

2012 South Dakota State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

Great things are happening in the College of Agricultural and Biological Sciences at South Dakota State University. And it's all because there are great partnerships, old and new, getting stronger every day. It starts with the South Dakota Agricultural Experiment Station and SDSU Extension, with research, teaching and outreach making life better for all South Dakotans. Our partnerships with government entities, commodity organizations, 4-H, and private industry all contribute enormously to creating opportunity and to better serve the people of our state. SDSU's College of Agricultural and Biological Sciences and the College of Education and Human Sciences are working closer than ever to provide important programs in food science and research.

SDSU Extension and the South Dakota Agricultural Experiment Station is taking on the challenge of feeding 2.5 billion people by 2050 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 five 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 our online community.

Beginning with this reporting period, an effort is underway to further engage the research projects supported by Hatch funding. Typically, the technical language that researchers use in their reports makes it quite difficult to express their objectives, which inherently leaves them underrepresented in a combined Research and Extension report. The goal for this year is to present a broad, simple summary of the Hatch research activities and to identify how they fit into our Planned Programs. Our endeavor is to share with everyone the valuable research that our scientists are conducting with the use of Hatch funding.

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension. During the last year our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public. The following is a summary of our new Planned Programs, which 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 Pesticide Applicator Training and extending the growing season with High Tunnels.

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 beefSD, Calf Value Discovery, and sheepSD.

Agricultural, Natural Resource, and Biological Engineering

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.

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 Estate and Transition Planning and 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, Home Food Preservation, Food Entrepreneurs, KidQuest, Healthy Aging, Tatanka's Healthy Tales, Senior Resource Fairs, International Bonds, 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, FCCLA Leadership, Strong Bodies, Strong Futures, Teens as Teachers, Lakota Beginning Farmer and Rancher Development, Character Counts, and Garden Development or Enhancement.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	116.0	0.0	177.6	0.0
Actual	70.0	0.0	192.6	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

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. Stakeholder Input

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

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

- Survey of traditional stakeholder individuals
- Survey 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 was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Advisory Committees
- 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 was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with 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.

Brief Explanation of what you learned from your Stakeholders

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.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
3568205	0	3105862	0

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	5459820	0	3105862	0
Actual Matching	5459820	0	3165773	0
Actual All Other	0	0	0	0
Total Actual Expended	10919640	0	6271635	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	2883664	0	0	0

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
9	Global Food Security and Hunger
10	Climate Change
11	Sustainable Energy
12	Childhood Obesity
13	Food Safety

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Natural Resources and Environment

Reporting on this Program

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%		5%	
102	Soil, Plant, Water, Nutrient Relationships	15%		16%	
104	Protect Soil from Harmful Effects of Natural Elements	0%		3%	
111	Conservation and Efficient Use of Water	0%		7%	
112	Watershed Protection and Management	0%		5%	
121	Management of Range Resources	80%		13%	
122	Management and Control of Forest and Range Fires	0%		1%	
131	Alternative Uses of Land	0%		4%	
132	Weather and Climate	0%		3%	
133	Pollution Prevention and Mitigation	0%		3%	
134	Outdoor Recreation	0%		5%	
135	Aquatic and Terrestrial Wildlife	0%		22%	
136	Conservation of Biological Diversity	0%		11%	
141	Air Resource Protection and Management	0%		2%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Actual Paid Professional	2.7	0.0	52.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
212933	0	373215	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
212933	0	418986	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct Field and Lab Research
- Collaborate with SDSU Extension
- 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

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2285	200829	517	3749

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

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	2	37	39

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Natural Resources and Environment

Year	Actual
2012	20

Output #2

Output Measure

- Increase Rancher's Knowledge of Grazing Techniques and Grassland Management

Year	Actual
2012	0

Output #3

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
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2012 39

Output #4

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	47

Output #5

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	56

Output #6

Output Measure

- Number of CAFOs Participants

Year	Actual
2012	38

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Natural Resources and Environment Hatch Research Projects
2	Number of Grazing School Participants
3	Number of CAFOs Training Sessions

Outcome #1

1. Outcome Measures

Number of Natural Resources and Environment Hatch Research Projects

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 23 Hatch projects that are categorized in the Planned Program of Natural Resources and Environment. The research activities in this program are primarily supported by our Department of Natural Resource Management. Projects include but are not limited to research studies in carbon sequestration, ecosystems, wildlife habitat, climate change, soil productivity, water quality, bioenergy, and pollution prevention.

Results

Through research, our Department of Natural Resource Management continues to build a scientific knowledge base to improve and understand the management of natural resources in South Dakota. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects. Notes of interest on results:

Rehabilitated soil plots show a 10-50 percent yield increase; US Army Corps of Engineers adopted change in managing Missouri River; Choice between greater short-term grain yields or longer-term carbon storage potential; Loss of CRP grasslands influence the ecology of White-Tailed deer fawns; Grasslands ecology enhanced with patch grazing and patch-burn grazing; Updated index values for rangeland plants in soil productivity calculations; Better understanding of weather condition changes impacting agricultural productivity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
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
122	Management and Control of Forest and Range Fires
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

Outcome #2

1. Outcome Measures

Number of Grazing School Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

In cooperation with the South Dakota Grasslands Coalition and several other entities, SDSU Extension has partnered in grasslands management training to more than 265 ranchers for the last 10 years. In 2012, SDSU Extension's efforts were dedicated to participants of the beefSD program, which is aimed at beginning ranchers. Ranchers participated in classroom presentations as well as hands-on activities in the field.

Results

Even though the Grazing School is designed for all producers, the focus on beginning ranchers enabled SDSU Extension to reach new participants and increase their knowledge with many topics, including managing diversity on rangelands, pasture allocation, holistic management, soil health and infiltration, and concepts of grazing. Other topics also include planning your own place and planning for a forage shortage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
121	Management of Range Resources

Outcome #3

1. Outcome Measures

Number of CAFOs Training Sessions

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Large-scale livestock producers, known as Concentrated Animal Feeding Operations (CAFOs), create potential water and air quality conflicts for rural communities in South Dakota. There is a need for the development of these operations, but environmental laws must be followed and good will with neighbors is imperative for the sustainability of large operations. Any CAFO that is applying for a General Permit must attend the course.

What has been done

SDSU Extension, the South Dakota Department of Environment and Natural Resources, and the Natural Resources Conservation Service provide training three times a year for federal and state water pollution and control programs. The training sessions included topics on livestock production, manure management and land application practices. In addition, SDSU Extension Specialists discuss the management of nitrogen and phosphorus content of manure and air quality and odor.

Results

Approximately half of the participants were required to be at the training sessions and about half of them attended for the learning experience. The sessions represented approximately 21,350 animals in the beef industry, 17,700 animals in the dairy industry, and 124,240 animals in the swine industry. Survey results show a 55% increase in the overall understanding of the topics and an 83% overall satisfaction rate with the program. Eighty-five percent of the participants said they plan to adopt certain practices they learned.

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Programming was also affected as resources had to be reappropriated to address the drought of 2012.

Funding cuts continue to impact South Dakota State University.

SDSU Extension's recent hiring of a new range field specialist should increase the outreach activity of Natural Resources and Environment Planned Program.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired.

