

# 2015 South Dakota State University Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 05/05/2014

## I. Plan Overview

### 1. Brief Summary about Plan Of Work

The College of Agriculture and Biological Sciences at South Dakota State University accomplishes its mission in part through many great partnerships. It starts with the South Dakota Agricultural Experiment Station and SDSU Extension, with research, teaching and outreach making life better for all South Dakotans. The partnerships with government entities, commodity organizations, 4-H, and private industry all contribute enormously to creating opportunity and to better serve the people of the state. SDSU's College of Agriculture and Biological Sciences and the College of Education and Human Sciences work closely together to provide important programs in food science and research.

SDSU Extension and the South Dakota Agricultural Experiment Station achieve their goals with researchers and state specialists located on the SDSU campus in Eastern South Dakota, eight regional centers operating across the state with field specialists, and six research field stations. Outreach is also achieved with three Federally Recognized Tribal Extension Program offices, and the West River Agricultural Center representing the Western part of South Dakota. 4-H Youth Development begins on campus with the South Dakota State 4-H Office and has 4-H field specialists in the regional centers and 4-H youth advisors in county owned offices. Additionally, iGrow is SDSU Extension's teaching platform to deliver valuable information to the online community.

South Dakota State University uses the following Planned Programs in its Combined Research and Extension Plan of Work. The Planned Programs are based on the USDA Knowledge Area Classification System.

#### **Natural Resources and Environment**

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Natural Resource Management. Projects funded by Hatch include but are not limited to research studies in carbon sequestration, ecosystems, wildlife habitat, climate change, soil productivity, water quality, bioenergy, and pollution prevention. Activities being reported for SDSU Extension in this Planned Program include Grazing Schools and Concentrated Animal Feeding Operations.

#### **Plants and Their Systems**

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Plant Science and our Department of Biology and Microbiology. Hatch funded projects include but are not limited to research involving disease management, wheat genetics and genomics, gene mapping for soybeans, drought tolerant seeds, wine grape cultivars, oat variety development, and sunflower germplasms. Activities being reported for SDSU Extension in this Planned Program include Backyard Biodiversity, Pesticide Applicator Training, Master Gardeners, and Integrated Pest Management.

#### **Animals and Their Systems**

Activities in this Planned Program are driven equally by research, education and SDSU Extension. The research activities in this program are primarily supported by our Department of Animal Science,

Department of Dairy Science and our Veterinary and Biomedical Sciences. Hatch funded projects include but are not limited to research involving reproductive performance in animals, nutrient utilization in dairy cattle diets, diagnosis of viral diseases in swine, Bovine Respiratory Disease in cattle, and improved profitability in sheep and cattle. Activities being reported for SDSU Extension in this Planned Program include Growing South Dakota Beef, Calf Value Discovery, and Growing South Dakota Sheep.

#### **Agricultural, Natural Resource, and Biological Engineering**

There is minimal activity by research or SDSU Extension in this Planned Program. The research activities in this program are primarily supported by our Department of Agricultural and Biosystems Engineering. Hatch funded projects are limited to research involving developing a sustainable nonfood/non-feed biomass for biodiesel. Activities being reported for SDSU Extension in this Planned Program include Subsurface Drainage Design and Water Management.

#### **Food and Non-Food Products: Development, Processing, Quality, and Delivery**

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Agricultural and Biosystems Engineering, Department of Dairy Science, and our Department of Biology and Microbiology. Hatch funded projects include but are not limited to research involving milk and whey protein, methods to augment beef flavor and tenderness, the development of oilseed biofuels, processing co-products of corn and soybeans as valuable chemicals, and the advancement of technologies for improving food safety. Activities being reported for SDSU Extension in this Planned Program include Barbeque Bootcamp.

#### **Economics, Markets, and Policy**

Activities in this Planned Program are driven equally by research, education and SDSU Extension. The research activities in this program are supported by our Department of Economics. Hatch funded projects include but are not limited to research involving agricultural land market trends, economic impacts on wildlife and crop production from biofuel production, agricultural commodity prices, the enhancement of the value of U.S. beef, and policies regarding agriculture, energy and the environment. Activities being reported for SDSU Extension in this Planned Program include Ag CEO.

#### **Human Nutrition, Food Safety, and Human Health and Well-Being**

Activities in this Planned Program are driven SDSU Extension. The research activities in this program are supported by our partnership with the College of Education and Human Sciences. Hatch funded projects include but are not limited to research involving nutrition and physical activity education, induction of the death of fat cells - apoptotic, the understanding of nutrient-gene interaction, enhanced beef consumption, determining the impact of dietary components, and assessing factors that influence eating behavior of young adults. Activities being reported for SDSU Extension include Food Safety Certification and Recertification, Food Processing and Food Marketing, Gerontology, Tatanka's Healthy Tales, Healthy Living, and Smart Choices Grocery Store.

#### **Families, Youth, and Communities**

Activities in this Planned Program are driven by SDSU Extension, with little activity by research. The research activities in this program are supported by our partnership with College of Education and Human Sciences. Hatch funded projects include but are not limited to research involving financial literacy and management behavior, physical and mental health in diverse rural low-income families, and psychological and socio-cultural factors that impact the decision to save. Activities being reported for SDSU Extension include The Great American Book Read, Small Business Beginnings, Character Education, CYFAR, Native American Events, Youth Voices, Teens as Teachers, Ripple Effect Mapping, and Garden Development or Enhancement.

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

| Year | Extension |      | Research |      |
|------|-----------|------|----------|------|
|      | 1862      | 1890 | 1862     | 1890 |
| 2015 | 127.3     | 0.0  | 200.2    | 0.0  |
| 2016 | 127.3     | 0.0  | 200.2    | 0.0  |
| 2017 | 127.3     | 0.0  | 200.2    | 0.0  |
| 2018 | 127.3     | 0.0  | 200.2    | 0.0  |
| 2019 | 127.3     | 0.0  | 200.2    | 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**

All Hatch projects are subjected to peer review prior to implementation and require independent peer reviews from two scientists. The department head or a departmental executive committee identifies peer reviewers. The department head and the AES Director serve as merit reviewers. Reviewers are required to comment on why the proposed research is needed, it's relevance to agriculture, the target audience, and how it compliments other research. Proposals for research grants that are funded by stakeholder groups are subjected to review by the stakeholders themselves and by college administrators. SDSU Extension administrators serve as the merit review team for the plan of work. Department heads and program directors conduct peer reviews of programs.

**III. Evaluation of Multis & Joint Activities**

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

The Planned Programs are based on input from traditional and non-traditional stakeholder groups who identified critical issues. For the purposes of program planning, South Dakota also considers the input of internal stakeholders, which includes Extension state specialists, field specialists, and scientists. The resulting Planned Programs address critical needs and opportunities through integrated research and educational programs.

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

Great efforts are made to seek out and include under-served and under-represented populations in the initial planning of research and Extension programs. In some cases, this involves direct contact with under-served and/or under-represented audiences. In other cases, mass media announcements are used to invite all South Dakotans to participate in program planning.

SDSU Extension has added emphasis in Native American programming through several of its signature programs, particularly with the Healthy Foods and Healthy Children program. As noted in the Stakeholder Input section, Native American is one of the capstone areas that is part of our SDSU Extension Advisory Forum. The input from the Forum greatly increases our understanding of challenges facing the Native American communities in South Dakota.

Outreach to our immigrant populations is also important to SDSU Extension. Much of the immigrant population in South Dakota is Hispanic or Latino and is involved in the dairy industry. The demand for alternate languages is moderate but limited, and SDSU Extension provides print and online materials in Spanish as needed.

