes that meet their designated use. Removal of solids from the run-off is an important first step in preventing nutrients from reaching waters of the state and in recycling those nutrients back into crop production. Filtering the effluent through a vegetative treatment system or other alternative technology is a further action to protect water quality.

What has been done

The Iowa Beef Center has conducted applied research on the effective solid settling structures and alternative technologies and has developed educational materials for producers about design standards and management practices to achieve the desired performance. IBC has sponsored and co-sponsored tours of facilities that are doing a good job in manure management, conducted meetings on the rules and practical applications of water quality protection, and worked with the cattle industry, regulatory and technical service agencies to deliver a common message to farmers about manure management and water quality.

Results

Attendance at feedlot environmental management educational events increased dramatically, as did construction of solid settling and effluent treatment structures. Cattle producers also recognized the economic advantage of capturing manure solids and applying it to crop land as the price of commercial fertilizer increased. Relationships between producers, their organizations and government agencies regulating water quality have improved.

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	15	10

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The specific management system of interest is the USDA Process Verified Program (PVP) for age verification to Japan. PVP requires that the producer develop a management system and be approved under a third-party verification program. Producers that sell age-verified cattle have received premiums for their cattle.

What has been done

IBC has conducted educational meetings on PVP and age- and source-verified programs and in instances have worked to get producers into an approved system. IBC also worked directly with an auction barn in Iowa to develop the Verified Iowa Precondition (VIP) program where approved producers' cattle are age- and source-verified and are verified to be weaned and vaccinated.

Results

The number of cowherds and feedlots that are PVP continues to increase but remains a small percentage of all cattle operations in the state. Those operations are approved sell their cattle at a premium. Fed cattle that met the PVP requirements and were eligible for Japan received a \$20-\$35 per head premium over similar non-PVP cattle. Feeder cattle premiums are harder to quantify but do exist.

4. Associated Knowledge Areas

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

Outcome #4**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	15	60

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

Beef cowherds are under significant economic pressures. Higher grain prices driven in part by increased ethanol demand has a two-fold impact on cowherds. First, higher feed prices reduces the price that feedlots can afford to pay for feeder cattle because of the higher cost of gain, resulting in lower selling prices for cowherds. Second, forage costs (pasture and hay) are the largest costs of cowherds. The price of both has increased dramatically as grain prices increased resulting in higher cost of production for cowherds. Improved efficiency to reduce cost per unit of output sold is necessary to remain economically viable.

What has been done

The Iowa Beef Center has developed and delivered an educational program based on applied research of how to improve efficiency and/or reduce input costs for beef cowherds. Computer models were developed to evaluate alternative production systems under different input and output prices. Factsheets were developed and meetings were held to explain the results. Pasture walks, ration development workshops, educational meetings and one-on-one consultations were held for producers.

Results

Beef cowherds quickly adopted the use of ethanol co-products to reduce winter feed costs and extend summer grazing. Herds also weaned earlier to reduce winter feed needs of the cow and culled non-productive cows.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
315	Animal Welfare/Well-Being and Protection
308	Improved Animal Products (Before Harvest)
604	Marketing and Distribution Practices

Outcome #5

1. Outcome Measures

Number of intergenerational transfers.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The average age of farmers continues to increase, and the rising asset values make it difficult for young people to get started in farming. In addition, the capital requirements and narrow margins make new farm start ups risky. Effective intergenerational transfer requires careful planning, efficient production, excellent communication and patience.

What has been done

The Iowa Beef Center has worked one-on-one with two dozen farm operations that involve intergenerational transfers. In addition, two young producer peer groups have been organized and coordinated by IBC. These peer groups provide a social network of like and like-minded people that learn together from each other, university specialists and successful producer mentors.

Results

IBC specialists continue to work with farms making intergenerational transfers. The two peer groups continue to evolve. Other IBC specialists are developing similar peer groups.

4. Associated Knowledge Areas

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

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

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

Brief Explanation

The time period for this report was the start of a difficult time for cattle producers. Feedlots lost money on cattle sales from August 2007 – June 2008. February 2008 was the largest reported loss for feedlots on the Iowa State University Estimated Returns series. A wet spring and flooding impacted pastures and hay production. Corn prices average well above the year before and spent five months, February through June, above the previous record price set in 1996. Corn prices reached a record at the end of June 2008 more than \$2/bushel higher than ever before. Cattle producers were financially and emotionally shocked by the grain market and the economic losses on cattle sold. During this same time the U.S. economy moved into a recession and beef demand fell, adding to the cost-price squeeze. What had been a period of optimism about the future cattle production in Iowa gave way to uncertainty about volatile markets, high feed costs and weaker cattle prices. In particular the number of cattle in feedlots with less than 1000 head declined steadily as these producers chose not to improve facilities or management skills, but rather go out of the cattle business.

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

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

Evaluation Results

The IBC conducted two formal surveys of cattle producers during this reporting period and a formal pre and post test evaluation of a workshop. One was a survey regarding use of distillers grains and solubles distributed to 2,157 producers of varying production types throughout Iowa using a database compiled by ISU Extension beef field specialists. A total of 349 surveys were returned and evaluated. Of the surveys returned 243 producers indicated that they marketed fed cattle on an annual basis and 215 producers operated beef cow herds with some producers falling into both categories. The second survey was of 448 respondents including 237 that were involved in pasture or grazing rental agreements. This survey provided feedback on grazing management practices and payments for services as it relates to managing beef cowherd costs.

The price risk management workshop included pre- and post-tests at nine of the workshops attended by 153 participants. Their knowledge on correct answers to technical questions regarding futures, options and livestock revenue and margin insurance improved by 10 to 43 percent depending on the questions. The percent of post-test questions answered correctly ranged from 52–77 percent.

Key Items of Evaluation

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

Iowa Pork Industry Center

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	10.3	0.0
Actual	14.0	0.0	14.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
408226	0	1512357	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
408226	0	1512357	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1338681	0	11593384	0

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

National Animal ID Program: Iowa Pork Industry Center (IPIC) Associate Director serves on the national steering team for NAIS. Producers are targeted for sign-up at the Iowa Pork Congress, and in IPIC / Iowa Pork Producers Association (IPPA) regional meetings around the state. As of January, 2009, Iowa has 24,743 of an estimated 47,273 premises registered with the National Animal Identification System (NAIS) (this is across species).

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

Cost of production records: We have completed an NRI research program working with niche market farms to assist them in accurately knowing their cost of production, and have held multiple educational events to disseminate the results of this project. Swine reproductive management software is being developed to assist both niche market producers (Sow Group Tracker) and commodity producers (Sow Tracker) in monitoring herd inventories and reproductive performance.

Quality (Environmental) Management Systems: The efforts sponsored by the "Smithfield Agreement" with the state of Iowa and coordinated through the IPIC has focused in part on working with swine producers to better understand what an EMS consists of and how it can be of benefit to them. QMS strategies for responding to current areas of scrutiny have been developed and are being field tested. Unfortunately, the staff coordinator of this project has resigned from this job to work at home, and a replacement is being sought.

Pork and crop farm synergies: IPIC personnel have held meetings for county boards of supervisors and boards of health to educate them as to the potential benefits of animal agriculture. These events are coordinated by ISUE Field Specialists and programs are presented by faculty from Animal Science, Economics and Agriculture and Biosystems Engineering departments. IPIC works with producer organizations such as IPPA and Iowa Farm Bureau, as well as the Beginning Farmer Center at ISU in developing programs on the potential for young farmers to enter agriculture via integrated crop and swine production.

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

Animal health improvement: Faculty from the College of Veterinary Medicine are very active in developing and communicating information for producers to improve the animal health of their farms. This information comes to the producer directly through regional conferences, state wide educational meetings, educational teleconference series such as PorkBridge and SowBridge, and via educational opportunities for swine veterinary practitioners in the annual Iowa Swine Disease Practitioners Conference.

2. Brief description of the target audience

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

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

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

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

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

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

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

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

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

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

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

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	8000	16000	3000	3000
2008	12000	24000	2000	2000

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	2

Patents listed

7,303,878: Genetic Markers for Improved Meat Characteristics in Animals (MC4R): Genetic Markers for Improved Meat Characteristics in Animals (MC4R).

2,337,495: Use of MC4R Gene as a Genetic Marker for Fatness in Pigs: Melanocortin-4 Receptor Gene and Use as a Genetic Marker for Fat Content, Weight Gain, and/or Feed Consumption in Animals.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	0	
2008	27	38	65

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed.

Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of porcine respiratory and reproductive syndrome (PRRS) epidemiologic studies.

Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of producer surveys related to porcine respiratory and reproductive syndrome (PRRS) management and impact.

Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of niche market farms with accurate cost of production records.
2	Number of swine farms to participate in EMS training sessions (cumulative).
3	Number of youth participating in the Iowa State Fair swine programs (annually).
4	Number of crop producers who broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business (annually).
5	Number of premises registered in the national animal ID program (cumulative).
6	Number of pork producers exposed to large pen gestation systems and their management (cumulative).
7	Percent of pork producers using manure testing information to manage swine manure application (cumulative).
8	Number of Producers who adopt improved animal health protocols or procedures

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	40	525

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

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

What has been done

The project used a comprehensive record-keeping program to obtain usable records from 49 niche pork farms. In order to get the niche market producers to participate, multiple contacts between ISUE personnel and the producers were required. This involved meeting with the producer to discuss the project and its benefits to the producer, contacts to get the initial data, followed by contacts to be sure the data was being interpreted correctly, and follow-up contacts to explain the results and discuss the application of the results by the producer.

Results

Information from the results was used to develop educational materials and deliver outreach programming. Materials include a Niche Pork Production Handbook, research reports in the Iowa State University 2008 Animal Industry Report, and articles in various other publications. Presentations were given at the various venues, including the Iowa Pork Congress, the Swine Disease for Practitioners Conferences, and the Boundary Waters Veterinary Conference. In addition, twelve farmer-to-farmer meetings were held where results were presented and key topics were discussed. More than 500 people participated in these presentations and training sessions. 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
301	Reproductive Performance of Animals

Outcome #2**1. Outcome Measures**

Number of swine farms to participate in EMS training sessions (cumulative).

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	600	332

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

Swine producers are undergoing increased scrutiny from external partners in a number of areas. Concerns about the environment, animal well-being and food safety are major areas of interest to the consumers, retailers, processors, as well as, producers of pork. Increasingly pork producers are being asked to document their performance in these areas, in many cases with third party verification of the results. A "Quality Management Systems" approach has been found to be most effective in meeting the producer's needs in these areas, as well as, having other benefits such as increased market access, lower cost of production and enhanced employee management capabilities.

What has been done

The IPIC has identified QMS as a priority program for the next period of time. Working with funding from the Smithfield-State of Iowa settlement, a part-time coordinator has been hired to manage this program. Areas of QMS activities include: environmental management systems, premise ID, national animal identification system, PQA+ certification of producers, ISO9000/14000 certification and other process verification based programs.

Results

A pilot group of 12 farms are participating in an Environmental Management System initiation program. One major program is the PQA+ program coordinated by the National Pork Board. This requires that producers successfully complete an educational program aimed at insuring the highest food safety and animal well-being results from their farms. The IPIC has four persons who have become certified PQA+ trainers. Their job is to train PQA+ advisors, who will then certify producers in this industry based program. To date, the IPIC has conducted 18+ meetings resulting in more than 250 certified PQA+ advisors. As producers are required to become PQA+ certified, it will be the job of these advisors to conduct either group or individual training for producers. To date, three of the major processors in Iowa now require that all suppliers be PQA+ certified within the next three years or sooner. ISUE and IPIC have the largest and most active program in this area in the nation. People trained by IPIC in PQA+ include veterinarians, educators, and producers directly.

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	650

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

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

Results

More than 300 youth exhibited in the State Fair youth swine show; 85 youth participated in Roundup; more than 50 youth and adult State 4-H conference attendees participated in the workshops; 12 ISU students are part of the Swine Fellows program; the Pork Youth Ambassador program has been restructured, yet nearly 100 youth participated in special activities including the scavenger hunt at Iowa Pork Congress; and more than 2,400 head of market hogs and 377 derby hogs were scanned for county fair shows in 37 Iowa counties.

4. Associated Knowledge Areas

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

Outcome #4**1. Outcome Measures**

Number of crop producers who broaden their agricultural enterprise to include swine production facilities in order to bring another family member into the business (annually).

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	30

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

It is important to develop and maintain a "sustainable" agriculture industry in Iowa. Sustainability has various components such as economic viability, social acceptance and environmental impact. The best way to accomplish all three areas of sustainability is to integrate the crop and livestock industries of Iowa. Livestock are the primary users of Iowa grown crops. Livestock produce highly valuable nutrients that are needed by the crop producers to fertilize the land and produce the high levels of product needed for economic viability. And the inclusion of livestock production (such as a swine finisher) in the business plan of a crop farmer adds both diversity to the operation, and is a mechanism for a young beginning farmer to enter agriculture. In addition, these swine production enterprises add to the tax base of our rural communities and create jobs where the proceeds stay in the community.

What has been done

A cash flow model has been developed for use by crop farmers, and others who might be considering expansion of their business to include finishing of swine. Targeted publications outlining the possibilities of diversifying farms to increase income and manage risk have been developed. Also, ISUE Swine Field Specialists have coordinated meetings with county boards of supervisors and county boards of health to expose them to this important topic of "Animal Agriculture" and the benefits of integrated crop and livestock production. A grant was obtained from the National Pork Board targeted at the local economic impact of pork production operations on the local economies. ISUE ANR Swine Field Specialists are participating in this project.

Results

Displays outlining the possible advantages of these systems were put up and staffed at the Iowa Farm Bureau Federation annual meeting, Farm Progress Show, the Iowa Pork Congress and many regional and local events. The IPIC has worked very closely with the Coalition to Support Iowa's Farmers in articulating this concept, and in assisting producers in evaluating potential sites for swine barns that would have the least probability of odor or negative impacts on neighbors. A spreadsheet has been developed that enables a pork producer to input specific information concerning their operation and estimate the economic impact on the local economy.

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	4500	24743

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

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

What has been done

Producers and other landowners were encouraged to register their premises during the Iowa Pork Congress at a dedicated online computer in the IPIC/ISU display. Representatives from Iowa Department of Agriculture and Land Stewardship (IDALS) were at the display much of the time to provide assistance and answer questions. Also, producers were referred to the IDALS display at the same trade show for additional information. ISUE swine field specialists affiliated with livestock production have registered their own premises, and based on their experience, promote the program and its simple registration process to attendees at educational programs throughout the year.

Results

Our target goal of 2,500 registered premises in Iowa was easily reached, because we are in the early phases of the program. In fact, according to the latest numbers available from the USDA-APHIS Web site on the NAIS program, more than 44 percent of all premises in Iowa have been registered: 24,743 of an estimated 47,273 premises. This puts Iowa in 5th place nationally for number of premises registered and 13th place in percentage of estimated premises registered.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Number of pork producers exposed to large pen gestation systems and their management (cumulative).

Not reporting on this Outcome for this Annual Report

Outcome #7

1. Outcome Measures

Percent of pork producers using manure testing information to manage swine manure application (cumulative).

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	35	65

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 is also no secret that too much manure or manure improperly handled or land-applied can also be a detriment to soil and water quality. The agriculture community recognizes the need to provide information on regulations, best management practices, and neighbor relations to Iowa's farmers.

What has been done

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

Results

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 Iowa Manure Management Action Group (IMMAG) in development and implementation of standards and protocols for producer education in this area, particularly with the Field Specialist programs of work. 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 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 Manure Application Certification.

4. Associated Knowledge Areas

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

Outcome #8

1. Outcome Measures

Number of Producers who adopt improved animal health protocols or procedures

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	104

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Iowa State University has greatly re-invested in programs involving Food Supply Veterinarians and the Veterinary Diagnostic and Production Animal Medicine unit. These programs are designed to integrate a variety of disciplines to effectively address the needs of producers and consumers, provide veterinary students with needed skills, knowledge and problems solving ability to serve the needs of the pork industry of Iowa. These areas of discovery, education and technology transfer are essentially needed by our clients of Iowa.

Results

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
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V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Public Policy changes
- Government Regulations
- Competing Public priorities

Brief Explanation

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

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

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

Evaluation Results

Presentations on herd health events and related management problems were given to more than 400 niche pork producers using face-to-face and online methods. At least three months after these educational events, follow-up surveys were distributed to approximately half of these attendees (200), and 40 of these were returned for a 20 percent response rate. Specific behavioral changes were addressed in these surveys and measured by respondent completion. Of the 40 producers who returned surveys, 75% (30) said they were now adjusting feeders more often in attempts to reduce feed wastage. Fifty percent (20) said they cleaned waterers more often to provide more, clean fresh water to their pigs. Forty-three percent (17) reported making adjustments to their nutrition programs to help lower the cost of gain on their animals, and nearly one-third (12) had implemented a change in pig flow to batch-farrow sows when possible, leading to a narrower weaning age range within groups. Perhaps most importantly, nearly 40% decided to start keeping financial and other production records in their operations. As project team members continue to follow these initial participants, more positive changes in behavior are expected. As a result of past work with niche pork producers, a need for software to help provide costs and other information was realized.

Key Items of Evaluation

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

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

Farm and Business Management

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	0.0	0.0
Actual	20.0	0.0	2.1	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
583180	0	207759	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
583180	0	207759	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1912402	0	171128	0

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

Risk Management Education: 65 county level meetings discussing farm leasing agreements were held, with over 3,000 attendees. 25 radio interviews and mass media articles were disseminated. Approximately 4,000 personal consultations were carried out. A one-day continuing education seminar for crop insurance agents was held, with 375 people attending.

Women Decision-makers and Leaders: Approximately 7 Annie's Project groups were established in Iowa, in which farm women are invited to attend a series of workshops that address financial and economic issues of their choosing.

Financing Agriculture: 79 agricultural lenders and auditors enrolled in the 2008 Agricultural Credit School conducted by ISU Extension. They each received 35 hours of instruction on legal requirements of lending, financing crops, livestock and farm real estate, risk management, financing new businesses, and problem loan solving.

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

Farm Income Tax Education: In 2007, the ISU Extension and the ISU Center for Agricultural Law and Taxation conducted seven schools in Sheldon, Mason City, Fort Dodge, Ames, Muscatine, Waterloo, Atlantic, and Ottumwa. Attendees are eligible for up to fourteen hours of continuing education credits. The Center has also been involved in continuing education in the area of taxation in the areas of women in agriculture, farm estate and business planning, and the Iowa Bar Association Tax School.

Farm Bill Education: A few presentations outlining some of the options being considered for the 2008 farm bill were included in seminars and meetings for farm audiences.

Alternative Enterprises or Value Retained: Iowa State University Extension has responded to producers' needs a number of ways. Extension bulletins on vegetable and organic budgets, as well as how to use them in decision making were developed. A series of informational meetings on organic agriculture and other long-term rotations, vegetable economics, and using budgets were held throughout the state. Interactive decision making tools were developed and put on the ISU farm management website Agricultural Decision Maker. Alternative agricultural information was added on the website Agricultural Marketing Resource Center.

2. Brief description of the target audience

Grain, livestock and dairy producers

Agribusiness professionals including USDA employees

Agricultural lenders

Farm employees

Female farmers and farm partners

On-farm and off-farm heirs

Beginning farmers

Landowners

Tax practitioners

Entrepreneurs

Farm families

State agencies and NGOs

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	15000	3350000	0	0
2008	14678	1063000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	0	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

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

O No.	Outcome Name
1	Number of crop and livestock producers who choose marketing, insurance and USDA program alternatives that are consistent with the risk bearing ability of their businesses and their personal preferences for managing risk.
2	Number of female farmers and farm partners who take a more active role in decision making for their businesses.
3	Number of agricultural lenders who finance the acquisition of new resources or implementation of new technology for their borrowers while maintaining liquidity and controlling financial risks.
4	Number of beginning farmers who objectively measure the likelihood of meeting their individual and family goals through entering a farm business.
5	Number of Iowa businesses providing inputs and/or services to farmers that will offer informed marketing and financial advice.
6	Number of income tax practitioners that increase the accuracy and efficiency of the farm returns that they prepare.
7	Number of producers and landowners who make choices among CRP, CSP and commodity payment programs consistent with their goals of increasing profits and protecting agricultural resources.
8	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.

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	10260

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

Farm operators are faced with uncertain commodity prices, input prices and crop yields each year. These factors have a large impact on their net income and the long-term financial viability of their businesses. Farm landowners also must adjust their rental arrangements to fit current levels of profitability in agriculture. Finally, agricultural professionals such as lenders and insurance agents must be able to provide informed advice to their clientele.

What has been done

Farm leasing arrangements: 65 county level meetings were held with over 3,000 attendees. 30 radio interviews and mass media articles were disseminated. Approximately 3,000 personal consultations were carried out. Crop insurance: a one-day continuing education seminar for crop insurance agents was held, with 275 people attending.

Results

A follow-up survey showed that 29% of the tenants and landowners attending a farm leasing meeting were very likely to make a change in their lease, and another 16% were likely. The most common changes were reviewing soil test information (28%), switching to a flexible lease contract (21%), increasing the rent (21%), and renegotiating rental rates (11%). An estimated 1,000 farm lease arrangements were adjusted to reflect current economic conditions, resulting in increased returns to landowners estimated at over \$3 million. The average level of knowledge indicated before and after the meeting was 3.32 to 4.13 for Trends in Farmland Values, 2.96 to 4.11 for Leasing Trends, 2.67 to 4.08 for Determining a Fair Cash Rent, 2.71 to 3.85 for Legal Issues, and 2.97 to 4.21 for ISUE Resources Available.

