

# 2013 Iowa State University Combined Research and Extension Plan of Work

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## 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 and eggs. Iowa is the fifth largest producer of cattle and in the top dozen for dairy 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 2007, 11.1 percent of Iowa's gross state product came directly from the farm, food-processing, and farm chemical, ethanol, and machine manufacturing sectors; this grows to 17.7 percent if you include the value added from Iowa-produced inputs that went into each of these industries.

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 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 Cooperative Extension Service work together to plan, discover, and deliver science-based knowledge for the benefit of the citizens and stakeholders of Iowa.

The recent national recession resulted in significant cuts to state appropriations to ISU, which 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 2013-2017 is organized under nine broad program areas:

- Youth Development
- Families: Expanding Human Potential
- Community and Economic Development
- **Global Food Security and Hunger**
- Natural Resources and Environmental Stewardship
- **Sustainable Energy** - Biofuels and Biobased Products
- **Food Safety**
- **Childhood Obesity** - Prevention
- **Climate Change**

This five-year, rolling Plan of Work represents a coordinated plan for the more than 300 scientists associated with the Iowa Agriculture and Home Economics Experiment Station (hereafter the Experiment Station) and the more than 150 extension specialists and educators with the ISU Cooperative Extension Service.

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, 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 the fruit of science and technology to Iowans, ISU Cooperative Extension Service is meeting critical needs through the teamwork of campus faculty, a statewide corps of local Extension leaders and specialists, 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 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 both 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
2013	380.0	0.0	150.0	0.0
2014	380.0	0.0	150.0	0.0
2015	380.0	0.0	150.0	0.0
2016	380.0	0.0	150.0	0.0
2017	380.0	0.0	150.0	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,
  - public and private partnerships,
  - an increased focus on outcomes,
  - aggressive funding mechanisms to grow new programs.

**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 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.

**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 were based on input from stakeholder groups and scientists who identified the most critical issues. 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.

**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 lowans and families of incarcerated adults.

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.

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

Some program areas are focused on extension activities and thus the expected outcomes are long-term. Some programs are focused on research activities and thus the

outcomes are more short-term with the expectation that transference of the scientific knowledge will occur through extension programming. Goals for both outputs and impacts have been identified and will be closely monitored for correction.

#### **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.

### **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 a state wide advisory team that is representative of population and stakeholder groups. 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.
  - ISUE 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 under each 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 information in response to their stated needs.

## V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Youth Development
2	Families: Expanding Human Potential
3	Community and Economic Development
4	Global Food Security and Hunger
5	Natural Resources and Environmental Stewardship
6	Sustainable Energy - Biofuels and Biobased Products
7	Food Safety
8	Childhood Obesity - Prevention
9	Climate Change



**V(A). Planned Program (Summary)**

**Program # 1**

**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 five life skill outcomes of leadership, citizenship, communications, personal life management, and knowledge. Staff will work with youth, volunteers, and professionals to plan, implement and evaluate a progressive series of education programs and experiences that work toward multiple life skill outcomes that reach youth over an extended period of time. Staff will model youth-adult partnerships in the 4-H program. Staff will work with state and community organizations and leaders to assist them in creating positive youth development environments that will engage youth in decision-making roles.

**3. Program existence :** Mature (More than 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%	
	<b>Total</b>	100%		100%	

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

**1. Situation and priorities**

Without strong positive youth development programs with caring adults, families, youth, and communities face a host of social problems. Research shows that 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.

**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**

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. 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 a series of 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
2013	47.0	0.0	0.0	0.0
2014	48.0	0.0	0.0	0.0
2015	49.0	0.0	0.0	0.0
2016	49.0	0.0	0.0	0.0
2017	49.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Increase the number of youth members in 4-H clubs with long-term programs across the state.
- Strengthen statewide volunteer management infrastructure.
- Support staffing structure based on curricular team/issues programming.
- Design learning experiences and conduct training for and with staff, volunteers, and community and state partners that contribute to the life skill outcomes of leadership, citizenship, communication, and learning in environments that meet the needs of youth in long-term settings.
  - Build state and community level capacity to ensure policies and programming are based on the principles and practices of positive youth development.
  - Train volunteers working with committees and boards on developing County 4-H Youth Committees.
  - Train staff and state and community partners on best practices in youth curricula development, youth

in governance, youth/adult partnerships, community partnership development, volunteer development, and service learning.

- Train staff and volunteers on how to create positive youth development environments in club, afterschool, camp, and other out-of-school time settings.
- Support online volunteer development training system for 4-H volunteers.
- Assess county enrollment trends and identify barriers that limit enrollment, retention, and participation of youth in club programs.
- Plan multi-faceted marketing infrastructure to communicate positive youth development principles, practices, and programming successes via news releases, brochures, on-line training, radio segments, webinars, etc. with volunteers, staff, community partners, and youth.
- Partner with state and national entities to collect and report afterschool impact data.
- Support afterschool programming in counties with children and youth.
- 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 long-term learning opportunities in the areas of science, citizenship, healthy living, childhood obesity, and food safety.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• Demonstrations</li> <li>• Other 1 (Conferences)</li> <li>• Other 2 (Club Activities, Camps)</li> </ul>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Webinars, Radio, Brochures, Podcast)</li> <li>• Other 2 (Teleconferences, On-Line Training)</li> </ul>

**3. Description of targeted audience**

- K-12 youth
- Adult and youth volunteers
- Federal, state, and community level collaborations, organizations, and agencies
- Extension educators
- K-12 teachers
- Pre-service educators

