

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger: Agriculture, Horticulture & Natural Resources

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	10%			
121	Management of Range Resources	25%			
122	Management and Control of Forest and Range Fires	10%			
205	Plant Management Systems	10%			
216	Integrated Pest Management Systems	20%			
307	Animal Management Systems	5%			
601	Economics of Agricultural Production and Farm Management	5%			
605	Natural Resource and Environmental Economics	5%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%			
806	Youth Development	5%			
	Total	100%			

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	17.0	0.0	0.0	0.0
Actual	11.9	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
321447	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
321447	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
439150	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Nevada's population is 86+% urban concentrated in two major metropolitan areas at opposite ends of the state. Over 87% of the land in Nevada is Federally owned. In 2007 there were only 3,100 farms/ranches in Nevada (Census of Ag.). Of these only 296 were over 2,000 acres and 2,100 were under 179 acres. Besides open range cattle grazing and production, Nevada agriculture is primarily limited to isolated and/or specialized small pockets frequently of primarily one major crop. Natural resource management issues (especially weeds and wildfire), however, also have a major impact on sustainability of natural resources, agriculture production, quality of life and economics of recreation, tourism, etc. in Nevada. Invasive weeds have created increasing fires (1 million plus acres in burned last year), lost grazing land and negatively impacted agriculture and communities as well as recreation and tourism economically.

A variety of both educational outreach and applied research activities are undertaken. Applied research focuses on both social and "best management practices" for Nevada as it relates to the areas of emphasis - natural resources management, alternative agriculture, risk management and sustainable agriculture, urban horticulture, wildfire prevention, weed management and mitigation, etc. Programming addresses the needs of both the producer and the public who are also natural resource users in Nevada. A special emphasis is addressing the needs of producers on Indian Reservations as well, and in helping to facilitate the work of other Federal and state agencies with Tribal producers.

Finally, the economic situation in Nevada is currently one of the worst in the nation with unemployment averaging 14.4% in 2010 and the state losing 70,000 residents to out-migration in 2010 for first time in over 30 years! The state's economic situation has resulted in Cooperative Extension taking a 21% over two years for FY10 and FY11. The governor has proposed cuts of 33% over FY12 and FY13 in state appropriated funding but the president of the university has proposed a 72% cut in reduction of state appropriated funds! Early cuts have resulted in lost positions and faculty turnover (risk management, weeds, horticulture, livestock etc.) and further cuts could mean an additional loss of up to 70 positions if proposed budget reductions are implemented. Additionally, the College of Agriculture, Biotechnology and Natural Resources has been restructured and lost departments and faculty positions. The State Department of Agriculture and other state agencies have taken similar reductions in the past and are faced with making similar reductions now.

As a result of the economic situation and budget reductions FTE for this and all programs will continue to decline significantly. Some FTE, however, are now being reported under other programs with the new Federal priorities.

2. Brief description of the target audience

The target audiences are multiple and varied. First, Nevada land managers both public and private.

Second, stakeholders in water related issues (individuals, land owners, land managers, community leaders, business/industry, etc.). Third, home and business owners for horticulture and landscaping practices. Fourth, ag producers interested in sustainable and alternative agricultural practices. Youth are also a target audience although not the primarily focus for most of these programs.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	70000	0	10000	0
Actual	27284	0	2897	0

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	35	0	
Actual	55	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of personal contacts by Master Gardener volunteers through all means.

Year	Target	Actual
2010	12000	66760

Output #2

Output Measure

- Number of green industry employees certified in proper horticulture techniques.

Year	Target	Actual
2010	1000	330

Output #3

Output Measure

- Number of best management practices site evaluations performed on private property in the Lake Tahoe region to protect the water quality of Lake Tahoe.
Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of individual land managers and private land/home owners reached directly with information about how to live more safely in high fire hazard environments.