Crop insurance agents are giving more informed advice regarding public policy effects on risk management, grain marketing, how county level yields are estimated, and how climate change affects crop risk.

4. Associated Knowledge Areas

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

Outcome #2**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	1306

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

Female farm operators and farm partners have many questions and concerns about the financial management of their businesses and economic decisions that affect their businesses. They are often reluctant to attend mixed-gender educational meetings or to voice their questions and concerns.

What has been done

Approximately 7 Annie's Project groups were conducted in Iowa last year, in which farm women only are invited to attend a series of workshops that address financial and economic issues of their choosing.

Results

About 140 women participated in Annie's Projects in Iowa last year. They have increased their understanding of topics such as USDA farm programs, farm accounting and budgeting, interpersonal communication, machinery economics and leasing arrangements. An additional 1,166 women attended one-day and two-day conferences where they learned about similar topics.

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	503

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

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

What has been done

79 agricultural lenders and auditors enrolled in the 2008 Agricultural Credit School conducted by ISU Extension. They each received 35 hours of instruction on legal requirements of lending, financing crops, livestock and farm real estate, risk management, financing new businesses, and problem loan solving.

Results

63% of the attendees rated the School as Excellent and 34% rated it as Good relative to meeting their educational needs. They expect that their credit institutions will be able to increase their agricultural loan portfolios with fewer delinquencies and nonperforming loans.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	321

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

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

Results

Currently there are matching files for 229 beginning farmers and 33 retiring farmers. There were 10 active matches facilitated in 2008. During the year there were 320 calls of a general nature, 288 calls from beginning farmers, and 72 calls from retiring farmers. The Ag Link seminar was attended by 11 families and their students, with 29 people being reached. The Beginning Farmer Center hosted the national meeting of the National Farm Transition Network. The Center worked with six other states to provided transitional seminars. The student Beginning Farmer Network hosted a conference attend by approximately 100 people. Evaluations indicate the conference was well received and it will be repeated again this year.

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

Number of Iowa businesses providing inputs and/or services to farmers that will offer informed marketing and financial advice.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	150	2240

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

Agricultural input suppliers, lenders, commodity brokers, elevators, corn and soybean processors, farm managers and others often give management advice to their customers. They also need sound information and education to operate their own businesses in an efficient manner.

What has been done

A series of "Pro-Ag" meetings was held around the state in the fall. Featured speakers discussed the near-term outlook for crop and livestock commodities, input costs, and public policy. In addition, 1751 agri-business persons subscribe to the monthly Ag Decision Maker newsletter, which features 3 to 5 key articles in each issue. In addition, 11 agri-businesses forward the Ag Decision Maker newsletter to their clientele mailing lists.

Results

The above listed agri-business persons are better informed and better able to help their clientele make rational business decisions, as well as formulate strategies for their own businesses.

4. Associated Knowledge Areas

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

Outcome #6**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1000	1169

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

For over thirty years, the Iowa State University Farm Income Tax Schools have been conducted to educate agricultural business professionals, farm accountants, and attorneys on the legal and technical tax issues involved in preparing farm income tax returns. Nearly all farm income tax returns filed in the state are completed by attendees at the seven schools. The schools are extension based and reach nearly 1200 people every year.

What has been done

In 2007, the ISU Extension and the ISU Center for Agricultural Law and Taxation conducted seven schools in Sheldon, Mason City, Fort Dodge, Ames, Muscatine, Waterloo, Atlantic, and Ottumwa. Attendees are eligible for up to fourteen hours of continuing education credits. The Center has also been involved in continuing education in the area of taxation in the areas of women in agriculture, farm estate and business planning, and the Iowa Bar Association Tax School.

Results

1,169 people attended the 2007 Farm Income Tax Schools. Professor Roger McEowen taught Day One of every school and Day Two was taught jointly by Dr. Neil Harl and three Iowa attorneys, Lee Wilmarth (Decorah), Jim Goodman (Marshalltown), and David Bibler (Algona). The result was extensive education in the area of farm income taxation and comprehensive training for those involved in the preparation of tax returns across the state. It is expected that this will lead to fewer errors and omissions in the preparation of farm income tax returns in Iowa and increased compliance with IRS policies and procedures.

4. Associated Knowledge Areas

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

Outcome #7

1. Outcome Measures

Number of producers and landowners who make choices among CRP, CSP and commodity payment programs consistent with their goals of increasing profits and protecting agricultural resources.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The 2002 Federal farm bill expired in 2008. Farmers, landowners and agribusiness professionals are interested in what provisions are included in the new legislation, because it is likely to have significant impacts on the size and frequency of commodity payments received, the types of conservation programs and practices that will receive incentive payments, and other issues that will impact both individual farming operations and rural communities.

What has been done

A few presentations outlining some of the options being considered for the 2008 farm bill were included in seminars and meetings for farm audiences. It is anticipated that these will increase as details of the farm bill become known.

Results

Farmers, landowners and agribusiness persons will have more knowledge of provision in the 2008 farm bill and can discuss them more intelligently with their neighbors and elected representatives.

4. Associated Knowledge Areas

KA Code	Knowledge Area
605	Natural Resource and Environmental Economics

Outcome #8**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	300	910

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

Commodity agriculture is historically a high volume, low margin industry. High land and machinery costs make entry into commodity agriculture difficult. Interest, therefore, is increasing in alternative agricultural farming operations including, but not limited to: organic agriculture, fruit and vegetable production, and various livestock enterprises. Profit margins, however, vary a great deal and are based on what product is grown and how it is priced. Potential farmers need assistance in evaluating which alternative enterprise makes sense to them.

What has been done

Initial comments from producers indicate they are surprised at the profitability of vegetable production, as well as organic and non-organic long-term crop rotations. Misunderstandings regarding profitability of alternative agricultural enterprises are prevalent. Questions following the meetings and increases in requests for additional information and future meetings are occurring. In addition, an up-to-date set of enterprise budgets for organic production was developed and posted on the Ag Decision Maker site.

Results

Total attendance for all meetings and workshops related to alternative agriculture were approximately 910, a 64 percent increase over the previous year. Individual consultations increased due to the additional interest. Producers are changing practices as a result of their educational experiences. For example, a few vegetable growers told us they were changing product mix, production practices, and pricing and promotional strategies as a result of their educational experience. A few farmers are slowly transitioning their crops into organics (a field at a time) from conventional agriculture. Producers tell us that as they learn how to budget, price, and/or plan for a particular decision, they are learning how to use the same process for the other decisions they need to make within their farming operation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
605	Natural Resource and Environmental Economics
602	Business Management, Finance, and Taxation
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 Programatic Challenges

Brief Explanation

Rapid expansion in capacity to produce ethanol from corn in Iowa led to sharply higher grain prices and farm incomes for many producers. USDA estimated record net farm income for Iowa in 2006 and again in 2007.

The debate on the 2008 Farm Bill was longer than expected. Final passage occurred in June 2008, so educational efforts were postponed until the next program year.

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

1. Evaluation Studies Planned

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

Evaluation Results

Seven educational workshops about sharing machinery ownership and labor among farm operators were held. Based on a follow-up survey of 59% of the attendees 6 to 18 months later, 84% of the attendees had taken at least one action related to exchanging labor or machinery, purchasing machinery jointly, and/or calculating payments for exchanging machinery and labor with other operators. The mean number of actions taken was 2.75 per operator. The mean increase in net income reported in the past year as a result of these actions was \$7,162 per operator. Extrapolating this benefit to all 114 attendees' results in an estimated total net benefit of \$816,468.

- **Exchanged the use of labor w/another operator:**

- • Have taken this action (28)
- • Plan to do it in the future (1)
- • Have considered it (7)
- • Have not considered it (1)

- **Exchanged the use of machinery with another operator:**

- • Have taken this action (25)
- • Plan to do it in the future (3)
- • Have considered it (0)
- • Have not considered it (1)

- **Purchased or leased machinery jointly with another operator:**

- • Have taken this action (15)
- • Plan to do it in the future (7)
- • Have considered it (9)
- • Have not considered it (6)

- **Developed a written agreement for sharing machinery or labor:**

- • Have taken this action (7)
- • Plan to do it in the future (8)
- • Have considered it (14)
- • Have not considered it (6)

- **Entered into a formal partnership or LLC for sharing machinery/labor:**

- • Have taken this action (1)
- • Plan to do it in the future (0)
- • Have considered it (11)
- • Have not considered it (23)

- **Purchased crop inputs jointly with another operator:**

- • Have taken this action (8)

- • Plan to do it in the future (3)
- • Have considered it (9)
- • Have not considered it (16)

- **Sold crops or livestock jointly with another operator:**

- • Have taken this action (2)
- • Plan to do it in the future (0)
- • Have considered it (4)
- • Have not considered it (29)

- **Used ISU Extension materials to calculate payments between yourself and someone with whom you share machinery:**

- • Have taken this action (15)
- • Plan to do it in the future (4)
- • Have considered it (9)
- • Have not considered it (7)

- **Developed a plan for transferring machinery to a son or daughter:**

- • Have taken this action (5)
- • Plan to do it in the future (4)
- • Have considered it (5)
- • Have not considered it (22)

- **With whom do you jointly own or lease machinery currently?**

- • no one (13)
- • a relative (7)
- • a neighbor (11)
- • someone in another state (0)
- • relative and a neighbor (6)

- **Approximately how many dollars has your farming operation in the past year as a result of sharing machinery and/or labor?**

- • I have not shared machinery or labor with anyone in the past year (4)
- • I do so for convenience only (6)
- • 0 to \$5,000 (10)
- • \$5,000 to \$10,000(8)
- • \$10,000 to \$20,000 (4)
- • \$20,000 to \$50,000 (2)
- • over \$50,000 (1)
- • N/A (1)

Key Items of Evaluation

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

Community Resource Planning and Development

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	0.0	0.0
Actual	20.5	0.0	3.0	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
630568	0	154341	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
630568	0	154341	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1686149	0	530909	0

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

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

2. Brief description of the target audience

Individuals, businesses, organizations, public officials and community leaders in Iowa.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	4875	38200	0	0
2008	15517	189599	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	0	
2008	10	0	10

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of articles, publications, reports, plans.

Year	Target	Actual
2008	67	190

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

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

Outcome #1**1. Outcome Measures**

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

Not reporting on this Outcome for this Annual Report

Outcome #2**1. Outcome Measures**

Community visioning and design: Quality of life projects initiated

Not reporting on this Outcome for this Annual Report

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	50

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

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

What has been done

The Iowa's Living Roadways Community Visioning Program assists small Iowa communities to develop enhancement plans that reflect the values and identity of the community. The visioning process is sponsored by the Iowa DOT in partnership with ISU Extension and Trees Forever. In 2008, the Community Visioning Program selected 5 communities affected by natural disasters to participate in a special long-term planning process. The College of Design Extension offers community planning assistance through design studios and GIS imaging workshops. A series of tutorials on GIS software were developed for independent use and/or use in conjunction with short courses. ISU Extension developed planning and zoning workshops for city officials and planners.

Results

In 2008, 24 communities participated in community visioning or community planning programs. Each community received a conceptual design plan, a project feasibility study and assistance in implementation planning. Impact assessments have shown that 94 percent of communities that participate in community visioning complete at least one project proposed during the process. The Community Visioning Program staff developed a two-year planning process for the five disaster communities addressing flood mitigation issues and other issues related to natural disasters. Types of projects completed include roadside plantings, signage or signage improvements, streetscape enhancements, downtown area improvements, parks and other infrastructure improvements such as storm water drainage, welcome centers and historic areas. ISU Extension conducted 13 planning and zoning workshops and 22 GIS short courses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4**1. Outcome Measures**

Community planning: Communities participating in training sessions
Not reporting on this Outcome for this Annual Report

Outcome #5**1. Outcome Measures**

Community planning: Community plans/projects initiated

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	37

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

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 obesity and therapeutic gardens.

What has been done

Using GIS mapping technology, ISU Design Extension assisted the community of Jefferson in conducting online data gathering for capital improvement planning. Design studios worked in the following communities/areas: Ackley, Guthrie Center, Ames, Roland, Ashland (WI), South Sioux City (NE). ISU Extension developed campground plans for Wilder Park, Kent Park, Stacyville, Eagle Grove and Little Wall Lake and a fairgrounds gate design for Worth County. At the ISU Design West Studio in Sioux City, architecture students designed and built three bus stop shelters. The Town/Craft center in Perry hosted roundtable events to address the gap between research and Extension, issues related to the bioeconomy, and issues related to elder-friendly community design.

Results

ISU Design Extension integrated data in an online map of Jefferson that allows city officials to identify assets and problem areas and conduct multiple data queries. Design studios produced plans for Ackley, Guthrie Center, Ames, Roland, and Ashland (WI). The Worth County Fairgrounds gate was installed. Working from the ISU Design West Studio in Sioux City, a design/build class designed and installed camping cabins in South Sioux City's Scenic Park. ISU Extension published the information from the roundtable discussions on the Town/Craft Web site and in proceedings documents.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #6

1. Outcome Measures

Community planning: Communities with improved civic functioning

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	8	28

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To help families make the transition to home ownership and to help low-income families improve their living conditions, the Iowa General Assembly created a state housing trust fund administered by the Iowa Finance Authority that offers forgivable loans to rehabilitate existing housing. However, many Iowa communities do not have the structure in place to apply for and administer such loans. Many rural communities in Iowa also struggle to reduce poverty.

What has been done

ISU Extension partnered with the IFA to develop a statewide housing policy in order to streamline the delivery of housing education and planning to all Iowa communities and regions in the state. Extension field staff met with county and community leaders in Wayne County, Fayette County, Story County, Muscatine County, Howard County, Carroll County, Denison, IA, and Patterson, IA. Extension also took part in the Northwest Area Foundation's Horizons Program to Reduce Poverty. Allerton, Alta, Bedford, Chariton, Corydon, Ellsworth, Elma, Grand Junction, Greenfield, Humeston, Keosauqua, Marble Rock, Morning Sun, Olin, Oxford Junction, Rockford, Sac City, Seymour, Waukon and Woodbine participated in Horizons.

Results

A Local Housing Trust Fund was established in Howard County. Extension assisted the City of Denison in the creation of a housing board. Assistance included one-on-one consultation with city officials, research, drafting Articles of Incorporation and By-Laws, and program development assistance. Extension partnered with the Region XII Council of Governments in Carroll to provide ongoing assistance to the new group. As a result of participating in Horizons, the community of Elma built a new childcare center, the community of Woodbine established a mentoring program in schools, and 4 communities in Wayne County (Allerton, Corydon, Humeston and Seymour) are studying a housing trust fund for the county.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #7

1. Outcome Measures

Community economic development: Communities participating in economic development events

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	0

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. Communities need assistance in dealing with issues related to community entrepreneurship, community philanthropy and rural/urban policy.

What has been done

RDRC and Extension assisted the Grant Community Preservationists (GCP) in writing a grant for the restoration of the Masonic Lodge which is listed on the National Register of Historic Places. In the fall of 2007 they were awarded a Historic Sites Preservation Grant in the amount of \$86,500.00. The Mid-Iowa Growth Partnership seeks to create nine dairies in nine counties in the next nine years. Extension worked with the group to provide a daylong program of education and facilitation. Extension developed an Elderhostel program for Southeast Iowa communities to promote tourism in the area.

Results

The Red Oak Masonic Lodge was awarded a Historic Sites Preservation grant of \$86,500. A grant for the same amount was submitted and accepted by the Iowa West Foundation to complete the renovation. Both time and financial resources were committed to the dairy project and achievable goals were established. Additional Elderhostel Programs were developed for Northeast Iowa (Upper Mississippi River) and Pella, IA and 183 visitors from 32 states and Canada participated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #8**1. Outcome Measures**

Community economic development: Communities undertaking economic development activities

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	186

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. Communities need assistance in dealing with issues related to community entrepreneurship, community philanthropy and rural/urban policy.

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**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #9**1. Outcome Measures**

Community economic development: Number of businesses started

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20	186

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. Communities need assistance in dealing with issues related to community entrepreneurship, community philanthropy and rural/urban policy.

What has been done

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

Results

CVC co-sponsored entrepreneurship support projects in 16 communities, conducted programs in 2 schools, conducted 2 e-Commerce workshops and 3 workshops to assist Latino businesses. CVC collaborates with the Iowa Council of Foundations, Extension, Iowa Dept. of Economic Development, and Iowa Nonprofit Resource Center in organizing philanthropy education and training. These activities leveraged \$10 million in donations and endowments and provided distributions of \$11 million in state revenues to 3,000 local agencies and nonprofits serving countywide needs. CVC collaborated with 40 diverse groups during project implementation. ISU Extension field staff conducted 3 workshops to assist Latino businesses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #10

1. Outcome Measures

Community economic development: Number of jobs created or retained

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	250	101

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

Southwest Iowa is considered one of Iowa's economically distressed regions and is in need of assistance in economic development. The region's shares of the state income, jobs, and people are on a downward trend. The workforce is older; many younger workers have relocated.

What has been done

ISU Extension, with the Southwest Iowa Coalition, the Grow Iowa Foundation, and the Wallace Foundation for Rural Research and Development developed and secured funding for the Southwest Iowa Rural Development Resource Center (RDRC). RDRC is a communication hub that brings together resources and service providers for businesses in SW Iowa. RDRC and Extension did research and due diligence for Superior Midwest Meats (SMM) and developed an approved business plan for the company in mid-January.

Results

SMM has rented office and locker space in Red Oak and is currently soliciting investors and members for the company which is due to begin operation April 1, 2008 with full-funding expected by the end of the year. Extension worked with Nishna Productions, Inc. (NPI), to build a commercial laundry, workshop and can redemption center in Red Oak and held fund-raising workshops for both staff and board of the company. Through RDRC a business plan for the facility was developed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

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

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

Brief Explanation**V(I). Planned Program (Evaluation Studies and Data Collection)****1. Evaluation Studies Planned**

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

Evaluation Results

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

Key Items of Evaluation

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

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

Economics, Markets, and Policy

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	6.7	0.0
Actual	0.0	0.0	4.6	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	617234	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	617234	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	421744	0

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

Activities included testifying before Congressional committees, writing research papers, developing curriculum materials, answering queries from media, participating in Federal workshops, advising industry, community groups, and Federal agencies about the impacts of proposed policy alternatives, conducting surveys of industry and farmers, and writing research grant proposals.

2. Brief description of the target audience

- Congressional staff members
- Federal and state regulators
- Community organizers
- State legislatures
- Farmers
- Owners of ethanol plants
- Crop insurance agents and companies
- Seed industry
- Hispanic families and business owners
- Small food manufacturers
- Beef cattle producers
- Rural towns
- Industry

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1300	3000	60	0
2008	1500	3000	60	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	10	
2008	10	23	33

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension Bulletins

Year	Target	Actual
2008	4	5

Output #2

Output Measure

- Web page hits

Year	Target	Actual
2008	10000	15000

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Proceedings
2	Book chapters

Outcome #1**1. Outcome Measures**

Proceedings

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10	10

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

Texas Governor Perry requested that the Environmental Protection Agency (EPA) waive the Renewable Fuels Standard EPA needed outside help in conducting their economic analysis to determine if the waiver request should be granted because the U.S. Government did not have appropriate models.

What has been done

Researchers worked with EPA to fine-tune an existing model of the U.S. corn market so that the model could be used to analyze the waiver request. The model was calibrated to USDA supply and demand data and to DOE data on gasoline prices and ethanol demand. The results of the model were delivered to EPA in a series of meetings and one conference.

Results

The model projected that there was a 75% chance that granting the waiver would have no impact on corn prices because projected high gasoline and ethanol process would work to keep ethanol plants running even if the waiver was granted. The 25% chance that the waiver would impact corn prices was driven by the possibility that the U.S. corn crop would be low or that crude oil prices would fall dramatically. The analysis was conducted before we observed that U.S. corn yields came in at trend levels and that crude oil prices fell dramatically. Based in part on this analysis, EPA denied the waiver request.

4. Associated Knowledge Areas

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

Outcome #2**1. Outcome Measures**

Book chapters

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	10

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

The supply of distillers grain is rapidly expanding because of the exponential growth in corn ethanol plants. This expansion has generated a demand for knowledge about how this new feedstock can be used efficiently in livestock rations both here and abroad. Efficient use of distillers grains is one key to ensuring viability of livestock operations in this era of high feed costs, and to the economic viability of the corn ethanol industry.

What has been done**Results**

Feedback to the book and individual chapters in the book indicate that many nutritionists, exporters, livestock farmers, government agencies, and academics are finding that the book chapters are a valuable resource to use when determining how distillers grains can be efficiently introduced into livestock rations.