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

The Planned Programs address specific outcomes that occur over the 5-year period of this plan. Some Planned Programs may deliver initial outcomes and impacts in the first year, but the overall impact of these programs will be felt beyond the 5-year planning cycle. Each of the South Dakota Planned Programs list specific outcomes that document progress.

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

South Dakota State University has a strong history of actively integrating research, teaching and Extension programs to deliver science-based information to all citizens. Stakeholder input, from SDSU Extension five-year assessment planning data and other sources, is also used by scientists and classroom educators to gain a better understanding of current needs. Joint FTE appointments give individuals the opportunity to work in a combination of research, Extension and teaching functions, allowing the further integration and transfer of information within the system.

# **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
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals

**Brief explanation.**

Stakeholder participation is solicited from many sources and events, including agricultural check-off groups, commodity groups, funding organizations, governmental agencies, elected officials and boards, public events and meetings, news releases, and industry associations. SDSU Extension seeks stakeholder participation through Advisory Forums made up of Capstone Program Advisory Groups that provide discipline specific feedback. The capstone groups are:

- Competitive Livestock Systems
- Competitive Cropping Systems
- Urban/Rural Interface
- Food & Families
- 4-H Youth Development
- Community Development
- Native American

Stakeholders are highly encouraged to participate in and take an active interest SDSU Extension by providing direction, suggestions, and positive ideas. We ask stakeholders to share visionary strategies that meet the SDSU Extension mission, particularly in the capstone area they are representing. Stakeholders are encouraged to provide feedback and ideas for collaboration and partnership, and to help SDSU Extension reach and serve all demographic populations of the state. At the county level, County Commissioners are asked to maintain a county advisory structure that engages the local 4-H Promotion and Expansion Committee in the advisory role. This advisory structure predominantly gives guidance to county funded budgets and local 4-H expansion efforts.

Other Example Sources of Stakeholder Input:

- South Dakota Soybean Research and Promotion Council
- South Dakota Beef Industry Council
- South Dakota Corn Utilization Council
- South Dakota Oilseeds Council
- South Dakota Pork Producers Council
- South Dakota Wheat Commission Council
- South Dakota Department of Education and Cultural Affairs
- Department of Energy
- Environmental Protection Agency
- South Dakota Department of Agriculture
- Office of State Veterinarian
- South Dakota Game, Fish and Parks
- Natural Resources Conservation Service
- Bureau of Indian Affairs
- South Dakota Weed and Pest Commission

**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
- Open Listening Sessions
- Needs Assessments
- Use Surveys

**Brief explanation.**

Individuals and groups are identified through networking, attending conferences, public meetings, the internet, programming efforts, field tours, emails, and face-to-face arrangements. The Capstone Program Advisory Groups preferably consists of 8-12 individuals that are representative of the demographic composition of South Dakota in regards to race, ethnicity, gender, and age. SDSU Extension strives for balance in the groups by reaching out to private citizens, public agencies, discipline related industries, non-profit organizations and civic groups.

**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 the general public (open meeting advertised to all)
- Survey specifically with non-traditional groups

**Brief explanation.**

The SDSU Extension Advisory Forum is held once a year. During the course of the annual advisory forum, all capstone program advisory groups will be convened on the same date and in the same location. All capstone program advisory group members will meet together for a brief period of time to receive information regarding SDSU Extension. Specific capstone program advisory groups will then meet to discuss issues/concerns relative to the discipline. SDSU Extension writes summaries of the discussions held by each capstone program advisory group during the Forum. South Dakota State 4-H meets with the Leader's Association and County Commissioners to receive input for 4-H promotion and expansion.

**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.**

Administrators evaluate all input, requests and comments from stakeholders. SDSU Extension writes summaries of the discussions held by each capstone program group during the Advisory Forums. Program Directors share the Advisory Forum summaries specific to the capstone program area with department heads, faculty and specialists during program planning meetings. Stakeholder input is reviewed, considered and used as a basis to create SDSU Extension programs and AES research projects.

Stakeholder input is very important to the Agricultural Experiment Station and to SDSU Extension. By soliciting input, we learn what the challenges are that they are facing and what they would like to see us do to address their challenges. We also learn what they believe the future of South Dakota looks like, what they see as opportunities, and what they think we can do to support those opportunities.

## V. Planned Program Table of Content

| S. No. | PROGRAM NAME   |
|--------|--|
| 1      | Natural Resources and Environment  |
| 2      | Plants and Their Systems   |
| 3      | Animals and Their Systems  |
| 4      | Agricultural, Natural Resource, and Biological Engineering                 |
| 5      | Food and Non-Food Products: Development, Processing, Quality, and Delivery |
| 6      | Economics, Markets, and Policy   |
| 7      | Human Nutrition, Food Safety, and Human Health and Well-Being              |
| 8      | Families, Youth and Communities  |



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

### **Program # 1**

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

Natural Resources and Environment

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

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Natural Resource Management. Projects funded by Hatch include but are not limited to research studies in carbon sequestration, ecosystems, wildlife habitat, climate change, soil productivity, water quality, bioenergy, and pollution prevention. Activities being reported for SDSU Extension in this Planned Program include Grazing Schools and Concentrated Animal Feeding Operations.

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

**4. Program duration** : Medium Term (One to five years)

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

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

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area  | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|---|-----------------|-----------------|----------------|----------------|
| 101     | Appraisal of Soil Resources                           | 5%              |                 | 8%             |                |
| 102     | Soil, Plant, Water, Nutrient Relationships            | 15%             |                 | 22%            |                |
| 103     | Management of Saline and Sodic Soils and Salinity     | 0%              |                 | 1%             |                |
| 104     | Protect Soil from Harmful Effects of Natural Elements | 0%              |                 | 4%             |                |
| 111     | Conservation and Efficient Use of Water               | 0%              |                 | 7%             |                |
| 112     | Watershed Protection and Management                   | 0%              |                 | 6%             |                |
| 121     | Management of Range Resources                         | 80%             |                 | 11%            |                |
| 131     | Alternative Uses of Land                              | 0%              |                 | 2%             |                |
| 132     | Weather and Climate                                   | 0%              |                 | 3%             |                |
| 133     | Pollution Prevention and Mitigation                   | 0%              |                 | 4%             |                |
| 134     | Outdoor Recreation                                    | 0%              |                 | 5%             |                |
| 135     | Aquatic and Terrestrial Wildlife                      | 0%              |                 | 20%            |                |
| 136     | Conservation of Biological Diversity                  | 0%              |                 | 5%             |                |
| 141     | Air Resource Protection and Management                | 0%              |                 | 2%             |                |
|         | <b>Total</b>  | 100%            |                 | 100%           |                |

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

South Dakota has a wide diversity of natural resources that depend on maintenance and good stewardship of the land. Too much grazing, urban sprawl, the creation of reservoirs, plant invasion, feedlot runoff, global warming, as well as the growing world economy all contribute to the degradation of our natural resources. The mismanagement of natural resources can cause many problems that affect the sustainability of grasslands. Without proper maintenance of this resource, the livelihood of ranchers is at risk.