## 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 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 new clubs developed using innovative and emerging 4-H club models.
  - Number of 4-H livestock exhibitors certified in Food Safety and Quality Assurance (FSQA).
  - Number of 4-H'ers enrolled in Foods, Nutrition, Physical Health, and Fitness project areas.
  - Number of 4-H'ers enrolled in Science, Engineering, and Technology (SET) project areas.
  - Number of 4-H'ers enrolled in Citizenship, Communication, and Leadership project areas.
  - Number of pre-service teachers and educators trained in Connecting Learning & Living Curricula on connecting youth with MyPyramid concepts and understanding the origins of food.
  - Number of youth reached by educators trained in Connecting Learning & Living Curricula (agriculture, environmental, food, and nutrition emphasis).
- 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 pre-service teachers and educators who participate in CLL training will self-report a 1 to 3-point increase in confidence/knowledge in teaching MyPyramid concepts and the origins of food.
2	As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge of the MyPyramid and making healthy food choices.
3	As reported by educators, percentage of youth participating in CLL lessons who made healthy food choices; tried new foods; and made healthier food choices during snacks, lunch, and class parties.
4	As reported by educators, percentage of youth participating in CLL lessons who increased their knowledge regarding growing food from plants.
5	As reported by educators, percentage of youth gardeners participating in CLL lessons who improve their vegetable consumption.
6	Percentage of 4-H'ers in grades 6 - 12 taking the FSQA certification test who self-report improved techniques and practices in livestock record keeping, medications, food product safety, and ethics.
7	Percentage of youth who participated in Iowa 4-H STEM programs who self-reported an increase in STEM process skills necessary to be successful in STEM courses and careers.
8	Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate outstanding communication skills in sending and receiving written, visual, and oral messages after being engaged in 4-H club experiences.
9	Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate productive citizenship skills by being fair and trustworthy, identifying community needs, organizing service learning projects, and participating in community issues after being engaged in 4-H club experiences.
10	Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate effective leadership skills in working with others, listening to others' ideas, sharing one's own ideas, and handling conflict respectfully after being engaged in 4-H club experiences.
11	Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate successful learning skills by creating project learning goals, analyzing the strengths and weaknesses of different ideas, using time efficiently, and applying lessons learned to new experiences after being engaged in 4-H club experiences.

**Outcome # 1**

**1. Outcome Target**

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

**2. Outcome Type :** Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

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

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

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

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

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

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 5**

**1. Outcome Target**

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

**2. Outcome Type** : Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 6**

**1. Outcome Target**

Percentage of 4-H'ers in grades 6 - 12 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
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Percentage of youth who participated in Iowa 4-H STEM programs who self-reported an increase in STEM process skills necessary to be successful in STEM courses and careers.

**2. Outcome Type :** Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 8**

**1. Outcome Target**

Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate outstanding communication skills in sending and receiving written, visual, and oral messages after being engaged in 4-H club experiences.

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research



**Outcome # 9**

**1. Outcome Target**

Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate productive citizenship skills by being fair and trustworthy, identifying community needs, organizing service learning projects, and participating in community issues after being engaged in 4-H club experiences.

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 10**

**1. Outcome Target**

Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate effective leadership skills in working with others, listening to others' ideas, sharing one's own ideas, and handling conflict respectfully after being engaged in 4-H club experiences.

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 11**

**1. Outcome Target**

Percentage of youth from randomly selected 4-H clubs who self-report they demonstrate successful learning skills by creating project learning goals, analyzing the strengths and weaknesses of different ideas, using time efficiently, and applying lessons learned to new experiences after being engaged in 4-H club experiences.

**2. Outcome Type :** Change in Action Outcome Measure

### **3. Associated Knowledge Area(s)**

- 806 - Youth 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
- Competing Public priorities
- Competing Programmatic Challenges

#### **Description**

1. Availability of funding at the national, state, and local county levels for Extension and Outreach.
2. Changes in national and/or state Extension programmatic priorities.
3. Extent of breadth of collaborative partnership development with local, state, and national agencies, organizations, and institutions.
4. Ongoing Iowa State University Extension and Outreach reorganization including the merger of the Families and 4-H Extension and Outreach units and lack of alignment and consistent supervision between county and ISU Extension and Outreach staff.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

#### **• Iowa 4-H Program Evaluation and Research Project**

The primary objective of the Iowa 4-H Program Evaluation and Research study is to determine the effectiveness of Iowa 4-H programming in assisting young people in gaining and demonstrating life skills in the content areas of citizenship, leadership, communication, and learning. The procedure for selecting 4-H club members to participate in the project includes using a random number generator in conjunction with the Iowa State 4-H Office's 4-H Online database to randomly select 2 - 3 counties from each of Iowa State University Extension and Outreach's 4-H Regions (1-21); a total of 50 counties were randomly selected. From the randomly selected counties, 4-H clubs existing within those counties were randomly assigned numbers. The 4-H club randomly assigned the smallest number was selected to have its 4-H club members participate in the project.

The measurement instrument used for this program evaluation/research project is the Iowa 4-H Youth Citizenship, Leadership, Communication, and Learning Self-Assessment. The self-assessment tool is a

post-pre survey that allows 4-H club members to rate their behavior/practices on a 1 - 5 rating scale (1 = not at all and 5 = great deal) in the life skill areas of citizenship, leadership, communication, and learning; see outcomes #8 - #11. 4-H club members are asked to rate their behavior/practices related to each of the citizenship, leadership, communication, and learning statements after participating in 4-H. Once completed, the 4-H club members are then asked to rate their behavior/practices related to each of the same citizenship, leadership, communication, and learning statements, but this time rate their behavior/practices prior to participating in 4-H. It is estimated that 500 4-H club members will complete the self-assessment.