However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Grazing Schools

Success of the SD Grazing School led SD NRCS administrators to require attendance at the School by livestock producers qualifying for Conservation Stewardship Program contracts for grazing lands they manage.

Success of the SD Grazing School is also reflected in the inquiries received from other states by the SD Grasslands Coalition Board about how to conduct similar training events.

As a result of the SD Grazing School over the last ten years, more than 265 ranchers and managers have been trained, representing management influence on more than 900,000 acres of grazing land.

Concentrated Animal Feeding Operations

Pre and Post Surveys

35 of 38 Participant Responses

83% - Overall Participant Satisfaction with the Program

Understanding of the Topic before Program

- 63% - Water Quality
- 56% - Permit
- 61% - Land Application
- 59% - Worksheets
- 56% - Conservation
- 49% - Nutrition
- 50% - Air Quality

Understanding of the Topic after Program

- 87% - Water Quality
- 87% - Permit
- 89% - Land Application
- 88% - Worksheets
- 86% - Conservation
- 84% - Nutrition
- 87% - Air Quality

Participants that Plan to Adopt Practices

- 86% - Land Application
- 89% - Conservation
- 80% - Nutrition
- 85% - Air Quality

Key Items of Evaluation

Grazing Schools

As a result of the SD Grazing School over the last ten years, more than 265 ranchers and managers have been trained, representing management influence on more than 900,000 acres of grazingland.

Concentrated Animal Feeding Operations

Pre and Post Surveys

35 of 38 Participant Responses

83% - Overall Participant Satisfaction with the Program

55% - Increase in Overall Understanding of the Program Topics

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Plants and Their Systems

Reporting on this Program

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%		20%	
202	Plant Genetic Resources	0%		14%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		24%	
204	Plant Product Quality and Utility (Preharvest)	20%		6%	
205	Plant Management Systems	0%		11%	
206	Basic Plant Biology	0%		2%	
211	Insects, Mites, and Other Arthropods Affecting Plants	35%		8%	
212	Pathogens and Nematodes Affecting Plants	0%		9%	
213	Weeds Affecting Plants	0%		1%	
215	Biological Control of Pests Affecting Plants	0%		3%	
216	Integrated Pest Management Systems	45%		2%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	8.1	0.0	64.2	0.0
Actual Volunteer	6.0	0.0	0.2	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
631701	0	944567	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
631701	0	1093852	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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
- Conduct High Tunnel Workshops
- Deliver Integrated Pest Management Resources
- Partner with the South Dakota Agri-Business Association

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10201	2234652	1330	85035

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

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	47	14	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Plants and Their Systems

Year	Actual
2012	28

Output #2

Output Measure

- Number of Pesticide Applicator Training Sessions

Year	Actual
2012	109

Output #3

Output Measure

- Number of High Tunnel Workshops Conducted

Year	Actual
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2012 4

Output #4

Output Measure

- Number of IPM Participants

Year	Actual
2012	111

Output #5

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	333

Output #6

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	30

Output #7

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	105

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Plants and Their Systems Hatch Research Projects
2	Number of Pesticide Applicator Training Participants
3	Number High Tunnel Workshop Participants
4	Number of IPM Training Events Conducted

Outcome #1

1. Outcome Measures

Number of Plants and Their Systems Hatch Research Projects

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	37

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 37 Hatch projects that are categorized in the Planned Program of Plants and Their Systems. The research activities in this program are primarily supported by our Department of Plant Science and our Department of Biology and Microbiology. Projects include but are not limited to research studies in disease management, wheat genetics and genomics, gene mapping for soybeans, drought tolerant seeds, wine grape cultivars, oat variety development, and sunflower germplasms.

Results

Through research, we continue to build a scientific knowledge base to improve and understand plant varieties, increased agricultural productivity, plant diseases, impacts of tillage on soil carbon levels, and the genomic basis of grape quality. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Outcome #2

1. Outcome Measures

Number of Pesticide Applicator Training Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension organized and participated in 73 commercial applicator sessions and 36 private applicator training sessions across the state. Fourteen commercial categories were covered. Speakers at the sessions included SDSU Extension Specialists, State Department of Agriculture representatives, and State Department of Environment and Natural Resources.

Results

Participants at the sessions gained knowledge in personal protective equipment, nozzle selection and calibration, pesticide resistance management and pollinator protection. Extension personnel also covered the South Dakota rules and regulations about applying pesticides. In a pre and post survey of 1000 commercial applicators, there was a 10% increase in the knowledge gained concerning the mode of action group numbers on pesticide labels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #3

1. Outcome Measures

Number High Tunnel Workshop Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension has provided workshops to educate growers on high tunnels and other season extending methods. The workshops included high tunnel selection, science based production, construction, marketing, and pest management. One-on-one site visits were also used to disseminate information.

Results

Participants enhanced their knowledge and understanding of methods to extend the growing season of vegetables and fruits through the use of high tunnels. More than 90% of the participants indicated that they will implement at least one lesson or skill they learned at the workshops. Twenty-nine participants who do not currently utilize any season extending methods are considering acquiring and utilizing high tunnels in the near future. Participants that already use high tunnels also indicated they greatly enhanced their knowledge.

4. Associated Knowledge Areas

KA Code	Knowledge Area
---------	----------------

204 Plant Product Quality and Utility (Preharvest)

Outcome #4

1. Outcome Measures

Number of IPM Training Events Conducted

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Many factors influence how growers manage crop diseases. The proper identification of pests and the pest control measures used have a direct influence on the profitability of the farm operation. Without the improved knowledge of pest biology, unacceptable levels of pest damage can occur and pose risks to people, property and the environment.

What has been done

The SDSU Extension IPM Program organizes two training events for agronomy professionals annually. A crop consultants' update is held for the South Dakota Independent Crop Consultants and an IPM Field School is co-hosted with and for the SD Agri-Business Association. Thirty-six members of the South Dakota Independent Crop Consultants and more than 75 agronomists from the SD Agri-Business Association were trained in agronomic and economic areas including, soybean cyst nematode management, disease identification of foliar and root borne diseases, timing for proper fungicide applications, new and emerging corn insects, thresholds and timing of treatment for soybean insects, herbicide timing and weed control programs, pesticide resistance management, and fertility management and agronomic/climate interactions.

Results

Through education and research, SDSU Extension has given professional agronomists the best up-to-date information available to advise their clientele. Producers are then able to make sound crop pest management decisions that are economically beneficial to their operations. These 2 IPM events alone represent 2 million acres in South Dakota.

4. Associated Knowledge Areas

KA Code Knowledge Area

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Programming was also affected as resources had to be reappropriated to address the drought of 2012.

Funding cuts continue to impact South Dakota State University.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Pesticide Applicator Training

Pre- and Post-session live questionnaires were conducted using Turning Point Technologies during the commercial applicator trainings. The questionnaires were designed to measure the change in knowledge of insecticide mode of action. Specifically, the questions probed on whether the audiences understand the meaning of the group numbers on pesticide labels, where to find it on the label and how to incorporate it to a pesticide resistance management plan. In all training locations, there was a 10% increase in the knowledge gained concerning the mode of action group numbers on pesticide labels.

