V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change and Natural Resource Use

☑ 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
102	Soil, Plant, Water, Nutrient Relationships	6%		10%	
112	Watershed Protection and Management	8%		10%	
121	Management of Range Resources	9%		5%	
123	Management and Sustainability of Forest Resources	4%		3%	
132	Weather and Climate	0%		20%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		15%	
205	Plant Management Systems	42%		15%	
213	Weeds Affecting Plants	1%		5%	
307	Animal Management Systems	29%		10%	
605	Natural Resource and Environmental Economics	1%		7%	
	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
Plan	13.0	0.0	23.7	0.0
Actual Paid Professional	10.4	0.0	25.1	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**
171221	0	459336	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
171221	0	459336	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	6017906	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Continue to facilitate and assist the establishment and success of local Conservation Resource Management (CRM) groups, for more local control of decisions on natural resources.
2. Educate the public with respect to the principle causes of air pollution and their role in prevention.
3. Partner with others to enable agriculture producers to meet EPA requirements.
4. Establish herbicide demonstration/research plots to evaluate the efficacy of these products under local conditions.
5. Conduct projects consultations, and workshops focusing on the role of outdoor recreation and natural resource-based tourism in relation to community development.
6. Partner with others in education and use of resources to rehabilitate the sagebrush steppe environment.
7. Educate and partner to enable the recovery of the sage grouse, pygmy rabbit and others to avoid listing as endangered species.
8. Determine management options that slow or stop the cycle of cheatgrass and fire on previously burned areas through range rehabilitation, seeding programs and nontraditional approaches to grazing management.
9. Educate producers and agency personnel on the need for continued range evaluation, monitoring, and management improvements and the role of grazing management in sustainable resource management.
10. Educate the public on responsible use and the value of multiple uses on rangelands.
11. Illustrate the need for management and control of pinion-juniper forests to restore watershed, wildlife habitat and forage values on rangelands.
12. Educate the public regarding various options with respect to adapting to global climate change
13. Provide information to landowners and users on grazing management of grazeable lands.
14. Partner with and educate the general public, livestock producers and agency personnel on the identification and methods of control of the specific noxious and invasive species.
15. Conduct experiments and develop theories that can be used to enhance water, soil, wildlife, and for various agronomic and urban areas.
16. Publish studies relating to this program area.
17. Provide educational training, problem solving, and in-depth applied information to: facilitate rehabilitation of degraded watersheds, protect and manage watersheds, conserving, managing and enhancing efficient water use, derive efficient irrigation strategies and technologies, implement water-wise landscaping practices, evaluate and promote plants that require less water and are drought tolerant, preserve and enhance water quality, enhance quality, capture, and use of storm-water and gray-water, identify areas of current or potential soil loss or reduced soil fertility and partner with other agencies to reduce and control these problems, educate producers on the important interactions of soil and irrigation,

provide information on soil nutrient deficiencies and cost effective soil quality and fertility improvements, continue demonstration projects - salinity, soil types, non-traditional soil fertility amendments, fertilizer formulation efficacy, organic matter use and management.

2. Brief description of the target audience

The target audience includes the general public, users of various environments (agricultural producers, extractive industry representatives, environmentalists, green industry professionals, etc.), small acreage owners, private forest owners, extension agriculture and horticulture agents, federal and state water and soil management agencies, and other academics and resource managers.

3. How was eXtension used?

There is a link to eXtension's "Ask an Expert" feature from the USU Extension webpage .

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	8789	495285	7351	414249

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	0	81	81

V(F). State Defined Outputs

Output Target

<u>Output #1</u>

Output Measure

- Number of Graduate Students/Post Docs Trained

Year	Actual
2012	51

Output #2

Output Measure

- Contract/Grant Dollars Generated

Year	Actual
2012	5789981

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of clientele who gain knowledge about improved human, plant, and animal management systems that relate to climate change and/or natural resource use.
2	Number of clientele who implement improved human, plant, and animal management systems as related to climate change and/or natural resource use.

Outcome #1

1. Outcome Measures

Number of clientele who gain knowledge about improved human, plant, and animal management systems that relate to climate change and/or natural resource use.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	22918

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
132	Weather and Climate
201	Plant Genome, Genetics, and Genetic Mechanisms
205	Plant Management Systems
213	Weeds Affecting Plants
307	Animal Management Systems
605	Natural Resource and Environmental Economics

Outcome #2

1. Outcome Measures

Number of clientele who implement improved human, plant, and animal management systems as related to climate change and/or natural resource use.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	14368

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the U.S. Environmental Protection Agency, 30-60% of urban fresh water is used in the landscape. Fifty percent of applied water is lost due to run off and evaporation associated with inefficient irrigation systems. The Water Conservation District and the USEC assists Utah residents through the education of water conservation principles in the landscape.

What has been done
Utah Agricultural Experiment Station research in urban water consumption by landscapes has resulted in a method that allows the identification of high-end users, allowing municipalities to target these users for leaks and/or sprinkler checks and education, improving the overall efficiency of water use and delaying or avoiding the need for large new investments in water transmission structures.

Results
Evaluations concerning 60% of the water that Salt Lake City Corporation (SLCC), delivers to 400,000 daytime users, indicates that it is of legally adequate quality, and that SLCC does not need to change management. For Cache Valley?s 198,000 residents, improved groundwater management strategies will result from this project next year. Peruvian national planners for the 9 million residents of the Lima-Callao metropolitan area better understand data needs for accurately predicting contamination threats to water supply. The US State Department and national planners for Jordan?s 6,000,000 residents have accepted projections concerning when and where it will be too expensive to irrigate with groundwater.

4. Associated Knowledge Areas

KA Code	Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
121	Management of Range Resources
123	Management and Sustainability of Forest Resources
132	Weather and Climate
201	Plant Genome, Genetics, and Genetic Mechanisms
205	Plant Management Systems
213	Weeds Affecting Plants
307	Animal Management Systems
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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
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Everyone of the above checked factors have had a negative impact on this program area!

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Many of the programs offered through Extension have participant self evaluations where results are used to document impacts. Evaluations of some extension programs falling under the Climate Change and Natural Resource Use include workshops on assessing use of alternative low-water crops, the Western Sustainable Agriculture Research and Education (SARE) program, and Master Gardener courses. These are self administered questionnaires given at the time of the program. In some evaluations there are also six month follow-up questionnaires.

Key Items of Evaluation