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

A multi-method research approach will be used for this research study, with both qualitative and quantitative methods used as appropriate. The multi-method research approach for this project includes three primary components: (a) youth and adult stakeholder interviews (b) surveys of community members, and (c) document review. Information obtained in the interviews and in surveys of community members will be enriched through the review of various documents prepared by the 4 H Programs and 4 H participants. Together these research methods will provide a more comprehensive view of the 4 H Program and its impacts on social capital than one approach alone.

## **V(A). Planned Program (Summary)**

### **Program # 2**

#### **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 exercise, nutrition, assured access to healthy, safe food for all Iowans on a regular basis, and the ability to manage and plan for personal and family finances. Iowa is changing -- significant increase in older adults and racial and ethnic diversity. Iowans support working collaboratively at the community level to impact public issues such as obesity, poverty, food insecurity, economic development, 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 health consequences brought about by unhealthy lifestyles (e.g., extreme stress, overweight, obesity, physical inactivity), and inadequate and unsafe food handling 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, adopting healthy 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.

Iowans are practicing behaviors that lead to a high risk of chronic disease including heart disease, diabetes, and certain types of cancer that can lead to disability. Behavioral Risk Factor Surveillance System (BRFSS) data suggest less than 20% of adult Iowans consume the recommended servings of fruits and vegetables and only 52% are performing regular exercise meeting national recommendations. Nutrition and health programs will be offered in every major community and most counties in Iowa. Programs will focus on improving nutrition education and behavior to reduce negative health consequences brought about by overweight, obesity and inactivity. Programs will be directed to professionals, volunteers, community leaders, individuals and families through multiple delivery methods. Direct delivery methods include educational classes, workshops, discussions, webinars, one-on-one interventions, and hotlines. Indirect delivery methods included public service announcements, billboards, newsletters, radio/television media programs and websites. Expanded Food and Nutrition Education and Food Stamp Nutrition Education Programs deliver basic nutrition information utilizing paraprofessional educators to qualifying low-income Iowans. The Iowa EFNEP and FNP program are administered through Extension and Outreach to Families and 4-H Youth Development, with partnership and support of Extension faculty. Audiences 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. The LIFE Program is piloting a community-based, intergenerational exergaming program for older adults in rural senior centers. Professional development for food and nutrition professionals is delivered via Current Issues in Nutrition webinar which reaches domestic and international participants.

**3. Program existence :** Mature (More than 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
607	Consumer Economics	0%		10%	
703	Nutrition Education and Behavior	20%		25%	
704	Nutrition and Hunger in the Population	5%		0%	
801	Individual and Family Resource Management	20%		25%	
802	Human Development and Family Well-Being	50%		29%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%		6%	
805	Community Institutions, Health, and Social Services	5%		5%	
	<b>Total</b>	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. 88 of Iowa's 99 counties in 2030 will have more than 20% of their population age 65 and older. Iowa has experienced reduced academic achievement, and increases in food insecurity, 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 yrs that have all parents in work force. An estimated 75% of Iowa children ages 0-5 are in childcare, much of it unregulated, home-based child care.

93% of teens and young adults go online, 56% of youth report being bullied at school, and 45% of Iowa youth report living in a supportive neighborhood. Billions of dollars 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.

The Centers for Disease Control and Prevention recommend efforts to prevent and control obesity target the following areas based on the best available evidence: (Dietz, 2008; CDC, 2009):

- Increase physical activity
- Decrease television viewing
- Increase the consumption of fruits and vegetables
- Decrease the consumption of sugar-sweetened beverages
- Reduce the consumption of high energy-dense foods (high calorie foods)
- Increase breastfeeding initiation, duration, and exclusivity

Obesity among adult lowans has more than doubled between 1980 and 2002 regardless of gender, age and ethnicity. Among lowans in 2009, 67.2% of all adult lowans are either overweight or obese, 38.7% were overweight and 28.5% were obese. This represents a 36% increase between 1979 and 2009, compared to the national increase of 32%.

Undesirable dietary and physical activity behaviors are contributing to the obesity epidemic. Americans are consuming an average of 2,700 calories daily, about 500 calories more than 40 years ago. BRFSS data (2009) suggest less than 20% of adult lowans consume the recommended servings of fruits and vegetables on a daily basis. Substantial evidence links overweight and obesity with the consumption of sugar-sweetened soda or fruit drinks, which account for an estimated 8-9% of the energy intake among adults. Adult lowans drink an average of 4.3 glasses of sugar sweetened beverages weekly.

Less than half of all adult lowans are performing physical activity which meets national recommendations (BRFSS, 2009). Technological advances have decreased physical activity among all age groups. The average amount of time adult lowans engage in watching television, playing video games or computer work (outside of work) is 2.7 hours each day; the median is two hours. Almost 6 percent (i.e., 5.8%) engaged in such activities never or less than daily, while 0.8 percent responded twelve or more hours each day. Adults watching more than two hours of television per day have been shown to consume an additional 137 calories and were at higher risk for overweight and obese.

