

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

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
123	Management and Sustainability of Forest Resources	4%		5%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		15%	
202	Plant Genetic Resources	0%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		5%	
205	Plant Management Systems	47%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		2%	
213	Weeds Affecting Plants	0%		5%	
215	Biological Control of Pests Affecting Plants	0%		8%	
216	Integrated Pest Management Systems	10%		2%	
301	Reproductive Performance of Animals	0%		10%	
302	Nutrient Utilization in Animals	0%		5%	
304	Animal Genome	0%		20%	
307	Animal Management Systems	32%		5%	
603	Market Economics	2%		3%	
	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	27.0	0.0	23.4	0.0
Actual Paid Professional	27.4	0.0	26.2	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
450606	0	1288837	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
450606	0	1292125	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	5788377	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Conduct research experiments with livestock and plants and plant material.
2. Publish studies and make presentations related to plant propagation and livestock reproduction and actual plant and livestock production.
3. Conduct workshops and meetings to educate local, state, and regional stakeholders concerning progress in producing livestock and plants that are economically viable and environmentally friendly.
4. Provide new methods of livestock pest control and disease prevention.
5. Release new plant varieties relative to this program area under plant variety protection (PVP) status.
6. Expand use of Integrated Pest Management (IPM).
7. Provide pest diagnostic assistance and management information to county agents, state and federal partners, commercial agriculture and horticulture producers, and the general public through the Utah Plant Pest Diagnostic Laboratory.
8. Coordinate efforts with other states and the Western Region Pest Management Center (WRPMC).
9. Enhance the USU Master and 4-H Junior Master Gardener Programs.
10. Utilize multiple demonstrations/applied research plots to manage weeds in agronomic crops with results reported at field days, workshops, or annual meetings.
11. Conduct research experiments and develop theories that can be used to enhance plant and animal productive efficiencies through the use of genomics.
12. Publish studies related to these areas of concern.
13. Conduct workshops and meetings for other scientists involved in this area of research.
14. Develop applications for the research on plant and animal genomics to directly benefit producers, youths, and other scientists.
15. Conduct market tests to determine the price premium associated with alternative production and marketing programs.
16. Build models to quantify the impacts associated with international trade.
17. Develop risk reduction models for agricultural producers.
18. Analyze firm-level decisions to identify specific changes that might be made on individual farms and ranches that would enhance net returns.
19. Provide outreach to agriculture businesses, small manufacturers, and entrepreneurs to provide educational training and in-depth information on: small business management, home-based businesses, main street community programs, business retention and expansion, rural and heritage tourism, rural and economic development activities, E-commerce programs, community entrepreneurship, marketing (market feasibility, research, customer relations/service, pricing), finances (recordkeeping, raising capital, growing/expanding financial issues), business plans for potential business owners, patents/trademarks/copyrights, insurance, zoning, and legal requirements, identification of business

opportunities, and youth entrepreneurship programs.

2. Brief description of the target audience

The target audience for this work would be other scientists, agricultural producers, landscapers, general public, home owners, green industry officials, professional landscape managers, turfgrass sod producers, local and regional livestock (primarily beef, dairy and equine) producers, small acreage owners, veterinarians, USDA, other private businesses, and government entities that conduct work in this area.

3. How was eXtension used?

In 2012, Ronda Miller continued as the leader for the Environmental Planning section of the Animal Manure Management Community on eXtension and coordinated a "Nitrates in Groundwater" webcast.

USU is part of the national, world-wide impact eXtension Community of Practice (COP). The MapASyst Community of Practice (CoP) consists of geospatial extension programs from 15 states collaborating as the National Geospatial Technology Extension Network (NGTEN) (<http://www.geospatialextension.org>). These states include Ohio, North Dakota, Rhode Island, New Hampshire, Texas, Alabama, Missouri, Virginia, Louisiana, Arizona, Connecticut, Utah, Mississippi, Nebraska, and Oklahoma. The mission of NGTEN is to provide education and decision support on the practical use of earth systems science and technology to users and communities for solving problems and help meet the growing demands for a spatially literate workforce. This network facilitates geospatial technology and educational expertise among the CoP involving applications of geographic information systems (GIS), global positioning systems (GPS), satellite and aerial imagery and localized geographic information data and resources. NGTEN is an effort to foster communication, collaboration, and resource sharing among participating states and to encourage ties to research and development efforts in academia, industry, and federal agencies. NGTEN is essentially what eXtension calls a CoP- an informal network that helps share ideas, leverage successful educational programs and geospatial applications, and ultimately identify the 'best of the best' for implementation locally. The 15 Geospatial Extension Specialists (GES) will provide the initial leadership and management, and content expertise to Map@Syst.