Year	Target	Actual
2010	4000	7773

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of target audiences who learn best management or risk management/skills for alternative or sustainable agriculture.
2	Total acres planted or tested for potential alternative crops in Nevada.
3	Number learning best management practices for 'living with fire' and wildfire hazards.
4	Number of participants who apply or use best management or risk management knowledge/skills learned for alternative or sustainable agriculture.
5	Eratication or reduction of weeds through Cooperative Extension's works with Cooperative Weed Management Associations or other community groups.
6	Decreased (or potential decrease) in gallons of water used through low water-use landscaping by homeowners
7	Improvement or increase niche marketing opportunities for Nevada producers.

Outcome #1

1. Outcome Measures

Number of target audiences who learn best management or risk management/skills for alternative or sustainable agriculture.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	400	877

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #2

1. Outcome Measures

Total acres planted or tested for potential alternative crops in Nevada.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	300	1100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Alfalfa or grass hay is produced on over 92% of Nevada's croplands and numerous enterprise budgets have demonstrated producing hay in Nevada is a risky enterprise in most years. That fact was borne out in 2009 as average alfalfa prices in Nevada dropped approximately 55% (\$180 to \$100) from that received in 2008. In addition to the economic risk, Nevada agricultural producers are faced with droughts and competition for irrigation water from urban and environmental interests.

Teff has been identified as a high value, lower water use crop that can be produced by Nevada agricultural producers as alternative to hay production.

Teff is a small seeded grain crop used to make flat bread known as Injera which is a staple in the diet of Ethiopian people and used in every Ethiopian restaurant. It is also an important source of gluten free flour required by individuals who suffer from Celiac disease. Celiac disease is an autoimmune reaction to gluten in which the sufferer's immune system attacks the small intestine preventing digestion and gastrointestinal damage. The latest U.S. data indicates that as many as 2.5-3 million Americans suffer from this disease. Demand for this crop greatly exceeds supply in the U.S. as the primary producer of teff grain (Ethiopia) severely restricted International exports in 2008.

What has been done

Extension has worked intensively with targeted producers to increase production of the targeted crops, marketing and processing. Research and demonstrations on farm have been used to learn and teach cultivation of teff in Nevada.

Results

The results of the alternative crop experiments are in use by teff grain producers in Lyon, Churchill and Humboldt counties. Major results in 2010 include:

*Teff grain returns an average of \$89.34 more per acre than alfalfa in Northwestern Nevada and uses approximately 2/3rds as much water.

*In 2010 8 producers in Churchill, Lyon and Humboldt counties planted approximately 1100 acres in teff.

*The 2010 harvest of teff grain was approximately 650,000 pounds.

*Additional cleaning equipment was purchased and installed in 2010 by the owners of the local teff company which greatly expanded the seed cleaning capability of the company.

*A teff processing and marketing company was formed in Churchill County in 2009.

*The grain harvested by local farmers in 2010 was purchased at \$.40 per pound with a total value of \$260,000.

*A portion of the 2010 grain was cleaned, bagged and shipped to teff wholesalers in the U.S. at a contracted price of \$.65 per pound.

*In 2010 the company began selling teff flour from their grain which was milled in California. The flour was/is sold for \$.92 per pound. This process more than doubles the original value of the product.

*Teff grown for forage was marketed as high quality horse hay for an average price of \$150/ton (\$675/acre) which is significant as the average price of the highest quality alfalfa was approximately \$100.00 per ton in Nevada during 2010.

*Because of lower production costs both teff grain and teff forage equals or exceeds the average net income from alfalfa hay in Churchill, Eureka and Humboldt Counties.

*Most importantly, teff production reduced water use by approximately 1/3 as compared to alfalfa and input costs are lower than those associated with alfalfa.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
205	Plant Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

Number learning best management practices for 'living with fire' and wildfire hazards.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1500	706

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
122	Management and Control of Forest and Range Fires
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Number of participants who apply or use best management or risk management knowledge/skills learned for alternative or sustainable agriculture.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Eratication or reduction of weeds through Cooperative Extension's works with Cooperative Weed Management Associations or other community groups.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	4396

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires
205	Plant Management Systems
216	Integrated Pest Management Systems
605	Natural Resource and Environmental Economics
806	Youth Development

Outcome #6

1. Outcome Measures

Decreased (or potential decrease) in gallons of water used through low water-use landscaping by homeowners

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Improvement or increase niche marketing opportunities for Nevada producers.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Agricultural producers in Nevada have a great opportunity to move into diversified, profitable farming operations through servicing the high demand market for locally grown, quality food products in the urban centers in Nevada. There are identified market demand for fresh produce with chefs and local farmer's markets. It is essential to provide a more stable income for producers and create a local food production and consumption system. Economic sustainability of farming through niche production and direct marketing are keys.

