2014 Iowa State University Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 06/04/2013

I. Plan Overview

1. Brief Summary about Plan Of Work

Agriculture in the state of Iowa has grown from traditional production of crops and livestock to encompass the revolution in 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 agricultural, food, value-added, environmental, and community endeavors.

Iowa's abundance is astonishing. The state consistently is the nation's first- or second-largest producer of corn, soybeans, pork, eggs and ethanol. Iowa is the fifth largest producer of cattle and in the top dozen for dairy and turkey production. Nearly 90 percent of Iowa's total land area is farmland. The power of that abundance stretches beyond Iowa's farms. It provides deep roots for a larger agri-food industry. In 2011, 10.0 percent of Iowa's gross state product came directly from agriculture ; this grows to 23.6 percent if you include the value added from Iowa-produced inputs that went into each of these industries and the further processing of commodities.

While the population of Iowa has been stable over the past years, the population is shifting from rural communities to urban and suburban communities. The shift has resulted in needs and opportunities related to communities, families and youth. Likewise, Iowa's 956 cities and 99 counties continue to struggle with identifying and seizing economic and social opportunities and improving quality of life for their residents. Continuing demographic change and globalization create ongoing opportunities and challenges toward achieving socially beneficial, economically successful, and environmentally sound systems for food, feed, fiber, fuel, and other value-added products.

Effective management of natural resources, including soil, water, land, and air, is required for sound environmental stewardship, enhancing communities and people, and creating economic vitality given the demands for the production and manufacturing associated with agricultural, food and horticultural systems.

Agriculture will continue to be a perennial base of economic, social, and cultural pride for the state. The reason is because Iowa agriculture is more than just a world-renowned mixture of soil and climate. It also is dedicated citizens, producers, scientists, educators, business people, and community and organizational leaders who believe in the future of Iowa. Iowa's current and future competitive advantage lies with the value-added areas of agricultural, food, horticultural, and natural resource-based products.

The Iowa Agriculture and Home Economic Experiment Station and ISU Extension and Outreach work together to plan, discover, and deliver science-based knowledge for the benefit of the citizens and stakeholders of Iowa.

Recent significant cuts to state appropriations to ISU have further resulted in a large reorganization of Extension. This impacted all extension programs to varying degrees. The experiment station suffered similar reductions in state funding and has been developing a strategic plan for focusing resources on and streamlining priority programs. Thus while our Plan of Work continues to represent an explicit statement on the planning, discovery, and delivery process, our capacity to do each has been hampered by the loss of operating funds, faculty and staff.

The Iowa State University (ISU) Combined Extension and Research Plan of Work for 2014-2018 is organized under eight broad program areas:

- Climate Change
- Community and Economic Development
- Families: Expanding Human Potential

- Global Food Security and Hunger
- Health and Well-Being
- Natural Resources and Environmental Stewardship
- Sustainable Energy - Biofuels and Biobased Products
- Youth Development

The former programs of Childhood Obesity--Prevention and Food Safety have been merged into a new Health and Wellbeing program.

The Plan of Work reflects an integration of ISU extension and research programs, particularly in the animal systems and natural resources themes. The programs show the uniqueness associated with both extension and research activities in terms of resources, existing organization structure, and faculty tenure. They also reflect the results of dialogues held among research and extension personnel. The result is a Plan of Work based on both research and extension goals and activities, rather than a single orientation toward one or the other area. The Experiment Station's work represents the efforts of scientists in more than 35 departments, centers, and programs across the Iowa State University campus. Although the work primarily focuses on areas in the College of Agriculture and Life Sciences, the Experiment Station also supports research in the College of Engineering, the College of Human Sciences, the College of Liberal Arts and Sciences, and the College of Veterinary Medicine. The Experiment Station cooperates with other states' agricultural experiment stations to ensure attention to critical problems, to share research results, and to avoid unnecessary duplication.

Likewise, as Iowa State University's primary conduit for transferring science and technology to Iowans, ISU Extension and Outreach is meeting critical needs through the teamwork of campus faculty, a statewide corps of local Extension leaders, specialists, educators, and thousands of trained volunteers. ISU Extension cooperates with similar units across the nation, but with particular focus on the North Central Region in terms of coordination of programs, activities, and metrics to measure impact. Extension staff are engaged on a daily basis with Iowans, receiving direct feedback from citizens, businesses, and communities that shape ISU research and help ISU Extension and Outreach develop innovative programs and efficient delivery mechanisms to meet the needs of an increasingly knowledge-based economy.

As demonstrated by this Plan of Work, Iowa State University is committed to creating, sharing, and applying knowledge to make Iowa, and the world, a better place. With its broad portfolio of science-based knowledge and its commitment to partnerships internally and with external stakeholders, Iowa State's research and extension programs are providing the science and education to address new challenges and opportunities.

We recognize the added value that multistate research and extension projects bring to addressing important food, feed, fiber, fuel, family, and community issues, and thus for many of our programs, there will be Iowa State University personnel (research and extension specialists) engaged in one or more multistate research and extension projects.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2014	377.0	0.0	149.0	0.0
2015	377.0	0.0	149.0	0.0
2016	377.0	0.0	149.0	0.0
2017	377.0	0.0	149.0	0.0

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2018	377.0	0.0	149.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

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

2. Brief Explanation

Merit Review:

Iowa's rapidly changing political, social, and economic environment demands a dynamic program development process that incorporates the following:

- self-directed work teams,
- continuous needs assessment to inform program design and implementation,
- public and private partnerships,
- an increased focus on reporting outcomes,
- aggressive funding mechanisms to grow new programs,
- a strong connection with multiple program partners.

Needs Assessment:

ISU Extension will continue to follow this three-point approach:

- *Engagement of key statewide constituencies.* Program Directors develop a plan to identify needs working with statewide constituencies. State level governmental agencies and non-governmental organizations will be involved.
- *Engagement of the general population.* Surveys and listening sessions will be used to obtain input from a broad-base of Iowans.
- *Engagement of local stakeholders.* County Extension Councils and local stakeholder groups will participate in formal activities to confirm, prioritize, or regionalize the needs assessment.

State POW merit review:
North Central Regional Program Directors will review plans across the region and will continue to provide oversight, guidance, and course corrections on the logic models and joint program implementation and evaluation.

Scientific Peer Review:
Project Proposals: Each project proposal will be endorsed by the department chair and Associate Director of the Experiment Station. The Assoc. Director will send the proposal to peers internal to ISU (typically 3 to 4 faculty) for a thorough review of the scientific merit, linkage with the POW, and the strategic plan of the college. Depending upon the reviews, the project is either approved, modified somewhat to significantly based on review comments, or rejected. Project proposals may be submitted by individuals, small groups, or a large group but must align with one or more programs under the POW.

Program Review Teams: Ad Hoc teams will be asked to periodically review all programs under the broad themes. The teams will be asked if the research activities, outputs and outcomes are in alignment with the POW and if there are emerging research programs that the Experiment Station should be incorporating into the POW within the five-year period.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

The planned programs are based on input from the general public, stakeholder groups, educators and scientists who identified the most critical issues. This has resulted in Extension focusing efforts on four signature issues: Food and the Environment, K-12 Youth Outreach, Health and Wellbeing, and Economic Development that map directly to Plan of Work planned programs. In many cases, stakeholders are involved in the implementation of applied research efforts and educational/demonstration programs. In other situations, stakeholders through their commodity groups, provide additional funding to address issues of strategic importance. Results of planned programs are shared with stakeholders to determine if they continue to meet stakeholder needs. A program development process has been created and articulated with stakeholders to help them enter into the process at a number of points. A program catalog has been developed and organized by four critical issues identified by stakeholders.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

In addition to people of color, our programs have been expanded to include members of other traditionally underrepresented audiences; physically challenged; mentally challenged; men in family service/care programs; women in agriculture, individuals and families in poverty, older Iowans, families of incarcerated adults and military families. ISU Extension and Outreach has been designated one of six STEM hubs in Iowa with a focus to help under-represented populations enter into STEM occupations.

Individuals from traditionally underserved and/or underrepresented groups were included in the initial identification process and in the program allocation process by a variety of means. The 2010 Extension state wide needs assessment survey specifically over sampled underserved groups to assure representation. All programs include activities that support efforts in underserved and underrepresented populations. In some instances program materials are being translated into Spanish to meet the needs of the growing Latino population in the state. ISU Extension and Outreach and each of its program units have developed diversity committees, related plans, and report progress on these plans annually to intentionally address the needs of underserved populations. Several extension specialists of color have been hired to provide programs specifically targeted for underserved and underrepresented audiences. In addition, ISU equity advisors in each college are available to help faculty and staff address these groups.

3. How will the planned programs describe the expected outcomes and impacts?

Programs are focused on extension activities and have long-term outcomes. Programs focused on research activities tend to have short-term outcomes with the expectation that transference of the scientific knowledge will occur through extension programming. Goals for both outputs and impacts have been identified, often using logic models, and are closely monitored. Work teams revisit logic models at least annually and tie them to the programs listed in the program catalog. New and emerging programs focus mostly on learning changes in clients while core or mature programs focus on developing and reporting behavior change outcomes. A recent focus on articulating the public value of programs is resulting in the measuring and reporting of social, economic, or environmental condition changes.

4. How will the planned programs result in improved program effectiveness and/or

Our POW and the process used to develop it and adjust it via merit and scientific reviews allows for closer coordination between researchers and extension. The program area teams have a better understanding of what citizens of the state believe to be the key issues. We continue to work on program effectiveness and efficiency. We are also constantly monitoring the outcomes in regard to inputs and outputs, as well as growing evidence based efforts, when possible. Planned program evaluations range from pre, post, and retrospective surveys, to interviews, focus groups, observations, and use of secondary data to document learning, behavior, and condition changes.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages 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.

Building on the strong tradition of stakeholder engagement with the experiment station and cooperative extension, we continually interact with traditional and nontraditional stakeholder groups through normal activities as well as inviting the public's participation in specific surveys. No extraordinary efforts are necessary to engage various groups.

To respond to the needs of minority and underrepresented groups, Extension has increased access by hiring more bilingual staff that are representative of the target population, and continually seeks to have broader, more inclusive representation on advisory teams.

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

1. Method to identify individuals and groups

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

Brief explanation.

The experiment station will use the existing dean's advisory groups, consisting of key leaders from stakeholder groups. Using a variety of statistical methods, focus group and survey participants will be identified.

Extension uses state-wide advisory committees representative of the population and stakeholder groups in each program area. At the county level, elected county Extension council officials review needs and plans on an annual basis, involving citizens using a variety of formal and informal processes to assure broad representation.

2(B). A brief statement of the process that will be 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.
• Activities specifically for non-traditional groups and individuals.