High Tunnel

Post survey of 51 Participants

68% - participants currently not using high tunnels

56% - participants that are considering using high tunnels as a result of the workshops

90% - participants that indicate they will implement at least one lesson or skill learned

Integrated Pest Management

Pre and Post Survey

75 Participants

Before

Will you scout fields and use pesticides only after pest levels reach economic thresholds?

64% - likely

28% - somewhat likely

8% - not likely

After

70% - likely

23% - somewhat likely

7% - not likely

Will you consider using aphid-resistant soybean varieties for pest management?

Before

50% - yes

50% - no

After

4% - no

96% - yes

82% - rated the events as useful to very useful

Key Items of Evaluation

Pesticide Applicator Training

1000 Commercial Applicator Participants

10% increase in the knowledge gained concerning the mode of action group numbers on pesticide labels.

Integrated Pest Management

10% increase in preferred IPM behavioral changes

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Animals and Their Systems

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	0%		12%	
302	Nutrient Utilization in Animals	0%		25%	
303	Genetic Improvement of Animals	0%		1%	
304	Animal Genome	0%		5%	
305	Animal Physiological Processes	0%		4%	
306	Environmental Stress in Animals	0%		1%	
307	Animal Management Systems	60%		11%	
308	Improved Animal Products (Before Harvest)	15%		4%	
311	Animal Diseases	0%		29%	
313	Internal Parasites in Animals	0%		3%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%		3%	
315	Animal Welfare/Well-Being and Protection	25%		2%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	11.0	0.0	30.7	0.0
Actual Volunteer	1.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
857738	0	807784	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
857738	0	726649	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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
- Develop sheepSD Program
- Coordinate Value-Based Marketing System for Cow-calf Operations
- Develop beefSD
- Conduct Ranch Visits

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8561	1900845	2987	6996

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

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	28	50	78

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Animals and Their Systems

Year	Actual
2012	20

Output #2

Output Measure

- Launch sheepSD as a Learning Opportunity for Sheep Producers

Year	Actual
2012	0

Output #3

Output Measure

- Demonstrate Value-Based Marketing to Cow-calf Producers

Year	Actual
------	--------

2012 0

Output #4

Output Measure

- Provide Management Tools to Beginning Cattle Ranchers

Year	Actual
2012	0

Output #5

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	558

Output #6

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	24

Output #7

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	106

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Animals and Their Systems Hatch Research Projects
2	Number of Sheep Operations Participating in sheepSD
3	Number of Cow-calf Operations Participating in the Calf Value Discovery Program
4	Number of beefSD Participants

Outcome #1

1. Outcome Measures

Number of Animals and Their Systems Hatch Research Projects

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	27

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 27 Hatch projects that are categorized in the Planned Program of Animals and Their Systems. 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. Projects include but are not limited to research studies in 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.

Results

Through research, we continue to build a scientific knowledge base to improve and understand the profound effects of steroids and estrogens on reproduction, the use of biofuel co-products as feedstock, the efficiency in tracking animal infections, enhance vaccine responses for disease prevention, and improve the efficiency of muscle growth in poultry. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
315	Animal Welfare/Well-Being and Protection

Outcome #2

1. Outcome Measures

Number of Sheep Operations Participating in sheepSD

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	17

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension developed the sheepSD program as a learning opportunity for sheep producers. The program helps potential and beginning sheep ranchers enter and expand the sheep industry by developing production and management skills for producer efficiency, profitability and sustainability.

Results

Seventeen operations are currently participating in the sheepSD program. A learning community has been organized and has established bylaws to become a beginning sheep producer organization under the umbrella of the South Dakota Sheep Growers Association. Many of the

producers intend to become future directors and officers of the association. SDSU Extension provides leadership and collaboration with industry leaders and multistate Extension partners.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension coordinated the Calf Value Discovery Program, a retained ownership program in which 11 cow-calf operations participated with 244 calves. The calves were vaccinated, dewormed, individually identified, and weighed. They were consigned to a local yard where they were fed in a single pen, visually evaluated and sold in semi-load lots.

Results

The Calf Value Discover program provides feedback to producers on feeding performance and carcass characteristics of calves. The data provides a benchmark for comparison with cattle from other operations and it also provides useful guidelines for making selection and marketing

decisions in the future. Several producers are using the data to influence their breeding program and some producers are using the data to market their calves for a higher price.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of beefSD Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To be competitive, beginning beef producers need relevant and timely information in the areas of livestock production, natural resource stewardship, marketing, financial management, business, and risk and legal management.

What has been done

SDSU Extension finished its first year of its signature program, beefSD. Forty-three individuals from 20 operations participated in the program designed specifically for beginning producers. The program consists of interactive workshops, evaluation of alternative beef cattle production systems, mentoring by established ranchers, post-weaning calf performance evaluation, web-based learning and study trips focused on the U.S. beef cattle industry.

Results

Beginning ranchers have been provided a curriculum with tools to help them make wise management decisions. Participants reported knowledge gain in many areas, including the science of feeding cattle, improving the herd, genetic selection, marketing, operation efficiency, and pasture management. Fifty-eight percent of the participants reported they now understand the working of a processing/slaughter system, while 50% are re-evaluating their bull selection. Many participants also reported the importance of building relationships and establishing

contacts.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Other (Sheep and Wool Market Decline)

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Programming was also affected as resources had to be reappropriated to address the drought of 2012.

Funding cuts continue to impact South Dakota State University.

Interest in sheepSD was stronger early in the year, but drought and the decline of the sheep and wool market dissuaded some producers from participating in the program.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Calf Value Discovery Program

On average, feeding costs were \$565.31 per animal. This equates to a total cost of gain of \$83.62/100 lb. When carcasses were sold on a grid marketing basis, price ranged from \$1,173.37 to 1,954.15, but had carcasses been sold on a dressed basis this range would have been narrower (\$1,184.49 to \$1,863.22). When including the value of the feeder calf, there was a \$633.86 dollar per animal range in return from a loss of \$220.95 to a profit of \$412.91. However, on average total profit was \$48.20 per animal.

Key Items of Evaluation

Nothing significant to report.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Agricultural, Natural Resource, and Biological Engineering

Reporting on this Program

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%		9%	
402	Engineering Systems and Equipment	0%		9%	
403	Waste Disposal, Recycling, and Reuse	0%		61%	
404	Instrumentation and Control Systems	0%		11%	
405	Drainage and Irrigation Systems and Facilities	100%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Actual Paid Professional	3.6	0.0	2.5	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
279543	0	77802	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
279543	0	77802	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1079	77445	745	2622

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

Patent Applications Submitted

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	10	39	49

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Agricultural, Natural Resource, and Biological Engineering

Year	Actual
2012	2

Output #2

Output Measure

- Number of Drainage and Water Management Design Workshops

Year	Actual
2012	5

Output #3

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	49

Output #4

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	14

Output #5

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	15

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Agricultural, Natural Resource, and Biological Engineering Hatch Research Projects
2	Number of Drainage and Water Management Design Participants

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Within the College of Agricultural and Biological Sciences, there is one Hatch project that is categorized in the Planned Program of Agricultural, Natural Resource, and Biological Engineering. The research activities in this program are primarily supported by our Department of Agricultural and Biosystems Engineering. Projects are limited to research studies involving the development of a sustainable nonfood/non-feed biomass for biodiesel.