**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**

**We Assume:**

- There is an economic benefit to preserving our natural resources
- Global warming is linked to increased levels of carbon dioxide in the atmosphere
- The Conservation Reserve Program provides habitat for wildlife populations
- Bacteria play a crucial role in soil fertility
- Climate changes impact agriculture
- Agricultural production can contaminate soil, air, and water resources
- Perennial grasses are prime candidates for cellulosic ethanol production
- Vegetative treatment systems are designed to prevent feedlot runoff
- Invasive plant species alter ecosystem processes
- Wind farms have the potential to result in adverse environmental impacts
- Proper grassland management increases the sustainability of grasslands

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

**Goals:**

- Protect and provide habitat for wildlife and sport fisheries
- Maintain or increase the soil organic carbon levels
- Contribute to the understanding of soil fertility
- Provide revised nutrient recommendations for corn and wheat
- Enable producers to make better environmental choices
- Protect water quality
- Increase renewable energy
- Reduce soil degradation
- Improve profitability for farmers growing bioenergy feed stocks
- Provide outreach for the management of pesticides and contaminants

**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 |
| 2015 | 4.6       | 0.0  | 49.1     | 0.0  |
| 2016 | 4.6       | 0.0  | 49.1     | 0.0  |
| 2017 | 4.6       | 0.0  | 49.1     | 0.0  |
| 2018 | 4.6       | 0.0  | 49.1     | 0.0  |
| 2019 | 4.6       | 0.0  | 49.1     | 0.0  |

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

**1. Activity for the Program**

- Conduct Field and Lab Research
- Collaborate with Other States
- Partner with South Dakota Game, Fish and Parks
- Partner with the South Dakota Grassland Coalition
- Partner with Business Organizations
- Collaborate with Non-profit Organizations
- Participate with the South Dakota State Climate Office
- Participate with the United States Army Corps of Engineers
- Conduct Training for Concentrated Animal Feeding Operations
- Partner with the South Dakota Department of Environment and Natural Resources
- Partner with the Natural Resources Conservation Service
  
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**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 (social media)</li> </ul> |

**3. Description of targeted audience**

- Wildlife and Fisheries Managers
- Scientists
- Environmentalists
- Outdoor Enthusiasts
- Farmers, Ranchers and Producers
- General Public
- Operators of Concentrated Animal Feeding Operations

## 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

- Percentage of all Hatch Research Projects in Natural Resources and Environment
- Conduct Field Experiments to Determine the Impact of Adaptive Management Techniques on Carbon Sequestration and Energy Efficiency
- Increase Rancher's Knowledge of Grazing Techniques and Grassland Management
- Number of CAFOs Participants
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

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 Natural Resources and Environment Hatch Research Projects |
| 2     | Increase Knowledge Relative to Carbon and Residue Management        |
| 3     | Number of Grazing School Participants                               |
| 4     | Number of CAFOs Training Sessions                                   |

**Outcome # 1**

**1. Outcome Target**

Number of Natural Resources and Environment Hatch Research Projects

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

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

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 103 - Management of Saline and Sodic Soils and Salinity
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 134 - Outdoor Recreation
- 135 - Aquatic and Terrestrial Wildlife
- 136 - Conservation of Biological Diversity
- 141 - Air Resource Protection and Management

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Increase Knowledge Relative to Carbon and Residue Management

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

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

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships

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

- 1862 Research

#### **Outcome # 3**

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

Number of Grazing School Participants

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

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

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 121 - Management of Range Resources

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

- 1862 Extension

#### **Outcome # 4**

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

Number of CAFOs Training Sessions

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

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

- 133 - Pollution Prevention and Mitigation

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges



## **Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

### **Program # 2**

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

Plants and Their Systems

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

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Plant Science and our Department of Biology and Microbiology. Hatch funded projects include but are not limited to research involving disease management, wheat genetics and genomics, gene mapping for soybeans, drought tolerant seeds, wine grape cultivars, oat variety development, and sunflower germplasms. Activities being reported for SDSU Extension in this Planned Program include Growing South Dakota Beef, Calf Value Discovery, and Growing South Dakota Sheep.

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

**4. Program duration :** Medium Term (One to 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 |
|---------|---|-----------------|-----------------|----------------|----------------|
| 201     | Plant Genome, Genetics, and Genetic Mechanisms                    | 0%              |                 | 19%            |                |
| 202     | Plant Genetic Resources   | 0%              |                 | 13%            |                |
| 203     | Plant Biological Efficiency and Abiotic Stresses Affecting Plants | 0%              |                 | 25%            |                |
| 204     | Plant Product Quality and Utility (Preharvest)                    | 10%             |                 | 5%             |                |
| 205     | Plant Management Systems  | 15%             |                 | 12%            |                |
| 206     | Basic Plant Biology   | 0%              |                 | 2%             |                |
| 211     | Insects, Mites, and Other Arthropods Affecting Plants             | 38%             |                 | 9%             |                |
| 212     | Pathogens and Nematodes Affecting Plants                          | 0%              |                 | 10%            |                |
| 213     | Weeds Affecting Plants  | 0%              |                 | 1%             |                |
| 214     | Vertebrates, Mollusks, and Other Pests Affecting Plants           | 0%              |                 | 1%             |                |
| 215     | Biological Control of Pests Affecting Plants                      | 0%              |                 | 2%             |                |
| 216     | Integrated Pest Management Systems                                | 37%             |                 | 1%             |                |
|         | <b>Total</b>  | 100%            |                 | 100%           |                |

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

1. Situation and priorities

Crop diseases, insect pests, drought, changing climatic conditions, soil erosion, and fewer acres of land available for farming are all serious production constraints for all crops produced in South Dakota.

Producers planning to apply any pesticide to a commodity worth \$1,000 or more must be certified as a private applicator. Anyone that applies pesticides for hire must be certified and licensed as a commercial applicator.

South Dakotans are not eating enough fruits and vegetables. In a 2009 CDC report, South Dakota was ranked lowest in the nation of consumption of fruits and vegetables. The production of abundant fruits and vegetables is needed to improve the health of consumers. The use of high tunnels help growers increase their yields by extending the growing season.

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**

**We Assume:**

- Plants face biological challenges when confronted by environmental stresses
- Genetically adapted cultivars are needed to provide bioenergy production
- New and re-emerging disease problems may become economically damaging
- There is a potential of new or underutilized oilseed crops
- Plant viruses cause yield and quality losses in agricultural commodities
- Grain production must increase at an annual rate of 2% to meet human needs by 2050
- Cover crops provide for improved soil quality and sustainable crop production
- The consumption of fruits and vegetables needs to increase in South Dakota
- Producers will use pesticides

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

**Goals:**

- New and Improved plant varieties
- Increased agriculture production
- Eradicate plant diseases
- Develop drought resistant wheat
- Reduce economic impacts of fungal diseases on corn and soybeans
- Increase yield potential of spring wheat cultivars
- Provide advice to growers for maximizing seed yield, oil content, and crop quality
- Complete the analysis and mapping of genes for resistance to the soybean aphid
- Improve the sustainability of wheat production for food and biofuels
- Increase the production of locally grown fruits and vegetables
- Provide safe practices for pesticide application

**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 |
| 2015 | 11.1      | 0.0  | 65.7     | 0.0  |
| 2016 | 11.1      | 0.0  | 65.7     | 0.0  |
| 2017 | 11.1      | 0.0  | 65.7     | 0.0  |

| Year | Extension |      | Research |      |
|------|-----------|------|----------|------|
|      | 1862      | 1890 | 1862     | 1890 |
| 2018 | 11.1      | 0.0  | 65.7     | 0.0  |
| 2019 | 11.1      | 0.0  | 65.7     | 0.0  |

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

**1. Activity for the Program**

- Collaborate with Master Gardeners
- Develop Improved Wheat Cultivars
- Conduct Research on Economic Impacts of Fungal Diseases
- Develop Superior Sunflower Germplasms
- Develop New Cultivars of Prairie Cordgrass for Bioenergy Production
- Analyze and Map Genes for Soybean Resistance of Aphids
- Develop New Multi-Purpose Oat Varieties
- Conduct Pesticide Applicator Training Sessions
- Deliver Integrated Pest Management Resources
- Partner with the South Dakota Agri-Business Association