• Open listening sessions and conferences.
• 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 with professional associations and advisory boards, and other various groups across the state.
• 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. Follow-up surveys sometimes occur, and website contacts for information are provided.
• ISU Extension and Outreach state and field specialists serve on multiple county and state advisory committees.
• 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 allowed 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 determined how they would collect input, and choose a variety of methods, including personal conversations, web surveys, speaking to individuals and groups, and work with the media.

3. A statement of how the input will be considered

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

Brief explanation.

The input provides an opportunity to reassess specific objectives and the research projects and extension programs under each planned program, and to redirect as appropriate. Feedback will be used to confirm or reject the expected values associated with outcomes and impacts of the programs. The process of engaging stakeholders allows us to deliver very targeted and relevant information in response to their stated needs.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

Climate change is much more than simply a rise in temperature. Other climate factors, specifically the frequency of extreme precipitation events, rise in humidity, and length of the growing season, are having much more impact on Iowa than changes in annual mean temperature. We know from geological records that the climate of Iowa, like other regions of the Midwest and even the entire planet, has always been changing. Climate changes in Iowa are linked, in very complex and sometimes yet unknown ways, to global climate change. Independent evidence of a warming climate comes from temperature trends at both the surface and in the upper atmosphere, trends in melting of continental glaciers and arctic and sea ice, ocean temperatures, and increases in atmospheric moisture. Biological evidence consistent with climate trends points to decline of coral resulting from warmer ocean water, earlier blooming of widely observed plants such as lilacs, altered seasonal migration patterns, and changes in plant hardiness zones.

Of all natural hazards, floods, water-logged soils, and droughts have the highest impact on Iowa's economy. Flooding in 2011 along the Missouri River degraded a substantial number of production acreage and will require long-term recovery. Drought in 2012 significantly reduced crop and pasture fields in parts of Iowa. Subsoil moisture in more than half of the state remains short. More research is needed to better understand why Iowa's precipitation extremes are increasing and whether these increases will continue. Improvements in seasonal climate predictions would enable Iowa decision-makers to better prepare for these extremes and reduce their economic impact when they occur. Climate change will increase stress on our natural resources, require adaptations in our agricultural practices, and create economic and public policy challenges.

To better understand what global climate change means, and deal with its effects, we need to know much more than we do. And this knowledge needs to come from unbiased science. The complex issue of climate change requires multi-disciplinary perspectives. ISU faculty and specialists in water quality, the environment, and communities along with agricultural researchers, planners, economists, and climate and soil specialists will work together to develop the needed information. Researchers will develop conservation strategies, risk management strategies and practical information on best responses to climate change. Extension will provide outreach to provide Iowans information for responding to change.

Agricultural Experiment Station researchers and Extension will provide key information and support:

- Investigating natural environment responses to warming and wildlife responses to changing habitats.
- Developing plant diversity and production strategies to reduce crop vulnerability.
- Identifying potential changes in soil microbes and threats from invasive pests.
- Developing conservation strategies in agricultural inputs to slow or lessen the impact of climate change.
- Monitoring climate and using tools such as remote sensing to map and monitor resources.
- Analyzing carbon sequestration and biomass.
- Giving advice to farmers on how to respond to fluctuations and stresses created by climate change that result in pest pressures.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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	5%		0%	
104	Protect Soil from Harmful Effects of Natural Elements	35%		0%	
132	Weather and Climate	25%		30%	
135	Aquatic and Terrestrial Wildlife	0%		8%	
202	Plant Genetic Resources	0%		40%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		14%	
303	Genetic Improvement of Animals	0%		2%	
605	Natural Resource and Environmental Economics	25%		3%	
608	Community Resource Planning and Development	10%		3%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Climate Change research and extension activities are widely dispersed across departments and programs at ISU. As needs develop and awareness of climate change issues grow, better coordination of activities and evaluation of efforts will be needed. It will be developed in the coming years as educators are convened, research is assessed, and effective education and outreach are planned. The goal of this coordinated effort is to:

1. Discover the actual and potential implications of climate change on crop and ecological systems, economies and other sectors.
2. Enhance the public's engagement and receptivity to implications of climate change regardless of causality, and
3. Transfer knowledge that allows producers and environmental control agents to adapt to climate change by seizing the opportunities of new crops, new varieties and new management practices that maintain the viability of production economics and infrastructures while minimizing damage from invasive pests, diseases and changes in the hydrologic system.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

1. Climate change may affect a myriad of aspects of the condition of agricultural production, environmental control, and family and community life. Planning Extension's response must involve many disciplines.
2. Baseline research and needs assessment must be examined in order to chart the future of programming.
3. Climate change is a contentious issue. Neutrality regarding cause and blame must undergird the program, while proactive thinking engages stakeholders in addressing the effects of climate change.

2. Ultimate goal(s) of this Program

The ultimate goal of this program is to assure that decision-makers across selected target audiences are practicing adaptive practices that address the effects of climate change.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	2.7	0.0	1.2	0.0
2015	2.7	0.0	1.2	0.0
2016	2.7	0.0	1.2	0.0
2017	2.7	0.0	1.2	0.0
2018	2.7	0.0	1.2	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Priorities for 2014-2018 will be to assist farmers and landowners in reclaiming flood-degraded soils and adapting to the impacts of extreme weather fluctuations (drought and high temperatures) on crop and livestock production.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 (webinars)	● Web sites other than eXtension

3. Description of targeted audience

As programming is developed, audiences will be targeted. Targeted audiences must be those with whom research and education can make a difference, and who can benefit from and apply research-based information, such as those whose production systems are affected by climate change, as well as those who consult or influence the decision-makers of these growers and producers. Audiences include farmers and landowners who are returning flooded soils to production through adaptation of science-based reclamation strategies, and crop and livestock farmers impacted by the 2012 drought.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of current year citations of climate related publications.
- Number of current year climate relevant educational programs.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers that adopt recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands and nutrient reduction.
2	Number of producers and landowners who adopt BMPs after extreme weather events.

Outcome # 1

1. Outcome Target

Number of producers that adopt recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands and nutrient reduction.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 132 - Weather and Climate
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of producers and landowners who adopt BMPs after extreme weather events.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 132 - Weather and Climate
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)

Description

Severe flooding along the Missouri River during the 2011 growing season resulted in soil degradation to an unprecedented degree. It will take years to reclaim the acres that were affected, and will require significant investment that some producers may not be able to provide. Much of the acreage may be taken out of production for the near future, impacting the economic aspects of producers and landowners. In addition, levee repair may proceed at irregular intervals, thereby increasing the risk of potential future flooding. Drought in 2012 forced cattle producers to find alternative forage sources, test for nitrates, place cover crops and cull herds. If drought conditions persist into the 2013 growing season, further economic adjustments will be necessary among cattle producers.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Extension will track the number of popular articles published, the number of participants who attend field days and demonstrations on reclaiming soils and dealing with the resulting pest infestations. Changes in knowledge, behavior and conditions will be noted.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Community and Economic Development

2. Brief summary about Planned Program

Community visioning and design -- We will pursue a program of participatory research and outreach, working with communities to develop concepts and strategies for creating a shared vision of the future that includes social, as well as physical/design strategies. Programs such as Iowa's Living Roadways Community Visioning, the Community Design Program, PLaCE, Downtown & Neighborhood Revitalization will continue to involve participatory research and outreach. The Community Design Lab, funded by Vice President for Extension and Outreach Initiative funds, will assist communities with design challenges at multiple scales and see projects through to implementation.

Community planning -- We will conduct research and provide outreach to communities on community planning, zoning, geographic information systems and community resource management. We will provide training to local officials on local government topics that contribute to the efficient management and operation of community assets. With funds from a US Dept. of Housing and Urban Development grant, CED will create an outreach program on floodplain planning.

Community economic development -- We will conduct economic analyses and applied research for communities and regions, disseminate the information, and provide training on entrepreneurship and small business development and management. In partnership with University of Wisconsin Extension and the Dubuque Institute for Sustainable Communities and Economic Development, CED will strengthen development efforts in the area and share successful strategies for supporting more sustainable economies.

We will pursue a program of participatory research and outreach, working with community and not-for-profit organizations to train individuals to assume leadership roles in these organizations.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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 (Situation and Scope)

1. Situation and priorities

SITUATION

Many small Iowa communities lack resources and expertise to develop comprehensive plans and individual community improvement projects. Issues facing communities include Iowa's aging population, changing demographics (immigration), wellness issues such as adult and childhood obesity, and the need for new economic development strategies. Many smaller communities in Iowa face enhancement related issues that they are unable to address due to lack of planning personnel and/or resources. Severe storm and flood damage, a problem that has been increasing in recent years, exacerbates this issue. In the current economic climate, local governments face shrinking budgets and need to learn strategies for doing more with less. Life in Iowa's small communities is also affected by global issues such as climate change, the price of fossil fuels, and instability in the global economy.

There is a need for better community programming. Community programming is often not intuitively related to what is seen as Agricultural Extension.

PRIORITIES

Iowa's Aging Population

Helping communities to create elder-friendly communities to better accommodate their aging citizens and to create new economic development opportunities to keep retirees in the state and attracting people to retire in Iowa.

Demographic Shifts Caused by Immigration

Communities need assistance in integrating new immigrants into the community and engaging immigrants so that they become an asset to the community in terms of social and economic development.

Wellness Issues

Working with communities to diffuse the obesity epidemic in the state with strategies for improved walkability (trails, complete streets), safe routes to school, and education on diet and nutrition.

Housing/Poverty

Helping 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.

Leadership Development

Keeping local officials, municipal professionals, county officials, planners and other community leaders informed to deal effectively with financial management, long-term planning, disaster recovery, economic development strategies and other issues through leadership training workshops.

Planning/Community Economic Development

Assisting communities with economic development strategies in economically distressed areas, such as Southwest Iowa through communication networks such as Rural Development Resource Center, WE-LEAD, Latino business networks, and other resources.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Iowa's aging population is not only an issue, but an opportunity for Iowa communities in terms of economic development. Work in other states throughout the country indicates that creating elder-friendly communities is a viable economic development strategy that will attract and retain residents. Studies have shown that attracting one older citizen to a community is comparable to creating at least one if not more new manufacturing jobs. The influx of immigrants to the state is also an opportunity for entrepreneurship to flourish.

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.

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. 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.

Iowa municipal employees must deal with constantly changing legislation and procedures. Evidence supporting this assumption is the popularity of the city finance and advanced accounting workshops, planning and zoning workshops, and the Iowa Municipal Professionals Institute offered by ISU Extension Office of State and Local Government Programs. Training evaluations show that 95% of participants rated the program as very good or excellent. Roughly 250 municipal professionals participate in the Municipal Professionals Institute and more than 600 attend budget workshops every year.