Results

Through research, our Department of Agricultural and Biosystems Engineering has continued to build its knowledge base to improve and understand biomass technology with the design and development of the photobioreactor system. The photobioreactor system may enhance conventional biomass to ethanol production by increasing profitability. Profitability will be enhanced by using the carbon dioxide produced during ethanol production to create a new source of biomass, namely algae. Research is ongoing. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Outcome #2

1. Outcome Measures

Number of Drainage and Water Management Design Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

A multistate effort with SDSU Extension, North Dakota State University and the University of Minnesota, along with industry partners, conducted workshops that included topics on drainage design fundamentals, managed drainage design, soil principles, lift stations, design tools, agronomic considerations, and legal and wetlands issues. The workshops concluded with participants working in small groups to design a drainage system for one of their own fields or an example field.

Results

More than 75% of the participants found the workshops overall to be useful or very useful. Four of the 11 training sessions were on the design of agricultural tile drainage, which rated highest for usefulness of knowledge gained at the workshops. Many participants reported that what they learned at the workshops will help them make better, more thoughtful decisions that will give them confidence in doing the tiling themselves.

4. Associated Knowledge Areas

KA Code Knowledge Area

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (N/A)

Brief Explanation

There are no external factors that hindered the efforts of this Planned Program.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Drainage and Water Management Design

Post workshop surveys with 61 respondents to all questions.

Respondents reporting that workshops were useful or very useful:

91% - Soil & Drainage Principles

65% - Using Yield Maps to Identify

76% -Legal Considerations of Drainage

94% - Wetland Delineations

88% - Lift Station Design

73% - Safety

72% - Producer/Tiler Panel Discussion

92% - Design Session I

93% - Design Session II

100% - Design Session III

100% - Design Session IV

Key Items of Evaluation

Nothing significant to report.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

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

Reporting on this Program

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%		24%	
502	New and Improved Food Products	0%		27%	
503	Quality Maintenance in Storing and Marketing Food Products	0%		3%	
504	Home and Commercial Food Service	80%		0%	
511	New and Improved Non-Food Products and Processes	0%		45%	
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%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	2.0	0.0	24.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
158881	0	340580	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
158881	0	383734	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2345	592148	1452	62564

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

Year: 2012
 Actual: 4

Patents listed

Forefront - Spring Wheat
 Ideal - Winter Wheat
 Streaker - Oats
 Colt - Oats

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	0	28	28

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Food and Non-Food Products: Development, Processing, Quality, and Delivery

Year	Actual
2012	13

Output #2

Output Measure

- Number of BBQ Bootcamp Workshops

Year	Actual
2012	5

Output #3

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	51

Output #4

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	5

Output #5

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	32

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Food and Non-Food Products: Development, Processing, Quality, and Delivery Hatch Research Projects
2	Number of BBQ Bootcamp Participants

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 15 Hatch projects that are categorized in the Planned Program of Food and Non-Food Products: Development, Processing, Quality, and Delivery. 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. Projects include but are not limited to research studies in 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.

Results

Through research, we continue to build a scientific knowledge base to improve and understand value added protein fractions from milk, the significance of biomass, mechanisms involved in regulating meat aging, increased shelf life for meat products, and milk homogenization. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies

- 502 New and Improved Food Products
- 503 Quality Maintenance in Storing and Marketing Food Products
- 504 Home and Commercial Food Service
- 511 New and Improved Non-Food Products and Processes
- 512 Quality Maintenance in Storing and Marketing Non-Food Products
- 703 Nutrition Education and Behavior
- 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Number of BBQ Bootcamp Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	180

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension, partnering with the South Dakota Beef Industry Council and South Dakota Pork Producer's Council conducted five workshops in four cities. The workshops provided intensive, hands-on opportunities to enhance the understanding of meat cookery, barbequing, smoking, food safety, new value meat cuts and nutrition of meat products.

Results

Participant evaluations indicate the workshops were very successful in educating consumers. The BBQ Bootcamp program greatly enhanced the understanding of cookery, selection, and nutritional content of meat cuts.

4. Associated Knowledge Areas

KA Code Knowledge Area

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Other (N/A)

Brief Explanation

There are no external factors that hindered the efforts of this Planned Program.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Barbeque Bootcamp

180 participants 105 respondents

Presentation

1 = not valuable; 10 = highly valuable

8.1 - Grilling and Nutrition

8.3 - Smoking, Barbequing, Retail Selection

8.3 - Food Safety & Degrees of Doneness

8.5 - Spices, Rubs, & Marinades

Question

1 = absolutely not, 10 = absolutely; 1 = no knowledge, 10 = expert knowledge

9.2 - Did the speaker effectively explain the information?

6.0 - Knowledge level before program?

8.3 - Knowledge level after program?

9.4 - Was the program beneficial?

8.9 - Was the program beneficial in helping understand food safety, handling, and proper cooking temperatures for meat?

Key Items of Evaluation

Nothing significant to report.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Economics, Markets, and Policy

Reporting on this Program

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%		14%	
602	Business Management, Finance, and Taxation	28%		12%	
603	Market Economics	18%		24%	
604	Marketing and Distribution Practices	0%		20%	
605	Natural Resource and Environmental Economics	2%		9%	
607	Consumer Economics	0%		8%	
608	Community Resource Planning and Development	2%		4%	
609	Economic Theory and Methods	0%		4%	
610	Domestic Policy Analysis	0%		5%	
801	Individual and Family Resource Management	50%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	4.6	0.0	13.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
361440	0	259936	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
361440	0	295911	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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. Brief description of the target audience

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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2381	210546	216	31206

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

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	7	14	21

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Economics, Markets, and Policy

Year	Actual
2012	8

Output #2

Output Measure

- Number of Estate and Transition Planning Conferences During the Evaluation Period

Year	Actual
2012	18

Output #3

Output Measure

- Number of Ag CEO Workshops

Year	Actual
------	--------

2012 20

Output #4

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	48

Output #5

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	20

Output #6

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	39

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Economics, Markets, and Policy Hatch Research Projects
2	Number of Family Farms or Ranches that Participated in Estate and Transition Planning Conferences
3	Number of Participants in the Ag CEO Program

Outcome #1

1. Outcome Measures

Number of Economics, Markets, and Policy Hatch Research Projects

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 12 Hatch projects that are categorized in the Planned Program of Economics, Markets, and Policy. 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.

Results

Through research, our Department of Economics continues to build a scientific knowledge base to improve and understand land values and cash rental rates, socioeconomic well-being, farm profitability and sustainability, the impact of bilateral ethanol trade flow, and market transparency in fed cattle markets. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
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
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

Number of Family Farms or Ranches that Participated in Estate and Transition Planning Conferences

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	279

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

The data for this outcome is a five-year evaluation of the program from 2008-2012. The Sustaining the Legacy conferences were 4-day workshops that engaged SDSU Extension personnel, farm families, and estate professionals. The participants were provided the tools to understand the importance of communication, wills, probate, retirement planning, trusts, life insurance, and the South Dakota long-term care partnership.