Collectively, these undesirable behaviors lead to a high risk of chronic disease including heart disease, diabetes, and certain types of cancer that can lead to disability and death. These chronic diseases not only exert a financial strain (healthcare and worker productivity), but decrease longevity and quality of life.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- 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 can use an empowering approach to manage critical issues facing them.
- Diversity enhances our culture and supports economic vitality.
- Public policy can enhance community vitality.
- Continued resources and funding can be secured to support these nutrition programs.

- National focus on overweight/obesity and greater public awareness will continue to mobilize communities to adopt behaviors that combat overweight/obesity.
- Education improves individual, family, community and environmental health.
- Research/evidence-based information produces expected outcomes.
- Federal and state legislation and policy will continue to support health promoting environments.

**2. Ultimate goal(s) of this Program**

Individuals, families, and community institutions work collaboratively to improve quality of life through family development and slow or stop increasing rates of adult overweight and obesity through nutrition education, promotion of physical activity opportunities and community advocacy for health promoting nutrition, physical activity and food availability.

**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
2013	55.0	0.0	7.1	0.0
2014	55.0	0.0	7.1	0.0
2015	55.0	0.0	7.1	0.0
2016	55.0	0.0	7.1	0.0
2017	55.0	0.0	7.1	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, and other educational resources for use in training, technical assistance, and facilitation of community advocacy.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Blogs)</li> <li>• Other 2 (eXtension CoPs:finance/parenting)</li> </ul>

### 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, food service managers, food processors, 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.
- Number of adults who participate in programs on food, nutrition, and health.
- Number of youth participants in programs on food, nutrition, and health.
- Number of professionals participating in education programming related to nutrition, physical activity, and health promotion.
- 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	Number of professionals trained to assist families (certification programs).
3	Number of early child care programs improving learning environments and teaching strategies.
4	Number of participants better able to manage later life issues.
5	Number of communities who report taking action to address public issues related to improving circumstances for children, youth and families at risk.
6	Percent of worksite wellness program participants progressing towards action/maintenance according to the "Stages of Change" relative to fruit and vegetable intake.
7	Percent of worksite wellness program participants progressing towards action/maintenance according to the "Stages of Change" relative to physical activity.
8	Percent of adult EFNEP/FNP graduates increasing minutes of physical activity.
9	Percent of adult EFNEP/FNP graduates who made a positive change in one or more nutrition practices.
10	Percent of adult EFNEP/FNP graduates who made a positive change in food resource management skills such as not running out of food.
11	Percent of individuals improving personal and family financial management skills.
12	Percent of individuals making progress toward financial goals.
13	Percent of professionals or volunteers who are better prepared to apply or teach financial management skills.

**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**

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

**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**

Number 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**

Number of participants 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

**Outcome # 6**

**1. Outcome Target**

Percent of worksite wellness program participants progressing towards action/maintenance according to the "Stages of Change" relative to fruit and vegetable intake.

**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
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Percent of worksite wellness program participants progressing towards action/maintenance according to the "Stages of Change" relative to physical activity.

**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
- 1862 Research

**Outcome # 8**

**1. Outcome Target**

Percent of adult EFNEP/FNP graduates increasing minutes of physical activity.

**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 # 9**

**1. Outcome Target**

Percent of adult EFNEP/FNP graduates who made a positive change in one or more nutrition 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 # 10**

**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)**

- 704 - Nutrition and Hunger in the Population

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 11**

**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

**Outcome # 12**

**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

**Outcome # 13**

**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

**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 resources of time and transportation. Federal and state legislation continues to impact appropriations and policy for nutrition and health programming initiatives. In this state, a grocery store chain has begun employing Registered Dietitians in stores throughout the state (currently 100). This trend has created competition for programming in rural communities that had been traditionally served by ISU Extension and Outreach staff. Healthcare reform will also modify the landscape for programming in this plan of work; additional opportunities in preventive health care may be available for ISU Extension and Outreach. Increasing interest in indirect delivery methods continue for individuals and work organizations. Educational materials are available on the Spend Smart, Eat Smart website and Nutrition and Health website. Extension in this state continues to experience loss of staff, which also fuels 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 ethnic 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. Strengthening Families Program for Parents and Youth 10-14 years will conduct retrospective post then pretests with parents and youth. Post training observational assessment for Early Childhood Environment rating scale training to measure impact of quality improvements will be conducted. A post training survey of participants in Powerful Tools for Caregiver training program will take place. Case studies of Horizons and CYFAR communities will be documented.

In addition, this state plan of work has identified and implemented priority programming. Priority 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. To evaluate priority programs online surveys are capturing evaluation/impact data. For nutrition education and wellness programs, participants of the worksite wellness program *Stage of Change* will report fruit/vegetable intake and physical activity. The LIFE Program evaluation research project is piloting a community-based, intergenerational exergaming program for older adults in seven rural senior centers. Quantitative and qualitative measures will assess program benefit/impact specifically functional limitations, functional fitness (Senior Fitness Test), readiness to change for physical activity, and quality of life. EFNEP continues to collect required pre/post data for federal reports.



## **V(A). Planned Program (Summary)**

### **Program # 3**

#### **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; which 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.

**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.

**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.

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 than 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

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
608	Community Resource Planning and Development	100%		100%	
	<b>Total</b>	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 the growing bioeconomy, 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. Problems during the election process continue to occur throughout the country as more and more precincts develop new procedures and adopt new technology. 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**

**The Bioeconomy**

Helping communities to adjust and benefit from the changing bioeconomy -- the development of the biofuels industry, wind-generated energy, and other sustainable energy sources.