4. Associated Knowledge Areas

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

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

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

Brief Explanation

An unexpected surge of appropriations that needed to be spent in six months gave the opportunity and the impetus to seek out the expert nutritionists and economists who contribute book chapters to a reference book on distillers grains. Because of the short duration that the one-time funds were available a special one-time, temporary, research effort had to be commenced to efficiently use the available funds.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

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

Economic and Social Welfare

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	11.2	0.0
Actual	0.0	0.0	3.8	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	401890	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	401890	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	346107	0

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

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

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	900	3000	160	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	{No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	10	
2008	{No Data Entered}	{No Data Entered}	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Extension bulletins

Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Web page hits

Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Proceedings
2	Book chapters

Outcome #1

1. Outcome Measures

Proceedings

Not reporting on this Outcome for this Annual Report

Outcome #2

1. Outcome Measures

Book chapters

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Community Services and Institutions

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	7.2	0.0	2.1	0.0
Actual	7.2	0.0	6.9	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
157642	0	429759	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
157642	0	429759	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
421537	0	973942	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

Individuals, public and not-for-profit organizations in Iowa.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	500	1200	0	0
2008	21297	188320	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	10	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	5	47

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

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

Not reporting on this Outcome for this Annual Report

Outcome #2**1. Outcome Measures**

Community institutions, health and social services: Organizations undertaking projects

Not reporting on this Outcome for this Annual Report

Outcome #3**1. Outcome Measures**

Community institutions, health and social services: Community improvements made

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	60	1478

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

Problems during the election process continue to occur throughout the country as more and more precincts develop new procedures and adopt new technology. County and state election officials are committed to ensuring that Iowa elections continue to reflect "good government" values of Iowans. Iowa municipal employees must also deal with constantly changing legislation and procedures. Many communities in Iowa were affected by severe flooding or tornado damage, creating a new set of problems for local officials and organizations to address.

What has been done

ISU Extension, in cooperation with the Iowa State Association of County Auditors, the Iowa Association of Counties and Help American Vote Act (HAVA) programs, developed a six-hour precinct election official (PEO) certification training for the Iowa Secretary of State's Office. ISU Extension Office of State and Local Government Programs conducted the Iowa Municipal Professionals Institute to provide training to municipal employees throughout the state on a variety of topics relevant to city government. Extension prepared a "Webinar," titled "Should Our Neighborhood Stay or Move to Higher Ground? Rebuilding vs. Relocating" to present to communities that were affected by the flooding in 2008.

Results

In 2007-2008, 2,328 precinct election officials in 97 counties were certified. The high level of satisfaction expressed by PEO training participants prompted the Iowa Secretary of State's Office to expand the original agreement to conduct 90 trainings over 3 years to 180 trainings conducted over the same period. Program evaluations indicate that the PEOs and county auditors believe that elections are running more smoothly and effectively since some or all of the PEOs completed certification. More than 95 percent of participants rated the program as very good or excellent and more than 97 percent said they would recommend the training to others. More than 260 municipal employees attended the Iowa Municipal Professionals Institute and earned educational credit toward certification by the International Institute of Municipal Clerks or the Iowa Certification of Professionals Program. Extension presented four "Webinars" to communities impacted by the 2008 floods and tornadoes.

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

- Economy
- Appropriations changes

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

Program evaluations indicate that precinct election officials and county auditors believe that elections are running more smoothly and effectively since some or all of the PEOs completed certification. More than 95 percent of participants rated the program as very good and excellent and more than 97 percent said they would recommend training to others.

Key Items of Evaluation

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

4-H Youth Development

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	50.0	0.0	0.0	0.0
Actual	49.0	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
1280648	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1280648	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2301975	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

4H Afterschool

•132 Extension staff, 499 after-school staff, and 230 volunteers were trained in youth development principles and practices and developmentally age appropriate youth curricula •412 after-school programs were staffed/managed solely by 4-H Extension personnel/volunteers •479 after-school programs used 4-H curricula •13,686 children and youth K – 12 engaged in 4-H Afterschool programming in content areas such as leadership, citizenship, and communication. •209 4-H Clubs were entered in Blue Ribbon •375 community entities partnered with 4-H Afterschool programs •Iowa 4-H Afterschool impact data was collected and reported to National 4-H Afterschool •Training sessions facilitated at Iowa’s statewide Iowa School Age Care Alliance Conference raising awareness of the need and benefits of quality afterschool programming, positive youth development programming, and community capacity building. •In collaboration with IAA, \$1.1M in state funding was secured for quality afterschool programming. •In partnership with IAA, developed the IAA Program Providers’ Guide to Quality Afterschool; designed to assist afterschool professionals in strengthening afterschool programming regardless of the setting in which they are working.

4-H Youth in Governance

•Coordinate 4-H Challenge training to promote leadership development for 4-H and other youth groups. •A middle school youth leadership curriculum was completed and published. •Prepared articles on leadership development in volunteers and youth for the Volunteer Newsletter. •Conduct State 4-H Council Youth/Adult Partnership training. •Created a Youth/Adult Partnership resources bibliography for 4-H staff. •Recommended the formation of a Youth/Adult Partnership technical assistance team to provide assistance to counties. •1362 youth and 1544 volunteers were trained in Youth/Adult Partnerships at 149 local training programs.

4-H Clubs

•The 4-H club growth initiative was continued. Each of Iowa’s 100 counties prepared a local expansion plan for increased membership. •An Iowa 4-H club guide was created and made available on-line. •A club observation matrix was introduced to help clubs assess club quality. •Quarterly 4-H Grow Green webcasts were started to inform staff of best practices to grow 4-H membership. •New recruitment materials were developed included banners, folders, posters, and brochures. •50% of counties reported that new 4-H clubs were formed.

4-H Volunteer Development

•Two standardized volunteer training programs on youth development and youth leadership were offered in all counties, reaching 1752 volunteers •Other local trainings were held in each county for 3428 volunteers. Topics included program management (82), project/subject matter (59), new leader training (39), and citizenship (21). 3428 •Evaluation of the 2007 volunteer training program was completed. Information was used to modify training plans for additional leader training modules. •Two state volunteer newsletters were published and delivered at volunteer training programs. The newsletter was made available on-line.

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

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	4000	57000	100000	34000
2008	5714	52608	109562	20697

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

Year	Target
Plan:	0
2008 :	0

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

	Extension	Research	Total
Plan	4	0	
2008	2	0	2

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

- Number of trainings on Youth/Adult partnerships

Year	Target	Actual
2008	50	281

Output #2**Output Measure**

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

Year	Target	Actual
2008	4200	3573

Output #3**Output Measure**

- Number of volunteers completing two trainings/yr

Year	Target	Actual
2008	1500	0

Output #4**Output Measure**

- Number of adults trained on 4-H afterschool

Year	Target	Actual
2008	200	861

Output #5**Output Measure**

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

Year	Target	Actual
2008	9250	13686

Output #6**Output Measure**

- Number of partnerships initiated or strengthened

Year	Target	Actual
2008	45	1608

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

O No.	Outcome Name
1	Communications: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of writing a speech/presentation, delivering a speech/presentation, developing supportive visuals, recognizing and utilizing active listening skills, asking clarifying questions, sharing ideas, communicating non-verbal messages and expressing feelings appropriately.
2	Communications: Percentage of youth who participate in a 4-H experience will self-report that they practice effective communication skills in sending and receiving written, visual and oral messages.
3	Citizenship: Percentage of youth who participate in a 4-H experience will self report a 1 point increase in skills or knowledge in the content areas of practicing good character, planning and organizing service learning events, and actively engaging in local, state and national issues.
4	Citizenship: Percentage of youth who participate in a 4-H experience will self-report that they 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.

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	73

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

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

What has been done

All 100 counties offered a county communication event program. 1834 4-H members participated in public speaking and performance events at the Iowa State Fair. 4-H fair communication event judges received training at five area workshops. Increasing communication skills and communication opportunities in the local 4-H club was emphasized at 4-H leader trainings.

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' communication skills after participating in 4-H as compared to before participating in 4-H. On average, 47% of 4-H Club members indicated a 1-point increase, 20.5% indicated a 2-point increase, 5% indicated a 3-point increase, and .6% indicated a 4-point increase in their communication skills after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	71

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

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

What has been done

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

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' communication behavior/practices after participating in 4-H as compared to before participating in 4-H. On average, 44.9% of 4-H Club members indicated a 1-point increase, 21.3% indicated a 2-point increase, 4.1% indicated a 3-point increase, and 1.2% indicated a 4-point increase in their communication behavior/practices after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	80

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

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

What has been done

2582 adults and youth contributed 11,551 volunteer hours to improve their communities through the State 4-H Youth Conference service projects, Iowa's promise Youth grants and Pioneer Community Improvement grants. Iowa 4-H clubs leveraged \$13,230 of Iowa Promise Youth grants and Pioneer Community Improvement grants into over \$101,000 in community improvement projects. 250 youth participated in 4-H Day at the Iowa Legislature and 90 youth attended the national Citizenship Washington Focus program.

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' citizenship skills after participating in 4-H as compared to before participating in 4-H. On average, 52.1% of 4-H Club members indicated a 1-point increase, 23.6% indicated a 2-point increase, 4% indicated a 3-point increase, and .4% indicated a 4-point increase in their citizenship skills after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	73

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

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

What has been done

2582 adults and youth contributed 11,551 volunteer hours to improve their communities through the State 4-H Youth Conference service projects, Iowa's promise Youth grants and Pioneer Community Improvement grants. Iowa 4-H clubs leveraged \$13,230 of Iowa Promise Youth grants and Pioneer Community Improvement grants into over \$101,000 in community improvement projects. 250 youth participated in 4-H Day at the Iowa Legislature and 90 youth attended the national Citizenship Washington Focus program. 21 counties held leader workshops on citizenship topics. Participation in a service activity is an expectation of Iowa 4-H members and Iowa 4-H clubs.

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' citizenship behavior/practices after participating in 4-H as compared to before participating in 4-H. On average, 47.4% of 4-H Club members indicated a 1-point increase, 21.9% indicated a 2-point increase, 3.4% indicated a 3-point increase, and .8% indicated a 4-point increase in their citizenship behavior/practices after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	67

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

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

What has been done

1752 4-H leaders were trained on how to improve youth leadership skills through two statewide training programs. 850 youth received leadership training during the Iowa 4-H Youth Conference. 1362 youth and 1544 volunteers were trained to improve leadership skills through Youth in Governance trainings. 250 youth received leadership training during 4-H Day at the Legislature.

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' leadership skills after participating in 4-H as compared to before participating in 4-H. On average, 43.1% of 4-H Club members indicated a 1-point increase, 21.3% indicated a 2-point increase, and 3% indicated a 3-point increase in their leadership skills after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	71

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

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

What has been done

1752 4-H leaders were trained on how to improve youth leadership skills through two statewide training programs. Providing additional leadership opportunities for club members was an emphasis area of the training programs. 850 youth received leadership training during the Iowa 4-H Youth Conference. 1362 youth and 1544 volunteers were trained to improve leadership skills through Youth in Governance trainings. 250 youth received leadership training during 4-H Day at the Legislature.

Results

508 randomly selected 4-H Club members completed the Iowa 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' leadership behavior/practices after participating in 4-H as compared to before participating in 4-H. On average, 45.5% of 4-H Club members indicated a 1-point increase, 21.7% indicated a 2-point increase, 3.7% indicated a 3-point increase, and .6% indicated a 4-point increase in their leadership behavior/practices after participating in a 4-H Club.

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

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

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

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

Brief Explanation

The target youth population is decreasing in most Iowa counties. Implementation of new and innovative programs to reach new youth audiences is dependent on growing our volunteer workforce. Acceptance by current volunteers of new 4-H club models sometimes inhibits county expansion plans. Another issue that affected our output measures is the accuracy of and inconsistencies in county reporting of data. This year we continued to help counties more accurately record various types and numbers of volunteers and youth in their database. Severe flooding in much of eastern Iowa, and severe tornados in several parts of Iowa limited the availability of 4-H members and families to participate in traditional activities. Because of these natural disasters, extension 4-H staff in these areas were focused on helping members and families cope with immediate challenges, and not on 4-H program growth initiatives.

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

1. Evaluation Studies Planned

- After Only (post program)

Evaluation Results

508 randomly selected 4-H Club members representing Iowa's 5 Extension areas completed the 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool. The tool, based on a 5-point Likert scale, examined self-reported changes in 4-H Club members' communication, leadership, and citizenship knowledge/skills and behavior/practices after participating in 4-H as compared to before participating in 4-H. 282 females (55.5%) and 226 males (44.5%) completed the self-assessment.

- **Results: Communication Knowledge/Skills**

On average, 47% of 4-H Club members indicated a 1-point increase, 20.5% indicated a 2-point increase, 5% indicated a 3-point increase, and .6% indicated a 4-point increase in their communication skills after participating in a 4-H Club.

- **Results: Leadership Knowledge/Skills**

On average, 43.1% of 4-H Club members indicated a 1-point increase, 21.3% indicated a 2-point increase, and 3% indicated a 3-point increase in their leadership skills after participating in a 4-H Club.

- **Results: Citizenship Knowledge/Skills**

On average, 52.1% of 4-H Club members indicated a 1-point increase, 23.6% indicated a 2-point increase, 4% indicated a 3-point increase, and .4% indicated a 4-point increase in their citizenship skills after participating in a 4-H Club.

- **Results: Communication Behavior/Practices**

On average, 44.9% of 4-H Club members indicated a 1-point increase, 21.3% indicated a 2-point increase, 4.1% indicated a 3-point increase, and 1.2% indicated a 4-point increase in their communication behavior after participating in a 4-H Club.

- **Results: Leadership Behavior/Practices**

On average, 45.5% of 4-H Club members indicated a 1-point increase, 21.7% indicated a 2-point increase, 3.7% indicated a 3-point increase, and .6% indicated a 4-point increase in the leadership behavior after participating in a 4-H Club.

- **Results: Citizenship Behavior/Practices**

On average, 47.4% of 4-H Club members indicated a 1-point increase, 21.9% indicated a 2-point increase, 3.4% indicated a 3-point increase, and .8% indicated a 4-point increase in their citizenship behavior after participating in a 4-H Club.

Key Items of Evaluation

Reliability analysis of the 4-H Youth Citizenship, Leadership, and Communication Self-Assessment Tool indicated that the individual questions within each of the six respective constructs of Citizenship – Knowledge, Leadership – Knowledge, Communication – Knowledge, Citizenship – Behavior, Leadership – Behavior, and Communication – Behavior represented the conceptual meaning of the given construct. "Before" constructs also were significantly correlated with the "After" constructs. Further, statistical comparisons of "After" and "Before" responses (all respondents combined) using paired t-tests were conducted for each of the constructs, as well as for the individual questions within the constructs. For each construct and each question, the respondents reported statistically higher "After" scores than "Before" scores.

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Families, Communities and Civic Engagement

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
803	Sociological and Technological Change Affecting Individuals, Fam	30%		0%	
805	Community Institutions, Health, and Social Services	70%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	9.3	0.0	0.0	0.0
Actual	12.0	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
403032	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
403032	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
788495	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Horizons – 20 communities (Allerton, Alta, Bedford, Chariton, Corydon, Ellsworth, Elma, Grand Junction, Greenfield, Humeston, Keosauqua, Marble Rock, Morning Sun, Olin, Oxford Junction, Rockford, Sac City, Seymour, Waukon and Woodbine) completed an 18 month program to develop leadership skills and reduce poverty. Horizons is delivered by Iowa State University with funding support from the Northwest Area Foundation headquartered in St. Paul, MN. Early in 2007 communities used the 5 - week Study Circles process to understand effective poverty reduction strategies and a 30 hour LeadershipPlenty® training course in preparation for community Visioning efforts completed between July – October, 2007 with 5,958 participants or 21.7% of the population in these 20 communities leading to Community Plan writing and implementation before the program ended on June 30, 2008. At least seven communities addressed housing needs of low-income residents; seven provided families opportunities to learn more about money management including tax preparation for low income residents; at least six communities addressed the need for food; at least communities mentored or tutored local children or youth; three communities developed centers to meet the needs of low income residents; while two communities increased day-care slots for working parents.

Poverty Simulations – Hands-on simulations held across the state reached 1813 participants with 133 contact hours of education. Simulations were held in 18 communities in 17 Iowa counties.

2. Brief description of the target audience

Horizons was delivered in 20 rural communities with populations between 500 – 5000 and a poverty rate of 10% or higher. Adults and older youth were the primary audience. The program stresses inclusivity across all socioeconomic groups.

Poverty Simulations were requested by numerous groups interested in increasing their awareness of poverty and encouraging individuals to take steps to reduce negative circumstances for those in poverty. Groups participating included: DHS workers, public school teachers, college students and credit union employees to name a few.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1200	1000	50	0
2008	7771	1000	150	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	1200	7771

Output #2

Output Measure

- Number of community groups formed to address a public issue

Year	Target	Actual
2008	6	20

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6	20

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

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

What has been done

20 communities participated this year in Horizons. A visioning process provided an opportunity for 5,958 people to share their ideas about how to best reduce poverty or at the very least reduce the impacts of poverty within their community leading to a written poverty reduction plan for their community. Plan implementation continued through the end of the program on June 30, 2008 and continues within their community.

Results

1) 20 communities set up volunteer programs to provide direct assistance to mitigate situations for families in poverty (ex: assisting with transportation, expanding operations or increasing food supplies at food banks, clothing drives, removing snow and storm damage, back packs for students, improving housing efforts, tutoring/mentoring youth, mentoring single parents, mentoring first time home owners, financial counseling, Volunteer Income Tax Assistant (VITA) sites, health and safety issues of residents).

2) 10 communities noted new elected leadership as a result of Horizon involvement. Participants ran for leadership positions (24), were elected to city councils (9), elected mayors (2), elected to school board (1) and appointed to economic development boards (2). These 10 communities also noted increased citizen involvement with City Councils and considering views of low income families before making decisions; 2 additional communities noted increased representation of views at council meetings of those directly affected by poverty.

3) 11 communities formed not-for-profits to assist poverty reduction efforts, support community programs (housing and childcare) and hold funds for future efforts.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Fam
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
- Public Policy changes
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

The NWAFF grant provided dedicated funding for Extension staff to support a series of educational programs that were conducted simultaneously in 20 targeted communities. Participation barriers including cost of child care, transportation and meals were reduced through the grant. Changes in the economy and public policy

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

1. Evaluation Studies Planned

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

Evaluation Results

- Most Horizons communities believe they are "better off" because of the program and most would participate again.
- Horizons has mobilized very substantial numbers of people from all demographic sectors to discuss poverty and create plans for the future.
- The community dialogue (Study Circles) was the most valuable component of the program, engendering both new knowledge and a deepened understanding of poverty and its ramifications in communities.
- The Study Circles process has been, and will continue to be used, in Horizons communities for other difficult issues, and is widely perceived as a valuable model for community problem-solving.
- The program and its LeadershipPlenty® curriculum have produced a new understanding of community leadership and recognition that effective community leadership is shared leadership.
- Participants acquired specific new knowledge and new leadership skills and put those skills to work for community benefit.
- In many Horizons communities new leaders have been identified and empowered.
- Well over half of our panel study communities assert that there is now more openness, more communication, and more opportunities for input in community decisions.
- Horizons has resulted in significant positive changes in the level of community and civic engagement.
- Considerable energy and activism has been engendered in Horizons communities, and communities are implementing a significant number of new activities for community enhancement and poverty reduction.
- Communities have implemented a number of structural changes, including the development of new partnerships among community organizations and the creation of community 501(c) 3 organizations that will allow the work begun in Horizons to be sustained.
- ISU Extension has been successful in building capacity to work with small, rural, impoverished communities. ISU Extension has learned to work with communities in a different, more responsive, less didactic and deeper way. They have learned to coach rather than to present.

Key Items of Evaluation

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

Money for Life

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	15.3	0.0	0.0	0.0
Actual	12.0	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
403032	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
403032	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
788495	0	0	0

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

Iowa State University Extension offered a wide range of financial management programs that were delivered as workshops, a series of meetings, small group consultations, web-based instruction and media. Most workshops were offered in partnership with local organizations. Young mothers participated in Stork's Nest projects to learn basic money management skills. Low-income families and bankruptcy filers completed a 2-hour "Planning to Stay Ahead" workshop on budgeting, credit and consumer decision making. Basic budgeting skills were developed through participation in a web-based course that is supplemented by individual coaching offered via email. First-time homebuyers completed an online course that is now required by USDA Rural Development. Women learned more about finances by participating in Money Talk community seminars or by completing distance courses offered with web-based or mailed materials. Credit education is delivered in group seminars that are often offered in workplace settings and are supplemented by individualized analyses of debt payment using the PowerPay software. Retirement planning seminars encourage mid-life lowans to project retirement savings needs and systematically save through qualified plans. Extension-sponsored Volunteer Income Tax Assistance (VITA) sites in rural counties trained community volunteers to prepare returns for low-income lowans and Extension professionals offered financial education to participants to build assets. Mass media and targeted newsletters were used extensively to reach lowans. An Invest Wisely year-long media campaign generated weekly newspaper, radio PSAs and extended radio vignettes that were aired on state-wide public radio, disseminated to local outlets, and archived on a website. ISU Money for Life and eXtension Financial Security for All websites provided information "24/7." Conferences for high school teachers have introduced high school teachers to the High School Financial Planning Program curriculum and other train-the-trainer workshops have put financial literacy materials in the hands of other professional and volunteer youth educators.

2. Brief description of the target audience

Programs reach individuals and families across the age and socioeconomic spectrum. Limited resource families including those filing bankruptcy, young adults, young families, mid-life and older women, those approaching retirement, and professionals and volunteers working with community-based financial management educational programs were target audiences in FY2008. Limited resource audiences include young mothers, incarcerated men and women, participants in substance abuse programs, refugees and other new immigrants, and low income taxpayers who utilize VITA tax preparation programs. Young adults are reached in community settings and through web-based information. Young families who are preparing for marriage, purchasing their first home, or developing parenting skills are a key audience. Vulnerable populations such as older women and those who need to develop consumer decision-making skills are targeted in programs addressing identity theft and investment fraud.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	11000	15000	12000	0
2008	16636	149582	619	20251

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	0	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	7500	12941

Output #2

Output Measure

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

Year	Target	Actual
2008	2500	4314

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

Number of individuals improving personal and family financial management skills.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6000	12423

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

Low wages, growing unemployment, reduced employee benefits, and a trend towards greater emphasis on individual responsibility create a need for lowans to develop and improve their personal and family financial management skills. Economic uncertainties led to negative savings rate, increased consumer debt levels, and a spillover effect that erodes family life. Financial decisions are more complex, creating a need for improved personal and family financial management skills.