**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>• One-on-One Intervention</li> <li>• Demonstrations</li> </ul> | <ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> </ul> |

**3. Description of targeted audience**

- Home Gardeners
- Research Community
- Soybean Growers
- Wheat Growers
- Corn Growers
- Biofuels Crop Industry
- Producers
- Graduate Students
- Private and Commercial Pesticide Applicators
- Specialty Crop Growers
- Agronomy Professionals

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## 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

- Percentage of all Hatch Research Projects in Plants and Their Systems
- Identified Proteins in Corn and Wheat
- Number of Pesticide Applicator Training Sessions
- Number of Master Gardener Training Sessions
- Number of IPM Training Events Conducted
- Increase Pollinator and Pollinator Habitat Knowledge
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

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 Plants and Their Systems Hatch Research Projects                       |
| 2     | Enhance the Understanding of Biotic and Abiotic Stress Resistance in Crop Plants |
| 3     | Number of Pesticide Applicator Training Participants                             |
| 4     | Number of Participants Completing Master Gardener Training                       |
| 5     | Number of IPM Participants   |
| 6     | Number of Citizen Science Volunteers   |

**Outcome # 1**

**1. Outcome Target**

Number of Plants and Their Systems Hatch Research Projects

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

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

- 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
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Enhance the Understanding of Biotic and Abiotic Stress Resistance in Crop Plants

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

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

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 206 - Basic Plant Biology

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

- 1862 Research



**Outcome # 3**

**1. Outcome Target**

Number of Pesticide Applicator Training Participants

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

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

- 211 - Insects, Mites, and Other Arthropods Affecting Plants

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

Number of Participants Completing Master Gardener Training

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

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

- 205 - Plant Management Systems

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

Number of IPM Participants

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

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

- 216 - Integrated Pest Management Systems

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

- 1862 Extension

#### **Outcome # 6**

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

Number of Citizen Science Volunteers

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

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

- 205 - Plant Management Systems

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges

##### **Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.



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

### **Program # 3**

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

Animals and Their Systems

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

Activities in this Planned Program are driven equally by research, education and SDSU Extension. The research activities in this program are primarily supported by our Department of Animal Science, Department of Dairy Science and our Veterinary and Biomedical Sciences. Hatch funded projects include but are not limited to research involving reproductive performance in animals, nutrient utilization in dairy cattle diets, diagnosis of viral diseases in swine, Bovine Respiratory Disease in cattle, and improved profitability in sheep and cattle. Activities being reported for SDSU Extension in this Planned Program include Growing South Dakota Beef, Calf Value Discovery, and Growing South Dakota Sheep.

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

**4. Program duration :** Medium Term (One to 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> |
|----------------|---|------------------------|------------------------|-----------------------|-----------------------|
| 301            | Reproductive Performance of Animals       | 0%                     |                        | 10%                   |                       |
| 302            | Nutrient Utilization in Animals           | 0%                     |                        | 29%                   |                       |
| 303            | Genetic Improvement of Animals            | 0%                     |                        | 2%                    |                       |
| 304            | Animal Genome                             | 0%                     |                        | 6%                    |                       |
| 305            | Animal Physiological Processes            | 0%                     |                        | 5%                    |                       |
| 306            | Environmental Stress in Animals           | 0%                     |                        | 1%                    |                       |
| 307            | Animal Management Systems                 | 60%                    |                        | 9%                    |                       |
| 308            | Improved Animal Products (Before Harvest) | 15%                    |                        | 3%                    |                       |
| 311            | Animal Diseases                           | 0%                     |                        | 29%                   |                       |
| 313            | Internal Parasites in Animals             | 0%                     |                        | 4%                    |                       |
| 315            | Animal Welfare/Well-Being and Protection  | 25%                    |                        | 2%                    |                       |
|                | <b>Total</b>                              | 100%                   |                        | 100%                  |                       |

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

Production costs are the determining factor in livestock producer profitability. High feed costs, poor reproductive performance, and disease are primary concerns for producers and scientists.

Sheep and lamb inventory in the United States has been declining over the last few decades. Producers need to grow their flocks to meet the demands of lamb meat and wool, and at the same time keep their operations sustainable.

The success of a cow-calf operation can come down to the marketing strategy employed by the producer. Retained ownership is a program that allows producers the opportunity to start with as few as five of their own calves and pool them with other calves to see how they perform in a feedlot. Retained ownership can provide the greatest opportunity to realize the true value of cattle, but it can also have increased economic risks.

**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**

**We Assume:**

- Biofuel industry co-products can be used by the livestock industry
- The administration of estrogen will increase reproductive efficiency in swine
- Volatile cattle prices and environmental issues limit producer sustainability
- There is an economic advantage to having calves born early in the calving season
- Infectious diseases present economic and animal welfare concerns to the swine industry
- Lamb inventory in the United States has been declining for several decades

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

**Goals:**

- Improve efficiency to produce milk
- Increase reproductive performance in swine
- Reduce costs and increase profits for cattle ranchers
- Increase pregnancy rates in cows
- Improve the quality, speed and affordability of diagnosing viral diseases in swine
- Increase the production of lamb meat and wool

**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 |
| 2015 | 13.9      | 0.0  | 37.8     | 0.0  |
| 2016 | 13.9      | 0.0  | 37.8     | 0.0  |
| 2017 | 13.9      | 0.0  | 37.8     | 0.0  |
| 2018 | 13.9      | 0.0  | 37.8     | 0.0  |
| 2019 | 13.9      | 0.0  | 37.8     | 0.0  |

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

**1. Activity for the Program**

- Develop Vaccine Technologies
- Research Methodologies to Increase Reproductive Performance in Animals

- Conduct Research that Leads to Muscle Growth Augmentation
- Determine the Effects of Co-product Based Lamb Finishing Diets
- Increase Sheep Production Knowledge
- Coordinate Value-Based Marketing System for Cow-calf Operations
- Increase Beef Production Knowledge
- Conduct Ranch Visits

**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>• Newsletters</li> <li>• Web sites other than eXtension</li> </ul> |

**3. Description of targeted audience**

- Veterinarians
- Dairy Producers
- Producers of Ethanol Co-products
- Cattle Producers
- Swine Producers
- Muscle Biologists
- Livestock Nutritionists
- Sheep Industry
- Cow-calf Producers

## 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

- Percentage of all Hatch Research Projects in Animals and Their Systems
- Publish and Disseminate Results of Nutritional Studies in Sheep Diets
- Number of Learning Activities for Sheep Producers or Consumers
- Demonstrate Value-Based Marketing to Cow-calf Producers
- Create Learning Opportunities in the Beef Industry
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

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 Animals and Their Systems Hatch Research Projects                                   |
| 2     | Enable Further Research to Explore Diet Formulation Strategies for Feeding Ruminant Livestock |
| 3     | Number of Individuals Participating in Sheep Production Learning Activities                   |
| 4     | Number of Cow-calf Operations Participating in the Calf Value Discovery Program               |
| 5     | Number of Individuals Participating in Beef Production Learning Activities                    |

**Outcome # 1**

**1. Outcome Target**

Number of Animals and Their Systems Hatch Research Projects

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

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

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 304 - Animal Genome
- 305 - Animal Physiological Processes
- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)
- 311 - Animal Diseases
- 313 - Internal Parasites in Animals
- 315 - Animal Welfare/Well-Being and Protection

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Enable Further Research to Explore Diet Formulation Strategies for Feeding Ruminant Livestock

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

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

- 307 - Animal Management Systems

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

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of Individuals Participating in Sheep Production Learning Activities

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

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

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

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

Number of Cow-calf Operations Participating in the Calf Value Discovery Program

**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

**Outcome # 5**

**1. Outcome Target**

Number of Individuals Participating in Beef Production Learning Activities

**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

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

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

- Economy
- Competing Programmatic Challenges

#### **Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

**Program # 4**

**1. Name of the Planned Program**

Agricultural, Natural Resource, and Biological Engineering

**2. Brief summary about Planned Program**

There is little activity by research or SDSU Extension in this Planned Program. The research activities in this program are primarily supported by our Department of Agricultural and Biosystems Engineering. Hatch funded projects are limited to research involving developing a sustainable nonfood/non-feed biomass for biodiesel. Activities being reported for SDSU Extension in this Planned Program include Drainage and Water Management.