Community planning and design assistance is more effective when participatory processes are employed. Impact assessments of the Community Visioning Program have shown that 94 percent of communities that participate in community visioning complete at least one project proposed during the process. The demand is high for assistance from College of Design studio classes and the PLaCE program, and the new Community Design Lab will add another dimension to design outreach. Extension and the College of Design established two satellite facilities that are bringing outreach services directly to the public. ISU Design West in Sioux City has been the venue for design workshops for high school and middle school students. Town/Craft in Perry has hosted community conversations between the Anglo and Latino populations in the community, as well as roundtable meetings that address issues facing rural communities such as housing, aging, and underserved entrepreneurs.

2. Ultimate goal(s) of this Program

To close the gap that exists between demand for planning services to rural Iowa communities and the availability of those services by continuing to offer community planning assistance through College of Design studios, the PLaCE program, the Community Design Lab, GIS imaging workshops, and planning and zoning workshops for city officials and planners. The Community Visioning Program will continue to assist small Iowa communities to develop enhancement plans that reflect the values and identity of the community, as well as to offer focused long-term planning assistance to communities affected by natural disasters. CED will create an outreach program for floodplain planning.

To effectively address Iowa's changing demographics:

- Continue to revise and expand the Spanish-language DVD series, Éxito en el Norte, designed to help immigrants adjust to life in Iowa and the United States. Continue to provide educational programs for the immigrant population, including U.S. citizenship courses, training for immigrant entrepreneurs. Assist communities in integrating new immigrant populations.
- Assist Iowa communities in making their communities "elder friendly" to adapt to Iowa's aging population. Assist communities in capitalizing on elder friendly community development as an economic development strategy. To help families make the transition to home ownership and to help low-income families improve their living conditions through assistance in developing Local Housing Trust Funds and ultimately to develop a statewide housing policy.

To assist Iowa communities with economic development. 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. 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.

To enhance the ability of communities to do economic development planning through the quarterly newsletter, the Program Builder website, and a data services program that includes ICIP (Iowa Community Indicators Program), Take Charge and STATCOMM. CD-DIAL (Community Development Data Information and Analysis Laboratory) provides technical assistance in program evaluation, research methods and data

analysis to communities, agencies and organizations.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	7.9	0.0	0.8	0.0
2015	7.9	0.0	0.8	0.0
2016	7.9	0.0	0.8	0.0
2017	7.9	0.0	0.8	0.0
2018	7.9	0.0	0.8	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Workshops and educational efforts will be conducted with community organizations, individuals and leaders to assist developing and implementing plans for physical and social community improvements. Research and outreach to communities will be done on planning, zoning, resource management, and community and economic development activities using a variety of information dissemination methods. Training sessions will be conducted to improve skills of local government officials, community leaders and individuals. Special services will be developed to aide Iowa communities that suffered from future flooding or other disasters. We will conduct participatory research, outreach and training with leaders, workers and individuals to improve the effectiveness and skills of leaders and volunteers in community organizations.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● Web sites other than eXtension

3. Description of targeted audience

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

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of articles, publications, reports, plans.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Community visioning and design: Communities completing quality of life projects.
2	Community planning: Community plans/projects initiated.
3	Community planning: Communities with improved civic functioning.
4	Community economic development: Communities participating in economic development events.
5	Community economic development: Number of jobs created or retained.
6	Community planning: Communities participating in training sessions.

Outcome # 1

1. Outcome Target

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

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Community planning: Community plans/projects initiated.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Community planning: Communities with improved civic functioning.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Community economic development: Communities participating in economic development events.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Community economic development: Number of jobs created or retained.

2. Outcome Type : Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

Community planning: Communities participating in training sessions.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)

Description

Activities undertaken and expected results could be affected by natural disasters such as the 2008 floods in Iowa which diverted staffing time and effort to dealing with flood and recovery-related activities.

Economic events such as a prolonged recession may also affect the nature of outcomes if budgets and staffing levels are adversely affected.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

ISU Extension Community and Economic Development will continue to conduct roundtable meetings at Town/Craft to identify issues and to re-evaluate existing and develop new strategies for addressing issues such as: the gap between research and Extension, and elder-friendly communities, housing policy, underserved entrepreneurs, and immigration issues. The Community Visioning Program, will continue to conduct survey and focus group research to facilitate goal setting, as well as post-program assessments through client evaluation and site observation. Extension sociology will continue the annual Iowa Farm and Rural Life Poll. Post-program valuations of program such as PEO training, municipal professionals training, GIS workshops, and planning and zoning workshops will continue.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Families: Expanding Human Potential

2. Brief summary about Planned Program

Iowa cares deeply about its families and their mental, physical, social, and economic well-being. Iowans recognize the value of high quality, affordable early childhood care and education, the need for effective parenting, the importance of competent caregivers, and the ability to manage and plan for personal and family finances. Iowa is changing including significant increase in older adults and increased racial and ethnic diversity. Iowans support working collaboratively at the community level to impact public issues such as poverty, financial instability, economic development, support for older adults, and youth success academically, socially, and emotionally.

ISU Extension and Outreach educational programs delivered in a variety of ways will help Iowans improve knowledge and change behavior to reduce negative consequences brought about by risky lifestyles and practices. Families across socioeconomic status and race/ethnicity will increase knowledge and develop skills to improve decision making related to caring for children and other family members, parenting effectively, providing care for family members, supporting older adults, adopting less risky behaviors and lifestyle choices, and managing and maximizing financial resources.

Extension education will increase community awareness about critical issues facing families and involve community members in processes that address critical needs especially the needs of older Iowans and low resource families. Study circles and action forums guided by paid staff and volunteers will enhance communities to be more elder friendly.

Programs will be directed to professionals, volunteers, community leaders, individuals, and families through multiple delivery methods. Delivery methods include educational classes, workshops, study circles, action team meetings, discussions, webinars, one-on-one interventions, and hotlines. Indirect delivery methods included public service announcements, social media, newsletters, radio/television media programs and websites.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	30%		50%	
802	Human Development and Family Well-Being	50%		40%	
805	Community Institutions, Health, and Social Services	20%		10%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

One third of Iowa births are to unmarried women and 26% Iowa children live in single parent families. In 2030, 88 of Iowa's 99 counties will have more than 20% of their population age 65 and older. Iowa has experienced reduced K-12 academic achievement, and increased poverty, family stress, and use of public assistance. Iowa is ranked second in the nation for the number of families with children under age 6 years that have all parents in work force. An estimated 75% of Iowa children ages 0-5 are in childcare, much of it unregulated and home-based. Of note, 93% of teens and young adults are online, 56% of youth report being bullied at school, and 45% of Iowa youth report living in a supportive neighborhood. Billions of dollars are spent annually to address the societal costs of child abuse. One-third of the population provides caregiving for older family members.

The number of working poor is increasing and the rural urban gap is growing. Rural communities face growing challenges in retaining well-paying job opportunities and the array of services needed and desired by families across the lifespan. Low savings rates, high debt levels, and a lack of planning for potential major life events leave Iowans financially vulnerable. Low-income consumers are at greatest risk of economic instability. Economic pressures have long term negative consequences for children and families. Solutions lie in both individual and collective/community response. Iowa's diversity is also changing, which is also affecting communities. Poverty threatens the well-being of families. Citizens and community organizations together can make more informed decisions, collaborate, and take action to improve the quality of life of economically vulnerable families.

More than 40% of Iowans are over the age of 45, 27% are aged 45-64, and 15% are over the age of 65. Iowa is 5th in the nation for the number of people 65 and over and 3rd in the number of "oldest-old" persons aged 85 and over. Iowa is at the forefront of an aging revolution yet ill prepared to handle the social and economic consequences of this demographic transformation. Iowa cannot fulfill the goal of being the healthiest state in the nation without addressing the needs of an aging citizenry. Iowa communities and businesses need enhanced tools to support whole-person wellness throughout the life span including midlife and beyond to promote individual quality of life, family well-being, and ultimately economic savings to Iowa.

2. Scope of the Program

- In-State Extension
- In-State Research

- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Citizens can learn skills to make effective decisions individually and collectively.
- Evidenced-based education and training can help people make wise choices.
- Communities will use an empowering approach to manage critical issues facing them.
- Diversity enhances our culture and supports economic vitality.
- Continued resources and funding can be secured to support these programs.
- National focus on financial and other family issues and public awareness will continue to mobilize communities to adopt behaviors and support change.
- Education improves economic, environmental, and social conditions for individuals, families, and communities.
- Research/evidence-based information produces expected outcomes.
- Federal and state legislation and policy will continue to support family strengthening environments.
- The changing demographics in Iowa will impact program audiences and delivery methods.

2. Ultimate goal(s) of this Program

Individuals, families, and community institutions work collaboratively to improve the financial stability and improve family functioning of Iowans through family development, financial education, and community development.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	15.5	0.0	2.9	0.0
2015	15.5	0.0	2.9	0.0
2016	15.5	0.0	2.9	0.0
2017	15.5	0.0	2.9	0.0
2018	15.5	0.0	2.9	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Short term and in-depth sequential educational programs will be directed toward individuals, families,

professionals, and community leaders through one-on-one education, workshops, meetings, conferences, online learning, and social and mass media to strengthen their knowledge and skills. We will develop products, curriculum, on-line tools, and other educational resources for use in training, technical assistance, and facilitation of community-based processes.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention	● Public Service Announcement ● Newsletters ● eXtension web sites ● Web sites other than eXtension ● Other 1 (Blogs) ● Other 2 (Podcases)

3. Description of targeted audience

Parents of children, teens, and young adults, families with lower incomes, child and family caregivers, family serving professionals, health professionals, worksite employees, policy makers, businesses, community members and leaders, adults, older adults, education professionals, and employers.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of parents and family members in educational programs related to child care, parenting, couple relationships, and aging.
- Number of professionals involved in programs related to child care, aging, couple relationships, and parenting.
- Number of individuals participating in family finance educational programs.
- Number of professionals or community volunteers trained to work with families on financial management.
- Number of adults participating in educational programs that increase awareness of public issues.
- Number of community groups formed to address a public issue.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of parents improving parenting skills.
2	Percent of professionals trained to provide education and/or support to families.
3	Percent of early child care programs improving learning environments and teaching strategies.
4	Percent of caregivers better able to manage later life issues.
5	Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.
6	Percent of individuals improving personal and family financial management skills.
7	Percent of individuals making progress toward financial goals.
8	Percent of professionals or volunteers who are better prepared to apply or teach financial management skills.
9	Number of communities reporting taking actions to improve circumstances for older Iowans.