What has been done

Nearly 13,000 lowans have participated directly in family resource management workshops, seminars, distance education classes and individualized consultations. On-going mass media and expanded web resources reach thousands of lowans with research-based information and educational programs aiming to change behaviors and improve skills.

Results

Financial management workshops have resulted in the following:

- * 96% improved personal and family financial management skills
- * 31% took steps to reduce their debt
- * 33% increased contributions to an employer-based retirement plan
- * 17% increased their contributions to a personal retirement plan
- * 58% calculated their retirement financial projections
- * 87% gained greater control over their current spending, saving and financial security

1,503 lowans received a total of \$752,617 in Earned Income Credits by using VITA programs, avoiding filing fees and potential costs associated with Refund Anticipation Loans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2**1. Outcome Measures**

Number of individuals strengthening consumer decision making skills.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1875	3710

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

Consumer choices have a direct effect on the utility gained from family resources. Informed decisions increase the probability that high levels of satisfaction will be gained. The young, illiterate, the poor, the aged and other vulnerable groups have a particular need to develop skills to assess the quality of information available, problem solve, and seek protection when they are victims of fraud.

What has been done

More than 4,000 lowans have participated in programs that teach consumer decision making skills. Limited income audiences and vulnerable groups such as deaf persons have been targeted for these programs. General audiences have been taught about identity theft and investment fraud. Youth audiences have gained comparison-shopping skills and skills in accessing advertising claims and information in the market.

Results

Consumer decision-making workshops have resulted in:

* 86% of participants report strengthening consumer decision making skills

Workshops and individual consultations with low-income deaf populations have increased knowledge of credible information sources and avenues for redress of consumer problems. ISU Extension provides volunteer training and on-going technical assistance for Volunteer Representative Payee programs. Program volunteers in one rural county managed \$135,300 during the past year, ensuring that wise consumer decisions were made regarding the health, safety and financial stability of elderly and disabled recipients of Social Security and/or Supplemental Security Income. Clients report overwhelming satisfaction about the assistance and often report gradual increased levels of personal skills.

4. Associated Knowledge Areas

KA Code	Knowledge Area
607	Consumer Economics

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

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

Brief Explanation

Economic conditions in the state affected the salience of family resource management programs. A booming farm economy contrasted with growing concerns about the stability of credit markets and plant closings by June 2008. Volatility in energy markets created growing uncertainty for farmers and consumers. Public policy changes that affect incomes, taxes and public assistance create an on-going need for information. Late spring floods in eastern Iowa created competing program needs to address the crisis and the emergency needs of families and communities. A major grant-funded project has shifted time allocations of staff who work under this Plan of Work to another Plan: Families, Communities and Civic Engagement. This program is addressing a very closely related issue: poverty reduction in rural communities. Finally, the on-going growth of immigrant populations in many Iowa communities create new opportunities for programs and challenges to address cultural and language differences.

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

1. Evaluation Studies Planned

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

Evaluation Results

Surveys, conducted 3 months after participation with a sample of participants in financial management workshops, report participants taking specific actions to improve skills:

- 96% improved personal and family financial management skills
- 31% took steps to reduce debt
- 33% increased contributions to employer-based retirement plan
- 17% increased contributions to a personal retirement plan
- 58% calculated their retirement financial projections
- 87% gained greater control over their current spending, saving and financial security.

Surveys, conducted 3 months after participation with a sample of participants in consumer decision making workshops, report:

- 86% of participants strengthening consumer decision making skills.

Key Items of Evaluation

- consumer debt reduction
- retirement need projection calculation
- contribution to retirement plans/investments
- control of spending, saving and financial security
- strengthen consumer decision-making skills

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

Strengthening Families

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	95%		0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Res	5%		0%	
	Total	100%		0%	

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	18.5	0.0	0.0	0.0
Actual	18.5	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
621341	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
621341	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1215598	0	0	0

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

12,192 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. 711 early childhood educators received instruction and assistance to self assess the overall quality of care and educational services, develop improvement plans, and implement changes. 564 directors representing 34% of Iowa's child care and preschool programs received instruction in new staff orientation, staff feedback and coaching procedures. 1,664 child care preschool teachers received 16 hours of instruction and completed activity assignments specific to their worksite. 862 child care professionals completed self-study instruction. There were 3,232,620 page views on the National Network for Child Care website, representing 2,101,969 visitors. There were 36,824 page views and 22,521 visits to ISUE child care websites. Both PROSPER (Promoting School-Community-University Partnership to Enhance Resilience) and CYFAR (Children, Youth and Families at Risk) collaborate with community teams to offer evidence-based programs for middle school students and their families. PROSPER is a randomized control study to evaluate the effectiveness of the community partnership model. 4900 people were reached through parenting education efforts which included sequential parenting education workshops, one-session workshops, as well as training for professionals to deliver in-depth parenting education. There were indirect contacts through parenting fairs (784), hotline calls (60,126), parenting newsletters (190,577) and 13,613 visits to ISUE websites on parenting issues. A variety of workshops, demonstrations, conference presentations, face-to-face consultations, and web information was presented to help lowans learn about universal design and ways to make their homes more convenient and accessible. 2,488 lowans participated in learning related to intergenerational family relationships in mid, later life, and aging families. 47 family caregivers participated in Powerful Tools for Caregivers and 52 adults participated in Adult Children and Aging Parents. 2,389 people attended additional aging-related information workshops including Aging to Perfection, generational differences, stress and emotions related to aging, and other diverse programming. ISUE continued to provide leadership for the eXtension Family Caregiving Community of Practice. There were 511 indirect contacts through poster presentations and information displays and 118,042 page views and 63,631 visits to ISUE aging issues web pages. 82 educational workshops, including 114 total sessions, covering 23 different topics, were presented on intergenerational and aging family issues.

2. Brief description of the target audience

Early childhood audiences included family child care home providers, preschool and child care center directors and administrators, kindergarten, preschool, school-age and infant and toddler teachers. PROSPER and CYFAR projects targeted families of 10-14 year olds. Parents of children 0-14 years and professionals who work with parents of children 0-14 years were the target audience for parenting education efforts. Older lowans, people with disabilities, service providers, and policy makers were the target audiences for housing education. Intergenerational and aging families programming was directed toward and served a variety of ages of adults from multiple generations living in Iowa families. More specific audiences included adults of any age who care for family members and older adults experiencing physical, social, and familial transitions in their lives.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	22000	40000	6000	0
2008	19835	195228	3224	30

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	0	
2008	15	9	24

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	13700	5428

Output #2

Output Measure

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

Year	Target	Actual
2008	2315	14419

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7500	1430

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

Communities that can prevent risky behaviors by youth and prevent longer-term addictions, such as alcoholism, can save on rehabilitation costs. The Strengthening Families Program for Parents and Youth 10-14 has been found to save \$9.60 for each dollar spent on program implementation. In 2007, 12,237 Iowa children suffered abuse; half of them were less than six years old. (Iowa Department of Human Services). Research reveals that lack of basic parenting knowledge and skills (e.g., understanding basic developmental needs of children; ability to manage stress effectively) is common among parents/caregivers who abuse children. In addition, pressure has increased at the state and local level to fund family support and parenting programs that have proven impacts.

What has been done

Community teams in 7 communities delivered the evidence-based program, Strengthening Families Program for Parents and Youth 10-14 to families of middle-school students. ISUE has collaborated with numerous local organizations to deliver education to parents directly through workshops and parenting fairs.

Results

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

4. Associated Knowledge Areas

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

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
2008	1215	1277

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

Federal guidelines restrict family support agencies and school districts who receive federal monies to offer only evidence-based federally approved programs. The ISUE Strengthening Families Program: For Parents and Youth 10-14 is one of these federally approved programs. As pressure has increased at the state level to fund family support and parenting programs that have proven impacts, recognition has increased among state and local organizations for the need for quality professional development for individuals who deliver family support and parenting education.

What has been done

SFP 10-14 master trainers have conducted 2 and 3 day certification trainings to personnel employed by agencies and school districts around the world. These facilitators then implement the program with families in their communities. ISUE has focused specifically on strengthening the core competencies of parenting educators/family support workers, through two programs: 1) Partnering with Parents, an in-depth training series focused on core competencies identified for effective parenting education delivered in face-to-face and online formats; 2) Family Development Certification Training emphasizes a strengths-based, empowering approach for helping families reach their goals, delivered primarily face-to-face. ISUE has trained numerous professionals and volunteers to deliver research- and evidence-based parenting curricula.

Results

ISUE has certified 673 parent educators and other family support professionals in the SFP 10-14 program around the world during this reporting period. 47 professionals participated in 55 hours of direct training in planning, delivering and evaluating parenting education through Partnering with Parents. 22 of these professionals participated in Partnering with Parents through online education. Program evaluation data reveal that participants strengthened their parenting education knowledge and skills after participating in Partnering with Parents, and actively implemented new information and strategies into their parenting education efforts. 33 individuals participated in a comprehensive training (13 days plus online homework) that included both the Partnering with Parents Training and the Family Development Certification Training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Res
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
2008	700	2138

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

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

What has been done

Child Care that Works self-study video lessons were provided to assist child care providers in meeting state licensing requirements. The New Staff Orientation (NSO) provided 16 hours of instruction for child care center staff. 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.

Results

94% (n = 863) of individuals participation in Child Care That Works self study workshops indicated that they had made at least one improvement in the quality of their child care program. A retrospective survey of child care professionals (n = 711) participating in the Early Childhood Environment Rating Scale training indicated that they were able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant [p < 0.001] indicating that the ERS training is making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services. Professionals (n = 381) surveyed in a 3 month follow-up survey of child care quality training indicated improvement in learning environments and teaching strategies. Post-survey results of the Better Kid Care NSO program indicated that 87% of the participants felt they could better teach and model good healthy practices, 80% reported improved communication with parents, 74% could plan more appropriate learning activities for children, 71% could manage children's behavior more effectively and 86% could work more effectively with staff.

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
2008	610	356

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

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

What has been done

Workshops, demonstrations, and face-to-face consultations on universal design and home remodeling for accessibility were conducted. In FY2008, Powerful Tools for Caregivers class leaders conducted the educational series of workshops for family caregivers in six communities, caregiver stress, emotion, and support programming was offered in another twelve communities. A variety of intergenerational programming, including Adult Children & Aging Parents, was offered in eight communities.

Results

Individuals and families learned about universal design and home accessibility and made home modifications to accommodate a disability. For Iowa caregivers, ninety-five percent of those surveyed felt that as a result of the classes, they believed they were more confident caregivers than before taking the classes. They had improved their caregiving skills, such as using positive communication techniques, help manage stress, and bring balance into their lives. Ninety percent of the participants felt they had better information about community resources that were vital to caring for their loved one. One hundred percent said they would recommend the course to others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
804	Human Environmental Issues Concerning Apparel, Textiles, and Res
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
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Iowa experienced extensive natural disasters, including flooding and tornadoes, during 2008. A number of training workshops on child care environments and curriculum were cancelled. Outreach efforts to provide training on developing emergency crisis plans was initiated and delivered in collaboration with Child Care Resource and Referral. These disasters, coupled with a poor state economy, have increased family stress (impacting caring for family members of all ages) and the ability for families to feed themselves (increased food insecurity), thus impacting parenting.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants

Evaluation Results

The PROSPER project is a longitudinal study that evaluates two cohorts of students after they have participated in the evidence-based programming. The responses of the students in these 7 intervention communities were compared with the responses of students in 7 control communities. Students in intervention communities reported lower levels of participation in risky behaviors (substance use, violence) than did students in control communities. They also reported higher levels of parental monitoring and more consistent discipline by their parents. Because only evidence-based programs were delivered, a key component is the fidelity of delivery. Observers evaluated approximately 25% of the program sessions and the fidelity of implementation was calculated. In PROSPER communities, 90% fidelity was observed. In the two CYFAR communities, the fidelity of implementation was 89%. Partnering with Parents: Retrospective tests indicate that there is a statistically significant difference between the pre-test and post-test scores of professionals who participated in the Partnering with Parents training series, as well as the combined Partnering with Parents and Family Development Certification Training program. Thus, program participants significantly strengthened their knowledge and skills in planning, delivering, and evaluating parenting education program efforts. In addition, paired t-tests indicate that there is no statistically significant difference in the knowledge and skills gained by professionals who participate in the program in a face-to-face setting as compared to those who participate in the training series completely online.

Key Items of Evaluation

Early Childhood Environment Rating Scale: A retrospective survey of child care professionals (n = 711) participating in the Early Childhood Environment Rating Scale training indicated that they were able to better identify strengths and limitations, prioritize changes and develop a workable plan for program improvement. This perceived change in knowledge, skills, and abilities was statistically significant [$p < 0.001$] indicating that the ERS training is indeed making a difference in equipping and empowering early childhood professionals to improve the quality of their child care services. Professionals (n = 381) surveyed in a 3 month follow-up survey of child care quality training indicated and improvement in learning environments and teaching strategies. Better Kid Care NSO program post-test results indicated that 87% of the participants reported they could better teach and model good health practices, 80% reported improved communication with parents, 74% could plan more appropriate learning activities for children, 71% could manage children's behavior more effectively and 86% could work more effectively with staff. Child Care That Works: 94% (n = 863) of individuals participation in Child Care That Works self study workshops indicated that they had made at least one improvement in the quality of their child care program. For the PROSPER project, survey instruments were administered to over 5,000 students in 14 Iowa communities. They were asked about their alcohol use, cigarette use, other substance use, and violent activities. They were also asked about their relationship with their parents, peers, and teachers. These items were used to evaluate not only participation in risky behaviors, but also risk and protective factors. Observation forms used to monitor the fidelity of implementation contained both objective and subjective items to evaluate adherence to the curriculum.

Program #13

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food and Non-Food Products

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

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

V(C). Planned Program (Inputs)

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	10.3	0.0
Actual	0.0	0.0	7.2	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	712805	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	712805	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2777080	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	{No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	5	
2008	{No Data Entered}	{No Data Entered}	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed per year.

Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of refereed publications per year.

Outcome #1

1. Outcome Measures

Number of refereed publications per year.

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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

Food and Nutrition: Choices for Health

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	10%		0%	
504	Home and Commercial Food Service	10%		0%	
703	Nutrition Education and Behavior	60%		0%	
704	Nutrition and Hunger in the Population	5%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Pa	15%		0%	
	Total	100%		0%	

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	18.5	0.0	0.0	0.0
Actual	18.5	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
621341	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
621341	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2238191	0	0	0

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

Nutrition and health programs were offered in every major community and all 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 food services for the purpose of reducing the incidence of food borne illness in the state; and mitigating food insecurity within communities. Programs were directed to professionals, 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. Lighten Up Iowa (adult) and Go the Distance (youth) programs (changing to Live Healthy Iowa and Live Healthy Iowa Kids in 2009), encourage physical activity and healthful eating using the team concept. WiseWoman, a CDC funded program, was a community-based intervention to decrease risk of cardiovascular disease among middle-aged women who lack health insurance and access to healthcare. This evidence-based program has been adapted for face-to-face statewide delivery as Habits for Healthy Hearts. Eat to Compete, a program consisting of three separate sports nutrition topics, was presented statewide to parents, coaches, school staff, and adolescent athletes. Several field staff serve as supervisors of Expanded Food and Nutrition Education Programs and Food Stamp Nutrition Education Programs educators who deliver basic food and nutrition information to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension to Families and Extension to 4-H Youth, with partnership and support of Extension faculty. Audiences learned about the myriad of factors in the current socioeconomic environment contributing to overweight and obesity including genetics, the feeding relationship, lack of physical activity, technology, portion distortion, and food availability. Community advocacy for public and environmental policy change was promoted as a measure to meet the demands of this growing problem. Food safety education included certification programs and training sessions delivered via direct and indirect methods. ServSafe®, developed by the National Restaurant Association, consists of at least 8 hours of direct training and successful completion of a certification exam. Other food safety programs focused on safe food handling, HACCP plans in schools and food processors, grilling safely, cleaning and sanitizing, hand washing, food stands, canning and food preservation. Health fairs, Germ City and interactive web-based lessons, streaming videos, and podcasts on the Extension Food Safety web site were examples of indirect educational efforts. Food processors were served by direct contact in person to person meeting in plant to develop HACCP, GMP, and other food safety programs.

2. Brief description of the target audience

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

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

Nutrition education programs were provided to adults and youth of all ages -- more specifically health/nutrition professionals, older adults at congregate meals sites, adults participating in worksite wellness programs, school staff (teachers, coaches, food service personnel, nurses) and students, parents of young children participating in EFNEP/FSNE (limited income families), NEST, and WIC programs, childcare workers including Headstart, 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 9 million via food safety website.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	45000	5000	850	17500
2008	71795	317516	29226	13433

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	0	
2008	10	4	14

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	64000	56170

Output #2

Output Measure

- Number of participants in Extension programs on food safety.

Year	Target	Actual
2008	1000	3768

Output #3

Output Measure

- Number of participants in Extension programs on food insecurity.

Year	Target	Actual
2008	120	858

Output #4

Output Measure

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

Year	Target	Actual
2008	{No Data Entered}	11129

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1**1. Outcome Measures**

Number of adult participants who improve their diet.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	32625	53846

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 20% of adult Iowans consume the recommended servings of fruits and vegetables.

What has been done

Lighten Up Iowa had 30,477 participants in 2008 where they received weekly tips to increase consumption of nutrient dense foods including fruits and vegetables EFNEP/FSNE enrolled 2,401 adults. Professional training has been provided through Current Issues in Nutrition, an interactive video webcast reaching 896 participants nationwide (24 out-of-state locations), school wellness policy implementation and environmental change for school officials/staff, and Eat to Compete programs for teacher recertification and coaching authorization.

Results

Based on 24 hour pre- and post-food recalls, 98% of EFNEP/FSNE program participants reported positive change in any food group at exit. A survey sample of Lighten Up Iowa participants indicates increased intake of fruits and vegetables and whole grains. Significant improvement in nutrition knowledge and attitude was documented among 90% of Eat to Compete participants.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2**1. Outcome Measures**

Number of adult participants who increase their minutes of activity.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25000	22192

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.

What has been done

Activity guides were developed for each of the lessons in the EFNEP/FSNE curriculum, which will covers basic aerobic, strength, and flexibility exercises. Lighten Up Iowa had 30, 477 participants this past year, which included weekly physical activity tips and online monitoring of physical activity.

Results

More than 38% of EFNEP/FSNE graduates had a positive change in physical activity from beginning to end of program. A survey sample of Lighten Up Iowa participants indicates 70% of participants increasing frequency and/or intensity of activity/exercise throughout/after the program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3**1. Outcome Measures**

Number of communities that take steps to reduce food insecurity.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6	4

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

Iowa surpassed the national average for those considered food insecure this past year (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

4 counties focused on reducing food insecurity at food pantry sites in their county. Counties included: Black Hawk, Polk, Kossuth and Woodbury.

Surveys were distributed in the spring and summer to determine food security status of pantry participants, as well as basic demographic information, and health-related issues experienced by households receiving food from food pantries.

Because of external factors, flooding mainly, survey results were incomplete however those that were returned indicated significant issues with food insecurity and health.

Results

Households that accessed food from food pantries were struggling. Many participants had low educational attainment, many were unemployed, and those who worked received low wages. As a result, respondent households had little income. Some households subsidized their income with Food Assistance benefits. Participants commonly accessed food pantries as a way to partially meet their food needs. Unfortunately, few of the participants were successful in obtaining enough food for all household members to meet their food needs. Most respondent households experienced low and very low food security. The health of the members of the households was also a problem. About one-fourth and one-third of the participant households had members with diabetes, high blood pressure, asthma and/or allergies. Approximately two-thirds to three-quarters of the participants were considered obese or overweight during the two time periods, and one-quarter to one-third normal weight. The main differences in the results of the questionnaires between the two time periods of the project (T1 and T2) were that T2 participants seemed to visit the food pantry less frequently, were more likely to live in a single family home and were more likely to experience very low food security.

4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

Outcome #4

1. Outcome Measures

Number of participants certified in food safety programs.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	900	774

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Extension has been the key provider of food safety education in the state of Iowa. During this report period, 928 people have taken ServSafe(R)or HACCP certification courses through ISU Extension.

Results

Food safety certification was awarded to 756 participants reflecting an 83% pass rate on the certification exam. 18 Food Processing personnel achieved HACCP certification.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	1887

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 1970's 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

Go the Distance had 10,374 participants this past year. Participants are encouraged to increase physical activity and improve nutrition choices. Weekly tips on nutrition and physical activity are received by participants.

Among Iowa 4-H'ers, 10,801 members enrolled in the food and nutrition project area during the 2008 year making it the second most popular project area.

EFNEP youth enrolled 17,975 participants this past year. Youth learn the importance of making smart choices from every food group, physical activity as part of daily life, and food safety as it relates to food handling.

A federal mandate requires schools to implement a local school wellness policy. ISUE in cooperation with Team Nutrition has been providing training and technical assistance to schools in the development/implementation of local wellness policies and changes within school meals programs to meet Dietary Goals for Americans 2005, thus improving the school health environment. In addition, ISUE provided leadership in developing an expert report for state legislated nutrition standards in the school environment, which ultimately impacts youth nutrition behavior.