Results

Prior to the workshops, nearly half of the participants said they did not have an estate plan. After the workshops, 82 of the 279 participants responded very favorably to a follow-up survey. At least 74% said that they have started an estate or transition plan, with 15% stating 100% completion of their plan. Another 35% are at least three-fourths the way finished with their plans. Approximately

half of the participants updated their wills and created a trust, but just as important, created a channel of communication with their heirs. Participant comments overwhelmingly found the workshops to be informative, necessary and very important for the future of their operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

Number of Participants in the Ag CEO Program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	109

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

The Ag CEO program is an SDSU Extension signature program with emphasis on beginning farmers and ranchers. One hundred and nine participants from five communities attended the 4-session series of workshops. The program uses a systems approach to farm business planning that includes topics in farm vision, resource inventory and management, and financial subjects including record creation and budget development and analysis.

Results

Prior to the workshops, nearly half of the participants had little or no knowledge of financial tools. They also viewed planning and analysis as of little or no value. At the end of the workshops, about three-fourths of the producers had at least some understanding of balance sheets, cash flow, enterprise analysis, income statements, and financial ratios. And approximately 90% changed their view that there is at least some value in inventories, SWOT analysis, vision statements, GAP analysis, and strategies and scenario planning. By the end of the workshops,

more than half of the producers also had written goals in business management or social responsibilities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
603	Market Economics
605	Natural Resource and Environmental Economics
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Other (Staff Turnover)

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Funding cuts continue to impact South Dakota State University.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Estate and Transition Planning

Pre and Post Conference Surveys
279 surveys with 82 respondents

- 80% started an estate plan
- 39% are 75% complete with their estate plan
- 15% are 100% complete with their estate plan
- 74% started a transition plan
- 34% are 75% complete with their transition plan
- 15% are 75% complete with their transition plan
- 51% updated their will
- 51% communicated with heirs
- 48% created a trust
- 15% modified life insurance policies and gifted assets
- 11% completed funeral planning

- 10% added retirement accounts
- 6% sold assets to heirs

Ag CEO

Pre, Post and Online Follow-up Eight Months after Post Workshop Surveys

109 participants with 67 post respondents, 17 respondents to the Online Follow-up

Pre 39-58% little or no understanding of financial tools

Post 69-90% some understanding of financial tools

Pre 45-60% little or no value in planning and analysis tools

Post 69-90% some value in planning and analysis tools

Post

79% completed a financial inventory

78% completed a physical inventory

69% completed a natural resource inventory

64% completed a human resource inventory

72-81% plan to increase record keeping

57% plan to increase electronic record keeping

84% at least somewhat confident moving forward and making decisions

Follow-up (17 respondents)

70% increased record keeping or planning in key areas

44% increased electronic record keeping

75% increased overall use of computer technology

65% developed new financial tools

94% completed financial inventories

69% developed physical inventories

75% increased communication

For future Ag CEO evaluations, we should modify the evaluation by splitting the evaluation into shorter separate evaluations. This should produce less erratic results. Also, we should add some open ended to get a feeling about what the respondents are thinking, as open ended questions are helpful in program improvement.

Key Items of Evaluation

Estate and Transition Planning

60 family farms or ranches have started an estate or transition plan

12 family farms or ranches have completed an estate or transition plan

28 family farms or ranches are 75% finished with their estate or transition plan

Ag CEO

13 operations increased record keeping or planning in key areas

7 operations increased electronic record keeping

13 operations increased overall use of computer technology

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

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

Reporting on this Program

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%		5%	
702	Requirements and Function of Nutrients and Other Food Components	0%		30%	
703	Nutrition Education and Behavior	35%		43%	
704	Nutrition and Hunger in the Population	0%		6%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	40%		7%	
723	Hazards to Human Health and Safety	0%		1%	
724	Healthy Lifestyle	25%		8%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Actual Paid Professional	11.7	0.0	3.7	0.0
Actual Volunteer	1.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
915612	0	272971	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
915612	0	153409	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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. Brief description of the target 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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	4178	925145	3752	13534

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

Patent Applications Submitted

Year: 2012

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	2	22	24

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Human Nutrition, Food Safety, and Human Health and Well-Being

Year	Actual
2012	6

Output #2

Output Measure

- Number of Home Food Preservation Workshops Conducted

Year	Actual
2012	10

Output #3

Output Measure

- Number of Food Entrepreneur Programs Conducted

Year	Actual
2012	12

Output #4

Output Measure

- Number of Teens Trained as Teachers for KidQuest

Year	Actual
2012	25

Output #5

Output Measure

- Number of Healthy Aging Presentations

Year	Actual
2012	18

Output #6

Output Measure

- Number of Tatanka's Healthy Tales Activity Books Distributed

Year	Actual
2012	880

Output #7

Output Measure

- Number of Senior Resource Fairs Presented

Year	Actual
2012	8

Output #8

Output Measure

- Number of Intergenerational Bonds Presentations

Year	Actual
2012	10

Output #9

Output Measure

- Number of Smart Choices Grocery Store Events

Year	Actual
2012	5

Output #10

Output Measure

- Number of Food Safety Certification or Recertification Courses Presented

Year	Actual
2012	23

Output #11

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	164

Output #12

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	7

Output #13

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	20

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of Human Nutrition, Food Safety, and Human Health and Well-Being Hatch Research Projects
2	Number of Food Preservation Workshop Participants
3	Number of Food Entrepreneur Program Participants
4	Number of Schools that Completed the KidQuest Curriculum
5	Number of Healthy Aging Participants
6	Number of Children Reached through the Tatanka's Healthy Tales Activity Books
7	Number of Senior Resource Fairs Participants
8	Number of Intergenerational Bonds Participants
9	Number of Smart Choices Grocery Store Participants
10	Number of Participants that Completed a Food Safety Course

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 7 Hatch projects that are categorized in the Planned Program of Human Nutrition, Food Safety, and Human Health and Well-Being. 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.

Results

Through research, we continue to build a scientific knowledge base to improve and understand nutritional genomics, behaviors that support healthful lifestyles in young adults, apoptosis-based approach to the prevention of obesity, and that consumption of lean beef in runners can prevent loss of lean muscle mass.

In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Outcome #2

1. Outcome Measures

Number of Food Preservation Workshop Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	147

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension developed food preservation programs and conducted 10 workshops across South Dakota, including several workshops on South Dakota Indian Reservations.

Results

All participants reported an increase in knowledge of food preservation and nearly all of them identified at least one practice that they will change, especially with using tested processes. This is a small, but important step in reducing foodborne illnesses with South Dakota's families, consumers and entrepreneurs.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

Number of Food Entrepreneur Program Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	58

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Food Safety Specialists from SDSU Extension have developed programs to assist entrepreneurs in the selling of their products. The programs focused on food safety at Farmers Markets, starting a licensed commercial kitchen, and the South Dakota Home Processed Food Law. Regulatory issues as well as practices to reduce the risk of foodborne illnesses were addressed. One-on-one assistance was given to help entrepreneurs reach their goals.