Outcome # 1

1. Outcome Target

Number of parents improving parenting skills.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Percent of professionals trained to provide education and/or support to families.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Percent of caregivers better able to manage later life issues.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 6

1. Outcome Target

Percent of individuals improving personal and family financial management skills.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

Percent of individuals making progress toward financial goals.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

Percent of professionals or volunteers who are better prepared to apply or teach financial management skills.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

Number of communities reporting taking actions to improve circumstances for older Iowans.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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 (loss of faculty and staff)

Description

Economic constraints continue to influence program planning and participation rates. Citizens and organizations may wish to participate in programs but lack time and transportation. Federal and state legislation continues to impact appropriations and policy for programming initiatives. Healthcare reform will also modify the landscape for programming in this plan of work. Increasing interest in indirect delivery methods continue to increase for individuals and work organizations. Extension in Iowa continues to experience loss of staff through retirements. Many positions after restructuring and retirements have not been filled due to budget cuts. Decreasing staffing helps drive the demand for more programming via technology and train-the-trainer approaches to education. The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to a variety of cultures.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

For family life programs participant attitudes, knowledge and behaviors will be assessed. The Strengthening Families Program 10-14 will conduct retrospective post then pre tests with parents and youth. Post training observational assessments will be conducted for Early Childhood Environment Rating Scale training to measure the impact of quality improvements. A post training survey of participants in the Powerful Tools for Caregiver training program will take place. Case studies and other research of the Midlife and Beyond program communities will be documented.

Participants in family finance priority programs will complete surveys to assess change in knowledge and skills at the conclusion of sequential programs. Participants in worksite wellness programs will complete pre and post-surveys to assess change in financial knowledge, skills, and behaviors.

In addition, this state plan of work has identified and implemented core programming. Core programming criteria include evidence-based, evidence-informed, timeliness, relevance, uniqueness (services not offered by other organizations), sequential, and impact. Sequential programming is privileged to best demonstrate impact. To evaluate core programs, online surveys are capturing evaluation/impact data.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

Agricultural production and related up and down stream industries make up the single largest sector of Iowa's economy and is particularly important to the rural communities in the state. Its long term viability is a critical mission of Iowa State University which has a successful history of assisting farmers, suppliers, processors and policy makers and other key decision makers in addressing opportunities and challenges facing agriculture. Technology development via scientific discovery, both basic and applied, has been the hallmark of modern agriculture that has consistently improved the efficiency, safety and sustainability of food, fiber and now fuel production to a growing global population. Adoption of new technologies and practices by farmers holds economic, environmental and social implications at the farm, community and market level. Production, marketing and business skills are needed by farmers to effectively evaluate new opportunities and navigate emerging challenges. Demand for locally produced food including fruits and vegetables as well as livestock products, has shown substantial growth. The ability to enter the local market on a small scale and retain higher farm-to-consumer margins provides opportunities for smaller farms and beginning farmers and other agricultural entrepreneurial businesses. Growth in local farming and associated businesses enhances local community economic development through job creation and general economic activity. Thus, to ensure economic and environmental sustainability of producers and thus enhance food security, Iowa State University's research and extension program must continue to find new discoveries to add value to Iowa commodities, reduce costs through improved efficiency, improve business and marketing skills, develop and apply production efficiencies, model policy outcomes, encourage human capital training and leadership development, and anticipate emerging trends and challenges facing Iowa agriculture. In addition to increasing the knowledge and skills of producers and the agribusiness sector, production capacity will be enhanced through the adoption of practices that improve yields, reduce input costs, and mitigate the effects of adverse weather conditions on crop and livestock systems.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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%		0%	
131	Alternative Uses of Land	4%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		7%	
202	Plant Genetic Resources	0%		3%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		4%	
204	Plant Product Quality and Utility (Preharvest)	0%		2%	
205	Plant Management Systems	11%		3%	
212	Pathogens and Nematodes Affecting Plants	2%		15%	
216	Integrated Pest Management Systems	9%		4%	
301	Reproductive Performance of Animals	4%		1%	
302	Nutrient Utilization in Animals	4%		13%	
303	Genetic Improvement of Animals	4%		23%	
305	Animal Physiological Processes	0%		7%	
311	Animal Diseases	0%		5%	
401	Structures, Facilities, and General Purpose Farm Supplies	8%		0%	
405	Drainage and Irrigation Systems and Facilities	12%		0%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		9%	
601	Economics of Agricultural Production and Farm Management	10%		1%	
602	Business Management, Finance, and Taxation	9%		1%	
603	Market Economics	8%		2%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

ISU agricultural programs address and enhance the economic, environmental and human health priorities of Iowa. Iowa's economy is heavily dependent upon agriculture as the state ranks second in farm receipts (USDA NASS). The majority of Iowa counties are rural and are dependent on agricultural

production, marketing and agribusiness for employment and economic activity. Livestock and poultry production have historically represented half of farm cash receipts, but the increased demand for corn for ethanol production and associated rise in prices for corn and soybeans have increased gross farm income and the share coming from crop production. Increased energy production from land-based renewable sources (biofuels and wind) provides new opportunities for crop producers and land owners, but greater challenges for livestock producers and beginning farmers. Research-based education assists these economic transitions.

Much of the employment and economic activity occurs beyond the farm gate in the agricultural input and further processing sectors. The success of Iowa farmers depends heavily on these up and down stream firms. They are also important users and deliverers of research-based knowledge originating at Iowa State University and through its collaborations with other land-grant institutions.

ISU programs also address emerging socio-economic, environmental and human health situations in Iowa: As Iowans seek to address issues of childhood obesity and diseases conditions related to poor nutrition or poor eating habits, demand for locally produced food including fruits and vegetables as well as livestock products, has shown substantial growth. Meat, dairy and egg production in Iowa are significant value-added enterprises. Processing these products creates jobs and economic activity across the state. Livestock are also important to successful ethanol production as the distillers dried grains and solubles are highly valued in rations. Likewise, animal agriculture must become more efficient to compete for grains, forages and land from alternative uses. In order for this emerging new environment of regional and local food systems to grow, there is a need for educational programs, technical assistance, supporting infrastructure, leadership capacity building, organizational development and engaging youth, adults and communities.

Agricultural research and education regarding new discoveries and adoption in crop and livestock production efficiencies, policy analysis, farm level decision tools, biofuel production, and new local small-scale production and distribution systems contributes to Iowa's economic health, opens new opportunities in rural communities, and supports enhancement of human health and well-being.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Iowa has natural resources and a climate well suited for agricultural production of food, fiber and fuel for a growing global population. It has well established infrastructure to market and process well established crops and livestock. Farmers and agribusinesses are well educated and have ready access for information. ISU Extension and Outreach is well respected by farmers as a source of research based knowledge to improve their decision making ability. The program's goal is to help farmers achieve long-term profitability of their operations by providing profit enhancing technologies and teaching farmers to

evaluate the adoption and implementation of the technology within the farms' resource base. Alongside this well-established traditional agricultural infrastructure is a growing regional foods production and distribution system. Regional food systems are valued by communities because of increased job growth and access to fresh fruit and vegetables. Iowa State University is a leader in research discovery in production, processing, marketing and risk management of agricultural commodities. Program goals in the regional foods program include providing education for and about regional food systems to support new growers' efforts, and education to enhance individual, family, community, and environmental health.

The program of work in ensuring profitable producers is an integrated research/extension program focused on farmer success that addresses both opportunities and challenges facing Iowa's agricultural producers. The program is driven by committed individuals working together to achieve a common goal. They are directed by the latest scientific discoveries and direct communication with Iowa farmers to prioritize research and educational needs. The program will use a combination of traditional delivery methods, web-based tools and innovative public-private partnerships to reach farmers. The program will be implemented in an era of declining public funding for agricultural research and education and volatile prices and narrow margins in Midwest agriculture.

2. Ultimate goal(s) of this Program

The ultimate goals of the program are:

- to ensure the long term profitability of Iowa agricultural producers,
- to increase production capacity of the agricultural sector,
- to encourage producers to select and use efficient technologies appropriate for their farm,
- to develop a robust and resilient regional food system that increases opportunities for Iowa farmers, processors, distributors, and marketers of regionally producer fruits, vegetables, and livestock products,
- to encourage participation in value -added opportunities to improve household income,
- to conduct profitable agricultural practices while at the same time protecting natural resources, and
- to mitigate the economic consequences of extreme weather on agricultural producers.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	25.8	0.0	35.1	0.0
2015	25.8	0.0	35.1	0.0
2016	25.8	0.0	35.1	0.0
2017	25.8	0.0	35.1	0.0
2018	25.8	0.0	35.1	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Continue to be a leading research institution on basic and applied questions impacting to increase

Iowa agricultural production capacity.
• Maintain and strengthen extension education programs targeting Iowa farmers that develop their skills to evaluate and adopt emerging technologies, including regional food production & distribution, and best management practices.
• Hire and retain faculty and staff that are committed to the success of Iowa agriculture.
• Foster integrated research/extension teams to address priorities facing Iowa farmers.
• Support professional develop of faculty and staff to ensure that they are competitive in external funding, respected by peers and producers and proud and productive colleagues.
• Educate both producers and consumers regarding regional food production and marketing.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● Web sites other than eXtension ● Other 1 (radio)

3. Description of targeted audience

Agricultural producers and landowners in Iowa and the agribusinesses and agencies that interact with them. Policy makers that impact agriculture. Existing and beginning farmers are increasingly interested in producing value crops and livestock and market them in such a way as to retain a larger share of consumer expenditures on food. Processors, distributors, retailers and institutions interested in buying more locally produced food products. Agricultural professionals who serve farmers and influence their decisions regarding production and marketing options.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of producers and agribusiness professionals who attended face-to-face educational activities, including individual consultations.
- Number of producers and agribusiness professionals who subscribed to newsletters and access web-based resources.
- Number of producers or agribusiness professionals who gained knowledge in safe pesticide application through attending pesticide applicator Continuing Instructional courses or pesticide safety education programs.
- Number of local food producers attending extension programs.
- Number of popular press articles and publications authored by Extension specialists.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of increased efficiencies _____ (i.e. % pregnant; increases in yield/unit, such as bushels/acre; lbs product (meat, protein, milk) per animal; lbs feed per gain).
2	Number of producers indicating adoption of recommended practices.
3	Number of producers reporting increased dollar returns per unit of production.

Outcome # 1

1. Outcome Target

Number of increased efficiencies _____ (i.e. % pregnant; increases in yield/unit, such as bushels/acre; lbs product (meat, protein, milk) per animal; lbs feed per gain).