Results

Go the Distance teams logged 30,738,265 minutes of activity in the 2008 program.

Forty participants, representing 22 school districts, attended a Team Nutrition workshop offered by ISUE in partnership with Department of Education. All reported implemented changes in school meals preparation, marketing and/or delivery.

The Team Nutrition Local Wellness Demonstration project is collecting data to explore implementation of local wellness policies and impact of training/technical assistance.

EFNEP youth received approximately 6 hours of nutrition education during school enrichment, after school or summer programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

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

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

Brief Explanation

- A number of programs promoting increased physical activity continue to compete with Lighten Up Iowa (Shape Up America, Walk Across America, etc...).
- Federal mandate requiring all school districts have a local wellness policy have enhanced the interest and visibility of Extension nutrition and wellness programming. The Department of Education is encouraging school districts to consider application to USHealthier School challenge, which has resulted in greater interest in ISUE programs.
- Economic constraints related to rising food and utility costs have increased visibility and interest in ISUE programming in foodservice management program areas.
- Increases in indirect delivery were noted with continued high interest in web delivery of food safety information and interest by consumers in response to several national foodborne illness outbreaks.
- The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to ethnic cultures.
- Iowa was impacted by several natural disasters including large scale flooding and tornadoes. Extension led efforts in mitigation of flood damage with information on food safety, mold remediation, and others. Thus a shifting of priorities led to reduction in certain activities related to this report for example food insecurity tasks were reduced while staff worked on more pressing flood issues.

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

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

Evaluation Results

Lighten Up Iowa survey results suggest that positive change in dietary intake and physical activity are maintained long term. Selected dietary behaviors and physical activity behaviors exhibit significant improvement at 5-months-post-program compared to pre-program data. Specifically, an increase in consumption of fruits, vegetables, whole grains and water, in addition to increased frequency and intensity of physical activity have been observed.

The EFNEP/FSNE programs annually evaluate program effectiveness. During 2008, a graduate student evaluated the implementation and outcomes of a newly developed and delivered curriculum. This evaluation resulted in two peer-reviewed manuscripts currently in press.

ServSafe® program results show effectiveness in delivery of food safety information with 83% of all participants earning national certification (through National Restaurant Association) for food safety knowledge.

Key Items of Evaluation

Lighten Up Iowa conducts a survey of participants pre-, post- and 5-months-post-program on health behaviors including dietary intake and physical activity. The CDC funded WISEWOMAN project is currently preparing manuscripts reporting outcomes of this community-based disease prevention program. The adapted program, Habits for Healthy Hearts, will be utilizing survey monkey to continue evaluation efforts. The USDA funded Team Nutrition Demonstration project will be completing data collection and reporting in the 09-10 fiscal year. ServSafe® certification of participants will be monitored as a continued measure of program effectiveness.

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

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

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	7.9	0.0
Actual	0.0	0.0	9.7	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	708258	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	708258	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	3822699	0

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

To improve the nutrition and well-being of Iowans

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

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

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

4. Evaluate the economics of food and vector borne illness and control. Dissemination of research findings will be through a variety of mechanisms including peer reviewed journals, symposia, Extension publications, policy briefs, electronic and print media, presentations to commodity, industry, government, consumer and community groups.

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)**1. Standard output measures****Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year Target

Plan: 0

2008 : {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	10	
2008	{No Data Entered}	{No Data Entered}	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of non-peer reviewed publications.

Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of workshops/presentations.

Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of proceedings and published abstracts.
2	Number of theses produced.

Outcome #1

1. Outcome Measures

Number of proceedings and published abstracts.

Not reporting on this Outcome for this Annual Report

Outcome #2

1. Outcome Measures

Number of theses produced.

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

1. Evaluation Studies Planned

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

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

Natural Resources and Environmental Stewardship

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	13.0	0.0	15.8	0.0
Actual	13.0	0.0	22.7	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
379067	0	1628871	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
379067	0	1628871	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1243061	0	6924027	0

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

Efforts to achieve the objectives stated have taken a variety of forms including traditional Extension methods (field days, farm/field visits, newsletters, and Extension meetings as workshops). Additional web-based methods have been used for websites to web-based workshops and sessions. There have been many focused programs in specific areas.

Drainage Design Workshops, 1st 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 Comprehensive Nutrient Management Plan (CNMP) Development Course was offered in coordination with Iowa State University and the Natural Resources Conservation Service. The CNMP Development Course provides the educational component of the ISU TSP certification program.

Through a collaborative effort, the Community Assessment Model (CAM) is being used to help producer's site new livestock facilities in a way which accounts for size of facilities, local wind incidents, the presence of other livestock in the neighborhood and actual neighbor location.

The Iowa Learning Farm project that has a goal of educating producers and other stakeholders about the important benefits of in-field and edge-of-field conservation practices has continued. The project is a joint partnership of Iowa State University Extension, Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, and USDA Natural Resources Conservation Service with primary leadership by Iowa State University Extension.

Master Woodland Manager, Community Tree Steward, Master Conservationist NatureMapping, and The School Tree Program and Community Tree Program for Youth programs have been conducted to educate Iowans about the importance of natural resources.

The national conference, Mitigating Air Emissions from Animal Feeding Operations, was designed and conducted to provide practical information related to mitigation of air emissions for technical service providers, extension personnel, industry consultants, and facility owners and operators.

2. Brief description of the target audience

- Crop and livestock producers
- Private citizens
- Public health officials
- State agencies
- Conservation planners
- Landowners
- Homeowners

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	6500	87000	0	0
2008	30929	480625	875	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	3	0	
2008	21	30	51

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Target	Actual
2008	3	4

Output #2

Output Measure

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

Year	Target	Actual
2008	4	4

Output #3

Output Measure

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

Year	Target	Actual
2008	2	2

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

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

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1000	2576

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

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

What has been done

Education programs and field demonstrations were held. The Iowa Learning Farm Project rainfall simulator visited approximately 40 locations in late 2007 and early summer 2008 and demonstrated the impact of residue cover on soil erosion to broad stakeholder groups. No-till or reduced tillage field days were conducted in Western Iowa, Northeast Iowa, and Northwest Iowa with attendance totally approximately 870. The Iowa Learning Farm Project continued field demonstrations on producers' fields where conventional tillage to conservation tillage systems were compared.

Results

Consistent with previous reporting there continues to be an increasing number of producers interested in adoption of conservation practices specifically reduced tillage practices that have the potential to save natural resources and provide some economic benefit for the producer. From Iowa Learning Farm Field Days for which approximately seven field days were held (~600 participants) over 61% of respondents indicated they would consider adopting high-surface residue crop management on some of their acres and 51% indicated they would network conservation ideas with other farmers. The no-till or reduced tillage field days provide producers hands-on learning opportunities and most incorporated opportunities for interested producers to talk to experienced producers.

4. Associated Knowledge Areas

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

Outcome #2**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	1040

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

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

What has been done

To educate producers, contractors, agency personnel, and other interested stakeholders about drainage practices, workshops and field days have been conducted throughout the state. These include three Drainage Design Workshops, one drainage Water Management Field Day, and the IA-MN Drainage Research Forum. Additionally, various Extension presentations have been made on the impact of land management practices on nitrate-nitrogen losses.

Results

Feedback from the IA-MN Drainage Research Forum indicated attendees valued the research based presentation and the mix of basic and applied studies being summarized. From Drainage Design Workshops attendees indicated an estimated monetary benefit of \$0.23 per acre. Both at the Drainage Design Workshops and Drainage Schools the attendees indicated that as a result of the programming they would be able to better serve customers and build smart drainage systems.

4. Associated Knowledge Areas

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

Outcome #3**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1200	12753

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

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

What has been done

Educational programs on the impacts of agricultural practices on water quality were conducted including working with youth, rural, and urban audiences. ISU Extension worked with watershed groups to understand issues and assist in developing watershed management plans. A video highlighting impact of residue and other conservation practices on water quality was prepared using the Conservation Systems Rainfall Simulator for the Private Pesticide Applicator Training.

Results

As part of the Iowa Learning Farm project the Conservation Systems Rainfall Simulator was used at educational events throughout the state to demonstrate how maintaining residue cover on the land can decrease nutrient and sediment loss from agricultural fields. Numerous watershed groups were supported in their organizational development and land practices decisions. Bringing together and assisting watershed organizations is expected to have benefits in educating stakeholders about the impact of land management on water quality and in ultimately fostering action to improve practices. From the water quality training as part of the Private Pesticide Applicator Training, of the 7,761 evaluations received 14% of the respondents indicated that they would install and/or maintain grassed waterways, terraces, or filter strips where appropriate as a result of the current training. Of note is that 77% indicated they had all ready adopted these practices prior to the current training.

4. Associated Knowledge Areas

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

Outcome #4**1. Outcome Measures**

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	600	631

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

Appropriate management of land applied manure is important both for crop production and the environment. To ensure proper management for minimizing water quality impacts, Iowa law requires use of various indices and diagnostic tools. This is done to minimize the risk of nutrient losses to surface waters from manure application. Producers are faced with understanding the new requirements, gathering the needed information including soil type maps, soil sampling, and upgrading their Manure Management Plans, Nutrient Management Plans, and Comprehensive Nutrient Management Plans to include indices and diagnostic tools.

What has been done

Educational programming focused on indices, diagnostic tools, and application rates addressing manure nutrient management planning were conducted throughout the state. These programs targeted professionals, service providers, and producers. Programming conducted included RUSLE2 and the Iowa P-Index workshops, Nutrient Management Trainings, Comprehensive Nutrient Management Plan Development course, Midwest Composting School 2008, New Digitized Soil Survey Workshops and one-on-one consultations.

Results

Participants in the RUSLE2 and Iowa Phosphorus Index workshops reported working with or managing approximately 144,450 acres and 326 clients on an annual basis. They also reported developing over 200 nutrient management plans annually in which such indices are used in making manure application rate decisions. Participants indicated an average gain of \$1.79 per acre serviced.

In assisting individual producers, approximately 80,000 acres were impacted with improved manure management plans. By improving nitrogen utilization practices through better manure management planning, these producers saved over \$100,000 in reduced fertilizer costs.

Iowa State University in coordination with the Natural Resources Conservation Service provided training based on the Comprehensive Nutrient Management Plan Core Curriculum training materials developed by Iowa State University, Michigan State University, Purdue University, The University of Idaho, The University of Tennessee, and the Natural Resources Conservation Service. This course trained 117 participants on developing CNMPs. Industry consultants (both private and corporate), NRCS, regulatory agencies, and academia and extension attended the training. Of these 120 individuals 82 are pursuing certification to become a Technical Service Provider for NRCS to develop CNMPs for AFOs. These individuals will be working throughout the Midwest region to provide nutrient management planning services for producers.

4. Associated Knowledge Areas

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

Outcome #5**1. Outcome Measures**

Number of producers that participate in programming directly focused on increasing the number of livestock production sites that adopt practices that reduce impacts to air resources.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	744

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

Nuisance issues related to exposure to agricultural odors and gaseous emission are a prominent concern in rural Iowa.

Each year swine are lost to hydrogen sulfide (H₂S) poisoning during slurry removal and application. While increased ventilation is necessary due to slurry application occurring post-harvest during colder temperatures, this can lead to stressful conditions impacting swine health or increased heating costs. A portable H₂S detection system adapted for use during slurry removal would prove valuable to both swine producers and slurry removal businesses.

Baseline data on air emissions from commercial turkey production facilities are essentially non-existent. The monitoring studies currently in progress under the EPA's Air Consent Agreement (ACA) do not include turkeys. Consequently there is an urgent need to collect baseline air emissions data for U.S. turkey operations.

What has been done

The Community Assessment Model (CAM) is helping producers site new facilities to minimize the impact on neighbors. A total of 26 clients were served through use of CAM.

ISU developed and tested a wireless H₂S detection system for use in swine housing with funding provided by the National Pork Board. From lab and field results a prototype was developed to be tested by commercial slurry applicators. The prototype was used spring 2008 by one custom slurry removal and application business.

The national conference, Mitigating Air Emissions from Animal Feeding Operations, was designed and conducted to provide practical information related to mitigation of air emissions for technical service providers, extension personnel, industry consultants, and facility owners and operators.

Working with United Egg Producers (UEP) and in partnership with other land grant universities, Pennsylvania State University and University of Kentucky, field demonstrations on use of dietary manipulations on ammonia emission reduction, hen production performance, manure quality, and production economics were initiated. In collaboration with researchers/extension specialists at the University of Minnesota, ISU is leading a study to collect baseline air emissions data for turkeys raised in the Midwest.

Results

The siting model (CAM) influenced the placement of these investments, minimizing the potential for disgruntled neighbors and possible legal action.

Results indicate a portable, wireless H₂S detection system based on currently available sensors and wireless technology can be used to monitor H₂S concentrations and manage ventilation to disperse H₂S bursts during slurry agitation and removal from swine houses with sub-floor slurry storage. The system has proven to be robust and able to withstand the rigors of daily manure slurry pumping activities. Operating recommendations have been developed for swine producers and slurry removal businesses during manure slurry removal and application events.

Project results and recommendations have been disseminated to slurry applicators and swine producers through the extension commercial and confined site slurry applicators training sessions, and other professionals through professional conferences as proceedings and presentations.

Progress results on ammonia emission mitigation for laying-hen operations have been disseminated to egg producers and other professionals through extension workshops and professional conferences. Similarly results on turkey air emissions have been disseminated to producers and professionals through extension and conference presentations. The turkey air emissions data are expected to be adopted by U.S. EPA in its development of animal feeding operations air emissions estimation methodologies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
141	Air Resource Protection and Management

Outcome #6

1. Outcome Measures

Number of Iowans that participate in programming directly focused on the adoption of practices that protect natural resources including woodlands, wildlife, energy, and community resources.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1000	23500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The public places a high value on natural resources. Fishing, hunting, and other wildlife-related activities alone directly contribute over \$110 billion annually to the U.S. economy. Forestry industries contribute hundreds of billions of dollars more in timber value alone, let alone recreational values. Management of natural resources in the public trust and in private hands is a high priority for Extension Ag and Natural Resources. Proper management of natural systems holds the potential to mitigate soil, water, and air resource degradation caused by intensive row crop agriculture, concentrated livestock operations, and urban sprawl.

What has been done

Fifteen Forestry Field Days attracted 798 Iowans to learn about woodland management and stewardship. Master Woodland Manager, one Tri-State Forestry Conference, several forestry workshops and invited presentations, and forestry value added demonstrations at the 2008 Farm Progress show reached another 11,418 adults. Indirect contacts through newsletters, emails, and phone calls exceeded 22,500 contacts in FY 2008 for forestry extension. Fisheries extension had 232 participants at their various workshops and handled nearly 800 direct and indirect contacts from constituents.

Results

Integrating across natural resource (fish, forest, and wildlife) disciplines has enabled ANR extension professionals to be more efficient at delivering current programming that is relevant to a broader audience (urban-rural, youth-adult, and underrepresented groups in Iowa). Natural resource knowledge and its application on the land as a result of educational efforts are difficult to measure short-term, but we are constantly striving to find better measures of impact. Clearly, with the numbers of people attending these educational sessions, the value of this programming is high, and long-term changes in human behavior and management of these critical resources will be the true test of our programming efforts.

4. Associated Knowledge Areas

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

Outcome #7**1. Outcome Measures**

Number of Iowans that participate in programming directly focused on increasing the adoption of energy conservation practices.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	583

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

Energy makes up an ever-increasing portion of operating costs for farmers. Costs for natural gas, electricity, diesel, and gasoline can vary greatly and spike unexpectedly. Renewable energy resources need to be developed or harvested while adopting conservation practices with currently available resources.

What has been done

Six workshops with focus on energy efficiency and alternative energy options, and three conferences on wind as an alternative energy source were delivered.

Results

Over 260 participants attended the Central Iowa Wind Energy Conferences and a total of 118 evaluations were received. Eighty eight percent of the participants ranked the conference as good or excellent, with 97% agreeing to recommend the conference to a colleague. Ninety-four percent found the conference speakers to be knowledgeable in explaining wind energy principals and regulations. Ninety-one percent agreed that the speakers used effective presentation skills. Eighty-six percent agreed that information obtained through the conference will be applicable in their decision-making on how to use wind as a renewable energy resource either at home or work or on-farm. Ninety percent of participants completing evaluations agreed that the conference addressed the issues as advertised, provided useful materials for future reference, and responded to issues effectively.

Attendees said the conference gave them what they came for: information to help them make good investment decisions, better understand applications of wind energy in their personal operations, and understand local opportunities in the wind energy industry. In words of a participant at the Nevada, Iowa location: These programs are very important for us to stay abreast of the energy supplies of today and the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- 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. Land prices have continued to increase throughout this period and as such there is a challenge to get producers enrolled in many conservation programs. The extreme precipitation events and flooding in early 2008 throughout much of Iowa influenced interest in conservation related programming and it is anticipated that there will be significant re-investment in conservation practices where there was damage in 2008.

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

1. Evaluation Studies Planned

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

Evaluation Results

As a part of programming related to increasing the adoption and implementation of conservation practices and related to increasing the understanding of water quality issues two evaluations can be summarized. One is an in-depth two-week and six-month evaluation of programming associated with the Iowa Learning Farm project where the goal is to educate producers about the use of conservation practices. The other is an evaluation that was conducted as part of the Private Pesticide Applicator Training. The overall goal of programming in this general area is to increase the understanding of the role of conservation practices and land management in improving water quality. In addition, the ultimate goal is to increase the number acres where appropriate conservation practices are utilized.

As part of Iowa Learning Farm Field Days, 126 producers completed comment cards. The two-week evaluations had a response rate of 41% to the mailed questionnaires, and the six-month evaluation had a 49% response rate. From the evaluations, 61% at two-weeks and 51% at six months indicated that they planned to increase the use of surface residue management (no-till or strip till) on some of their acres in the coming year. At the six-month evaluation the average number of acres per respondent who said they were putting more acres into no-till or strip till was 289 acres. At two-weeks, 16% of the respondents indicated they discussed using no-till or strip till with their landowners and this number increased to 23% at the six-month evaluation. Also, 51% and 57% of the respondents at two-weeks and six-months, respectively, indicated that they discussed conservation ideas with other farmers in their areas. From the water quality training as part of the Private Pesticide Applicator Training, of the 7,761 evaluations received 14% of the respondents indicated that they would install and/or maintain grassed waterways, terraces, or filter strips where appropriate as a result of the current training. Of note is that 77% indicated they had all ready adopted these practices prior to the current training.

Key Items of Evaluation

Based on the evaluation results noted above it appears evident that targeted educational programs supported by scientific results can have some success in encouraging farmers to adopt more conservation related practices.

Program #17**V(A). Planned Program (Summary)****1. Name of the Planned Program**

Commercial and Consumer Horticulture

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
124	Urban Forestry	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	20%		20%	
205	Plant Management Systems	40%		40%	
216	Integrated Pest Management Systems	20%		20%	
502	New and Improved Food Products	10%		10%	
	Total	100%		100%	

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	14.0	0.0	8.2	0.0
Actual	14.0	0.0	5.5	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
408226	0	501364	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
408226	0	501364	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1338681	0	1247575	0

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

Conduct applied research on: feasibility of vegetable production in high tunnels, cold hardiness of grape cultivars, turfgrass species selection and maintenance, and production of new horticulture crops (Aronia).

Conduct workshops/meetings/symposia on: selection, care and maintenance of: Trees (Shade Tree Short Course), herbaceous perennials (Herbaceous Perennial Saturday), turfgrass (Iowa Turf Conference and Turfgrass Field Day), food crops (Iowa Fruit and Vegetable Conference and High Tunnel Workshop), and general gardening (Iowa Master Gardener training, 2008 Summer Session,

Develop and deliver online materials: 20 training modules for Iowa Nursery and Landscape Association Iowa Certification Professional exam, 4 updates on turfgrass winter injury for superintendents of golf courses and athletic fields, and seven webcasting sessions for Master Gardener Intern training each semester.

2. Brief description of the target audience

Commercial fruit and vegetable producers; nursery, garden center, and turfgrass professionals; and homeowners

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	35000	100000	0	0
2008	16285	50000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	1

Patents listed

PP18,101: First Cultivar of *Alnus maritima* - September Sun, Seaside Alder: Seaside Alder Named 'September Sun'.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	4	8	
2008	1	7	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research studies completed.

Year	Target	Actual
2008	6	15

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

O No.	Outcome Name
1	Increase the number of clients who participate in horticulture programs on production methods, market outlets, Best Management Practices, and IPM techniques.
2	Increase the number of new horticulture businesses and the expansion of existing horticulture businesses assisted through county offices.
3	Number of ISU staff hours for Master Market training of vendors and working at farmer's markets (to increase the strength of farmers markets in Iowa by cooperating with IDALS and WIC programs)
4	Increase involvement of Master Gardener volunteers in their communities. (Measure the number of volunteer hours per year.)
5	Increase the quality and quantity of horticulture information accessible to the gardening public. (Measure number of peer-reviewed extension publications.)
6	Conduct two summer workshops for commercial producers on profitable techniques of high tunnel vegetable/fruit production.

Outcome #1**1. Outcome Measures**

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1500	2500

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

Horticulture and the Green Industry has been one of the fastest growing segments of agriculture for several years. However in an unstable economy, improving efficiencies in plant production while maintaining (at a minimum) market outlets become crucial to survive.

What has been done

Workshops, symposia, field days, and meetings were conducted across the state on a variety of subjects throughout the year.