Results

Entrepreneurs that participate in SDSU Extension programs can sell their products according to South Dakota Department of Health regulations and feel confident that their products are safe for the public. In-turn, consumers are rewarded by having a bigger selection of safe, local foods to choose from.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #4

1. Outcome Measures

Number of Schools that Completed the KidQuest Curriculum

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

KidQuest, an SDSU Extension signature program was developed to teach 5th and 6th graders about making good decisions about nutrition and physical activity. As a sustainability measure, Teens as Teachers was created to have teens go into the classroom and provide the KidQuest program. By incorporating SDSU students into the research process, under graduates are trained as research assistants and graduate students are able to use the data for their thesis and dissertation requirements. In addition, the program was expanded to Honduras in support of developing international nutrition research and education.

Results

Approximately 425 youth were reached through the KidQuest programs. A post program survey of one of the larger school districts reported that 85% of the participants increased the amount of fruits and vegetables they consumed. Ninety-two percent of the same district reported making healthier snack selections with 68% of them consuming fewer sweets. There was also a reduction in the consumption of the number of sweetened beverages drank each week.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

724 Healthy Lifestyle

Outcome #5

1. Outcome Measures

Number of Healthy Aging Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	160

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Through a needs assessment focus group, two South Dakota communities identified health concerns. The community groups were coached to implement health related changes and both communities purchased treadmills and exercise bikes.

Results

The participants are using the exercise equipment on a regular basis and all of them report an increase in strength and flexibility. Health benefits reported are a decrease in blood pressure and blood cholesterol levels, as well as some participants have been able to quit taking cholesterol medications

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #6

1. Outcome Measures

Number of Children Reached through the Tatanka's Healthy Tales Activity Books

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	540

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Tatanka's Healthy Tales is a childrens activity book used to deliver and encourage healthy eating and physical activity information to 2nd and 3rd graders. The activity books and other supplementary materials printed in the Lakota language were distributed to teachers in schools located on or near Native American reservations.

Results

Teachers in more than 21 schools with high numbers of American Indian children now have a resource to teach their Lakota language as well as help children practice with healthy lifestyle messages. Schools have indicated appreciation of the resources and intend to use it again in lessons for the subsequent school year. As other schools and agencies hear about the program, they too are requesting the materials. Surveys on awareness and receptiveness to healthy behaviors are being analyzed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #7

1. Outcome Measures

Number of Senior Resource Fairs Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	950

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Resource fairs for senior citizens were held in several South Dakota communities to increase the awareness of services available to them. Attendees were offered free health screenings and flu shots, and learned about food safety and how exercise and diet improve health.

Results

Telephone interviews three months after the senior resource fairs showed that many of the participants increased their knowledge of services available to them. Many of them also reported an increase in their consumption of fruits and vegetables and also in increase in their exercise activities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #8

1. Outcome Measures

Number of Intergenerational Bonds Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension partnered, coordinated, provided leadership, and taught several of the sessions for the intergenerational activities. The seniors read books and assisted in teaching programs to the children about gardening, nutrition, culture and exercise.

Results

The children and the seniors had a positive experience interacting with each other. Partnerships were developed with the staff from the South Dakota Children's Museum, Foster Grandparents and RSVP volunteers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #9

1. Outcome Measures

Number of Smart Choices Grocery Store Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Through SDSU Extension and Family and Consumer Sciences, the Family Nutrition Program conducts activities at grocery stores that demonstrate shopping skills and resource management to educate shoppers on how to improve their choices when purchasing food. The grocery stores chosen have a high percentage of limited resource customers. The shoppers received food samples, fact sheets, and low cost choices for healthy recipes. The materials were also distributed to other agencies, schools, and senior feeding sites.

Results

Shoppers that were interviewed at the events indicated that they intend to adopt new healthy eating guidelines, increase price comparison and label reading practices, and adopt food safety procedures. A partnership with the National Relief Charities organization was also formed to adapt the materials for their use in two American Indian Reservation communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #10

1. Outcome Measures

Number of Participants that Completed a Food Safety Course

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	595

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Most cases of foodborne illness can be prevented through education on proper cooking, cooling, storage, and serving of food. SDSU Extension Food Safety Specialists conducted food safety Food Service Manager Sanitation Certification and Recertification courses across South Dakota. Fact sheets developed by SDSU Extension were distributed to all food pantries across the state through the Feeding South Dakota Program.

Results

Ninety-five percent of the individuals participating in ServSafe Foodservice Manager Certification received their certification, with nearly all participants passing the exam the first time it was taken. Seventeen percent of the participants were Native Americans, and one Native American is now teaching his own food safety certification program on the Pine Ridge Reservation. An additional 87 people successfully completed their recertification program provided through Extension. The foodservice establishments in South Dakota meet foodservice standards that are respected nationally.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Funding cuts continue to impact South Dakota State University.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Healthy Aging

160 Participants

- 40% have seen a decrease in their blood cholesterol levels
- 20% of those on cholesterol medicine have been able to get off the medicine
- 75% feel less stressed
- 30% have decreased their blood pressure
- 100% report an increase in strength and flexibility

Senior Resource Fairs

Telephone interviews were completed with a random number of attendees three months after participation in the senior resource fairs and they revealed the following changes:

- 25% have increased their exercise
- 40% are eating more fruit and vegetables
- 10% decreased the amount of salt in their diet
- 10% increased the hours they volunteer each month
- 63% increased their knowledge of service available to them
- 37% received their flu shot or a health screening at the event

Key Items of Evaluation

Healthy Aging

160 Participants - since the participants started exercising, 100% report an increase in strength and flexibility. Health benefits reported are a decrease in blood pressure and blood cholesterol levels, as well as some participants have been able to quit taking cholesterol medications.

Senior Resource Fairs

A random number of telephone interviews revealed that seniors that participated in the resource fairs increased the amount of exercise they do and are eating more fruits and vegetables.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Families, Youth and Communities

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
215	Biological Control of Pests Affecting Plants	1%		0%	
216	Integrated Pest Management Systems	2%		0%	
315	Animal Welfare/Well-Being and Protection	2%		0%	
704	Nutrition and Hunger in the Population	5%		0%	
801	Individual and Family Resource Management	0%		59%	
802	Human Development and Family Well-Being	0%		16%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	35%		6%	
805	Community Institutions, Health, and Social Services	0%		19%	
806	Youth Development	55%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	26.2	0.0	0.6	0.0
Actual Volunteer	4.0	0.0	1.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
2041972	0	29007	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
2041972	0	15430	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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. Brief description of the target 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

3. How was eXtension used?

eXtension is not part of this Planned Program.