**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 the election process, 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.

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.

County and state election officials are committed to ensuring that Iowa elections continue to reflect "good government" values of Iowans. Iowa municipal employees must also deal with constantly changing legislation and procedures. Evidence supporting this assumption is the popularity of the Precinct Election Officials (PEO) certification training and the Iowa Municipal Professionals Institute offered by ISU Extension Office of State and Local Government Programs. More than 4,200 elections officials were certified from 2006 through 2008. 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 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. Extension and the College of Design established two satellite facilities that are bringing outreach services directly to the public. Studios at ISU Design West in Sioux City have resulted in new bus stops in Sioux City and cabins for a South Sioux City park. 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 the bioeconomy, housing, and aging.

## **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, 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.

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 Web site, and a data services program that includes ReCAP (Regional Capacity Analysis Program), Take Charge and STATCOMM.

**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
2013	25.0	0.0	5.1	0.0
2014	25.0	0.0	5.1	0.0
2015	25.0	0.0	5.1	0.0
2016	25.0	0.0	5.1	0.0
2017	25.0	0.0	5.1	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
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● Web sites other than eXtension</li> </ul>

**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**

<b>O. No</b>	<b>Outcome Name</b>
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, biofuels and the rural economy, and elder-friendly communities, housing policy, 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 # 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 than 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

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
102	Soil, Plant, Water, Nutrient Relationships	15%		0%	
131	Alternative Uses of Land	4%		0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		5%	
202	Plant Genetic Resources	0%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		6%	
204	Plant Product Quality and Utility (Preharvest)	0%		3%	
205	Plant Management Systems	11%		3%	
212	Pathogens and Nematodes Affecting Plants	2%		12%	
216	Integrated Pest Management Systems	9%		4%	
301	Reproductive Performance of Animals	4%		1%	
302	Nutrient Utilization in Animals	4%		12%	
303	Genetic Improvement of Animals	4%		22%	
305	Animal Physiological Processes	0%		12%	
311	Animal Diseases	0%		6%	
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%		5%	
601	Economics of Agricultural Production and Farm Management	10%		1%	
602	Business Management, Finance, and Taxation	9%		1%	
603	Market Economics	8%		2%	
	<b>Total</b>	100%		100%	

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

## 1. Situation and priorities

ISU and ISU Extension's agricultural programs address and enhance the economic and human health priorities of Iowa. Iowa's economy is heavily dependent upon agriculture as the state ranks fifth and third in the nation the share of gross state product generated by farming and agricultural processing,

respectively (Imerman, Mark, David Swenson, Liesl Eathington and Daniel Otto. The Economic Importance of Agri-Food Industries in Iowa. Department of Economics, Iowa State University, Ames, Iowa 50011. 9/16/05). 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 and ISU Extension and Outreach programs also address emerging socio-economic 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. 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. 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 about 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. Alongside this well-established traditional agricultural infrastructure is a burgeoning regional

foods production and distribution system. This system is increasing market opportunity for existing farmers, creating opportunities for new farms and support services, and creating health awareness as well as local community economic activity. Regional food systems are valued by communities because of increased job growth and quality of life in communities with increased local food production. Iowa State University is a leader in research discovery in production, processing, marketing and risk management of agricultural commodities. 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. Additionally, the 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, and
  - to conduct profitable agricultural practices while at the same time protecting natural resources.

**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
2013	75.6	0.0	73.0	0.0
2014	75.6	0.0	73.0	0.0
2015	75.6	0.0	73.0	0.0
2016	75.6	0.0	73.0	0.0
2017	75.6	0.0	73.0	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.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> <li>• Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (radio)</li> </ul>

**3. Description of targeted audience**

Agricultural producers 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 have expressed a strong interest in buying more locally produced food products. Farmers and businesses alike will face new questions and challenges as they conduct more business-to-business transactions, buy in smaller lots and sell closer to the consumer. Extension can meet their needs through applied research and engaged learning opportunities. Consumers' lifestyles today, both adults and youth, promote inactivity and poor diet choices. Education and research-based information about healthy lifestyles will be covered in this program, as will access to and the importance of fresh fruits and vegetables.

## 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 increased efficiencies or increases in yield/unit.
- Adoption of BMP resulting in increased yields, reduced inputs, increased efficiency, increased economic return, and conservation of resources.
- Number of producers indicating adoption of recommended practices.
- Number of producers reporting reduction in fertilizer used/acre.
- Number of producers reporting increased dollar returns per acre or reduced costs per acre.
- Number of acres in conservation tillage or other BMP.
- Number of producers (and other members of the food supply chain) that have increased revenue.
- Percent of privately owned agricultural acreage retained during landowner succession due to educational interventions.
- Number of producers or agribusiness professionals who gained knowledge in safe pesticide application through pest management recommendations.



- 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) or increases in yield/unit - (bushels/acre; lbs product (meat, protein, milk) per animal; lbs feed per gain).
2	Adoption of best practices and technologies resulting in increased yields, reduced inputs, increased efficiency, increased economic return, and conservation of resources.
3	Number of producers indicating adoption of recommended practices.
4	Number of producers reporting reduction in fertilizer used/acre.
5	Number of producers reporting increased dollar returns per acre or reduced costs per acre.
6	Number acres in conservation tillage or other BMPs.
7	Number of farmers and agribusiness professionals who gain knowledge in safe pesticide application through pest management recommendations.
8	Number of farmers or agribusiness professionals who increase profitability or decrease input costs by adopting nutrient management recommendations.
9	Number of producers (and others in the food supply chain) that have increased revenue.
10	Percent of privately owned agricultural acreage retained during landowner succession due to educational intervention.