Results

Horticulture extension faculty presented results to over 5400 participants at various workshops. From one such event, 15% of commercial turfgrass managers that attended the Iowa Turfgrass Conference plan on adopting efficient turf management and safety practices learned at the conference.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
502	New and Improved Food Products
204	Plant Product Quality and Utility (Preharvest)
216	Integrated Pest Management Systems

Outcome #2**1. Outcome Measures**

Increase the number of new horticulture businesses and the expansion of existing horticulture businesses assisted through county offices.

Not reporting on this Outcome for this Annual Report

Outcome #3**1. Outcome Measures**

Number of ISU staff hours for Master Market training of vendors and working at farmer's markets (to increase the strength of farmers markets in Iowa by cooperating with IDALS and WIC programs)

Not reporting on this Outcome for this Annual Report

Outcome #4

1. Outcome Measures

Increase involvement of Master Gardener volunteers in their communities.
(Measure the number of volunteer hours per year.)

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	90000	85000

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

Gardening is the number one leisure activity across the United States. Many that garden look to neighbors, friends, web sites, garden center employees, and others to help answer questions that arise about the challenges associated with this very popular pastime.

What has been done

In 2008, 498 people participated in the Iowa Master Gardener Program. Participants volunteer in their communities through offering sound gardening advice and work. Some of the projects Master Gardeners and Interns conducted or participated in include: organizing and/or staffing displays or booths at lawn and garden shows, coordinating and organizing local farmers' markets, teaching horticulture therapy activities at nursing homes, writing columns for the local newspaper, writing a local Master Gardener newsletter, answering horticulture-related telephone calls during scheduled hours at the extension office, serving as superintendent or volunteer for horticulture exhibits at county fairs, assisting 4-H'ers with garden projects, teaching horticulture programs as guest speaker to school-age youths and conducting educational workshops for youths and adults.

Results

Approximately 85,000 hours in 2008 were documented and submitted from Master Gardeners and Master Gardener Interns across Iowa. This is an increase of 7,000 hours from 2007.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products
204	Plant Product Quality and Utility (Preharvest)
124	Urban Forestry
216	Integrated Pest Management Systems
205	Plant Management Systems

Outcome #5**1. Outcome Measures**

Increase the quality and quantity of horticulture information accessible to the gardening public. (Measure number of peer-reviewed extension publications.)
Not reporting on this Outcome for this Annual Report

Outcome #6**1. Outcome Measures**

Conduct two summer workshops for commercial producers on profitable techniques of high tunnel vegetable/fruit production.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	{No Data Entered}	93

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

Growing vegetables in high tunnels allows producers to sell a crop earlier and at higher prices. Commercial producers wish to determine the profitability of using high tunnels for early vegetable and fruit production.

What has been done

Research and demonstration projects on pole beans and colored peppers were conducted at the Armstrong and Horticulture Research Farms. Results were presented to growers at 2 summer workshops.

Results

Survey results (40% response rate) indicated that 60% of attendees found the information presented useful. Ninety-three percent indicated their knowledge of high tunnel production techniques improved after attending a workshop and they would adopt at least one practice presented. Eighty-one percent desired more information on growing food crops and potentially ornamentals in high tunnels. Eighty-one percent also indicated they would attend a future program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

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

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

Brief Explanation

Responding to Damaging Weather Events

During a 7-month period (December, 2007 through June, 2008) several significant weather events negatively impacted Iowa's urban and rural tree resource. In December, 2007, a major ice storm ravaged the state, but was particularly severe in southeast Iowa. Responding to a request for assistance, Dr. Jeff Iles conducted a program (Best Practices for Repairing Storm-damaged Trees) on March 6, 2008 for residents of Chariton and surrounding communities. Homeowners, professional tree care workers, and municipal employees attended and shared their experiences about dealing with the storm and its aftermath. Participants came away from the meeting with a better understanding of how to evaluate and prune damaged trees, and perhaps most importantly, understand when an injured tree should be removed from the landscape.

In May and June, 2008, severe spring weather, including flooding, ravaged many regions of Iowa. Responding to the need for information about the effects of flooding on landscape plants, Dr. Iles updated and revised a previously released extension publication, SUL 1 Understanding the Effects of Flooding on Trees. This publication was widely distributed and helped Iowans understand how to cope with flood damaged trees and shrubs. Unfortunately, little can be done for plants severely impacted by prolonged flooding, but the publication did help citizens understand the importance of assessing the relative health and strength of plants after flooding, and the need for removing plants that might not be structurally sound.

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

1. Evaluation Studies Planned

- After Only (post program)

Evaluation Results

Key Items of Evaluation

Program #18**V(A). Planned Program (Summary)****1. Name of the Planned Program**

Corn and Soybean Production and Protection

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	20%		20%	
112	Watershed Protection and Management	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	20%		20%	
206	Basic Plant Biology	20%		20%	
216	Integrated Pest Management Systems	20%		20%	
	Total	100%		100%	

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	27.0	0.0	0.0	0.0
Actual	27.0	0.0	8.0	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
787293	0	698697	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
787293	0	698697	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
2581742	0	4482771	0

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

Presentations (meetings, workshops, invited presentations, field days, etc.)

Publications

Research

Media (radio, television, print, refereed pubs, interviews, videos, pod cast)

Electronic (web, e-mail newsletters, FAX newsletters, CDs, etc.)

Individual consultations (phone, e-mail, in-person)

On-line courses

2. Brief description of the target audience

- Crop producers
- Livestock producers
- Certified Crop Advisors
- Agribusiness personnel
- Commodity organizations
- Agencies – Federal, State and Local
- Commercial manure applicators
- Land owners
- Agricultural lenders
- Beginning and returning farmers
- Policy makers

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	20000	10000	0	0
2008	14898	300000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	1

Patents listed

7,410,107: Impellicone Manifold: Apparatus and Method of Reducing Anhydrous Ammonia Application by Optimizing Distribution.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	10	0	
2008	24	0	24

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of applied-research experiments and demonstrations at ISU research farms, grower fields, agribusiness partner locations.

Year	Target	Actual
2008	100	265

Output #2

Output Measure

- Number of monitoring programs for appropriate crop pests.

Year	Target	Actual
2008	4	8

Output #3

Output Measure

- Invited Presentations

Year	Target	Actual
2008	{No Data Entered}	160

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

O No.	Outcome Name
1	Number of producers and service providers attending corn and soybean programming that focuses on improving agronomic practices.
2	Number of producers and service providers attending programs to learn and apply Integrated Pest Management practices.
3	Number of producers and service providers who participate in programs designed to increase forage production and profitability and forage-based production systems.
4	Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.
5	Number of producers and service providers who participate in programs designed to increase the adoption of conservation systems on Iowa's corn and soybean acreage.
6	Number of landowners and producers attending programs that focus on applying best management practices to land coming out of the Conservation Reserve Program.
7	Number of producers and service providers trained to use diagnostic and other resource tools related to crop nutrient management.
8	Number of farmers and service providers trained in managing the nitrogen and phosphorus content of animal manure in relation to the appropriate cropping system.
9	Number of producers and service providers attending Pesticide Applicator Training programming that focuses on safe use of pesticides.

Outcome #1**1. Outcome Measures**

Number of producers and service providers attending corn and soybean programming that focuses on improving agronomic practices.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10000	13101

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

In an increasingly competitive global economy, Iowa producers and agribusinesses demand the most relevant research data to maximize profitability and environmental stewardship. Specifically, in 2008, corn and soybean producers were confronted by weather-related challenges that could negatively impact profitability.

What has been done

ISU Extension met this demand by conducting, interpreting, and disseminating research relevant to the needs specific to Iowa growers and agronomic service providers in the arena of corn and soybean agronomic practices. This has been accomplished through presentations (meetings, workshops, invited presentations, field days, etc.), publications, research, media (radio, television, print, refereed pubs, interviews, videos, pod cast), electronic (web, CDs, etc.), individual consultations (phone, e-mail, in-person), and on-line courses. Included were meetings and publications addressing the unique challenges of 2008.

Results

Because of timely response by ISU Extension, producers were able to make better critical decisions that resulted in minimizing losses in profitability. Participants in Extension programming were able to compare the economics of late-planting and re-planting options vs. prevented planting options through crop insurance, including hybrid / variety maturity, based on ISU yield data. Some were considering harvesting late-planted crops as forage but decided to harvest for grain, based on ISU research, and were pleased with their decision. Thirteen growers who attended Crop Advantage were surveyed and reported lowering soybean seeding rates by 13,000 seeds per acre, saving them approximately \$85,000. Twenty-seven subscribers to the Integrated Crop Management News reported adjusting seeding rates or planting timing based on information presented in the Integrated Crop Management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
112	Watershed Protection and Management
216	Integrated Pest Management Systems
206	Basic Plant Biology
102	Soil, Plant, Water, Nutrient Relationships

Outcome #2**1. Outcome Measures**

Number of producers and service providers attending programs to learn and apply Integrated Pest Management practices.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10000	29872

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

Every year, pests (weeds, insects, and diseases) are a major constraint to crop profitability in the state of Iowa. Corn and soybean producers were confronted by pest-related challenges that could negatively impact profitability. In 2008, soybean aphid was an unexpected pest. Pesticide applications raise citizen and producer concerns regarding environmental stewardship and responsible pesticide use.

What has been done

ISU Extension met this demand by conducting, interpreting, and disseminating research relevant to the needs specific to Iowa growers and agronomic service providers in the arena of corn and soybean agronomic practices. This has been accomplished through presentations (meetings, workshops, invited presentations, field days, etc.), publications, research, media (radio, television, print, refereed pubs, interviews, videos, pod cast), electronic (web, CDs, etc.), individual consultations (phone, e-mail, in-person), and on-line courses. Included were meetings and publications addressing the unique challenges of 2008, specifically appropriate fungicide use and soybean aphid management.

Results

A survey of participants at the Crop Advantage Series educational events regarding fungicide use measured the decision-making methods of participants. Analysis shows that respondents overwhelmingly learned the correct criteria to use in making decisions on appropriate fungicide application decisions. See the Evaluation section for details. The manager of one agribusiness reported that the timely dissemination of ISU research related to soybean aphid management resulted in a \$6,000,000 increase in revenue among 85 growers, compared to untreated controls. Twenty-seven subscribers to the Integrated Crop Management News reported changing their soybean aphid management practices based on the Integrated Crop Management News.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #3**1. Outcome Measures**

Number of producers and service providers who participate in programs designed to increase forage production and profitability and forage-based production systems.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	400	3343

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Quality forages are important for Iowa's ruminant livestock nutrition. Forages are vital to maintain the soil resource in areas not suited for row-crop production. Growers and agribusiness demand research-based information on best management practices for forages in Iowa. Integrated crop and livestock production systems improve farm profitability and environmental quality. However, high fertilizer prices have caused some to consider liquidating beef herds.

What has been done

ISU Extension met this demand by conducting, interpreting, and disseminating research relevant to the needs specific to Iowa growers and agronomic service providers in the arena of forage production. This has been accomplished through presentations (meetings, workshops, invited presentations, field days, etc.), publications, research, media (radio, television, print, refereed pubs, interviews, videos, pod cast), electronic (web, CDs, etc.), individual consultations (phone, e-mail, in-person), and on-line courses. Included were meetings and publications addressing the unique challenges of 2008. Specifically, pasture walks and pasture weed management demonstrations, flood meetings discussing forages as alternative crops in flooded areas in 2008, and two forage nutrient management workshops were conducted.

Results

In the two workshops, 51 participants were educated about the cost of production of forages, and were asked to calculate the cost of production of forage crops using average retail fertilizer prices. Many were surprised by the pounds of phosphorus and potassium removed by a ton of hay, with one grower commenting that he discovered he had recently sold hay for about \$20 less per bale than it cost him to produce. Thirty seven of the 51 participants reported that they would implement a soil testing program for their hay ground based on what they learned at the workshop.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
205	Plant Management Systems
204	Plant Product Quality and Utility (Preharvest)

Outcome #4**1. Outcome Measures**

Number of producers and service providers who attend programs designed to increase the awareness of new crop opportunities and varieties appropriate for bio-energy production.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	3838

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

Due to concerns about greenhouse gasses and dwindling fossil-fuel supplies, a national goal is to develop sustainable alternative energy sources to achieve energy independence.

What has been done

ISU hired a bio-mass crop production specialist to lead research and dissemination efforts related to bio-fuels. Bio-fuel production was part of Crop Advantage series educational events, five round-table discussions of residue removal issues, POET field day, a field day at the Muscatine Island Research and Demonstration Farm featuring sugar beet production potential, and presentations at the Integrated Crop Management Conference and some Crop Advantage meetings.

Results

Participants at one round-table discussion (mentioned above) indicated information presented would help advise clients on crop residue removal effects on soil quality and implications for future crop production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	1878

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Iowa is a leader in soil loss. The floods of 2008 resulted in significant movement of soil from fields. This loss endangers future productivity of Iowa soils and act as conduits for fertilizers and pesticides movement off site.

What has been done

The Iowa Learning Farm conducted 28 on-farm research / demonstration tillage plots (with seven field days having about 600 participants), ISU conducted No-till demonstration field days in western, northwestern, and northeast Iowa with an attendance of about 870, and the Iowa Learning farm rainfall simulator made appearances at over 40 events in Iowa.

Results

From Iowa Learning Farm Field Days, over 61% of respondents indicated they would consider adopting high-surface residue crop management on some of their acres and 51% indicated they would network conservation ideas with other farmers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #6

1. Outcome Measures

Number of landowners and producers attending programs that focus on applying best management practices to land coming out of the Conservation Reserve Program.

Not reporting on this Outcome for this Annual Report

Outcome #7**1. Outcome Measures**

Number of producers and service providers trained to use diagnostic and other resource tools related to crop nutrient management.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	400	2295

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

Skyrocketing fertilizer prices have challenged producers and agribusiness's profitability. In addition, off-site movement of plants nutrients is a continuing environmental concern.

What has been done

Twelve Integrated Crop Management News articles related to soil fertility issues were published, the web-based Nitrogen Rate Calculator was updated and linked to the Ag decision Maker web site, and the Extension-Industry Soil Fertility Conference proceedings were published.

Results

Forty-four of the subscribers to the Integrated Crop Management News reported changing their soil testing and nutrient management practices based on the Nitrogen Rate Calculator and other information from Iowa State University. The soil fertility articles in the Integrated Crop Management News received nearly 12,000 "hits."

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #8**1. Outcome Measures**

Number of farmers and service providers trained in managing the nitrogen and phosphorus content of animal manure in relation to the appropriate cropping system.

Not reporting on this Outcome for this Annual Report

Outcome #9**1. Outcome Measures**

Number of producers and service providers attending Pesticide Applicator Training programming that focuses on safe use of pesticides.

Not reporting on this Outcome for this Annual Report

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

Brief Explanation

Iowa experienced the worst flooding in recorded history in 2008, diverting resources from other programming into flood recovery programming. The consistently wet weather in the spring significantly delayed planting and crop development and altered normal patterns of pest (insects, weeds, and diseases) infestations. Fertilizer prices doubled to tripled, causing challenges in soil fertility management and producer and agribusiness cash flows. Grain prices hit record highs in mid-season and then retrenched approximately 50% by harvest, adding to the stress.

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

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

Evaluation Results

Evaluations were conducted for the Integrated Crop Management News and for fungicide use education conducted as part of the Crop Advantage Series.

Of the surveyed participants from the Crop Advantage Series, 94.5% said they understood that hybrid susceptibility should be a consideration in corn fungicide application decisions, 97% said they understood that weather should be considered, and 87% said they understood that disease lesions on the ear leaf may indicate a risk of yield loss. Eighty-seven per cent said they did consider hybrid susceptibility, 74.4% said they did scout, and 71% said they did consider weather in actually making fungicide application decisions. In addition, 70% reviewed past research reports. Fifty-one point four per cent of those that applied a corn fungicide left a check strip for comparison, and 47.7% of those that applied a soybean fungicide left a check strip.

Of the respondents to the Integrated Crop Management News (ICMN) evaluation, 95.5% said the ICMN made them aware of methods to improve their or their client's farming operations, 96% reported that the ICMN made them more confident in making decisions or recommendations, 89% said the ICMN influenced them to make or recommend a change in farming practices, 83.7% said the ICMN prompted them to seek out additional resources on a topic, 89.4% said they had shared ICMN information with others, and 89% said they would recommend ICMN to others.

Key Items of Evaluation

The Integrated Crop Management News and the Crop Advantage Series are highly valued by producers and agribusiness. The producers that attend the Crop Advantage Series represent nearly one-fourth of all the row-crop acres in Iowa (approximately 5.5 million acres). A sample of the comments regarding the Integrated Crop Management news include:

- "Overall, the newsletter is very helpful and I read 95% of it,"
- "the info is very helpful in making management and economical decisions,"
- "great information,"
- "thank you for providing it in a simple e-mail in order to keep us up to date automatically,"
- "this is an excellent resource for agronomy and related subjects to communicate and make our farmers to apply to their farming methods to improve the productivity,"
- "keep up the good work in providing timely information on recent topics,"
- "I rely on ICM News, especially during the growing season,"
- "a good, practical publication," "ICM News is a very good and current source of information,"
- "it is one of the best products on the market,"
- "the search menu is the best out there,"
- "keep up the great work,"
- "I'm very satisfied with the newsletter,"
- "contains information that is vital in decision making,"
- "please keep up the great work!",
- "you guys do a great job!
- "Please keep up the good work!"

The implications are that the information from Crop Advantage and the Integrated Crop Management News is very important to the decision-making that occurs on a large number of acres in the state of Iowa, and better decisions are being made because of these educational activities.

Program #19**V(A). Planned Program (Summary)****1. Name of the Planned Program**

Plants and their Systems

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

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	10%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	10%		10%	
206	Basic Plant Biology	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
212	Pathogens and Nematodes Affecting Plants	10%		10%	
213	Weeds Affecting Plants	10%		10%	
215	Biological Control of Pests Affecting Plants	10%		10%	
216	Integrated Pest Management Systems	10%		10%	
	Total	100%		100%	

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	31.6	0.0
Actual	0.0	0.0	17.6	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	1942263	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	1942263	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	7530731	0

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

Personnel are engaged in a wide range of research activities. Research is designed to address each stated goal in detail and encompasses laboratory studies and experiments conducted in the growth chamber, glasshouse and research farms. As appropriate, some field research is conducted on grower fields, public lands, and other locations. Collaborative efforts include cross-disciplinary studies, partnering of ISU departments and Centers, and the involvement of private industries, seed suppliers, agribusinesses and grower commodity organizations. The synergy gained from an inclusive perspective in developing research that addresses important goals allows the leverage of funds and facilitate research programs that are greater and more effective in scope.

- Establish hypotheses to address the critical research issues that encompass Plants and Their Systems
- Develop a broad range of research experiments to evaluate the hypotheses
- Construct/modify research equipment and facilities needed to effect the efficient completion of research experiments
- Create new innovative procedures to address important research questions and circumvent problems encountered
- Train staff and students to participate in cutting-edge research programs
- Objectively evaluate results from research experiments
- Publish the results of research experiments in high impact scientific journals and facilitate the use of the research results in various forms of influential media
 - Present data at professional scientific regional, national and international conferences and symposia
 - Deliver science-based objective information to state, regional, national and international user groups

2. Brief description of the target audience

- National and international peer scientists
- Agribusinesses
- Commodity groups
- Certified Crop Advisors
- Crop producers
- USDA agencies
- State politicians

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	2
2008 :	2

Patents listed

7,279,336: H2A Expressing Transgenic Maize Lines with Enhanced Transformation Efficiency: Methods and Compositions for Enhanced Plant Cell Transformation

7,312,080: Plant Resistance to Aphids Mediated by Luteovirus Structural Proteins: Plant Resistance to Insect Pests Mediated by Viral Proteins

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	40	
2008	2	86	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of non-peer reviewed publications.

Year	Target	Actual
2008	30	47

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	Outcome Name
1	Number of theses completed.
2	Number of abstracts published.

Outcome #1**1. Outcome Measures**

Number of theses completed.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20	22

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

Students who finish an MS or Ph.D. in one of the many majors offered in the plant sciences have an immediate and direct benefit to society in general and academia and businesses in particular. People with advanced degrees in the plant sciences are important to society and business because they represent newly educated leadership and entrepreneurship. Expanded knowledge in the plant sciences will lead to an increase in the per unit acre production of our major crops.

What has been done

M.S. and Ph.D. theses and dissertations have been completed and submitted on the inheritance of oil composition in soybean, composition of corn stover for use as a biorenewable feedstock, management of soybean cyst nematode, resistance to soybean aphid, and management practices that increase the yield of corn and soybeans.

Results

Students have generated research that has been written up in the form of MS theses and Ph.D. dissertations. The results from the research of MS and Ph.D. students is communicated to the public and other scientists through abstracts, invited and contributed presentations, refereed journal articles, extension publications, chapters in proceedings, and germplasm release. Four new 1%-linolenic acid varieties were released for commercial production. Low linolenic acid varieties can be used to produce oil without hydrogenation and hence are trans-fatty acid free. Field and laboratory techniques were developed that aid soybean breeders in identifying host plant resistance. Host plant resistance will not keep soybean plant free of aphids, but does prevent a significant loss in yield.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
201	Plant Genome, Genetics, and Genetic Mechanisms
213	Weeds Affecting Plants
212	Pathogens and Nematodes Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants
206	Basic Plant Biology
205	Plant Management Systems
215	Biological Control of Pests Affecting Plants
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant

Outcome #2**1. Outcome Measures**

Number of abstracts published.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	28

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

Scientists use abstracts as a way of communicating science that is partially completed to other scientists usually in the venue of scientific meetings. This serves two purposes – it makes others aware that the research is being conducted and it provides the scientists who are reporting the research a critique of their research.