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	13945	835602	37102	48755

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

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	6	5	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Percentage of all Hatch Research Projects in Families, Youth and Communities

Year	Actual
2012	3

Output #2

Output Measure

- Number of Communities Participating in the Book Read and Discussions

Year	Actual
2012	6

Output #3

Output Measure

- Number of Communities Hosting Small Business Beginnings Workshops

Year	Actual
------	--------

2012 5

Output #4

Output Measure

- Number of FCCLA Leadership Workshops Conducted

Year	Actual
2012	2

Output #5

Output Measure

- Number of Teens Trained in the Strong Bodies, Strong Futures, Teens as Teachers Program

Year	Actual
2012	63

Output #6

Output Measure

- Conduct Horticulture and Agriculture Workshops

Year	Actual
2012	0

Output #7

Output Measure

- Number of Character Counts School Trainings

Year	Actual
2012	3

Output #8

Output Measure

- Number of Garden Development or Enhancement Workshops and Webinars Conducted

Year	Actual
2012	17

Output #9

Output Measure

- Number of Articles Posted on igrow Website

Year	Actual
2012	226

Output #10

Output Measure

- Number of Podcasts Posted on igrow Website

Year	Actual
2012	61

Output #11

Output Measure

- Number of Radio Programs Posted on igrow Website

Year	Actual
2012	12

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 FCCLA Leadership Workshop Participants
5	Number of Students Taught by Strong Bodies, Strong Futures, Teens as Teachers
6	Number of Participants Graduating from Lakota Beginning Farmer and Rancher Development Program
7	Number of Teachers Trained to Use Character Counts
8	Number of Community or School Gardens Receiving Assistance with Development or Enhancement

Outcome #1

1. Outcome Measures

Number of Families, Youth and Communities Hatch Research Projects

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Within the College of Agricultural and Biological Sciences, there are 3 Hatch projects that are categorized in the Planned Program of Families, Youth and Communities. 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.

Results

Through research, we continue to build a scientific knowledge base to improve and understand the sociological factors associated with personal finance. Economic and sociological factors do explain whether or not respondents have a savings or investment account. Saving habits are a predictor in whether low to moderate individuals have life insurance. Findings indicate difficulty recruiting Native American mothers for research. In addition, graduate students gain valuable knowledge and skills while collaborating on research projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Outcome #2

1. Outcome Measures

Number of Participants in the Book Reads and Discussions

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	75

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension coordinated The Great American Book Read with six communities. Participants in the communities read the book *Hollowing Out the Middle*, which explores the negative effects of the best and the brightest leaving their communities. Discussions were then held to create strategies to deal with the situation, which then lead to action steps that the community can take to improve their community.

Results

Participants have gained knowledge about their high schools and the impact it has on their communities. Most of the communities have taken at least one action step to help with community development. Steps taken include providing leadership training, supporting local entrepreneurs, offering training beneficial to the local area, and discussing the development of a business incubator center.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #3

1. Outcome Measures

Number of Small Business Beginnings Workshop Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	40

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension's Small Business Beginnings program offers proactive and comprehensive business education outreach. The program is a set of tools designed to provide technical assistance to early stage entrepreneurs, start-up businesses and existing small firms. The program has become a "one stop shop" for business education and technical assistance.

Results

Seventy-three percent of the participants graduated from the Small Business Beginnings program. The knowledge that small business owners gained from the program contribute greatly to successful business ventures and the likelihood of business longevity. The participants learned market analysis, concepts of business feasibility, state and federal laws, business performance, and creating or updating a business plan. Seventy percent of the participants indicated they improved their business knowledge by 75-100%. Fifty percent of the participants completed a final draft of their business plan during the workshops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #4

1. Outcome Measures

Number of FCCLA Leadership Workshop Participants

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension 4-H Youth Development conducted leadership workshops that focused on team building and how to increase leadership skills. Activities and planning models were shared with the participants so that they could better understand the processes and methods to become a respected and organized leader in both their FCCLA chapters and within other organizations and their community.

Results

Two hundred youth participated in workshops, learning leadership, teamwork, and personal growth development skills. The workshops enhanced our youth's ability to face the challenges in their futures with confidence.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

Number of Students Taught by Strong Bodies, Strong Futures, Teens as Teachers

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	950

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension 4-H Youth Development delivered the program Strong Bodies, Strong Futures. With several partnering agents, Strong Bodies, Strong Futures Teens as Teachers was created to enhance youth development by having youth carry out the projects. Learning communities were created allowing youth the opportunity to experience greatness by making a difference within their communities and schools. Youth participated in problem solving and plan development, carrying out lesson plans relevant to the MyPlate nutrition guidelines and SD Health Education Standards. The plans were presented to third, fourth and fifth grade classes.

Results

Through the Strong Bodies, Strong Futures Teens as Teachers program, strong community partnerships were formed and a sustainable community outreach was created. The teens learned life skills that make them vital members of their communities. Thirty-two of 35 teens surveyed said that they learned skills that they will use in everyday life and after graduation. Twenty-eight teens said they would participate in a similar program again.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

Number of Participants Graduating from Lakota Beginning Farmer and Rancher Development Program

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	46

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

South Dakota State University in 2009 initiated a three-year Lakota Beginning Farmer & Rancher Development Program that was initially geared to beginning farmers and ranchers on the Pine Ridge reservation. The program has grown beyond its initial scope to include outreach of agricultural business, financial, management, and production skills to people living on Indian Reservations across western South Dakota.

Results

Forty-six participants graduated from the Beginning Farmer & Rancher Development Program. Nine participants completed a two-week Farrier Apprenticeship that addressed the need for adequate providers of horse hoof care on reservations and other underserved areas of the state. Many Native American producers received Private Applicator Training on several of the reservations, learning about pesticides and alternative pest control options. Gardening workshops were also conducted on several reservations, with hundreds of youth and adults learning beginning and intermediate garden topics.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

315 Animal Welfare/Well-Being and Protection
704 Nutrition and Hunger in the Population

Outcome #7

1. Outcome Measures

Number of Teachers Trained to Use Character Counts

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	149

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

SDSU Extension 4-H Youth Development trained 149 teachers in three schools with the Character Counts program and conducted 36 follow-up visits with schools statewide. This character education program uses The Six Pillars of Character framework to teach youth the building blocks of good character. Youth learn about trustworthiness, respect, responsibility, fairness, caring, and citizenship.

Results

SDSU Extension 4-H Youth Development Staff reached more than 40,000 youth this year with the Character Counts program. Students exposed to the Six Pillars of Character learn right from wrong and are instilled with the desire to do what is right. With this program, schools enhance the social behavior of its students and staff. This creates a safe and positive culture that leads to higher academic achievement and personal development. In one community where the school has been using the Character Counts program for three years, the Clerk of Courts reported that no youth have been through the court system in the last year, compared to at least 12 per year in previous years.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
806 Youth Development

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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.

What has been done

Recent surveys in communities across South Dakota indicate a need for sustainable local foods, particularly with gardening issues. In response, SDSU Extension has conducted workshops and activities involving horticulture, garden construction, food safety, nutrition, project organization and community support for agriculture. SDSU Extension also partnered with local non-profits, providing grants to 42 teaching garden projects across the state.

Results

Fifty-one community or school gardens have been launched, enhanced, or are in the development stage. The participants involved have learned valuable organization and development skills that make them more self-reliant with their food production and consumption choices. The exposure to the amazing world of agriculture has also prodded many of the participants to seek additional information about fundraising, farmers markets, and business planning

4. Associated Knowledge Areas

KA Code **Knowledge Area**

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Other (Staff Turnover)

Brief Explanation

The effects of restructuring SDSU Extension in October of 2011 are likely being felt with the greatest impact during this reporting period. With the huge loss of staff and the turn-around time to hire new employees, many vacancies were created. This means less programming and less data to work with in all areas of this report.

Funding cuts continue to impact South Dakota State University.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Due to continued budget constraints, a full-time evaluator has not been hired. However, we are diligent in our efforts to teach staff how to collect and report meaningful, useful programming data. This includes establishing baseline data, templates that correspond to NIFA reporting, and writing impacts that show strong results.