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

**4. Program duration :** Medium Term (One to 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 |
|---------|---|-----------------|-----------------|----------------|----------------|
| 401     | Structures, Facilities, and General Purpose Farm Supplies | 0%              |                 | 10%            |                |
| 402     | Engineering Systems and Equipment                         | 0%              |                 | 10%            |                |
| 403     | Waste Disposal, Recycling, and Reuse                      | 0%              |                 | 63%            |                |
| 404     | Instrumentation and Control Systems                       | 0%              |                 | 13%            |                |
| 405     | Drainage and Irrigation Systems and Facilities            | 100%            |                 | 4%             |                |
|         | <b>Total</b>  | 100%            |                 | 100%           |                |

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

**1. Situation and priorities**

Research in biomass technology is needed to enhance the energy security of the United States.

Land prices, weather patterns, and new technologies are all reasons that there is an increased interest in drainage tiling to help solve moisture problems. Before tiling land that is enrolled in farm programs, a wetland determination needs to be done. There are technical, environmental, and legal concerns that must be considered, and without the proper knowledge, a lot can go wrong.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension

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

**1. Assumptions made for the Program**

**We Assume:**

- Carbon dioxide from ethanol production can be used to create a new source of biomass
- Weather patterns will continue to create moisture problems for landowners

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

**Goals:**

- Increase profits of ethanol production while meeting energy demands
- Increase usability of land in a safe, legal, and environmentally friendly manner

**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 |
| 2015 | 4.6       | 0.0  | 4.6      | 0.0  |
| 2016 | 4.6       | 0.0  | 4.6      | 0.0  |
| 2017 | 4.6       | 0.0  | 4.6      | 0.0  |
| 2018 | 4.6       | 0.0  | 4.6      | 0.0  |
| 2019 | 4.6       | 0.0  | 4.6      | 0.0  |

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

**1. Activity for the Program**

- Conduct Research to Create New Sources of Biomass
- Conduct Drainage and Water Management Design Workshops

**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> </ul> | <ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (social media)</li> </ul> |

**3. Description of targeted audience**

- Biofuel Industry
- Scientists
- Farmers
- Landowners
- Drainage Contractors

**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**

- Percentage of all Hatch Research Projects in Agricultural, Natural Resource, and Biological Engineering
  - Number of Subsurface Drainage Design and Water Management Workshops
  - Number of Publications Posted on iGrow Website
  - Number of Articles Posted on iGrow Website
  - Number of Podcasts Posted on iGrow Website
  - Number of Radio Programs Posted on iGrow Website
- 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 Agricultural, Natural Resource, and Biological Engineering Hatch Research Projects |
| 2     | Number of Subsurface Drainage Design and Water Management Workshop Participants              |

**Outcome # 1**

**1. Outcome Target**

Number of Agricultural, Natural Resource, and Biological Engineering Hatch Research Projects

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

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

- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 402 - Engineering Systems and Equipment
- 403 - Waste Disposal, Recycling, and Reuse
- 404 - Instrumentation and Control Systems
- 405 - Drainage and Irrigation Systems and Facilities

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of Subsurface Drainage Design and Water Management Workshop Participants

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

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

- 405 - Drainage and Irrigation Systems and Facilities

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges

**Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a

decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

**Program # 5**

**1. Name of the Planned Program**

Food and Non-Food Products: Development, Processing, Quality, and Delivery

**2. Brief summary about Planned Program**

Activities in this Planned Program are driven by research and education. The research activities in this program are primarily supported by our Department of Agricultural and Biosystems Engineering, Department of Dairy Science, and our Department of Biology and Microbiology. Hatch funded projects include but are not limited to research involving milk and whey protein, methods to augment beef flavor and tenderness, the development of oilseed biofuels, processing co-products of corn and soybeans as valuable chemicals, and the advancement of technologies for improving food safety. Activities being reported for SDSU Extension in this Planned Program include Barbeque Bootcamp.

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

**4. Program duration :** Medium Term (One to 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 |
|---------|---|-----------------|-----------------|----------------|----------------|
| 501     | New and Improved Food Processing Technologies   | 0%              |                 | 23%            |                |
| 502     | New and Improved Food Products  | 0%              |                 | 31%            |                |
| 503     | Quality Maintenance in Storing and Marketing Food Products  | 0%              |                 | 4%             |                |
| 504     | Home and Commercial Food Service  | 80%             |                 | 0%             |                |
| 511     | New and Improved Non-Food Products and Processes  | 0%              |                 | 41%            |                |
| 512     | Quality Maintenance in Storing and Marketing Non-Food Products  | 0%              |                 | 1%             |                |
| 703     | Nutrition Education and Behavior  | 10%             |                 | 0%             |                |
| 712     | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins | 10%             |                 | 0%             |                |
|         | <b>Total</b>  | 100%            |                 | 100%           |                |

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

**1. Situation and priorities**

The challenge today of producing enough food, fiber and fuel for more than 9.5 billion people by 2050 is almost daunting, especially because it needs to be done using less land, less water and less energy than is used today. Science driven technologies must be developed for this to be accomplished in a sustainable manner.

In recent years, there has been a lot of negative information surrounding consumer meats. Often times this information is incorrect or misleading, leaving the consumer grasping for answers.

**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**

**We Assume:**

- New bioconversion technologies can produce valuable chemicals biomass processing
- The world demand for dairy protein exceeds the world supply of dairy protein
- Biomass can be converted into biofuels through viable conversion technologies
- Grain fed beef in the United States maintains a competitive edge in the marketplace
- The biofuel industry provides opportunities for agricultural diversification
- Consumers are increasingly looking for products with added health benefits
- High pressure pasteurization and ultrasound processing can make food safer and better

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

**Goals:**

- Increase ethanol industry profit from value-added co-products
- Develop manufacturing processes for protein based dairy ingredients
- Meet the growing demand of transportation fuel
- Increase cattle producer profitability by augmenting beef tenderness
- Develop an oilseed based biofuel industry in the Northern Great Plains of North America
- Increase dairy production by creating products with nutritionally added-value benefits
- Advance technologies for the purpose of improving food safety, quality, and security

**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 |
| 2015 | 2.8       | 0.0  | 25.3     | 0.0  |
| 2016 | 2.8       | 0.0  | 25.3     | 0.0  |

| Year | Extension |      | Research |      |
|------|-----------|------|----------|------|
|      | 1862      | 1890 | 1862     | 1890 |
| 2017 | 2.8       | 0.0  | 25.3     | 0.0  |
| 2018 | 2.8       | 0.0  | 25.3     | 0.0  |
| 2019 | 2.8       | 0.0  | 25.3     | 0.0  |

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

**1. Activity for the Program**

- Conduct Research on Co-products of Corn and Soybeans
- Research and Improve Biofuel Production Processes
- Develop Methods to Improve Acceptability of Fresh and Processed Meats
- Conduct Barbeque Bootcamp Workshops
- Partner with South Dakota Beef Industry Council
- Partner with South Dakota Pork Producer's Council