What has been done

Research has been conducted in germplasm conservation, the use of alternative crops for our production system, management of insect resistance in corn, improving the sustainability of Iowa agricultural and horticultural systems.

Results

Germplasm Enhancement of Maize research improved of traits for maize consumption, crop protection, bio-energy, and industrial uses. New cooperators expanded access to exotic germplasm, enhancing our ability to reduce grain mycotoxin levels, improve grain quality traits, stress resistance, and yield. Flax production in Iowa is influenced by the previous crop residue, the type and amount of soil amendment, and the presence of weed competition. Population genetics studies on the western bean cutworm indicate that its unexplained ongoing eastward range expansion through the Corn Belt was initiated by a sudden loss of an ecological exclusion mechanism rather than a fortuitous crossing of a barrier to movement.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
213	Weeds Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plant
216	Integrated Pest Management Systems
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
206	Basic Plant Biology
204	Plant Product Quality and Utility (Preharvest)
201	Plant Genome, Genetics, and Genetic Mechanisms

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

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

Brief Explanation

2008 was a difficult year in Iowa, particularly for field-based research programs. Much of the state was water logged from too much rain during the period for optimal planting of corn and soybeans. Although the year started out poorly it ended well, with the only adverse effects being on data quality. Most research was kept more or less on schedule.

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

-

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

U.S. Department of Agriculture
Cooperative State Research, Education, and Extension Service
Supplement to the Annual Report of Accomplishments and Results
Actual Expenditures of Federal Funding for Multistate Extension and Integrated Activities
(Attach Brief Summaries)
Fiscal Year: 2008

Select One: Interim Final
Institution: Iowa State University
State: Iowa

	Integrated Activities (Hatch)		Multistate Extension Activities (Smith-Lever)		Integrated Activities (Smith-Lever)	
<i>Established Target%</i>	7.86	%	0.75	%	5.00	%
<i>This FY Allocation (from 1088)</i>	\$ 6,397,175		\$ 9,031,554		\$ 9,031,554	
<i>This FY Target Amount</i>	\$ 502,818		\$ 67,737		\$ 451,578	
Title of Planned Program Activity						
Commercial and Consumer Horticulture	23,657		0		0	
Community Resource Planning and Development	16,727		0		0	
Community Services and Institutions	11,193		0		0	
Corn and Soybean Production and Protection	21,771		0		0	
Economic and Social Welfare	35,421		0		0	
Economics, Markets, and Policy	26,114		0		0	
Farm and Business Management	55,772		0		0	
Food and Non-Food Products	21,558		0		0	
Human Nutrition, Food Safety, and Human Health and Well-being	28,781		0		0	
Natural Resources and the Environment and Agricultural and Biosystems Engineering	143,317		0		0	
e-Xtension	0		70,016		0	
NASULGC/NELD/NCCEA	0		18,898		0	
North Central Bioeconomy Consortium	0		2,000		0	

A. Multistate Extension Activities:

1. NASULGC (e-Xtension)/NELD/NCCEA

The National Association of State Universities and Land-Grant Colleges (NASULGC) assessed fees to promote national initiatives. During FY 2008, Iowa State University Extension paid fees totaling \$70,016 to support e-Extension.

The National Extension Leadership Development Program (NELD) was created to enhance leadership in Cooperative Extension at all levels and to provide current and future extension leaders with the vision, courage, and tools to deal with a rapidly changing world. This program is a part of extension's overall national leadership effort. In addition to the national program, there is also a NELD program supported by extension in the North Central Extension region of the country. Iowa Extension has staff currently participating in both the national and regional. Total costs associated with NELD for 2008 came to \$16,031.

The North Central Cooperative Extension Association (NCCEA) provides a forum for state extension directors and administrators on matters of regional, national, and international concern. The NCCEA plans, develops, and monitors cooperative efforts among the north central states. Assessments to NCCEA amounted to \$2,867 during FY 2008. In total, \$18,898 was assessed for NELD and NCCEA work during FY 2008.

2. North Central Bioeconomy Consortium

During FY 2008, Iowa State University Extension supported the North Central Bioenergy Consortium in the amount of \$2,000. The North Central Bioeconomy Consortium strives to flag key issues within the bioeconomy and address them through consensus building, information sharing, policy development and implementation, expand the use of biomass in the Midwest to replace fossil fuels, facilitate coordinated regional approaches for working with federal agencies, and strive for multistate collaboration.

3. North Central Regional Center for Rural Development

The North Central Regional Center for Rural Development (NCRCRD) is a cooperative program among the 12 states in the North Central Extension region. NCRCRD initiates and facilitates rural development research and education programs in the region. NCRCRD also provides regional and national leadership in rural development by identifying, developing and supporting programs on emerging issues. Iowa Extension supported the multi-state work of NCRCRD through an assessment of \$2,553 during FY 2008.

4. Agriculture and Natural Resources Extension Programs

Dr. DeWitt spent time on multi-state and national programs and activities in FY2008 that included: Regional SARE Administrative Council, and the Regional SARE Professional Development Program committee. This represents approximately 3.7 % of Dr. DeWitt's time or equivalent to approximately \$5,963 in salary support.

The Dean of the College of Agriculture and Life Sciences participated in many multistate activities related to Extension. The Dean provided leadership for the U.S. Pork Centers of Excellence which is a multistate project involving over 20 land grant universities. The Pork Information Gateway provides farmers across these 20 states with Extension's research-based information. The Dean served as the administrative advisor for NCERA201 – Integrated Pest Management – a multistate project that involves extension and research faculty. The Dean also served on the Steering Committee for the North Center Integrated Pest Management Center that coordinates extension and research programs in the North Central region. The Dean served as a member of the national Communications and Marketing Committee which has developed information and papers describing the importance of the federal formula funds for extension and research. The Dean of the College of Agriculture and Life Sciences and Director of the Iowa Agricultural and Home Economics Experiment Station spent at least 5% of her time on multistate projects, totaling \$11,604 in salary alone in FY2008.

The Associate Dean for Extension Programs and Outreach allocated time during FY08 on national and regional activities. These activities included serving as the administrative advisor for 3 multi-state projects: 1) NCERA-3, Soil Survey, 2) NCERA-59, Soil Organic Matter: Formation, Function and Management, and 3) NCCC-9, Midwest Plan Service: Research and Extension Educational Materials. Other activities include serving as a member and chair-elect of the North Central Region Extension Program Directors Committee and served as the project director for the 4-state Heartland Regional Water Coordination Initiative and represented the region to the USDA CSREES National Water Program. These activities represent about 5% of the Associate Dean for Extension Programs and Outreach time, which is equal to \$8,031 in salary during FY08.

5. Families Extension Program Director

During the time period of October 1, 2007 through September 30, 2008, the Director of ISU Extension to Families spent a fair amount of time on multistate activities. Activities included mentoring new program directors in other states on families programming opportunities and providing leadership for program development and evaluation for shared programs across the twelve North Central Regional (NCR) Families program directors in the area of parenting, resource management, food safety, obesity and economic development. NCR work time included meetings with all Extension Program Directors three times during the year, in Minneapolis, Washington DC, and Indianapolis) as well as quarterly phone calls and monthly emails. Additional time was spent on marketing, expanding and coordinating evaluation for the ISU originated 'Strengthening Families Program for Parents and Youth 10-14' (SFP 10-14), nationally and internationally. The Director worked closely with Extension leaders in Washington, South Dakota, Pennsylvania and Wisconsin on the SFP 10-14, as well as providing training and assistance for the newly hired ISU coordinator of the SFP 10-14 program. She spoke on a panel on evidenced based programs for the National Families Program Directors meeting during the Galaxy conference in September, speaking to the implementation and effectiveness of SFP 10-14. She worked on the leadership team with eight states on the development, implementation and evaluation of the Horizons program; which assists rural communities in developing inclusive leadership for poverty reduction and economic development. The multistate Horizons team was recognized by a Community

Economic Development Professionals award at the Joint Council of Extension Professionals (JCEP) national meeting in September of '08. During the summer, the Families Extension Program Director was a guest lecturer in an ISU graduate course offering on topics of program development and program evaluation that included Extension professionals from several states. This allowed an opportunity to build additional bridges across state lines and to grow new programming support specifically related to SFP 10-14 and Horizons. Time spent on these multistate activities represented \$11,022 or approximately 8.3% of her time in salary.

6. 4-H Youth Extension Program Director

The State Director for Extension 4-H Youth programs in Iowa spent time during FY 2008 on national and regional programs/activities. The Director served on the National 4-H Curriculum Design Team focusing on a new strategic direction for National 4-H Headquarters and National 4-H Council. He was also as a member of the North Central 4-H Administrators Council and serves as their past-chair. This past year discussions have been focused on developing regional and national program outcomes related to the three national mission mandates of science and technology, healthy lifestyles and youth in civic engagement. Other activities by the Director included national and regional meetings with ongoing efforts in the areas of staff development, volunteer development, and curriculum development. Time spent on these multistate activities represented approximately 10% of effort or \$10,969 in salary costs.

7. Iowa Cooperative Extension Director

The Director of Extension for Iowa was involved with many committees dealing with regional and national Extension activities. During FY 2008, participation and presentations at some of the regional and national meetings included the NCCEA meetings in Minneapolis, Minnesota as well as Chicago, Illinois; NCRCRD meeting in Bismarck, North Dakota; National Extension Directors' meeting in San Diego, California; the North Central Mini Land Grant Meeting in St. Louis, Missouri; eXtension meeting in Washington D.C. and a Farm Bill meeting also in Washington D.C. During FY 2008, salary paid for the Iowa Director's multistate extension activities from federal funds totaled \$11,136.

B. Integrated Research and Extension Activities:

Hatch Act Funds:

Almost all of our integrated activities are based on faculty with split (research/extension) appointments, and is divided roughly equally between regular Hatch and Hatch Multistate. Multistate affiliations are so noted. Occasional adjustments are made in faculty appointments, and occasionally the Iowa representation on and participation in multistate activities changes. Thus, some unplanned movements in resources have and do occur. While the overall expenditure of resources for integrated activities meets our planned commitment, there is some shifting among the various programs and activities.

Brief statements follow on the integrated activities funded from Hatch funds:

❖ Commercial and Consumer Horticulture:

Paul Domoto – NC1040 and NE1020 – See below under Smith-Lever Act Funds, Commercial Greens Industry.

❖ Community Resource Planning and Development:

Mark Edelman – Dr. Edelman is director of the Iowa Community Vitality Center (CVC), whose mission is to serve as a catalyst for innovative projects and initiatives designed to improve the vitality of Iowa communities. The CVC facilitates networking among small and medium size rural communities, sponsors policy analyses, engages communities in dialogue, and fosters discussion among rural and urban interests. Specifically, the CVC identifies policy topics of concern to rural communities; commissions research to analyze the priority policy topics and differential impacts of public policy on rural communities and rural areas; assesses best practices, lessons learned and performance of alternative strategies to improve rural vitality; and fosters collaborative public-private partnerships to engage rural communities and diverse rural and urban interests in dialogue. The Community Vitality Center is an independent policy analysis center established as a joint collaboration between Iowa State University and rural community leaders representing diverse public and private sector interests from across the state of Iowa. Iowa State University Extension provides administrative support and serves as the fiscal agent for the Community Vitality Center and its projects.

Daniel Otto – NE1011 – Dr. Otto's interests are in economic development, rural development, program and policy analysis, applied input output analysis, fiscal import analysis. The NE1011 project was designed to engage in outreach to the scientific community, the policy community and local citizens and decision makers, with investigators extending research results and seeking professional input into their research at professional meetings and through associated journals. As a project investigator with an extension appointment, this allows for direct input from and feedback to economic development stakeholders, with significant research and policy results being shared with stakeholders via publications, reports, meetings, web sites, clientele training and policy and technical briefs.

❖ Community Services and Institutions:

Lois Morton – NC1033 – Morton provides on-going consultation and support to the NE Iowa Food and Fitness Project, a five county initiative funded by the Kellogg Foundation with a focus on local food systems, exercise and fitness, and health. On-going Extension programming on food insecurity and nutritional adequacy includes continual development and updating of web site www.extension.iastate.edu/hunger, a site Dr. Morton shares leadership for that is extensively used statewide by Iowa Department of Public Health, county health departments, extension specialists and county educators, as well as food banks and local food pantries and emergency food groups. Research findings including technical reports and journal articles are posted on this website also. On-going research includes work with the CDC mortality data base 1967-2002 by age-adjusting newest available years, 2001 and 2002, for all mortality and 5 diet and disease related mortality numbers as well as adding additional variables from Area Resource Files and U.S. Census.

Daniel Otto – NE1029 – See above under Community Resource Planning and Development.

❖ **Corn and Soybean Production and Protection:**

Gregory Tylka – NC1035 – Virtually all of the work in the Tylka laboratory is focused on the soybean cyst nematode (SCN), *Heterodera glycines*. In addition to SCN research, considerable effort in the Tylka lab is spent developing educational materials and implementing educational programs that explain the biology, proper identification, and management of the soybean cyst nematode for growers and agribusiness personnel. These educational materials and programs are developed and distributed in partnership with ISU Extension field staff, public agencies, private seed and chemical companies, and commodity organizations.

Palle Pederson – The objective of the extension program is to develop information to address the needs of soybean farmers in Iowa that is economically and environmentally sustainable. The overall goal of the research program is to identify and solve soybean production problems to improve farmer's economic well-being. Emphasis is on soybean response to management systems and new technologies; genotype by management system interactions; crop rotation effects; and the effect of agronomic practices on soybean pathogens and pests.

❖ **Economic and Social Welfare:**

Beverlyn Allen – Dr. Allen's areas of interest include community studies and development, social organization and social inequality. Her research emphasis is on race, class and gender inequality with a particular interest in housing, female networks, and social capital in the community development process. She is currently focusing her research on homeownership among non-married women, housing and new immigrants in rural communities, and housing and social capital. She has been able to weave her extension program that focuses on community enhancement of leadership, group relations and organizational activities with her research inquiry into social injustice

Jan Flora – Dr. Flora specializes in the areas of community, agricultural, and rural change in the United States and in developing countries. He is a community extension specialist, assisting Hispanics and other immigrant groups to become more involved in their Iowa communities. Current research includes the role of social capital in rural U.S. communities, the impact of

Confinement Animal Feeding Operations on natural, human, social, cultural, and financial capitals, and research on self sufficiency wages and the working poor in rural Iowa.

❖ **Economics, Markets, and Policy:**

Charles Hurburgh – NC213 – Dr. Hurburgh is the professor-in-charge of the Iowa Grain Quality Initiative (GQI), a cutting-edge grain quality information (and research) program. Current issues of GQI include public and private development of biotechnology policies, standards, marketing incentives, and supply organizations. The GQI also is developing country grain elevator management practices, TQM management, ISO certification for agriculture and traceability systems for bulk materials. Dr. Hurburgh represents the United States on three ISO Technical Advisory Groups, TC34, WG7 Biotechnology testing, ISO22005 Traceability and ISO22006 Quality Management Systems for Production Agriculture. Dr. Hurburgh is also the professor-in-charge of the Grain Quality Laboratory, which provides analyses of the chemical and physical properties of grain, primarily corn and soybeans. This lab is recognized as a world leader in basic measurement science. Dr. Hurburgh's research interests include the physical and chemical properties of biological materials, chemical and electronic instrumentation, near-infrared reflectance analysis and sensors, chemometrics, metrology, and statistics of very large databases. The Iowa Grain Quality Initiative and the Grain Quality Laboratory provide leadership instrumentation, quality management systems, food chain traceability, for rapidly growing specialty grain markets. Dr. Hurburgh serves on two European Union projects related to grain markets and traceability. By pursuing ISO 9000 and other certification systems, U.S. food producers can achieve important competitive advantages. Additionally, precision sensing combined with rigorous quality control documentation can be used to restructure markets and to meet more individualized needs.

Roger Ginder – NC213 – Ginder is a leading expert in the financial and strategic management of cooperatives and has developed and conducted training workshops on an annual basis for executives, managers, board members and employees of cooperative business organizations.

Lawrence Johnson – NC213 – Dr. Johnson's interests are in value-added processing of cereals and legumes, especially corn and soybeans; extraction, separation; food and industrial product applications of vegetable and unconventional protein sources; processes for fabricated foods. He is the first director of the new BioCentury Research Farm, a biorenewables production and processing research facility currently under construction. The BioCentury Research Farm will be the world's first fully integrated biomass production farm and processing facility where ISU faculty and industry can partner to develop advanced biorenewable fuels, biobased products and industrial chemicals from grain, agricultural residues and cellulosic crops as feedstocks.

❖ **Farm and Business Management:**

Robert Jolly – NC1014 – See below under Smith-Lever Act Funds, Strategic Advantage: Management Development for Iowa's Farm Businesses, and Agricultural Financial Management

William Edwards – His interests are in farm management, agricultural finance, and international agricultural development He specializes in teaching, research, and outreach

activities in farm business management, and has been active in small farmer development programs in Latin America and Eastern Europe.

Roger McEowen – Dr. McEowen provides law and policy expertise to the citizens of Iowa and the nation. A few of the topics that are addressed in his extensive Extension programs include: charitable tax planning, farm lease law, contract hog production and anti-corporate farming law, estate planning, civil liabilities, water and environmental law, private property rights, and farm estate and business planning. He is widely published in scholarly journals and agricultural law reviews.

❖ **Food and Non-Food Products, and Human Nutrition, Food Safety, and Human Health and Well-being:**

Dong Ahn – S1027 – Dr. Ahn’s area of research is in basic and applied research related to poultry products such as mechanisms and prevention of lipid oxidation in meat and poultry, dietary and irradiation interventions on the pathogen reduction and quality of meat, characterization of flavor and taste compounds in irradiated cooked meat products, separation and utilization of value-added components from egg, and development of functional bioactive peptides from egg proteins. Research results are communicated to the scientific community through refereed journal articles, to county extension agents through statewide extension publications, and to farmers directly through field days.

Charles Hurburgh, Roger Ginder and Lawrence Johnson – NC213 – See above under Economics, Markets, and Policy

❖ **Iowa Pork Industry Center:**

Thomas Baas and John Mabry – NC1004 – See below under Smith-Lever Act Funds, Iowa Pork Industry Center.

Kenneth Stalder – NC1037 – Dr. Stalder has an active research program investigating a variety of swine genetic and management related topics, including swine waste and nutrient management, management to improve reproductive efficiency of sows with a special emphasis on sow longevity, management of growing-finishing swine to improve profitability, and genetic and management effects on pork quality. Research results are communicated to the scientific community through refereed journal articles, to county extension agents through statewide extension publications, and to farmers directly through field days.

❖ **Natural Resources and the Environment and Agricultural and Biosystems Engineering:**

Mahdi Al-Kaisi – NC1012 and NC1017 – Coordinates and provides leadership for soil management and environment programs that support agriculture production and environment quality in Iowa. Investigates and studies soil management and conservation practices impact on: water quality, soil quality, nutrient management, and carbon storage under different tillage systems. Conducts applied research related to tillage practices, water quality, carbon sequestration, and nutrient management.

Richard Cruse – NC1012 – Dr. Cruse’s research program involves field and laboratory research in soil and crop management, applied soil physics, and soil fertility; his research objectives include evaluating the effect of tillage and cropping systems on soil physical properties, soil and water conservation, and crop growth and yield. Research results are communicated to the scientific community through refereed journal articles, to county extension agents through statewide extension publications, and to farmers directly through field days.

Thomas Glanville: Dr. Glanville’s program objective is to develop environmental monitoring techniques and pollution prevention practices that meet the specific needs of industry, agriculture, communities, and environmental agencies. Environmental monitoring and impact assessment Prevention of undesirable environmental impacts begins with an understanding of their scope and potential causes. Dr. Glanville’s recent work in this area includes a study of pesticides in rural wells, a statewide study of leakage from earthen manure storage structures, and a study to evaluate erosion and water quality impacts associated with application of composted organics on newly constructed roadway embankments. Current and recent projects focusing on pollution prevention include an engineering evaluation of a composting system for bio-secure disposal of livestock in Canada, a 3-year study of the environmental impacts and biosecurity of composting for emergency disposal of livestock mortalities, a study to evaluate the biosecurity of large-scale composting of animal carcasses/tissues, and a statewide survey of animal mortality management in Iowa.

Charles Hurburgh, Roger Ginder, and Lawrence Johnson – NC213 – See above under Economics, Markets, and Policy

Amy Kaleita – W1128 – Dr. Kaleita’s research focuses on information technology for precision conservation. Primary interests are remote sensing, crop and hydrologic modeling, precision farming, and advanced analytical methods for understanding the influence of spatiotemporally variable soil and hydrologic properties. The target audience for her W1128 activities is producers and researchers that use soil-based water content monitoring for their microirrigation scheduling. The W1128 committee uses a broad mix of traditional and non-traditional educational mediums in outreach, including but not limited to field days, tours, demonstration sites, college class seminars, targeted training sessions, conferences, newsletters, newspaper and popular press articles, audio and video tapes, slide sets, factsheets, extension bulletins, research publications, refereed journal articles and Internet-based educational material.

Antonio Mallarino – See below under Smith-Lever Act Funds, Crop Nutrient Management.