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of producers indicating adoption of recommended practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of producers reporting increased dollar returns per unit of production.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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 (Consumer trends and preferences)

Description

The success of the program to ensure profitable producers and increase production capacity will depend upon many factors beyond the control of Iowa State University and the faculty and staff of the program. These include external forces that impact farmers as well as Iowa State University. Farmers and their ability or willingness to adopt new technologies or implement new practices are impacted by factors that affect production and prices and thus short-term profitability. These include natural disasters (drought, flood, frost, etc.), market forces that influence input and output prices (supply and demand, trade agreements, exchange rates, interest rates, monetary policy, consumer preferences etc.), and regulation and policy changes (Farm Bill, EPA, FDA, DOE, etc.). Likewise, Iowa State University's ability to deliver the program of work is somewhat dependent on funding levels from conventional federal and state sources, competing priorities of public funding agencies, how competitive faculty and staff are at external grants, and short term priorities caused by natural disasters.

Regarding regional and local foods, additional external factors are a concern: Locally produced foods often sell at a higher price than foods made through conventional production and marketing systems. A continued weak economy will hinder the growth in demand for local foods. Conversely, an economic recovery will improve the demand for and growth of local foods. Location has been identified by the press and media as a significant driver of consumer food purchasing decisions. Changes in

consumer preferences for local food will impact the growth potential for local demand in Iowa. In late 2010 Congress passed legislation giving FDA more oversight of food safety regulations and specified exemptions for small volume producers, processors and marketers of foods. If implementation of these regulations is more onerous than expected, or if the buyers in the market place choose to hold small firms to the same standards as the regulated larger firms, then the cost per unit of food sold will make it difficult for smaller firms to compete. Health care cost and nutrition related health problems are getting significant attention in the press and in public policy. If the focus of public policy shifts to other priorities, the attention on healthy diets and funding for research, education and public feeding programs will decline.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Extension will monitor changes in knowledge, behavior and/or conditions related to continuing programs in all disciplines and cross-discipline programs through surveys (After only/Retrospective pre & post), focus groups, and case studies.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Health and Well-being

2. Brief summary about Planned Program

Iowans are practicing behaviors that lead to a high risk of obesity, which leads to increased incidence of heart disease, diabetes, certain types of cancer, and chronic diseases that can lead to disability. These chronic diseases not only exert an economic strain (healthcare and work productivity), but decrease longevity and quality of life. A variety of audiences (parents, youth, health professionals, school personnel, childcare providers) will learn 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. Direct delivery of education will occur through educational classes, workshops, discussions, webinars, one-on-one interventions and hotlines as well as indirect delivery methods through public service announcements, social media, newsletters, radio/television media programs and websites. Training and technical assistance will be provided to school districts throughout the state to enhance and improve implementation of local school wellness policies. Through a Team Nutrition grant school districts will be encouraged to develop and implement farm to school programs and apply for the Healthier US School Challenge award. Additionally, childcare providers statewide will have the opportunity to receive training for state licensure and Child and Adult Care Food Program certification. Finally, adult wellness will be targeted through worksite wellness programming and the EFNEP and SNAP-Ed nutrition education programs.

Food safety education is an important component of ensuring good health for Iowans. It is important to ensure safe food handling behaviors are practiced by consumers, food processors and producers, and retail foodservices. Implementing safe food handling from farm to fork will reduce incidences of food borne illness. We plan to continue direct delivery of education through educational classes, workshops, discussions, webinars, one-on-one interventions and hotlines as well as indirect delivery methods through public service announcements, billboards, newsletters, radio/television media programs and websites. National food safety certification programs, such as HACCP and ServSafe® will continue to be offered.

Food safety information based on the most recent scientific evidence will serve as the content for programming. With new federal food safety legislation; concerns of food safety risks from fresh produce coupled with emphasis on increased fruit and vegetable consumption and interest in school gardens, farm-to-school, and food preservation as well as continuing increases in food consumed that is prepared away from home, food safety programming is an integral component of nutrition and health.

Because a large percentage of the US population lives in an urban or suburban environment, they have little awareness or knowledge of the processes involved in growing food at the production level. Yet there is concern among consumers regarding food safety and quality during production phases, as well as animal health and well-being. Consumers need access to information and education in these areas so they can be reassured as to the safety and humane measures embedded in American agriculture production.

The recently enacted Food Safety Modernization Act has increased regulation and recordkeeping requirements in the supply chain. Educational programming is needed for ag producers and processors to help them create effective and practical quality management systems that meet the increased expectations.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
503	Quality Maintenance in Storing and Marketing Food Products	10%		0%	
703	Nutrition Education and Behavior	40%		20%	
704	Nutrition and Hunger in the Population	15%		5%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%		5%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	15%		65%	
723	Hazards to Human Health and Safety	10%		5%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Youth Obesity

Iowa WIC data show that over time, there has been a trend among low-income children to become overweight. Iowans Fit for Life (CDC obesity prevention program) has collected data on obesity among Iowa children. In Spring 2009, among 1,218 third graders 14% of children were obese and 16% were overweight. YRBSS data (2011) indicate that 14.5% of Iowa youth are overweight, while 13.2% are obese. Obesity among youth increases the risk of developing chronic diseases such as type 2 diabetes, hypertension, cardiovascular disease, and joint disorders. Data from CDC's National Youth Risk Behavior Survey1 (YRBSS, 2011), representing Iowa youth in grades 9-12, suggest 69.1% eat less than two servings of fruits/juice and 72.3% eat less than two servings daily. The lack of variety of vegetables consumed is of concern as well. Self-reported intakes of fruits and vegetables among fifth-grade children participating in Nutrition Network school-based projects were collected on pre-post surveys in 2008. Students reported number of times per day they ate fruit (average number of times = 1.72 pre, 1.88 post, p = .01) and vegetables (1.65 pre, 1.77 post p = .01). Almost half of Iowa youth (grades 9-12) report not achieving the recommended level of physical activity (60 minutes 5 or more days per week). YRBSS data suggest approximately one-quarter of Iowa youth watch more than 3 hours of television (23.5%) and use computers (25%) daily. A study by the Kaiser Family Foundation (2010) suggests that average youth ages 8-18 use 7-1/2 hours of media daily.

Adult Wellness

Coronary heart disease is the leading cause of death and disability for adult Iowans. In 2011, 90,000 adult Iowans had been informed by a doctor they had a heart attack. Similarly, 60,000 were informed they had a stroke. Almost one-third of adult Iowans (29.9%) were diagnosed with high blood pressure, another 0.9 percent were classified as having pre-hypertension. The percentage of Iowans who eat five or more servings of fruits and vegetables daily in 2011 was only 13.5 percent and 25.9 percent were not engaged in leisure time physical activity. According to 2011 BRFSS data, 64.8 percent of adult Iowans are overweight or obese. Adult wellness Extension programming in Iowa targets modifiable lifestyle changes including fruit/vegetable consumption and physical activity.

Food Safety

Recent data (CDC, 2010) estimates there are 48 million cases of foodborne illness in the U.S. each year, with a resulting 3,000 deaths. The percentage of at-risk Americans, those who are more susceptible to a foodborne illness or severe complications, continues to grow: those younger than age 9, those older than age 60, those who suffer from chronic or debilitating conditions, and pregnant women. Increasing diversity in the workforce of retail foodservices (NRA, 2008), increasing consumption of food prepared away from home (USDA, 2008), increasing reliance on food assistance programs, increasing pressures to consume more fruits and vegetables, increasing interest in home gardening and food preservation and decreasing knowledge of food preparation skills contribute to the need to ensure consumers, food producers, and food workers in processing and retail establishments understand and practice fundamental safe food handling and cleaning and sanitizing practices. The Child Nutrition Reauthorization Act of 2010 emphasizes consumption of fresh produce and implementation of school gardens and farm to school programs. The proposed Iowa Food and Farm plan (January, 2011) stressed the importance of food safety as an integral part of regional food systems.

Because much of the public relies on dietary professionals for reliable, factual education information, guidelines, and recommendations regarding dietary practices for good health, it is imperative that these professionals have a sound understanding of the food production cycle as it pertains to how food is produced. Consumers are sometimes subject to media reports of harsh treatment of animals destined for human consumption. They need unbiased information about the welfare of livestock in the food chain. With this kind of knowledge, these professionals are able to reassure consumers about the safety of food all along the production stages. Food processors and their personnel also need constant food safety education to identify potential food safety hazards, from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

- Continued resources and funding can be secured to support these nutrition and food safety programs.

• National focus on overweight/obesity and greater public awareness will continue to mobilize communities to adopt behaviors that combat overweight/obesity.
• National focus on overweight/obesity and greater public awareness about good nutrition will encourage individuals and foodservices to offer more fresh produce menu items.
• Education improves individual, family, community, and environmental health.
• Education increases knowledge and influences attitudes, which can lead to behaviors consistent with recommended safe food handling practices and weight management behaviors.
• Research/evidence-based information produces expected outcomes.
• Multiple communication methods and styles will be necessary to address changing demographics in Iowa and the U.S.
• Federal and state legislation and policy will continue to support health promoting environments.

2. Ultimate goal(s) of this Program

• Slow or stop increasing rates of childhood and adult overweight and obesity through nutrition education, promotion of physical activity opportunities, and community advocacy for health promoting nutrition, physical activity, and food availability.
• Increase consumer knowledge about safe home food preservation practices.
• Reduce the number of reported foodborne illnesses.
• Increase the number of food producers and workers certified in food safety.
• Ensure consumers are aware of current safe practices at the farm level of food production.
• Facilitate successful certification of meat plant personnel to meet HACCP compliance requirements.
• Facilitate grain industry compliance with Food Safety Modernization Act.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	1.1	0.0	1.0	0.0
2015	1.1	0.0	1.0	0.0
2016	1.1	0.0	1.0	0.0
2017	1.1	0.0	1.0	0.0
2018	1.1	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

• Conduct workshops and meetings. Workshops include ServSafe® Certification food safety, food preservation, HACCP implementation, GAPS preparation, childcare provider training, etc.
• Develop educational materials and resources and curriculum including web based tools and Extension publications.
• Provide training and technical assistance such as fundamental food safety training for volunteer staffed events, line level employees, and childcare providers, and respond to specific questions related to

application of food safety principles.
- Provide training and technical assistance in the grain, livestock and dairy industries.
- Facilitate community advocacy.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations ● Other 1 ((Team Nutrition training))	● Public Service Announcement ● Newsletters ● TV Media Programs ● eXtension web sites ● Web sites other than eXtension ● Other 1 (Blogs) ● Other 2 (SafeFood Fairs)

3. Description of targeted audience

School aged youth, child care providers, school staff and other adult mentors of youth. Adult Iowans in the workforce, participating in food assistance programming, and community health outreach programs. Food growers, food processors, food plant personnel, foodservice management and staff in commercial and noncommercial operations, consumers, and food stand volunteers will be served.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of youth receiving educational programming related to nutrition, physical activity, and health promotion.
- Number of adults who impact youth receiving educational programming related to nutrition, physical activity and health promotion.
- Number of adults receiving educational programming related to nutrition, physical activity, and health promotion.
- Number of professionals working with youth and/or adults receiving training related to nutrition, physical activity, and health promotion.
- Number of hits on Iowa State University Extension nutrition/health pages and publication downloads.
- Number of Iowans receiving education related to home food preservation.
- Number of Iowans receiving food safety certification.
- Number of adult participants in Extension and Outreach programs on food safety.
- Number of hits on Iowa State University Extension and Outreach food safety project websites.
- Number of grain producers receiving education about Food Safety Modernization Act.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of youth participants reporting increased intake of milk.
2	Percent of youth participants reporting increased intake of fruit.
3	Percent of youth participants reporting increased intake of vegetables.
4	Percent of youth participants reporting increased physical activity.
5	Percent of childcare training participants reporting preparedness to apply or teach health promoting dietary behaviors.
6	Percent of adults reporting increased fruit and vegetable intakes.
7	Percent of adults reporting increasing minutes of physical activity.
8	Percent of adult EFNEP/FNP graduates who made a positive change in food resource management skills such as not running out of food.
9	Number of people receiving food safety certification.
10	Percent of adults reporting increased knowledge of safe home food preservation techniques.
11	Percent of adult EFNEP/FNP graduates with a positive change in food safety practices.
12	Number of growers, producers, and food workers completing GAPS, GMPS, HACCP, food safety certification and on-farm BMP programs to increase food safety.
13	Number of food handlers receiving food safety training and education in safe food practices.