**Outcome # 1**

**1. Outcome Target**

Number of increased efficiencies \_\_\_\_\_ (i.e. (% pregnant) or increases in yield/unit - (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**

Adoption of best practices and technologies resulting in increased yields, reduced inputs, increased efficiency, increased economic return, and conservation of resources.

**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

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**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 # 4**

### **1. Outcome Target**

Number of producers reporting reduction in fertilizer used/acre.

### **2. Outcome Type : Change in Action Outcome Measure**

### **3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 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 # 5**

### **1. Outcome Target**

Number of producers reporting increased dollar returns per acre or reduced costs per acre.

### **2. Outcome Type : Change in Action Outcome Measure**

### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants

- 216 - Integrated Pest Management Systems
- 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 # 6**

**1. Outcome Target**

Number acres in conservation tillage or other BMPs.

**2. Outcome Type** : Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 202 - Plant Genetic Resources
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 405 - Drainage and Irrigation Systems and Facilities
- 601 - Economics of Agricultural Production and Farm Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Number of farmers and agribusiness professionals who gain knowledge in safe pesticide application through pest management recommendations.

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 8**

**1. Outcome Target**

Number of farmers or agribusiness professionals who increase profitability or decrease input costs by adopting nutrient management recommendations.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 9**

**1. Outcome Target**

Number of producers (and others in the food supply chain) that have increased revenue.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

## **Outcome # 10**

### **1. Outcome Target**

Percent of privately owned agricultural acreage retained during landowner succession due to educational intervention.

### **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**

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 than 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

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
101	Appraisal of Soil Resources	6%		0%	
102	Soil, Plant, Water, Nutrient Relationships	11%		18%	
111	Conservation and Efficient Use of Water	5%		3%	
112	Watershed Protection and Management	6%		9%	
121	Management of Range Resources	0%		2%	
123	Management and Sustainability of Forest Resources	5%		0%	
124	Urban Forestry	0%		2%	
125	Agroforestry	5%		0%	
131	Alternative Uses of Land	6%		4%	
132	Weather and Climate	5%		8%	
133	Pollution Prevention and Mitigation	6%		8%	
134	Outdoor Recreation	0%		9%	
135	Aquatic and Terrestrial Wildlife	5%		17%	
136	Conservation of Biological Diversity	5%		13%	
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%	
	<b>Total</b>	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 (NH<sub>3</sub>, NO<sub>x</sub>, N<sub>2</sub>O), 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
2013	35.5	0.0	15.4	0.0
2014	35.5	0.0	15.4	0.0
2015	35.5	0.0	15.4	0.0
2016	35.5	0.0	15.4	0.0
2017	35.5	0.0	15.4	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.
  - Identify site specific strategies and facilitate the implementation of these strategies to improve air quality and address related concerns, 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**

<b>Direct Methods</b>	<b>Indirect Methods</b>
-----------------------	-------------------------

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>● Education Class</li><li>● Workshop</li><li>● Group Discussion</li><li>● One-on-One Intervention</li><li>● Demonstrations</li></ul> | <ul style="list-style-type: none"><li>● Public Service Announcement</li><li>● Newsletters</li><li>● Web sites other than eXtension</li><li>● Other 1 (radio)</li></ul> |
|--|--|

### 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.
  - Number of producers that participate in programming directly focused on increasing the number of livestock production sites that adopt practices that reduce impacts to air resources.
  - Number of acres where the adoption of conservation practices was implemented.
  - Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run off and preserving ground water quality.
  - Number of Iowa citizens who participate in learning activities that focus on improving water quality and quantity.
- 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 participate in programming directly focused on increasing the number of livestock production sites that adopt practices that reduce impacts to air resources.
2	Number of acres where the adoption of conservation practices was implemented.
3	Number of producers increasing the efficiency of manure and crop nutrient utilization while minimizing surface run off and preserving ground water quality.
4	Number of Iowa citizens who participate in learning activities that focus on improving water quality and quantity.



**Outcome # 1**

**1. Outcome Target**

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

**2. Outcome Type :** Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 133 - Pollution Prevention and Mitigation
- 141 - Air Resource Protection and Management
- 403 - Waste Disposal, Recycling, and Reuse

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of acres where the adoption of 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 # 3**

#### **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

### **Outcome # 4**

#### **1. Outcome Target**

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

**2. Outcome Type** : Change in Knowledge 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
- 134 - Outdoor Recreation
- 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

### **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 # 6**

#### **1. Name of the Planned Program**

Sustainable Energy - Biofuels and Biobased Products

#### **2. Brief summary about Planned Program**

Agriculture is undergoing a revolution -- agriculture is now being called upon to produce fuels, energy, industrial chemicals and materials, without compromising our abilities 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

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
101	Appraisal of Soil Resources	0%		12%	
102	Soil, Plant, Water, Nutrient Relationships	8%		23%	
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%		9%	
205	Plant Management Systems	5%		8%	
206	Basic Plant Biology	0%		6%	
302	Nutrient Utilization in Animals	8%		0%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%		6%	
402	Engineering Systems and Equipment	8%		1%	
403	Waste Disposal, Recycling, and Reuse	8%		0%	
404	Instrumentation and Control Systems	0%		4%	
511	New and Improved Non-Food Products and Processes	8%		15%	
601	Economics of Agricultural Production and Farm Management	8%		0%	
602	Business Management, Finance, and Taxation	8%		0%	
603	Market Economics	0%		8%	
605	Natural Resource and Environmental Economics	7%		0%	
610	Domestic Policy Analysis	0%		8%	
	<b>Total</b>	100%		100%	