Mike Owen: Dr. Owen’s objective in extension programming is to develop information about weed biology, ecology and herbicides that can be used by agricultural clientele to manage weeds with cost efficiency and environmental sensitivity. Management systems that emphasize a combination of alternative strategies and conventional technology are the primary goal. Research is developed to support the extension program responsibilities.

John Sawyer – NC1032 – Coordinates and provides leadership for Extension soil fertility and nutrient management programs to support production of agronomic crops in Iowa. Studies the chemistry of plant nutrients in soils, nutrient management, and implications of soil management related to soil fertility, tillage, and the environment. Conducts applied research related to

efficient fertilizer use and nutrient, manure, and limestone management. Maintains (with Dr. A. Mallarino) the Agronomy Extension Soil Fertility Web Page.

Hongwei Xin – NE1022 – Dr. Xin’s research and extension programs focus on a) air quality issues related to animal feeding operations with emphasis on measurement and mitigation of aerial emissions; b) impacts of environmental and management factors on production performance, behavior, and welfare of livestock and poultry; and c) livestock and poultry housing and environmental control. The missions of his programs are to advance the science and technology in the afore-mentioned areas by conducting fundamental and applied research projects and mentoring graduate students and post-docs; to serve the animal industry and the affected citizens by seeking practical solutions to current and emerging issues through integrated research and outreach educational efforts; and to enhance the visibility and vitality of our programs at ISU through national and global collaborations and leadership.

❖ **Integrated Pest Management:**

Robert Hartzler – See below under Smith-Lever Act Funds, Integrated Pest and Crop Management

Marlin Rice – NC205 – See below under Smith-Lever Act Funds, Integrated Pest and Crop Management

Jon Tollefson – Dr. Tollefson leads the Corn-Insect Research Project. The Corn-Insect Research Project maintains a screening program that evaluates new chemical and biological tools for pest insect management. The screening program is available to evaluate genetically engineered corn lines as they approach commercial release. Current studies look at combining semiochemicals with low doses of insecticides to control corn rootworm adults before they oviposit. Dr. Tollefson is leading ISU’s efforts to decide if an area-wide management pilot project for corn rootworms using the semiochemical baits is practical.

Smith-Lever Act Funds:

❖ Strategic Advantage: Management Development for Iowa's Farm Businesses, and Agricultural Financial Management

Robert W. Jolly: Research forms the basis of Dr. Jolly's outreach programs in agricultural finance, agribusiness management and entrepreneurship. His educational and professional development programs are targeted to farmers, lenders, financial regulators, agribusiness managers, public officials and Extension field staff. Dr. Jolly's research projects are driven by the needs of his outreach and teaching programs and, in most cases, involve direct interaction with stakeholders. In turn, the research results are directly disseminated through training and informational programs. The primary means used to transfer research-based information to these client groups are:

- In depth professional development programs such as the Agricultural Credit School.
- Targeted short-term training programs directly organized by Extension or by trade and professional associations and private firms.
- Internet-delivered publications and data such as Choices magazine.
- Distance learning programs and courses such as the Agricultural Management e-School(AMES).
- Direct interaction with print and broadcast media.

Dr. Jolly's recent research activities have focused on

1. Quantifying the relationships between financial management and the competitiveness of the farm firm and related agribusinesses.
2. Examining the impact of current economic conditions on farm, agribusiness and lender financial status.
3. Examining factors that influence entrepreneurial activities and firm entry, growth and survival within the agricultural sector.
4. Examining the demand for and characteristics of agricultural credit professionals.

Specific projects for FY08 include:

1. Monitoring the financial status of Iowa's farm businesses to examine the impact of and their response to changing economic and policy conditions. The surge in input costs along with changing business practices by agricultural supply firms has farmers and lenders remain concerned about the current and projected financial status of farm businesses. This work demonstrated that larger, well-managed commercial farms are growing at significantly higher rates compared to the majority of farm operations. Furthermore, the higher performing farm businesses are much more likely to survive a protracted downturn in the economy. Information from this project was incorporated into a series of educational programs for lenders, farmers and the ISU Extension field staff.
2. Several research projects were continued in FY08 that focus on the underlying process and impact of entrepreneurship and business creation within the agricultural sector. These projects are guided and informed by agricultural entrepreneurs, public officials and university administrators. One project examines the role of human capital, work experience and higher

education on the incidence and success of agricultural entrepreneurship. A second project examines the impact of the business cycle on firm creation and survival. A fourth project looks at firm creation, growth, survival and in- and out-migration in response to economic conditions and industry specific factors. The entrepreneurship project has been undertaken, in part, because of concern voiced by the private sector on Iowa's business climate and policies that support new businesses. It is expected that all of the research projects will produce data and results that will support Dr. Jolly's extension and teaching programs.

3. At the request of the American Bankers Association, Dr. Jolly conducted an on-line survey of 400 bank executives in Iowa to obtain information on the demand for and desired characteristics of agricultural credit professionals. The survey produced information on expected agricultural loan growth, staffing levels, retirements, training and experience and compensation for agricultural loan officers, relationship managers and credit analysts. This information was presented at the ABA's annual conference in November, 2008 and has been released as a working paper.

❖ **Crop Nutrient Management**

Antonio P. Mallarino (faculty member in Agronomy): Work focuses on soil fertility and nutrient management. In 2008 he continued developing an integrated program to improve nutrient management and water quality emphasizing phosphorus (P), potassium (K), and lime. The program focused on soil, tissue, and manure testing; fertilizer and manure nutrients application methods; use of precision agriculture for nutrient management; and impacts of bioenergy production systems on soil and water quality. He provided leadership for establishing management guidelines for P, K, and lime including environmental issues related to P management and the Iowa P Index. He has been responsible for policies of the Iowa State University Soil and Plant Analysis Laboratory and provided expertise to state agencies concerning P management. His work involved 30 conventional field research trials and two on-farm demonstration projects in cooperation with 15 farmers, five Corn-Soybean Initiative (CSI) partners, and several field extension specialists and crop consultants. One project (a CSI project) focused on use of precision agriculture tools to improve K management and the other focused on pH and lime management. Most of 59 presentations at field days, conferences, or workshops were coordinated with the Agribusiness Education Program, Field Extension Education Laboratory, AgChem Dealer Updates, Crop Advantage Series, and Integrated Crop Management Conference. He maintained (with Dr. J. Sawyer) the Agronomy Extension Soil Fertility Web Page, and participated of programs to train field extension agronomists and also crop consultants (for the CCA exam). Publications included five journal papers or book chapters, 13 extension articles or publications, and ten published technical reports or abstracts. He represented the Iowa Experiment Station at the regional or national committees NCERA-13 (Soil Testing and Plant Analysis) and SERA-17 (Phosphorus Losses from Agriculture), and participated of the NC-1012 research committee.

❖ **Commercial Greens Industry**

Jeff Iles: Research projects led to improved methods of landscape plant installation, enhanced awareness of adapted landscape plant species, varieties, and cultivars, and the discovery of efficient and cost-effective management strategies that promote the health and vigor of landscape plants and reduce their dependence on fertilizers and pesticides. Integration between research

and extension activities was achieved by rapidly disseminating this information to green industry professionals at Iowa Nursery & Landscape Association functions, the Iowa Turfgrass Field Day, Iowa Turfgrass Conference, ISU Shade Tree Short Course, Iowa Arborist Field Day, and several other regional meetings and conferences targeted to commercial clients. At each of these events, attention was drawn to the emerald ash borer (EAB), an introduced insect that continues to infest and kill native ash species in the Midwest (Michigan, Ohio, Indiana, Illinois, Wisconsin, and Missouri). The opinion held by most educators, researchers, and regulatory agency personnel is that it is time to discontinue the use of native ash (green, white, blue, and black) in Iowa's managed landscapes, and therefore, at each of the aforementioned training sessions, alternative tree species (to ash) were discussed. Because the emerald ash borer poses such a serious threat to trees in natural and managed landscapes, a significant portion of the 2008 ISU Shade Tree Short Course was devoted to discussing EAB, how it has negatively affected cities and towns in neighboring states, and what our game plan will be when this insect is discovered in Iowa.

Mark Gleason: During 2008, Gleason's PhD student, Zhihan Xu, completed her research on development of a rapid, simple assay to determine resistance of hosta cultivars to the petiole rot pathogen, the fungus *Sclerotium delphinii*. Her manuscript on this work was recently (January 2009) published in Plant Health Progress. She developed an assay, using a droplet of oxalic acid on the petiole-stem junction of an excised leaf, that cuts the time needed for resistance screening from 4 months to 4 days. This assay will provide a very valuable shortcut for hosta breeders in discovering resistant types for breeding stock from among the more than 4,000 hosta cultivars in existence. The ultimate result of Xu's breakthrough is likely to be release of new cultivars with high levels of resistance to this devastating disease. Gleason is also the lead author on a new 275-page, 700-image book, Diseases of Herbaceous Perennials, which has been completed, is being published by APS Press in 2009, and is currently being marketed.

Paul Domoto: Research projects have allowed commercial fruit and vegetable growers to remain competitive through the selection of better adapted cultivars and rootstocks, and the adoption of cultural practices that promote early production, improved quality and sustainability. Integration between research and extension by rapidly disseminating this information to the industry during the Iowa Fruit and Vegetable Growers Association conference, Iowa Wine Growers Association conference, and regional extension seminars and workshops. The research plots serve as a focal point to field days and allow growers to see cultivars perform under local conditions and the fine points associated with a new cultural practice. Research progress reports are prepared and published in the annual progress reports published for the ISU Research and Demonstration Farms on which the research is conducted, and are made available on the world wide web. Particularly noteworthy has been evaluating the production of raspberries, blackberries, and vegetables in high tunnel enclosures to advance and extent the harvest and marketing season. This effort has been a joint effort between the horticulture department, extension value-added agriculture, the Leopold Center for Sustainable Agriculture and the Wallace Foundation for Research and Rural Development. Replicated demonstration plantings were established at two Iowa State University research farms to evaluate feasibility of growing primocane and floricanne raspberries and black berries, fresh market tomatoes, green and colored peppers and pole beans in a high tunnel. Field days and programs were developed and presented at each site to provide audiences with a full understanding of crop production in a high tunnel and observe how the crops were being grown. Results of these trials were reported at the annual Fruit and Vegetable Growers Conference and at conferences in neighboring states, and were published in the annual

progress reports of each of the research farms and posted on the ISU Research and Demonstration Farms web site (<http://www.ag.iastate.edu/farms/>).

❖ Iowa Beef Center

Dan Morrical: Iowa Beef Center efforts in the grazing area in FY 2008 focused efforts to educate producers on improving their grazing management. Multiple pasture walks were held throughout the state. Additional efforts were in our Cows versus Plows programming. We developed a spreadsheet for producers to evaluate alternative grassing systems to stretch limited grazing acres. Fact sheets and educational programs were also developed to help producers make the best use of reduced grazing acres as a result of high grain prices and changes in marginal land use. Other efforts evaluated the use of self fed distillers in a pasture finishing system. This research is aimed to evaluate if cattle self fed on pasture have conjugated linoleic acid similar to grass only finished cattle. These efforts may assist small and medium sized operations with lower cost production or fit into direct marketed, value added production systems.

Dan Loy: The ethanol industry has expanded rapidly over the past 2-3 years. Approximately 30% of the capacity for ethanol production nationally is in the State of Iowa. Demonstration projects evaluating storage, feeding and delivery of distillers grains were continued. This program is expected to continue to be an area of emphasis for the foreseeable future as the industry matures. A 2007 Iowa Beef Center survey of Iowa beef producers confirmed this area as an important need for both research and education. This survey identified storage and delivery issues as primary limitations to the adoption of feeding corn co-products in the diets of cattle fed in small to medium sized operations. External funding was secured to develop and expand an integrated research-demonstration-education program revolving around these issues. Producer interest in research and demonstrations on the nutrition, storage and delivery of high moisture ethanol co-products has been high as evidenced by participation at extension meetings.

❖ Iowa Pork Industry Center

Tom Baas: Intramuscular fat has been identified as an important indicator of meat quality in pork. One of the problems with improving intramuscular fat has been the necessity to slaughter the pig in order to obtain a muscle sample, in addition to the high cost of measuring the trait in the laboratory. As a result, research has been conducted at Iowa State University to overcome these problems by developing procedures to estimate intramuscular fat in live pigs using real-time ultrasound. Pigs at the ISU Swine Breeding Farm were used to develop the original model. Additional pigs from two different projects were used to test and validate the model for accuracy of prediction. Procedures used were described in a paper published in the *Journal of Animal Science* and details of the prediction model were published in the *ISU Animal Industry Report*. A private company, Biotronics, Inc., has utilized the prediction model to develop software and has made it available to the swine industry. Four training programs for technicians have been conducted jointly by Biotronics, Inc. and Iowa State University. The two leading seedstock companies in the U.S. are using the software and it is also being used in five foreign countries. In addition, the software is being used in an ongoing selection project at ISU. The results from six generations of selection for intramuscular fat have been summarized in a Ph.D. dissertation and three papers have been accepted for publication and a fourth has been submitted for review. This

work is of special interest to producers who are targeting pork niche markets that require higher amounts of intramuscular fat which result in greater consumer acceptance. This research will continue to benefit the industry by also providing a better understanding of the relationships among the important indicators of pork quality, including intramuscular fat.

John Mabry: The pork industry has become highly competitive as feed costs rise and profit margins become thin. Two areas to reduce costs while maintaining pig flow that have not been addressed are: a) reducing non-productive sow days (NPSD) genetically; and b) technological development of an affordable sow management software system. NPSD occurs when a sow is in the herd, but is not producing product. The sows incur costs due to feed, fixed expenses, and labor, but are not producing any product. Reduction in NPSD will lower the cost of production and increase profit. One of the largest contributors to NPSD is the farrowing rate in a herd.

The first step in making genetic progress in reducing NPSD is to determine the genetic control of the traits involved in NPSD. This was done using data directly from pig producers. Dr. Mabry has developed procedures for data extraction from popular software packages so that datasets could be created that have the NPSD performance and pedigree information in one file. He has also worked to develop affordable reproductive data management software, SowTracker.

The next step was to estimate the genetic association between NPSD and other reproductive traits. This was done for several swine herds and found that litters per sow per year, as a measure of NPSD (highly correlated with farrowing rate) is an easily measured trait that has heritability in the range of 0.10-0.15.

The next step was to include this trait in the selection programs of our stakeholders. In his extension role Dr. Mabry has started a pilot project testing the use of BLUP breeding value estimation software on data collected at commercial swine farms. The first producers to try the software were in NW Iowa. Stakeholder input was an essential part of this product development. This phase of the project has now extended to pork producers in SE Iowa, Central Iowa, and NC Iowa.

❖ **Integrated Pest and Crop Management (IPM/ICM)**

Robert Hartzler: The primary weed management issues facing Iowa corn and soybean producers are the management of herbicide resistant crop varieties in a way that protects yield potential and minimizes the risk of weed shifts that reduce the value of the herbicides. Surveys of farmers and agribusiness personnel attending Extension meetings have shown that the majority of acres are treated with weed management systems that do not adequately address these two concerns. Research has focused on evaluating how most efficiently to incorporate herbicides with alternative modes of action into glyphosate resistant crops. Field experiments, conducted in cooperation with an ag-supply business, investigated the effect of delayed weed control on corn yields. In a field with moderate to high weed pressure, no program relying solely on postemergence herbicides provided yields equivalent to programs based on a preemergence herbicide applied at planting. Of particular interest was the increasing rate of yield loss as the season progressed. In the first 16 days after corn emergence, yield losses due to competition averaged 0.5 bu/A per day. Between 30 and 37 days after planting, the average yield lost per day of competition was 17 bu/A.

Stephen Barnhart: Dr. Barnhart is an Extension Forage Production and Management Specialist and a faculty member in the Agronomy Department. Forages are integral to crop, livestock and conservation enterprises in Iowa. He contributes forage species and management recommendations and experimental treatment suggestions in cooperative research projects with Iowa State University colleagues and with private producers. An example of stakeholder involvement during FY 2008 is a research project being conducted with members of the Iowa Prairie Network. They are investigating the feasibility of prairie restoration in old crop fields, and still recover economic return from the forage to defray some of the cost of the prairie restoration. Two trials are on-going. Dr. Barnhart, members of the Iowa Prairie Network, cooperating ISU Research Farm staff, and cooperating private farmers completed the fourth seasons on this project in 2008. The competitiveness of the residual alfalfa is still having a detrimental effect on the establishment of the prairie plants at one location. At a second location, a general lack of other crop competition is allowing prairie plants to continue to establish in increased number and vigor. The correct proportions of native species in the 'prairie seed mixture, minimal completion from residual forage plants, and the proper harvest strategy may provide a cropping system that can produce a harvested forage crop while maintaining the soil, water and wildlife conservation benefits and the establishment of a diverse prairie. Input from stakeholders was highly valued in the planning and conduct of the studies. The findings will be of interest to a wide array of private and public organizations and agencies with an interest in prairie restoration in the Midwest U.S.

Mark Hanna: Although a great majority of pesticide application is applied without incident, each year IDALS investigates approximately 250 to 300 drift complaints. Because seasonal pressures can result in post-emergence applications at less than desirable conditions, a new Extension bulletin was targeted to an intermediate/advanced applicator audience highlighting 'across the fenceline' drift issues with 15 mi/h wind speeds and adverse weather (drying, low relative humidity) conditions. These drift issues were illustrated at summer FEEL diagnostic clinics to 57 crop professionals. A major ag chemical company has expressed interest in reproducing the new bulletin and using its visuals for in-house training. Two new calibration and drift videos were produced for the commercial and private applicator programs for both agriculture and non-agricultural audiences. A relationship was developed with the Iowa Department of Transportation to further education of roadside applicators. A new version of the pesticide application chapter was written for the Iowa Core Pesticide Manual. Continuing instruction training was organized for Iowa aerial applicators. A manuscript was accepted for publication from past field trials investigating foliar fungicide application techniques on soybeans.

Marlin Rice: Educational information was delivered to Iowa growers and agribusiness personnel during 2008 using a broad array of delivery techniques. Information was frequently supported by applied research conducted on problem insect pests that attack Iowa's corn, soybean, and alfalfa crops.

- Extension information was published in approximately 7 articles for the Integrated Crop Management newsletter on the biology and management of insect pests of corn, soybeans, and alfalfa. Research relevant to chemical, cultural, and mechanical methods of insect control were included in the newsletter when appropriate. Additionally, this information was posted on the Integrated Crop Management webpage at <http://www.ipm.iastate.edu/ipm/icm/>.

Additionally, I finished my 19th, and last, year of service to the College of Agriculture and Life Sciences as the Executive Editor of this Extension publication.

- Results from current research and field observations on pest populations were presented on 2 different topics at the Integrated Crop Management Conference. These included 1) theory and practice of integrated pest management, and 2) a review of the top 5 research journal articles published on applied entomology in corn and soybeans. This two-day annual conference hosted approximately 900 agribusiness professionals and provided them an opportunity to hear the latest research on these topics. These presentations were published in the Proceedings of the Integrated Crop Management Conference.
- A total of 30 Extension clinics, workshops, or field days were conducted which presented applied research information. Most of these meetings were under one of two Extension banners: Crop Advantage Series or Field Extension Education Laboratory. Here corn and soybean producers and agri-business professionals were presented crop management information and given opportunities for interaction and discussion.
- Educational information was delivered in 2 extension publications on soybean pests and soybean aphids. Most of these publications were the result of collaborative efforts with other extension specialists and were directed at answering pest management questions from agribusiness clientele and farmers.
- There were 7 contributions to the popular farm press, and 3 presentations on radio relating to insect pest management in Iowa.
- Applied research continued in several areas based upon grower and agribusiness concerns for the need for additional information on understanding pest ecology and management options. This includes research on: 1) western bean cutworm ecology and management; and 2) pest management of secondary corn and soybean soil insects including black cutworms and white grubs.

❖ **Sustainable Agriculture**

Kathleen Delate: All research projects in this program have an integral Extension component. Research under this program has focused on methods of improving soil quality and pest management (insects, weeds and diseases) in organic and transitioning systems. Integrated research and extension activities for Program 147 during FY 2008 included two “Transitioning to Organic” field days; 17 integrated research and Extension presentations; and a 15-session “Iowa Organic Conference” reaching 350 farmers and agricultural professionals total. Partners in these activities included Extension, USDA-Natural Resources Conservation Service (NRCS), and the Iowa Department of Agriculture and Land Stewardship. Four meetings with organic advisory committee and producer stakeholder groups helped focus research and extension plans in FY 08. Stakeholders have provided valuable input in shaping the sustainable agriculture research and Extension agenda by advocating for practical solutions adapted for local conditions, including new weed management techniques such as the Organic No-Till System from the Rodale Institute. A total of 38 presentations at Extension/research meetings and field days reached an additional 2,792 agricultural professionals in all sustainable agriculture programs in

FY08. Impacts of these integrated research and Extension activities included adoption of organic practices, leading to increases in soil quality, including soil organic matter and aggregation increase, and an increase in farm income from premium prices for certified organic crops.

The ISU Organic Ag webpage: <http://extension.agron.iastate.edu/organicag/> continues to be an excellent venue for dissemination of sustainable/organic agriculture information. The USDA Organic Ag. Consortium website, OrganicAgInfo: <http://www.organicaginfo.org/> also contains research and Extension information from the ISU Organic Ag. Program.

Integrated activities for Dr. Delate, such as those described above, represented about 70% of her total time and accounted for a salary expense of \$46,786 during FY2008.