Outcome # 1

1. Outcome Target

Percent of youth participants reporting increased intake of milk.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of youth participants reporting increased intake of fruit.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percent of youth participants reporting increased intake of vegetables.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Percent of youth participants reporting increased physical activity.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Percent of childcare training participants reporting preparedness to apply or teach health promoting dietary behaviors.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Percent of adults reporting increased fruit and vegetable intakes.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 7

1. Outcome Target

Percent of adults reporting increasing minutes of physical activity.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 8

1. Outcome Target

Percent of adult EFNEP/FNP graduates who made a positive change in food resource management skills such as not running out of food.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 9

1. Outcome Target

Number of people receiving food safety certification.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 10

1. Outcome Target

Percent of adults reporting increased knowledge of safe home food preservation techniques.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 11

1. Outcome Target

Percent of adult EFNEP/FNP graduates with a positive change in food safety practices.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 12

1. Outcome Target

Number of growers, producers, and food workers completing GAPS, GMPS, HACCP, food safety certification and on-farm BMP programs to increase food safety.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 13

1. Outcome Target

Number of food handlers receiving food safety training and education in safe food practices.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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 (loss of staff)

Description

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

Federal and state legislation continues to impact appropriations and policy for EFNEP, SNAP-Ed, and school health programs/environments, and federal and state regulations to improve food safety will impact number of participants. Federal legislation is encouraging farm to school and school garden programs. A proposed state food and farm plan encourages regional food systems and stresses infusion of food safety trainings from farm to fork.

A number of programs promoting increased physical activity continue to compete with Live Healthy Iowa and Live Healthy Iowa Kids (Shape Up America, Walk Across America, Alliance to a Healthier Generation, PE4Life, etc.).

Increasing interest in indirect delivery methods continue for individuals and work organizations. Younger generations expect newer technologies such as iPhone apps and tend to receive much of their information through social media technology. Reductions in staff are also fueling the demand for more programming via technology.

The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to a variety of cultures. Several educational materials, such as the new Flash animations about proper glove use and handwashing posters available via the food safety project website, are available are in Spanish and/or limited text to reach broader more diverse audiences. The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to ethnic cultures.

Widespread outbreaks of foodborne illness and national recalls of food items require rapid

responses to these emerging issues. Continuous turnover of food plant personnel requires constant updating of new personnel in HACCP certification.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

This state plan of work has identified and implemented core programming. Core programming criteria included timeliness, relevance, uniqueness (services not offered by other organizations), sequential, and impact. Sequential programming was prioritized based on the ability to demonstrate impact. Childcare provider training will be evaluated via online surveys capturing evaluation/impact data. EFNEP and SNAP-Ed will continue to collect required pre/post data for federal reports. Food safety priority programs include certification programs and a program with fundamental food safety messages. Numbers of participants in certification classes and state pass rate are collected. Number of participants in non-certification program classes are tracked.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Natural Resources and Environmental Stewardship

2. Brief summary about Planned Program

Wise management of all natural resources, including water, soil, air, and other resources is needed to sustain our nation's ability to produce food, feed, fiber, and biofuels as well as support environmental goods and services and economic and social functions. Without attention to environmental goods and services our quality of life would be greatly impacted. The focus areas of this program encompass all of the natural resources within the highly human-modified agroecosystem. Proper stewardship of natural resources that provide the base inputs for modern agricultural production is foundational to sustaining the desired quantity and quality of food, feed, fiber, and biofuels. Moreover, we need to understand the potential effects of climate change on agriculture and natural resources and the roles that agriculture and natural resources can play to mitigate negative effects of climate change. This program is designed to facilitate research and extension activities and impacts from the field to the globe and depends on an integration of knowledge, science and technology across social, economic bio-physical and agronomic disciplines.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	6%		0%	
102	Soil, Plant, Water, Nutrient Relationships	11%		26%	
111	Conservation and Efficient Use of Water	5%		4%	
112	Watershed Protection and Management	6%		9%	
121	Management of Range Resources	0%		2%	
123	Management and Sustainability of Forest Resources	5%		0%	
125	Agroforestry	5%		0%	
131	Alternative Uses of Land	6%		3%	
132	Weather and Climate	5%		7%	
133	Pollution Prevention and Mitigation	6%		9%	
134	Outdoor Recreation	0%		7%	
135	Aquatic and Terrestrial Wildlife	5%		15%	
136	Conservation of Biological Diversity	5%		11%	
141	Air Resource Protection and Management	5%		1%	
403	Waste Disposal, Recycling, and Reuse	5%		1%	
405	Drainage and Irrigation Systems and Facilities	10%		0%	
605	Natural Resource and Environmental Economics	10%		5%	
608	Community Resource Planning and Development	5%		0%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Theme 1: Protecting Soil and Water Resources

With the growing demands to produce food, feed, fiber and biofuels from our high quality soils, there comes added responsibility to ensure that the soil remains productive and the water is of sufficient quantity and quality to meet the diverse needs of society. To maintain economic viability of agricultural operations there will be an increased need to ensure environmental stewardship. Unintended consequences associated with agriculture such as nitrate-nitrogen, phosphorus, and pathogens cause environmental

degradation and costs to society. Soil erosion continues to be the number one pollutant of water resources in the state of Iowa. Intensified production systems in the Midwest are adding to a broad range of environmental stressors including pollutant loadings, which, in general, are a primary concern at state and federal levels. Gulf of Mexico hypoxia is among the key off-site impacts of agriculture.

Theme 2: Protecting Air Quality

As animal agriculture has grown and concentrated in Iowa, there have been added environmental challenges relating to air quality. Odor along with nitrogen (NH3, NOx, N2O), methane, hydrogen sulfide and particulate emissions are most pertinent to reducing air quality The sustainability of animal agriculture in Iowa and elsewhere depends on industrial and governmental entities collective ability to apply appropriate technology, science and policy to ameliorate odor and emission nuisances. Uncertainties of health impacts and nuisance related to exposure to agricultural odors and emission of other gases are a prominent concern in rural and rural/urban fringe parts of Iowa.

Theme 3: Protecting Wildlife, Fisheries, Forests and Wildlands

Whereas Iowa has a small proportion of its land in public ownership, the land that is public is extremely valuable and contributes greatly to the quality of life. Fish and wildlife conservation requires innovative and science-based management solutions. Threatened, endangered and rare plants and animals located in Iowa require special care and management and often coordination across various public and private organizations and individuals. The potential increase of perennial crops could impact wild habitat in many ways. Development of strategies to address utilization and preservation of these natural resources and education on the issues surrounding adverse consequences will help Iowans to better understand and practice environmental stewardship.

Theme 4: Climate Change and Natural Resources

The more recent analyses associated with the impacts of climate change on agriculture suggest that Iowa, the United States and the world would still be able to produce enough food and feed, although certain food insecure regions around the world would be at more risk. There are expected to be some changes in the mix and location of crop and livestock/poultry productivity in Iowa, thus there would be changes in impacts on soil and water resources as well as plant and animal diversity. Understanding and predicting changes in mix and location of agronomic crops and animals due to climate change should allow for better management of natural resources.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

This program depends on and stems from these assumptions or guiding principles:

• Food, feed, fiber, biofuels and environmental goods and services may be provided from the same acre of land.
• Stewardship of soil resources is critical to the long-term production of food, feed, fiber, biofuels and environmental goods and services.
• Water quality and quantity are vital to food, feed, fiber, and biofuels productivity.
• Water resources provide a variety of market and non-market goods.
• Environmental, socio-economic and institutional-political factors must be integrated so as to achieve sustainable natural resources.
• Public and private partnerships must be developed to ensure attainment of the goals of this program.
• Public policy related to agriculture, energy and environment will be drivers of change to which the private and public sectors must respond/adapt.
• Weather extremes (temperature and precipitation) will occur and climate change will have various effects on natural resources and the agroecosystem.

2. Ultimate goal(s) of this Program

The goals of this program are to:

• Develop productive, resilient and diverse plant and livestock/poultry production systems that ensure social, economic and environmental goals are met, especially with climate change impacts considered. Addresses Themes 1, 2 and 4.
• Provide effective models of environmental stewardship to protect air, soil, wildlife, woodland, and water quality in concert with a variety of private and public land uses including agricultural, recreational, forestry, wildlife and wildlands and urban. Addresses Themes 1, 2.
• Enhance energy conservation and production of energy from Iowa's renewable resources. Addresses Themes 1, 2, 3 and 4.
• Improve management of Iowa's public lands and natural resources ensuring economic, social, and environmental sustainability. Addresses Theme 3.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	14.9	0.0	5.0	0.0
2015	14.9	0.0	5.0	0.0
2016	14.9	0.0	5.0	0.0
2017	14.9	0.0	5.0	0.0
2018	14.9	0.0	5.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

The following basic to applied research activities will allow for attainment of the four program goals.