**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> </ul> |

**3. Description of targeted audience**

- Farmers
- Biofuels Industry
- Beef Science Community
- Beef Producers
- Food Businesses
- Consumers

## 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

- Percentage of all Hatch Research Projects in Food and Non-Food Products: Development, Processing, Quality, and Delivery
- Developed a Strong Research Program to Enhance the US Dairy and Food Industry
- Extract and Analyze Oilseeds to Determine Biofuel Production Suitability
- Number of BBQ Bootcamp Workshops
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

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 Food and Non-Food Products: Development, Processing, Quality, and Delivery Hatch Research Projects |
| 2     | Increase Knowledge of Structure-Function Relationships of Milk Proteins                                      |
| 3     | Increase Knowledge for Obtaining Maximum Oil Yields  |
| 4     | Number of BBQ Bootcamp Participants  |



**Outcome # 1**

**1. Outcome Target**

Number of Food and Non-Food Products: Development, Processing, Quality, and Delivery Hatch Research Projects

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

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Increase Knowledge of Structure-Function Relationships of Milk Proteins

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

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products

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

- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Increase Knowledge for Obtaining Maximum Oil Yields

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

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

- 511 - New and Improved Non-Food Products and Processes

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

- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Number of BBQ Bootcamp Participants

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

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

- 504 - Home and Commercial Food Service
- 703 - Nutrition Education and Behavior
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges

**Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

**Description of Planned Evaluation Studies**

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

**Program # 6**

**1. Name of the Planned Program**

Economics, Markets, and Policy

**2. Brief summary about Planned Program**

Activities in this Planned Program are driven equally by research, education and SDSU Extension. The research activities in this program are supported by our Department of Economics. Hatch funded projects include but are not limited to research involving agricultural land market trends, economic impacts on wildlife and crop production from biofuel production, agricultural commodity prices, the enhancement of the value of U.S. beef, and policies regarding agriculture, energy and the environment. Activities being reported for SDSU Extension in this Planned Program include Ag CEO.

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

**4. Program duration :** Medium Term (One to 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 |
|---------|--|-----------------|-----------------|----------------|----------------|
| 601     | Economics of Agricultural Production and Farm Management | 0%              |                 | 10%            |                |
| 602     | Business Management, Finance, and Taxation               | 56%             |                 | 11%            |                |
| 603     | Market Economics   | 36%             |                 | 25%            |                |
| 604     | Marketing and Distribution Practices                     | 0%              |                 | 21%            |                |
| 605     | Natural Resource and Environmental Economics             | 6%              |                 | 10%            |                |
| 607     | Consumer Economics                                       | 0%              |                 | 9%             |                |
| 608     | Community Resource Planning and Development              | 2%              |                 | 4%             |                |
| 609     | Economic Theory and Methods                              | 0%              |                 | 6%             |                |
| 610     | Domestic Policy Analysis                                 | 0%              |                 | 4%             |                |
|         | <b>Total</b>   | 100%            |                 | 100%           |                |

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

## 1. Situation and priorities

The economy is always changing and as new problems arise, research programs are needed to focus on the efficiency of crop and livestock sectors, sustainability of the food and fiber system, and rural development.

Farmers and ranchers without an estate and transition plan could face challenges detrimental to the future of their agricultural operation. With the average age of farmers and ranchers in South Dakota over 55, it becomes more and more important that all generations involved in the operation understand estate and transition planning.

By the year 2050, producers will be charged with feeding nine billion people. With the changes to agriculture in the past years, and with rural America shrinking, new skills are needed for agricultural operations to remain viable and sustainable.

## 2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Extension

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

### 1. Assumptions made for the Program

#### We Assume:

- By the year 2050, producers will be charged with feeding nine billion people
- Agricultural land values and rental rates have an economic impact South Dakota
- Value-added agriculture is important to South Dakota
- Volatility in energy markets is also transmitted directly into agricultural markets
- There is risk and uncertainty in future commodity price movements
- There are financial risks with the changing slaughter cattle market
- Product price and product quality matter to the consumer

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

#### Goals:

- Assure the sustainability of family agricultural operations
- Increase landowner profits
- Generate agriculture information for policy makers and rural residents
- Study the implications of converging agriculture, energy, and environmental policies
- Increase profits for farmers, elevators, and food processors
- Reduce financial risks for cattle producers
- Increase cattle production by increasing the quality of beef products

## 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 |
| 2015 | 6.5       | 0.0  | 12.3     | 0.0  |
| 2016 | 6.5       | 0.0  | 12.3     | 0.0  |
| 2017 | 6.5       | 0.0  | 12.3     | 0.0  |
| 2018 | 6.5       | 0.0  | 12.3     | 0.0  |
| 2019 | 6.5       | 0.0  | 12.3     | 0.0  |

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

**1. Activity for the Program**

- Analyze Farm Real Estate Market Developments
- Analyze Agricultural Commodity Prices
- Research Trends and Financial Risks
- Develop Marketing Strategy Recommendations
- Conduct Estate and Transition Planning Conferences
- Partner with the South Dakota Soybean Research and Promotion Council
- Conduct Ag CEO Workshops

**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> </ul> | <ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> </ul> |

**3. Description of targeted audience**

- Agricultural Commodity Groups
- Policy Makers
- Environmental Groups
- Farmers, Ranchers
- Producers
- Ag Land Owners
- Women in Agriculture
- Youth
- Agricultural Leaders

## 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

- Percentage of all Hatch Research Projects in Economics, Markets, and Policy
- Conduct Studies to Identify Product Attributes and Willingness to Pay for Locally Produced Beef
- Number of Ag CEO Workshops
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

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            | Number of Economics, Markets, and Policy Hatch Research Projects                 |
| 2            | Increased Understanding of Consumer Willingness to Pay for Locally Produced Beef |
| 3            | Number of New Participants in the Ag CEO Program                                 |



**Outcome # 1**

**1. Outcome Target**

Number of Economics, Markets, and Policy Hatch Research Projects

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

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

- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics
- 607 - Consumer Economics
- 608 - Community Resource Planning and Development
- 609 - Economic Theory and Methods
- 610 - Domestic Policy Analysis

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Increased Understanding of Consumer Willingness to Pay for Locally Produced Beef

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

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

- 607 - Consumer Economics

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

- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of New Participants in the Ag CEO Program

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

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

- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges

#### **Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

**Program # 7**

**1. Name of the Planned Program**

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

**2. Brief summary about Planned Program**

Activities in this Planned Program are driven SDSU Extension. The research activities in this program are supported by our partnership with College of Education and Human Sciences. Hatch funded projects include but are not limited to research involving nutrition and physical activity education, induction of the death of fat cells - apoptotic, the understanding of nutrient-gene interaction, enhanced beef consumption, determining the impact of dietary components, and assessing factors that influence eating behavior of young adults. Activities being reported for SDSU Extension include Food Safety Certification and Recertification, Food Processing and Food Marketing, Gerontology, Tatanka's Healthy Tales, Healthy Living, and Smart Choices Grocery Store.

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

**4. Program duration :** Medium Term (One to 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 |
|---------|---|-----------------|-----------------|----------------|----------------|
| 701     | Nutrient Composition of Food  | 0%              |                 | 6%             |                |
| 702     | Requirements and Function of Nutrients and Other Food Components  | 0%              |                 | 34%            |                |
| 703     | Nutrition Education and Behavior  | 28%             |                 | 38%            |                |
| 704     | Nutrition and Hunger in the Population  | 0%              |                 | 8%             |                |
| 712     | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins | 39%             |                 | 4%             |                |
| 723     | Hazards to Human Health and Safety  | 0%              |                 | 1%             |                |
| 724     | Healthy Lifestyle   | 33%             |                 | 9%             |                |
|         | <b>Total</b>  | 100%            |                 | 100%           |                |

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

**1. Situation and priorities**

Obesity is a major concern within the United States and specifically within South Dakota. It is related to poor nutrition, the lack of physical activity and increased sedentary behavior. Obesity has been associated with increased risk for many chronic diseases. To improve individual's health, scientific discoveries need to be found and translated to practice.