Small Business Beginnings

40 Participants
73% graduated
70% improved their knowleged by 75-100%

Strong Bodies, Strong Futures Teens as Teachers

Post survey to the teens as teachers
74% - Learned how to manage time wisely and gained organizational skills
83% - Making healthier choices and behaviors
Post survey to 24 elementary teachers
79% report an increase in youth discussions on eating healthier and being more physically active

Key Items of Evaluation

Small Business Beginnings

40 Participants
73% graduated

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Global Food Security and Hunger

Reporting on this Program

Reason for not reporting

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension.

During the last year, our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public.

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	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	57.4	0.0	100.1	0.0
Actual Paid Professional	0.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Plant breeders, entomologists, and plant pathologists will develop superior varieties with tolerance or resistance to insects and new disease races. Agronomists will evaluate crop management systems and forage systems that are best adapted to South Dakota, including areas with a history of limited growing season moisture. Soil scientists will develop more effective and cost efficient strategies for conserving soils and reducing fertilizer inputs in cropping systems. Entomologists, plant pathologists, and weed scientists will develop more effective and cost efficient means to safely control plant pests while reducing chemical inputs; including IPM and alternative methods. Horticulturalists will develop appropriate varieties for home gardeners and landscapers, and will teach cost effective production methods. Livestock scientists, specialists and educators will further explore and teach producers how to maximize income through genetics, resource management and marketing. Hands-on Field Scouting School, crop tours, producer/grower meetings will be held. Provide one-on-one individual consultations. Research and timely information will be provided in news columns, current and up-to-date county and state websites, and Extension publications.

2. Brief description of the target audience

Farmers, ranchers, agricultural land owners, hobby gardeners, homeowners and Master Gardeners.

3. How was eXtension used?

vhngh

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2012

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
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Actual	40	40	0
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V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of AES research projects which are intended to enhance agricultural profitability and address global food security.

Year	Actual
2012	0

Output #2

Output Measure

- Number of CES programs for producers which are intended to enhance agricultural profitability and address global food security.

Year	Actual
2012	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Average dollar per head of economic impact because of improved livestock production efficiencies.
2	Number of producers indicating greater knowledge of market indicators affecting their marketing plan.
3	Number of producers using in-depth analysis/ration balancing.
4	Number of producers growing alternative crops.

Outcome #1

1. Outcome Measures

Average dollar per head of economic impact because of improved livestock production efficiencies.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of producers indicating greater knowledge of market indicators affecting their marketing plan.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Number of producers using in-depth analysis/ration balancing.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of producers growing alternative crops.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

fgg

Key Items of Evaluation

gtfghb

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Climate Change

- Reporting on this Program

Reason for not reporting

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension. During the last year, our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	13.8	0.0	45.5	0.0
Actual Paid Professional	0.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Homeowners, landowners and gardeners will be taught concepts of horticultural sustainability to reduce inputs and conserve natural resources. Create Extension civic engagement curriculum for community leaders and organizations, and promote leadership capacity to enhance civic activity within the community.

2. Brief description of the target audience

Property owners, current and future community leaders, and entrepreneurs.

3. How was eXtension used?

ehht

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2012

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	2	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of stakeholders receiving information regarding sustainable consumer horticulture.

Year	Actual
2012	0

Output #2

Output Measure

- Development and delivery of civic engagement "tool kit" curriculum to individual stakeholders.

Year	Actual
2012	0

Output #3

Output Measure

- Number of individuals enrolled in "Managing Your Business" and "CORE FOUR" business planning courses.

Year	Actual
2012	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of strategic, business or marketing plans developed.
2	Total dollar value of strategic, business or marketing plans.
3	Number of people that take on new leadership roles
4	Number of stakeholders that improve consumer horticulture fertilizer, composting and soil nutrient practices.

Outcome #1

1. Outcome Measures

Number of strategic, business or marketing plans developed.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

Total dollar value of strategic, business or marketing plans.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Number of people that take on new leadership roles

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

Number of stakeholders that improve consumer horticulture fertilizer, composting and soil nutrient practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
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{No Data}	null
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V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Sustainable Energy

- Reporting on this Program

Reason for not reporting

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension. During the last year, our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public.

V(B). Program Knowledge Area(s)

- 1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	11.5	0.0	4.9	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

South Dakota State University will conduct research in support of biofuel development, including new and adapted crop varieties. Extension will address energy conservation and efficiency, recycling and air quality.

2. Brief description of the target audience

Homeowners, agricultural commodity group leaders with interests in biofuels, biofuels industry leadership.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2012

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	8	6	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of stakeholders receiving energy conservation information through consultation, workshops, displays and other methods.

Year	Actual
2012	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people reporting some form of energy conservation, such as adding insulation, caulking, etc.
2	Number of people that purchased an energy-saving appliance.
3	Number of home energy audits conducted

Outcome #1

1. Outcome Measures

Number of people reporting some form of energy conservation, such as adding insulation, caulking, etc.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of people that purchased an energy-saving appliance.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of home energy audits conducted

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Childhood Obesity

- Reporting on this Program

Reason for not reporting

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension. During the last year, our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public.

V(B). Program Knowledge Area(s)

- 1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	10.9	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

South Dakota State University will conduct research and Extension programs to reduce childhood obesity, enhance lifelong health, and family resiliency.

2. Brief description of the target audience

Youth, parents, families, people living in poverty

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Patent Applications Submitted

Year: 2012

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	9	4	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of students who participate in KidQuest/school based nutrition programs.

Year	Actual
2012	0

Output #2

Output Measure

- Number of participants in Healthy Meals in a Hurry program

Year	Actual
2012	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people that increased their frequency in using the food label to make food choices.
2	Number of people that adopted 1 or more practices to choose/consume healthier snack choices.
3	Number of people that adopted 1 or more healthy practices to healthy eating when dining out

Outcome #1

1. Outcome Measures

Number of people that increased their frequency in using the food label to make food choices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of people that adopted 1 or more practices to choose/consume healthier snack choices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #3

1. Outcome Measures

Number of people that adopted 1 or more healthy practices to healthy eating when dining out

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Food Safety

- Reporting on this Program

Reason for not reporting

Since the five NIFA Priority Areas are no longer required Planned Programs, we are taking this opportunity to align our Planned Programs with the restructuring of SDSU Extension. During the last year, our programs have undergone sweeping changes that will better serve our citizens. As such, this is a very favorable time for a transformation of the data we report and present to the public.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	8.3	0.0	15.5	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

South Dakota State University will conduct research and Extension programs to increase understanding of safe food handling, preparation and storage practices.

2. Brief description of the target audience

Parents, food service workers and managers, consumers

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

Year: 2012

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	6	13	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Enrollment in food preparation certification courses in underserved areas of the state.

Year	Actual
2012	0

Output #2

Output Measure

- Number of workshops for high risk consumers in food handling and preservation.

Year	Actual
2012	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of people that adopted 1 or more food preparation, storage, or preservation practices for increased access to a safe food supply

Outcome #1

1. Outcome Measures

Number of people that adopted 1 or more food preparation, storage, or preservation practices for increased access to a safe food supply

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

{No Data Entered}

What has been done

{No Data Entered}

Results

{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}