- Address air and water quality along with other environmental issues of Iowa through research, education, and extension programs targeted at solving environmental problems of producers, citizens, public health officials, and regulators.
- Increase the research and adoption of best management conservation practices, crops, and cropping systems that control soil erosion, minimize sediment transport, and reduce nutrient export. Increase the research and adoption of practices, crops, and cropping systems that reduce nitrate export.
- Approach water quality and quantity issues from a watershed perspective using adaptive management principles the link the private and public sectors.
- Develop better models and tools to be used to evaluate the effects of changes in the mix and location of crop and livestock systems due to climate change and the impacts of those changes on native plants and animals (wildlands and wildlife).
- Identify site specific strategies and facilitate the implementation of these strategies to improve air quality and address related concerns such as risks of domestic-wildlife disease transmission, particularly with respect to siting and operations of confined-animal feeding operations and neighbor-to-neighbor relationships.
- Understand and evaluate the economic impact of management of natural resources including the economic viability of alternative crops, cropping practices, and cropping systems, and the economic and environmental benefits of such alternatives.
- Quantify the non-market and market values associated with our Iowa natural resources including forests, natural areas/abandoned pasture, CRP, wildlife, energy, and community resources.
- Research ways to conserve the use of energy inputs used in the production of food, feed, fiber and biofuels with a particular view towards carbon reduction.

The following extension/outreach activities will allow for attainment of the four program goals.

- Appropriate curriculum for targeted groups, fact sheets, and web access tools for decision making.
- Targeted programming to address policy issues as they arise including response to public comment documents, development of hard copy materials and resources for regulators and policymakers.
- Produce, update or revise handbooks, newsletters, and bulletins as appropriate.
- Hold workshops, field days, farm/field visits, and satellite and web based sessions as appropriate.
- Develop strategies and programs to increase community (citizen) involvement, especially related to private and public natural resources.
- Develop and execute educational programs about conservation program in the new farm bill.
- Develop and execute educational programs about indices and diagnostic tools (e.g. P Index) that can be used to improve nutrient management.
- Develop and execute educational programs on methods to conserve and produce biorenewable energy.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods

● Education Class	● Public Service Announcement
● Workshop	● Newsletters
● Group Discussion	● Web sites other than eXtension
● One-on-One Intervention	● Other 1 (radio)
● Demonstrations	

3. Description of targeted audience

This program focuses on the private and public sectors. The "actors" to be engaged with research and extension activities associated with this program include: crop and livestock producers, private citizens, public health officials, state and federal agricultural and natural resource agencies, environmental groups, landowners, homeowners, agricultural and natural resource scientists and engineers, agribusinesses, and policy makers.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of producers, agribusiness professionals, and land-owners who attend face-to-face educational activities, including individual consultations.
- Number of producers, agribusiness professionals and land-owners who subscribe to newsletters and access web-based resources.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of acres where the adoption of BMPs and conservation practices was implemented.
2	Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run off and preserving ground water quality.

Outcome # 1

1. Outcome Target

Number of acres where the adoption of BMPs and conservation practices was implemented.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation
- 403 - Waste Disposal, Recycling, and Reuse
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

The external factors most likely to impact the outcomes and impacts of this program include the federal agricultural, energy, and environmental policies, advances in technologies such as more accurate climate models, and the general health of the world economy. At the local level, the outcomes depend on the appropriate mix of funded basic and applied research tied strongly to effective extension and outreach programming. Because of the compelling and complex nature of protecting natural resources while meeting food, feed, fiber, and biofuels demands, without sufficient collaboration and innovation between the private and public sectors, attainment of the program goals may be thwarted.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Follow-up surveys after the growing season will be conducted to determine actions taken by producers who increase the adoption of conservation systems on their crop acreage. Similar surveys will be given to livestock producers to determine the number of livestock production sites that adopt practices that reduce impacts to air resources.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Sustainable Energy - Biofuels and Biobased Products

2. Brief summary about Planned Program

Agriculture continues its movement into production of crops for fuels, energy, industrial chemicals and materials, without compromising its capability to produce safe and abundant food. At the same time, we are faced with global climate change and deteriorating water and soil resources and wildlife habitat. New production, processing and product technologies to support advanced biorefineries are needed. Unlike today's biofuels industry, these advanced biorefineries will need to be able to use a variety of feedstocks; employ a blend of thermochemical, biological and bioprocessing technologies to efficiently produce biofuels; and produce a portfolio of primary products (biofuels) and value-added co-products (industrial chemicals, materials, food and feed ingredients, etc.) that can be adjusted to maximize profits.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		8%	
102	Soil, Plant, Water, Nutrient Relationships	8%		18%	
111	Conservation and Efficient Use of Water	8%		0%	
125	Agroforestry	8%		0%	
131	Alternative Uses of Land	8%		0%	
136	Conservation of Biological Diversity	8%		0%	
202	Plant Genetic Resources	0%		7%	
205	Plant Management Systems	5%		9%	
206	Basic Plant Biology	0%		3%	
302	Nutrient Utilization in Animals	8%		0%	
402	Engineering Systems and Equipment	8%		14%	
403	Waste Disposal, Recycling, and Reuse	8%		0%	
404	Instrumentation and Control Systems	0%		22%	
511	New and Improved Non-Food Products and Processes	8%		16%	
601	Economics of Agricultural Production and Farm Management	8%		0%	
602	Business Management, Finance, and Taxation	8%		0%	
603	Market Economics	0%		1%	
605	Natural Resource and Environmental Economics	7%		1%	
610	Domestic Policy Analysis	0%		1%	
	Total	100%		100%	

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

Agriculture continues its movement in the production of fuels, energy, industrial chemicals and materials, without compromising its capability to produce safe and abundant food. At the same time, we are faced with global climate change and deteriorating water and soil resources and wildlife habitat. New production, processing and product technologies to support advanced biorefineries are needed. Unlike today's biofuels industry, these advanced biorefineries will need to be able to use a variety of feedstocks;

employ a blend of thermochemical, biological and bioprocessing technologies to efficiently produce biofuels; and produce a portfolio of primary products (biofuels) and value-added co-products (industrial chemicals, materials, food and feed ingredients, etc.) that can be adjusted to maximize profits.

Extension Educators need to be aware of bioenergy issues that impact agricultural production in Iowa from the perspective of energy use and energy production. Capacity building needs to occur regarding the complexities of the biofuels supply chain so educators are able to advise or provide references to farmers with questions on the economics and environmental impacts of biofuels and can incorporate bioenergy learning activities into their programming. In addition, Extension needs to be able to explain the environmental and societal benefits of biofuel production.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

The 2007 Renewable Fuels Standard set the goal of producing 36 million gallons of motor fuels by 2022 (equivalent to about 25% of our motor fuel demand). There appears to be no Congressional sentiment to backing away from this standard. While petroleum prices declined in late 2008 due to the global economic downturn, shortages and high prices are expected to return as soon as the global economy improves. Biotechnology and traditional plant breeding enable the tailoring of crops for biofuels and biobased products as has been done in the past for food, feed and fiber. There are many opportunities to develop cropping systems that increase production as well as improve water and soil qualities. Advances in thermochemical and biological conversion of grain and cellulosic plants and crop residues will make a new fuels and industrial chemicals possible. Some co-products (e.g. biochar) have the potential to return important nutrients to the soil.

2. Ultimate goal(s) of this Program

The U.S. government is committed to advancing bioenergy and the 2009 Renewable Fuels Standard established very high goals. Iowa State University is committed to these goals and doing it with sustainable agricultural production systems. The new ISU BioCentury Research Farm was established as the first integrated research and demonstration farm and processing facility devoted to sustainable biomass production, processing and utilization. We will make Iowa and the Midwest "feedstock ready" for the next generation of advanced biorefineries.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	1.9	0.0	5.5	0.0
2015	1.9	0.0	5.5	0.0
2016	1.9	0.0	5.5	0.0
2017	1.9	0.0	5.5	0.0
2018	1.9	0.0	5.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Extension programming will focus on advising farmers interested in biomass production on the risks and benefits of crops as biofuels. Extension will form a 'Stover team' to explore possibilities. The team will be made up of multiple partners with interests in biomass. Iowa State University will focus resources and efforts on developing improved crops and plant materials for use as feedstocks to produce biofuels and biobased products while still producing adequate food and feed supplies; developing agronomic practices to produce these feedstocks in sustainable ways to mitigate environmental risks; developing new harvesting, storing and transporting systems for these new feedstocks; and adopting new conversion processes that are more efficient, use less energy and water, and produce value-added co-products. These technologies will be integrated so that they work as a complete system and the ISU BioCentury Research Farm will play a key role.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations	● Public Service Announcement ● Newsletters ● Web sites other than eXtension ● Other 1 (radio)

3. Description of targeted audience

Efforts in this program focus on basic human needs for environmentally sustainable energy and consumer goods (e.g. building construction materials, plastics and adhesives), producers with more efficient crops and production systems, rural communities with new employment opportunities and economic development, processing companies with advanced conversion technologies, and all Iowans because of the need for inexpensive and environmentally acceptable forms of energy. Producers and landowners need to know the opportunities and risks associated with biomass production and harvest.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of people who attend an educational activity to learn about producing biomass.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers who increase their awareness of crop production strategies appropriate for bioenergy production.
2	Number of individuals who increase their knowledge in production/harvesting systems related to biomass crops.

Outcome # 1

1. Outcome Target

Number of producers who increase their awareness of crop production strategies appropriate for bioenergy production.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 125 - Agroforestry
- 131 - Alternative Uses of Land
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of individuals who increase their knowledge in production/harvesting systems related to biomass crops.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 302 - Nutrient Utilization in Animals
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes

- Government Regulations
- Competing Public priorities

Description

Probably the greatest external factor is what happens to future demand and supply of traditional energy sources, and federal policy on reducing greenhouse gasses. Price volatility in petroleum and farm commodities also adds complexity, financial risk and business uncertainty. The current economic climate does not provide much profitability and prolonged low margins could damage investor confidence. Feedstock commodities must be produced at attractive prices; drought, as experienced in 2012, and other natural disasters could be devastating to these new ventures. Infrastructure to transport biofuel crops must be in place for farmers to risk planting crops meant for biofuels. Government support and regulatory programs are important in early stages to compete against well-established industries and gain market footholds. Unwarranted adverse publicity has plagued the biofuels industry and the populace must be better educated; this will require investment in education and extension outreach. Most of all, funding for research and outreach activities is paramount.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

Plans are under development.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Youth Development

2. Brief summary about Planned Program

4-H empowers youth to reach their full potential working and learning in partnership with caring adults. Positive youth development helps young people become competent, confident, connected, contributing, and caring citizens with character through a series of progressive learning experiences with caring adults. These experiences involve meeting the four needs of youth (Bentro et al, 1992), fostering the eight essential elements (National 4-H Headquarters, 2001) and achieving the four outcomes of effective leadership, productive citizenship, outstanding communication, and successful learning through priority topic areas such as healthy living, STEM, citizenship and leadership, and communications and arts. Staff will work with youth, volunteers, and professionals to plan, implement and evaluate short-term to long-term educational programs and experiences that work toward multiple life skill outcomes. Staff will model youth-adult partnerships in the 4-H program. Staff will work with state, community, and Iowa State University leaders and organizations to assist them in creating positive youth development environments that engage youth in decision-making roles.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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 (Situation and Scope)

1. Situation and priorities

Families, youth, and communities face a host of social problems without strong positive youth development programs with caring adults. Research shows that positive youth development helps young people become competent, confident, connected, contributing, and caring citizens with character through progressive learning experiences with caring adults.