What has been done

In Lincoln County, grants were obtained for hoop houses and they have been used for demonstrations and educational programs. In addition, a "Cuisine in the Country" event provided 150 meals made from local foods and prepared by Molto Vegas chefs on a ranch in Lincoln County. The event profiled the wonderful vegetables, fruit and meat products that can be grown locally and showed how they can be used by high-end restaurants. The "Cuisine in the Country" event taught five chefs from the Molto Vegas restaurants (rated #5 in Las Vegas survey of high-end restaurants) that local producers in the desert can produce top quality products for a full large event. Educational demonstrations and hoop houses have been used to educate local producers on how to raise and market their produce. A tour of similar hoop houses was held for local producers to learn production methods using hoop houses.

Results

Results are ongoing and varied.

*A group of producers are seriously discussing the formation of a cooperative for better marketing of their products.

*All of the producers that participated in the Arizona farm study tour have taken the knowledge and confidences gained to further develop their farms and are participating in the development of the cooperative.

*The chefs commented that the products they cooked from the local producers exceeded the quality of food they were purchasing in their restaurants.

*One chef indicated that having only local food to cook at the event showed that there was volume and quality.

*The producers that supplied the food gained much confidence in their ability to produce top quality products and sell them to the chefs. As a result they are progressing with farm expansion plans.

*Las Vegas residents and rural locals learned about the local foods and how excellent they taste.

*Eleven producers, who toured the plots, implemented their knowledge gained from the education by assembling their own 16 hoop houses to gain the benefits they learned in their growing systems.

*In the spring of 2010, Lincoln County had four hoop house grants awarded to producers through the National Resource Conservation Service (NRCS) program. This is the largest grant numbers awarded in the state and found in an area where specialty crops were never part of NRCS programs before.

*Four producers have diversified their production systems by adding new crops and selling products to Las Vegas. Two of these producers had new sales each year over \$2000 through connections created by UNCE. One of these producers had weekly sales of over \$1000 during the peak production times.

*Three participating farms are currently tripling the size of their farm's niche production. The managers of the farms indicated their decision to further diversify is based on the initial successes in production and sales of products resulting from the program's education.

*Sixteen landowners/managers out of the 110 in Lincoln County are diversifying into new specialty crops.

*Six farms are currently planning to form a legal entity for expanding the farmer's market, selling produce to Las Vegas and establishing a value-added processing facility.

4. Associated Knowledge Areas

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

111	Conservation and Efficient Use of Water
205	Plant Management Systems
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
- Competing Public priorities

Brief Explanation

The primary external factors affecting outcomes now and in the future are the economy and appropriations.

The economic situation in Nevada is one of the worst in the nation with unemployment averaging 14.4% in 2010 and the state lost 70,000 residents to out-migration in 2010 for first time in over 30 years! Nevada has the highest home foreclosure rate in the nation and 65% of homes are "under water" at this time.

The poor economy has resulted in significant reductions to tax revenues to the state. Nevada is about \$3 Billion short on a \$6 Billion budget. This situation along with the state's economic situation has resulted in Cooperative Extension taking a 21% over two years for FY10 and FY11. For FY12 and FY13 the Governor has proposed a 33% cut in our state appropriated budget and the president of the university has proposed increasing the cut to 72% to make up the reduction in the universities reduced budget!!! Earlier cuts have resulted in lost positions and faculty turnover (risk management, weeds, horticulture, livestock etc.) and proposed state budget cuts could mean an additional loss of up to 70 positions. Additionally, the College of Agriculture, Biotechnology and Natural Resources has been restructured and lost departments and faculty positions during the past fiscal year. The State Department of Agriculture and other state agencies have taken similar reductions in the past and are faced with making similar reductions now.

As the driest state in the nation, as well as the most urban, water is always an issue.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}