SDSU Extension has seen an increase in requests for information on home food preservation. With the resurgence in gardening and more people that want to sell home processed foods, the demand for USDA Food Preservation Guidelines has increased significantly.

The marketing of home processed and home-baked foods has gained popularity in South Dakota. Farmers Markets are an excellent outlet for entrepreneurs to sell their products, but health rules and regulations must be followed closely to insure the safety of consumers.

Youngsters in the 5th and 6th grade typically do not have good health habits without some form of intervention. In South Dakota, 32.5% of youth age 5-19 are overweight or obese. Physical inactivity, poor nutrition, and obesity are major contributors to health problems and chronic diseases.

Middle-aged and older adults in rural communities do not always have the resources available to take responsibility for their own well-being. Community members often want to exercise but are not willing to pay fees to join a fitness center.

South Dakota American Indian children have higher than average health risks for obesity and diabetes. Adopting a healthy diet and active lifestyle can decrease the chances for these at-risk children to develop these diseases. Education at an early age, in a culturally sensitive way, and with repeated exposure encourages adoption of healthy practices.

Senior citizens often are not aware of the services available to them that assist in healthy living or services that help them continue to live independently.

Senior citizens need to be involved in their communities to help them maintain their well-being. The Intergenerational Bonds program focuses on building and strengthening bonds between children and senior citizens.

Grocery shoppers with limited resources need assistance in increasing their knowledge and skills in order to get the most value for their food dollar. Information on how to make healthy food choices and how to shop for value can improve a families? diet and therefore their health.

The Centers for Disease Control estimates that each year 48 million Americans get sick from foodborne diseases. In South Dakota, it is estimated that in 2011, 337 hospitalizations and eight deaths resulted from foodborne illness.

## **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**

**We Assume:**

- Excessive weight gain increases the risk of developing serious diseases
- Apoptosis is emerging as a promising strategy for prevention and treatment of obesity
- Health is directly related to nutritional status
- The resurgence in gardening has increased the demand for home food preservation
- The growing popularity of Farmer's Markets has increased demand for information
- Dissemination of nutritional information will produce healthier eating habits
- Children and adults will become more physically active with awareness education
- Elderly people want to stay involved in their communities
- Underserved audiences lack knowledge and skills in grocery shopping
- The number of cases of foodborne illness can be reduced

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

**Goals:**

- Change behavior patterns in young adults
- Increase the consumption of safe and nutritious food
- Decrease the number of overweight and obese people in South Dakota
- Keep aging citizens healthy and active in their communities
- Decrease the number of cases of foodborne illness
- Decrease serious diseases

**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 |
| 2015 | 12.0      | 0.0  | 4.5      | 0.0  |
| 2016 | 12.0      | 0.0  | 4.5      | 0.0  |
| 2017 | 12.0      | 0.0  | 4.5      | 0.0  |
| 2018 | 12.0      | 0.0  | 4.5      | 0.0  |
| 2019 | 12.0      | 0.0  | 4.5      | 0.0  |

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

**1. Activity for the Program**

- Research that Focuses on Dietary Micronutrients
- Conduct Research for the Prevention and Treatment of Obesity
- Research to Understand Nutrient-gene Interactions
- Teach Food Safety Programs
- Distribute Fact Sheets to Food Pantries
- Develop Food Preservation Programs
- Conduct Home Food Preservation Workshops
- Conduct Local Food Entrepreneur Programs
- Develop Nutrition and Physical Activity Curriculum
- Train Teens as Teachers
- Collaborate with the University of Nebraska-Lincoln
- Conduct Workshops for the Aging and Senior Citizens

**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>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Social Media)</li> </ul> |

**3. Description of targeted audience**

- Nutrition and Food scientists
- Health Educators
- Athletes
- Food Service Establishments and Employees
- Minority Audiences
- Food Pantries
- Food Entrepreneurs
- Consumers of Food Products
- Local Schools
- Youth
- Senior Citizens

## 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

- Percentage of all Hatch Research Projects in Human Nutrition, Food Safety, and Human Health and Well-Being
- Number of Food Processing and Food Marketing Events
- Number of Gerontology Events Presented
- Increase Preferences for Fruits, Vegetables, Low-fat Dairy Products and Physical Activity
- Number of Smart Choices Grocery Store Locations
- Number of Healthy Living Events that Created Learning Opportunities
- Number of Food Safety Certification or Recertification Courses Presented
- Number of Publications Posted on iGrow Website
- Number of Articles Posted on iGrow Website
- Number of Podcasts Posted on iGrow Website
- Number of Radio Programs Posted on iGrow Website

- 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 Human Nutrition, Food Safety, and Human Health and Well-Being Hatch Research Projects        |
| 2     | Number of Food Processing and Food Marketing Participants  |
| 3     | Increase Knowledge of Aging Issues to Participants   |
| 4     | Number of Youth Participating in Tatanka's Healthy Tales Intervention Program                          |
| 5     | Number of Smart Choices Grocery Store Participants   |
| 6     | Number of Participants Involved in Healthy Living Learning Opportunities                               |
| 7     | Number of Participants that Completed Food Safety Certification or Recertification Food Safety Courses |

**Outcome # 1**

**1. Outcome Target**

Number of Human Nutrition, Food Safety, and Human Health and Well-Being Hatch Research Projects

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

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

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety
- 724 - Healthy Lifestyle

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of Food Processing and Food Marketing Participants

**2. Outcome Type** : Change in Action 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 # 3**

**1. Outcome Target**

Increase Knowledge of Aging Issues to Participants

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

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

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

Number of Youth Participating in Tatanka's Healthy Tales Intervention Program

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

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

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

Number of Smart Choices Grocery Store Participants

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

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

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

Number of Participants Involved in Healthy Living Learning Opportunities

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

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

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

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

- 1862 Extension

**Outcome # 7**

**1. Outcome Target**

Number of Participants that Completed Food Safety Certification or Recertification Food Safety Courses

**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

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

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

- Economy
- Competing Programmatic Challenges

**Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are

fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.

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

### **Program # 8**

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

Families, Youth and Communities

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

Activities in this Planned Program are driven SDSU Extension, with little activity by research. The research activities in this program are supported by our partnership with College of Education and Human Sciences. Hatch funded projects include but are not limited to research involving financial literacy and management behavior, physical and mental health in diverse rural low-income families, and psychological and socio-cultural factors that impact the decision to save. Activities being reported for SDSU Extension include The Great American Book Read, Small Business Beginnings, Character Education, CYFAR, Native American Events, Youth Voices, Teens as Teachers, Ripple Effect Mapping, and Garden Development or Enhancement.