2. Scope of the Program

- In-State Extension

- Multistate Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

Training staff and volunteers on positive youth development principles and practices will lead to high quality environments for youth to develop into competent, confident, connected, contributing, and caring citizens with character. Additionally, it is forecasted that funding will likely decrease from federal, state, local, and university sources.

2. Ultimate goal(s) of this Program

Increase the number of youth reached through positive youth development learning opportunities that help young people become competent, confident, connected, contributing, and caring citizens with character via short-term and long-term progressive learning experiences in partnership with caring adults.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2014	14.8	0.0	0.0	0.0
2015	14.8	0.0	0.0	0.0
2016	14.8	0.0	0.0	0.0
2017	14.8	0.0	0.0	0.0
2018	14.8	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Increase the number of youth reached in 4-H programs.
- Strengthen statewide volunteer management infrastructure.
- Organize staffing structure based on priority programs.
- Improve communications with staff, stakeholders, parents and youth.
- Improve engagement with University colleges and faculty to increase youth offerings consistent with current research and educational design.
- Transition staff time from activity management to program design and delivery.
- Increase community partnerships to leverage resources for improved client access to programs.
- Design learning experiences and conduct training for and with Extension and Outreach staff, volunteers, Iowa State University staff, and community and state partners that contribute to the life skill outcomes of leadership, citizenship, communications, and learning in environments that meet youths' needs.
- Build state and community level capacity to ensure policies and opportunities are based on the principles and practices of positive youth development.

• Train staff, faculty, and volunteers on how to create positive youth development environments in after school programs, camps, clubs, events, and school and other out-of-school time settings.
• Assess county enrollment trends and identify barriers that limit enrollment, retention, and participation of youth in club programs.
• Implement multi-faceted marketing infrastructure to communicate positive youth development principles, practices, and programming successes via news releases, brochures, on-line training, webinars, etc. with volunteers, Extension and Outreach staff, community partners, and Iowa State University staff.
• Partner with state and national entities to collect and report impact data.
• Improve 4-H youth programs using after school programs, camps, clubs, events, and school delivery methods.
• Work with other states' 4-H Youth Development staff to evaluate/research positive impact of 4-H participation in the lives of young people.
• Increase youth short-term and long-term learning opportunities in the areas of healthy living (including childhood obesity), STEM (including food safety), citizenship, leadership, communications, and arts.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● Demonstrations ● Other 1 (Conferences, Club Activities) ● Other 2 (Camps, Mentoring)	● Newsletters ● Web sites other than eXtension ● Other 1 (Webinars, Brochures, etc.) ● Other 2 (Teleconferences,On-Line Training)

3. Description of targeted audience

• K-12 youth
• Adult and youth volunteers
• Federal, state, community, and Iowa State University level leaders, collaborations, organizations, and agencies
• Extension and Outreach educators
• K-12 teachers

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of volunteers completing one professional development training per year.
- Number of children and youth who participate in 4-H Afterschool.
- Number of local 4-H partnerships initiated or strengthened.
- Number of 4-H livestock exhibitors certified in Food Safety and Quality Assurance (FSQA).
- Number of unduplicated youth engaged in 4-H learning opportunities.
- Enrollments in 4-H Foods, Nutrition, Physical Health, and Fitness curricula areas.
- Enrollments in 4-H Science, Engineering, and Technology (SET) curricula areas.
- Enrollments in 4-H Citizenship and Leadership curricula areas.
- Enrollments in 4-H Communications and Arts curricula areas.

☑ Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Percentage of youth who self-report they demonstrate healthy and safe eating, food preparation, and physical activity practices by eating more fruits and vegetables, making healthier food choices, using safe techniques when working in the garden, implementing safe methods when preparing food, becoming more physically active, and helping their family make healthy food choices after engaging in 4-H learning experiences.
2	Percentage of 4-H'ers in grades 4 - 6 taking the FSQA certification test who self-report improved techniques and practices in livestock record keeping, medications, food product safety, and ethics.
3	Percentage of youth who self-report they positively strengthened their attitudes/aspirations/interest toward liking science, feeling they are good at science, hoping to have a job related to STEM, doing STEM activities that are not school assignments, thinking science will be important to their futures, and believing science is useful for solving everyday problems after engaging in 4-H STEM learning experiences.
4	Percentage of youth who self-report they demonstrate effective STEM processing skills by asking questions that can be answered by scientific investigation; designing an investigation to answer a question; explaining to others how to do an investigation; explaining why things happen in an investigation; and creating a graph, table, picture, or display to share information with others after engaging in 4-H STEM learning experiences.
5	Percentage of youth who self-report they demonstrate outstanding communication skills by being confident when speaking in front of others, feeling comfortable asking questions, using good listening skills when others are talking, using technology to express ideas, and creating products to share ideas/information after engaging in 4-H learning experiences.
6	Percentage of youth who self-report they demonstrate productive citizenship skills by making a difference in communities through service learning projects, solving "real-life" community problems through service projects, planning service learning projects that meet a community?s needs, and using service learning skills in the future after engaging in 4-H learning experiences.
7	Percentage of youth who self-report they demonstrate effective leadership skills in working with others, listening to others' ideas before making decisions, and handling conflict respectfully after engaging in 4-H learning experiences.
8	Percentage of youth who self-report they demonstrate successful learning skills by creating learning goals, reviewing a variety of resources, analyzing the strengths and weaknesses of different ideas, identifying what needs to change to achieve goals, and applying lessons learned to new experiences after engaging in 4-H educational experiences.

Outcome # 1

1. Outcome Target

Percentage of youth who self-report they demonstrate healthy and safe eating, food preparation, and physical activity practices by eating more fruits and vegetables, making healthier food choices, using safe techniques when working in the garden, implementing safe methods when preparing food, becoming more physically active, and helping their family make healthy food choices after engaging in 4-H learning experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percentage of 4-H'ers in grades 4 - 6 taking the FSQA certification test who self-report improved techniques and practices in livestock record keeping, medications, food product safety, and ethics.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percentage of youth who self-report they positively strengthened their attitudes/aspirations/interest toward liking science, feeling they are good at science, hoping to have a job related to STEM, doing STEM activities that are not school assignments, thinking science will be important to their futures, and believing science is useful for solving everyday problems after engaging in 4-H STEM learning experiences.

2. Outcome Type : Change in Knowledge Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Percentage of youth who self-report they demonstrate effective STEM processing skills by asking questions that can be answered by scientific investigation; designing an investigation to answer a question; explaining to others how to do an investigation; explaining why things happen in an investigation; and creating a graph, table, picture, or display to share information with others after engaging in 4-H STEM learning experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Percentage of youth who self-report they demonstrate outstanding communication skills by being confident when speaking in front of others, feeling comfortable asking questions, using good listening skills when others are talking, using technology to express ideas, and creating products to share ideas/information after engaging in 4-H learning experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Percentage of youth who self-report they demonstrate productive citizenship skills by making a difference in communities through service learning projects, solving "real-life" community problems through service projects, planning service learning projects that meet a community?s needs, and using service learning skills in the future after engaging in 4-H learning experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Percentage of youth who self-report they demonstrate effective leadership skills in working with others, listening to others' ideas before making decisions, and handling conflict respectfully after engaging in 4-H learning experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Percentage of youth who self-report they demonstrate successful learning skills by creating learning goals, reviewing a variety of resources, analyzing the strengths and weaknesses of different ideas, identifying what needs to change to achieve goals, and applying lessons learned to new experiences after engaging in 4-H educational experiences.

2. Outcome Type : Change in Action Outcome Measure

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

1. Availability of funding at the national, state, county, and Iowa State University levels for Extension and Outreach.
2. Changes in national and/or state Extension and Outreach programmatic priorities.
3. Extent of breadth of collaborative partnership development with local, state, national, and university agencies, organizations, and institutions.
4. Lack of alignment and consistent supervision between county and ISU Extension and Outreach staff.
5. Realignment of Iowa 4-H program staff to better align with ISU Extension and Outreach and university K - 12 outreach priorities.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

The Iowa 4-H Youth Development Program has four K - 12 programming priority areas upon which emphasis will be placed over the next several years; STEM, healthy living, citizenship and leadership, and communications and arts. Several National 4-H & Youth Development indicators have been selected corresponding to one core program within each of the four priority areas. Data will be collected on the selected indicators during the upcoming program year as well as indicators that the Iowa 4-H Program has identified related to the constructs of citizenship, leadership, communication, and learning. It is anticipated that data will be collected across a variety of delivery modes including special interest 4-H clubs, statewide programs, and special events. Selected indicators are identified below:

Healthy Living: Outcome Indicators

1. I eat more fruits and vegetables
2. I make healthier food choices
3. When I work in a garden, I am safe and careful
4. When I prepare food to eat, I am safe and careful.
5. I am more physically active
6. I help my family make healthy food choices

Science/STEM: Outcome Indicators

1. I like science
2. I am good at science
3. I would like to have a job related to science, engineering, technology, or math
4. I choose to do science and engineering activities that are not assignments for school
5. I think science will be important in my future
6. Science is useful for solving everyday problems
7. I can ask questions that can be answered by scientific investigation
8. I can design an investigation to answer a question
9. I can explain to others how to do an investigation
10. I can explain why things happen in an investigation
11. I can create a graph, table, picture, or display to share information with others

Universal/Communications: Outcome Indicators

1. I feel confident when speaking in front of others
2. I am comfortable asking questions
3. I use good listening skills when others are talking
4. I can use technology to express my ideas
5. I can create products to share ideas/information

Citizenship/Service Learning: Outcome Indicators

1. I can make a difference in my community through service learning projects
2. I can apply knowledge in ways that solve "real-life" problems through service learning projects
3. I plan to work on service projects to meet a need in my community
4. I gained skills through serving my community that will help me in the future

Leadership: Outcome Indicators

1. I can work together in a team
2. I listen and talk to others before making decisions
3. I can handle conflict respectfully

Learning: Outcome Indicators

1. I can create learning goals
2. I can review a variety of resources related to a topic
3. I can identify the strengths and weaknesses of different ideas, solutions, or approaches
4. I can think about what is going well and what needs to change to achieve goals
5. I can apply what was learned to new experiences