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

## 1. Situation and priorities

Agriculture is undergoing a revolution -- agriculture is now being called upon to produce fuels, energy, industrial chemicals and materials, without compromising our abilities 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
2013	5.6	0.0	10.4	0.0
2014	5.6	0.0	10.4	0.0
2015	5.6	0.0	10.4	0.0
2016	5.6	0.0	10.4	0.0
2017	5.6	0.0	10.4	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 potential for 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
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (radio)</li> </ul>

**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 acres of biomass harvested.
  - 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 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 # 7**

#### **1. Name of the Planned Program**

Food Safety

#### **2. Brief summary about Planned Program**

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 food services. 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.

**3. Program existence :** Mature (More than 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

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
307	Animal Management Systems	0%		10%	
308	Improved Animal Products (Before Harvest)	0%		10%	
315	Animal Welfare/Well-Being and Protection	0%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	25%		0%	
703	Nutrition Education and Behavior	10%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%		4%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%		47%	
723	Hazards to Human Health and Safety	20%		19%	
	<b>Total</b>	100%		100%	

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

## 1. Situation and priorities

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 food safety outreach programs -- direct and indirect delivery.
  - 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 increases knowledge and influences attitudes, which can lead to behaviors consistent with recommended safe food handling practices.
  - Multiple communication methods and styles will be necessary to address changing demographics in Iowa and the U.S.

**2. Ultimate goal(s) of this Program**

- Reduce the number of reported foodborne illnesses and 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.
  - Successful certification of meat plant personnel to meet HACCP compliance requirements.

**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
2013	20.7	0.0	4.4	0.0
2014	20.7	0.0	4.4	0.0
2015	20.7	0.0	4.4	0.0
2016	20.7	0.0	4.4	0.0
2017	20.7	0.0	4.4	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct workshops and facilitate meetings. Workshops include ServSafe® Certification food safety, food preservation, HACCP implementation and GAPS preparation.
- Develop food safety educational materials and resources, such as 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 respond to specific questions related to application of food safety principles.
- Provide certification training and technical assistance in the dairy, beef and swine industries.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Blogs)</li> <li>• Other 2 (SafeFood Fairs)</li> </ul>

**3. Description of targeted audience**

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 lowans receiving food safety certification.
- Number of adult participants in Extension programs on food safety.
- Number of hits on Iowa State University Extension food safety project websites.
- 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 people receiving food safety certification.
2	Percent of adult EFNEP/FNP graduates with a positive change in food safety practices.
3	Number of individuals who learn about prevention, detection, control and intervention technologies.
4	Number of growers, producers, and food workers completing GAPS, GMPS, HACCP, food safety certification and on farm BMP programs to increase food safety.
5	Number of food handlers receiving food safety training and education in safe food practices.

**Outcome # 1**

**1. Outcome Target**

Number of people receiving food safety certification.

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 2**

**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 # 3**

**1. Outcome Target**

Number of individuals who learn about prevention, detection, control and intervention technologies.

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 4**

##### **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)**

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection

##### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 5**

##### **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)**

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 703 - Nutrition Education and Behavior

##### **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 (outbreaks; food recalls)

#### **Description**

Economic constraints continue to influence program planning and participation rates. Citizens and organizations may wish to participate in programs but lack resources of time and transportation. 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. Increasing interest in indirect delivery methods continue for individuals and work organizations. Several of the educational materials available via the food safety project website are in Spanish and/or limited text, such as the new Flash animations about proper glove use and handwashing posters. The diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to ethnic cultures. Younger generations expect new technology such as iPhone apps. Extension in this state continues to experience loss of staff. Reductions in staff are also fueling the demand for more programming via technology. 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 priority programming. Priority programming criteria included timeliness, relevance, uniqueness (services not offered by other organizations), sequential, and impact. Two priority programs in food safety were identified: 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 # 8**

#### **1. Name of the Planned Program**

Childhood Obesity - Prevention

#### **2. Brief summary about Planned Program**

Audiences 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. A series of nutrition lessons to youth from low-resource elementary schools and neighborhood centers will be taught by ISUE staff. Parent newsletters, nutrition education displays during parent-teacher meetings and conferences, and nutrition presentations to parent groups as appropriate will be used to convey nutrition messages to the parents. 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 have the opportunity to develop and implement farm to school programs throughout the state. Finally, childcare providers statewide will have the opportunity to receive training for state licensure and Child and Adult Care Food Program certification.

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.

**3. Program existence :** Mature (More than 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
703	Nutrition Education and Behavior	75%		95%	
704	Nutrition and Hunger in the Population	25%		5%	
	<b>Total</b>	100%		100%	

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

**1. Situation and priorities**

Childhood obesity has been declared the most pressing health concern in the country as rates doubled from 1980 to 2000. WIC data suggests overweight/obesity in Iowa will outpace the national average. In 1984, only 7.1% of children two years and older were overweight while in 2008, 32.1% of children between 2 and 5 years of age were overweight or obese, 14.6% were obese and 17.5% were overweight. 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 indicate that 13.5% of Iowa youth are overweight, while 11.3% are obese.