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

**4. Program duration :** Medium Term (One to 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> |
|----------------|--|------------------------|------------------------|-----------------------|-----------------------|
| 205            | Plant Management Systems   | 5%                     |                        | 0%                    |                       |
| 215            | Biological Control of Pests Affecting Plants   | 1%                     |                        | 0%                    |                       |
| 216            | Integrated Pest Management Systems   | 2%                     |                        | 0%                    |                       |
| 704            | Nutrition and Hunger in the Population   | 7%                     |                        | 0%                    |                       |
| 801            | Individual and Family Resource Management  | 0%                     |                        | 67%                   |                       |
| 802            | Human Development and Family Well-Being  | 0%                     |                        | 13%                   |                       |
| 803            | Sociological and Technological Change Affecting Individuals, Families, and Communities             | 35%                    |                        | 5%                    |                       |
| 804            | Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures | 2%                     |                        | 0%                    |                       |
| 805            | Community Institutions, Health, and Social Services  | 0%                     |                        | 15%                   |                       |
| 806            | Youth Development  | 48%                    |                        | 0%                    |                       |
|                | <b>Total</b>   | 100%                   |                        | 100%                  |                       |

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

There are concerns that the savings rate of American households, especially low and moderate income households is inadequate, leaving families extremely vulnerable to economic setbacks. Additionally, research indicates that there is a link between financial security and over-all health. Unhealthy families are not able to fully socially and economically contribute to their communities.

Many small communities in South Dakota do not realize that they are spending more educational funding on the best and the brightest high school students that graduate and leave their communities, while spending less on the graduates that stay.

Small businesses represent approximately 60% of all jobs nationally and are a large part of South Dakota's economy. Small businesses need educational resources, but often times it is not easily accessible.

Teenagers have the potential to become great leaders for their families, careers or communities, but need to be exposed to activities that teach them skills.

In South Dakota, 33.6% of youth ages 5-19 are overweight or obese. More than 85% do not eat enough fruits and vegetables and most are not physically active, with 23% of the youth watching 3 or more hours of television on an average school day.

Poverty on the reservation has long been a major problem. Much of the land on South Dakota Indian Reservations is operated by non-Native American producers or is not being sustainably utilized at all. Few Native American beginning farmers/ranchers have adequate financial resources to invest in further education beyond local attendance at short courses.

With 82% of parents in South Dakota working, children are less supervised and parents often lack the tools or the time to teach character development. Today's youth are continually exposed to negative role models and high risk behaviors, leading to higher incidences of bad decision making.

As rural America keeps shrinking, there is a greater disconnect between our citizens and agriculture. At the same time, more people are in need of affordable, safe, and healthy foods. Research indicates that community gardeners, as well as youth that participate in gardening programs, include more fruits and vegetables in their diet.

## **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**

#### **We Assume:**

- Mental and physical health and economic status affect quality of life for rural families
- Low and moderate income families have inadequate savings
- Rural communities need educated citizens for sustainability and growth
- Small businesses will continue to employ a high percentage of South Dakotans
- Teenagers will reach their full potential if exposed to the right skills
- Younger children look up to teenagers and learn well from them
- Native Americans want out of poverty
- Youth make poorer decisions when less supervised
- Rural America is shrinking

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

#### **Goals:**

- Improve and strengthen the vitality and sustainability of rural communities
- Create jobs and reduce unemployment
- Reverse the shrinking of rural America
- Create young leaders for future needs



- Create robust learning environments for youth
- Decrease the number of overweight and obese youth in South Dakota
- Increase healthy eating behaviors in our youth
- Increase the number of Native American farmers and ranchers
- Develop lasting, good character in our youth
- Reverse the disconnect between our citizens and agriculture

**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 |
| 2015 | 37.0      | 0.0  | 0.9      | 0.0  |
| 2016 | 37.0      | 0.0  | 0.9      | 0.0  |
| 2017 | 37.0      | 0.0  | 0.9      | 0.0  |
| 2018 | 37.0      | 0.0  | 0.9      | 0.0  |
| 2019 | 37.0      | 0.0  | 0.9      | 0.0  |

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

**1. Activity for the Program**

- Research that Examines Financial Savings Behavior
- Research to Understand Mental and Physical Health and Economics in Rural America
- Conduct Community Book Read and Discussions
- Conduct Small Business Workshops
- Conduct Leadership Workshops
- Deliver Healthy Living Program
- Conduct Workshops on Indian Reservations in Western South Dakota
- Conduct Character Education Program Training
- Develop and Enhance Community and School Gardens
- Partner with Ground Works School Teaching Gardens

**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>• Newsletters</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (social media)</li> </ul> |

### 3. Description of targeted audience

- Low to Moderate Income Families
- Mothers Living in Rural Areas
- Rural Communities
- Entrepreneurs
- Youth
- Teenagers
- Native Americans
- Consumers of Food Products
- Local Schools
- Youth Program Leaders

### 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**

- Percentage of all Hatch Research Projects in Families, Youth and Communities
  - Number of Communities Participating in the Book Reads and Discussions
  - Number of Communities Hosting Small Business Beginnings Workshops
  - Number of Teens Trained in the Teens as Teachers Program
  - Number of High School Students Selected as 4-H Hometown Hero Representatives
  - Implemented Evidence-Based Programs for Children, Youth and Families at Risk (CYFAR)
  - Number of Communities Hosting the Ripple Effect Mapping
  - Increase Intergenerational Engagement with Community Organizations
  - Number of Events Conducted on Native American Reservations
  - Number of Garden Development or Enhancement Workshops and Webinars Conducted
  - Number of Publications Posted on iGrow Website
  - Number of Articles Posted on iGrow Website
  - Number of Podcasts Posted on iGrow Website
  - Number of Radio Programs Posted on iGrow Website
- 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 Families, Youth and Communities Hatch Research Projects                          |
| 2     | Number of Participants in the Book Reads and Discussions                                   |
| 3     | Number of Small Business Beginnings Workshop Participants                                  |
| 4     | Number of Students Taught by Teens as Teachers   |
| 5     | Number of Elementary Students Impacted by 4-H Hometown Hero Representatives                |
| 6     | Number of Children, Youth and Families at Risk (CYFAR) Participants                        |
| 7     | Ripple Effect Mapping Participants   |
| 8     | Number of Youth Voices Program Participants  |
| 9     | Number of Participants Involved in Native American Reservation Events                      |
| 10    | Number of Community or School Gardens Receiving Assistance with Development or Enhancement |

**Outcome # 1**

**1. Outcome Target**

Number of Families, Youth and Communities Hatch Research Projects

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

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of Participants in the Book Reads and Discussions

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

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

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Number of Small Business Beginnings Workshop Participants

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

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

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

Number of Students Taught by Teens as Teachers

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

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

- 806 - Youth Development

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

Number of Elementary Students Impacted by 4-H Hometown Hero Representatives

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

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

- 806 - Youth Development

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

Number of Children, Youth and Families at Risk (CYFAR) Participants

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

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

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 7**

**1. Outcome Target**

Ripple Effect Mapping Participants

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

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

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 8**

**1. Outcome Target**

Number of Youth Voices Program Participants

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

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

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 9**

**1. Outcome Target**

Number of Participants Involved in Native American Reservation Events

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

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

- 205 - Plant Management Systems
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 10**

**1. Outcome Target**

Number of Community or School Gardens Receiving Assistance with Development or Enhancement

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

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

- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

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

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

- Economy
- Competing Programmatic Challenges

**Description**

SDSU Extension and the SDSU Ag Experiment Station have met or exceeded its goals despite a decrease in state and federal resources. The reduction in funds however, has created challenges across the board with research and outreach. There are fewer faces to greet the customer, there are fewer hands-on projects, and cost recovery has taken the word free out of some programs. But while these challenges may initially seem troublesome, paradoxically they improve service to our stakeholders. Smart classrooms provide video conferencing, web-based learning is available all hours



of the day, and new sponsorships create new partnerships. There will be more challenges, but SDSU Extension and the SDSU Ag Experiment Station continue their commitment to excellence and success.

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

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

Progress has been made in that more impact reports are being required for posting to our online teaching platform - iGrow.org. As this demand increases, the importance of program evaluation becomes more evident and our staff becomes more proficient at writing stronger reports. Due to continued budget constraints, a full-time evaluator has not been hired.