The NGTEN members provide content expertise over 20 areas of interest. A few of these interest areas include community development, public health, precision agriculture, range management, coastal management, homeland security, disaster management, disease management, wildlife, natural resources, 4-H and youth development, and land use. The CoP boasts a comprehensive collaboration of people to draw from for content development. Some of these include universities (ie, researchers, Extension educators, instructors), community colleges, K-12, Sea Grant, Space Grant, non-profits, industry, and other local, state and federal government agencies.

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	64843	587727	21904	198534

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	138	138

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Contract/Grant Funds Generated

Year	Actual
2012	5778058

Output #2

Output Measure

- Number of Graduate Students/Post Docs Trained

Year	Actual
2012	51

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.
2	Number of clientele who implement improved human, plant, and animal management systems.

Outcome #1

1. Outcome Measures

Number of clientele who gain knowledge about improved human, plant, and animal management systems.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	21591

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Noxious weeds pose a great threat to agriculture, wildlife, bio-diversity, and other natural resources in Juab County. Considerable work needs to be done to control weeds such as Squarrose Knapweed, Russian Knapweed, Field Bindweed, Hoary Cress and Salt Cedar. In addition to chemical methods other control methods such as grazing systems, biological control, and competitive plants need to be evaluated. Identifying new and invading weed species will be a top priority. Other priorities include public education and coordination of weed control efforts on private and public lands.

What has been done

As a member of the Squarrose Knapweed and Sanpitch CWMA's and the Juab County Weed Program, USU Extension received five weed control grants totaling \$215,200. During eight work days, 1,500 acres were treated with herbicide covering 6,500 acres.

Results

As a result of the weed control grants, work days and cooperation of the CWMA's, 400 acres were identified, treated, and reseeded resulting in an \$80,000.00 savings to the producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
307	Animal Management Systems
603	Market Economics

Outcome #2

1. Outcome Measures

Number of clientele who implement improved human, plant, and animal management systems.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	8370

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Efficient production of field crops and forages is essential to maintaining the economic viability of Utah's agricultural operations. Each year, Utah farmers and ranchers produce commodities that generate nearly \$1.5 billion in income, with crop sales accounting for approximately 26% of this value(NASS 2010). Advances in science and technology have enabled growers to increase the productivity and/or efficiency of their farming operations.

What has been done

The Utah Hay and Forage Symposium is sponsored by USU Extension and Utah Farm Bureau Federation. Twenty one speakers from a broad range of organizations across several states was designed to address critical issues facing Utah hay growers. A USU crops specialist gave a presentation on weed competition and herbicide application timing.

Results

As a result of information provided a central Utah grower with approximately 4,000 acres of corn reported that altering his herbicide program in 2011 improved his corn silage yield by nearly 5 tons per acre, an increase in crop value of approximately \$0.9 million in that year alone.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
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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 in 2011 of some extension programs falling under the Global Food Security and Hunger included the USU Risk Management Education for Agriculture program, workshops on assessing use of alternative low-water crops, the Western Sustainable Agriculture Research and Education (SARE) program, Master Gardener courses, Utah Beef Field Day, Arizona Strip Range Workshop and Tour, and USU Food and Agricultural Marketing program. 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

Farmers participating in the USU Risk Management Education for Agriculture program applied what they learned to their farming operations. Results from an evaluation sent out six months after the program showed 30% had applied for a USDA (FSA, NRCS, etc.) loan and/or grant program, 32% said their farming operation is now more economically viable and 41% felt the quality of life on their farm improved. In addition the self assessment evaluation showed that a majority of respondents felt they understood developing business/marketing plans, maintaining financial records and budgeting, using cost-effective production strategies, using cost effective promotional techniques, pricing products and implementing pricing strategies, food safety management, assessing operation specific/applicable taxes, and accessing local resources/technical support .

Participants in the Agriculture Research and Education (SARE) program were positive on many best practices taught in the program. Participants committed to creating a plan to introduce seminar curriculum and other SARE resources into producer programming and working one-on-one with producers to evaluate the economic feasibility of alternative low water use crops on their farm ranch and assisting them to introduce low water use crops. They were also positive about providing an overview of the benefits of utilizing the WATER-ACIS spreadsheet tool and demonstrate its use to producers and in assisting producers with the measurement of changes in profitability and economic sustainability of alternative crop use.

Utah Beef Cattle Field Day was held in February with 185 participants with various production-related speakers. All of those attending said they would benefit from attending the field day. Producers come from all of Utah and a few from neighboring states to be updated on topics ranging from economics and production to marketing and consumer demand.

An evaluation of the USU Food and Agricultural Marketing program showed that approximately 50% of participants created a formal business and marketing plan in the course. Comparison of pre and post course assessments showed participant increases in following production, financial, and marketing plans for their operation. They also had increased understanding on pricing products and implementing pricing strategies, using effective merchandising at direct markets, showcasing product variety and abundance at direct markets, and assessing operation specific/applicable taxes. There was also increased knowledge of where/how to obtain marketing strategy advice and business management support.