Obesity among youth increases the risk of developing chronic diseases such as type 2 diabetes, hypertension, cardiovascular disease, and joint disorders. These chronic diseases among youth not only exert a financial strain (healthcare and worker productivity), but decrease longevity and quality of life.

Fruits and Vegetables

Data from CDC's National Youth Risk Behavior Survey<sup>1</sup> (YRBSS) were compared from 1991 to 2007. In Iowa, just 19.8% (down from 29%) of children in grades 9-12 reported eating five servings of fruits and vegetables in 2007. 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  $p = .01$ ).

Physical Activity and Television Time

Just over 50% of Iowa youth reported being physically active for a total of 60 minutes or more per day on five or more of the past seven days: females 49.9%, males 56.9%.

Sedentary activities such as watching television or videos and using computers have been noted as a factor affecting childhood obesity. Television may be the most important factor as it is easy to engage in eating while watching television. In the 2005 Iowa Child and Family Household Health Survey, 90% of Iowa children who watched some television daily watched an average of two hours. Among older youth responding to the Youth Risk Behavior Survey in 2005, 29% reported watching three or more hours per day of television on an average school day.

<sup>1</sup>Centers for Disease Control and Prevention (CDC). *Youth Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- 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 programs.
- National focus on overweight/obesity and greater public awareness will continue to mobilize communities to adopt behaviors that combat overweight/obesity.
- Education improves individual, family, community, and environmental health.
- Research/evidence-based information produces expected outcomes.

**2. Ultimate goal(s) of this Program**

Slow or stop increasing rates of childhood overweight and obesity through nutrition education, promotion of physical activity opportunities, and community advocacy for health promoting nutrition, physical activity, and food availability.

**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
2013	5.0	0.0	1.4	0.0
2014	5.0	0.0	1.4	0.0
2015	5.0	0.0	1.4	0.0
2016	5.0	0.0	1.4	0.0
2017	5.0	0.0	1.4	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct workshops and meetings.
- Develop products, curriculum, and other educational resources.
- Provide training and technical assistance.
- Facilitate community advocacy.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Other 1 ((Team Nutrition training))</li> </ul>	<ul style="list-style-type: none"> <li>● Newsletters</li> <li>● Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

School aged youth, child care providers, school staff and other adult mentors of youth.

**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 professionals who impact youth receiving training related to nutrition, physical activity and health promotion for youth.

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**

<b>O. No</b>	<b>Outcome Name</b>
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.

**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

**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

**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

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **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

#### **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

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Economy
- Appropriations changes
- 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 resources of time and transportation. Federal and state legislation continues to impact appropriations and policy for EFNEP, SNAP-ed, and school health programs/environments. 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. Extension in this state continues to experience loss of staff further fueling the demand for more programming via technology. Finally, the diversity of the population in Iowa continues to change and challenges programming efforts that are sensitive to ethnic cultures.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

This state plan of work has identified and implemented priority programming. Priority 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. To evaluate priority programs (i.e. childcare training), online surveys are capturing evaluation/impact data. Childcare training results suggest more than 7% of participants felt prepared to apply of teach health promoting dietary behaviors. Live Healthy Iowa continues to monitor self-reports of health behaviors including dietary intake and physical activity; 70% and 47% of participants reported desirable change in dietary intake and physical activity respectively. EFNEP continues to collect required pre/post data for federal reports.

## **V(A). Planned Program (Summary)**

### **Program # 9**

#### **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. Recent flooding along the Missouri River has degraded a substantial number of production acreage and will require long-term recovery. 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 :** New (One year or less)

**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%		11%	
202	Plant Genetic Resources	0%		43%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		12%	
303	Genetic Improvement of Animals	0%		4%	
605	Natural Resource and Environmental Economics	25%		0%	
608	Community Resource Planning and Development	10%		0%	
	<b>Total</b>	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
2013	4.2	0.0	4.1	0.0
2014	4.2	0.0	4.1	0.0
2015	4.2	0.0	4.1	0.0
2016	4.2	0.0	4.1	0.0
2017	4.2	0.0	4.1	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Priorities for 2013-2017 will be to assist farmers and landowners in reclaiming flood-degraded soils and adapting to the impacts of extreme weather fluctuations on crop and livestock production.

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

<b>Extension</b>	
<b>Direct Methods</b>	<b>Indirect Methods</b>
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (webinars)</li> </ul>	<ul style="list-style-type: none"> <li>● Web sites other than eXtension</li> </ul>

**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. One particular audience will be farmers and landowners who are returning flooded soils to production through adaptation of science-based reclamation strategies.

**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.
  - Number of acres under recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands.
  - Of the \_\_\_\_\_ number of participants, the number that adopt recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, wetlands.
  - Number of producers and landowners who adopt BMPs after severe flooding.
- 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 under recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, & wetlands.
2	Of the _____ number of participants, the number that adopt recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, & wetlands.
3	Number of producers and landowners who adopt BMPs after severe flooding.

**Outcome # 1**

**1. Outcome Target**

Number of acres under recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, & wetlands.

**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**

Of the \_\_\_\_\_ number of participants, the number that adopt recommended adaptation strategies for production agriculture and natural resources management, including invasive species, pest management, pollutant loads, & wetlands.

**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 # 3**

#### **1. Outcome Target**

Number of producers and landowners who adopt BMPs after severe flooding.

#### **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.

### **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.