

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
111	Conservation and Efficient Use of Water	10%			
121	Management of Range Resources	15%			
205	Plant Management Systems	15%			
211	Insects, Mites, and Other Arthropods Affecting Plants	5%			
216	Integrated Pest Management Systems	15%			
307	Animal Management Systems	5%			
601	Economics of Agricultural Production and Farm Management	5%			
602	Business Management, Finance, and Taxation	10%			
604	Marketing and Distribution Practices	10%			
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 FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.0	0.0
Actual Paid Professional	9.4	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
271433	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
271433	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
247873	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct applied research on Nevada rangelands involving range ecology concepts and livestock grazing systems.
 - Publish studies, develop curricula and teach workshops related to plant and livestock production.
 - Educate local, state, and regional stakeholders concerning progress in producing livestock and plants that are economically viable and environmentally friendly.
 - Establish herbicide demonstration/research plots to evaluate the efficacy of these products under local conditions.
 - Expand use of Integrated Pest Management (IPM).
 - Coordinate Nevada IPM efforts with other western states.
 - Educate Nevada land managers, producers and general public regarding invasive weed identification and control.
 - Strengthen the skills small acreage producers.
 - Utilize multiple demonstrations/applied research plots to explore high value specialty crops and manage weeds in agronomic crops with results reported at field days, workshops, or professional annual meetings.
 - Develop applications for the research on plant production to directly benefit producers.
 - Provide risk management strategies to agricultural producers.
 - Provide teaching and research outreach to agriculture businesses to provide in-depth information on small business management, farm profitability, and market development.

2. Brief description of the target audience

The target audiences for these programs include beginning and existing large scale crop and livestock (primarily beef/dairy/sheep) producers and small acreage operators. USDA agencies and other government entities that conduct work in this area are an audience and frequently a program partner.

3. How was eXtension used?

UNCE faculty collaborating with other land grant university faculty launched the Rangeland Stewardship and Health Community of Practice for the eXtension project in 2012 (<http://www.extension.org/rangelands>).

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	27516	0	2930	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	26	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of personal contacts through all means by Master Gardener volunteers with those requesting information or assistance.
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of green industry employees certified in proper horticulture techniques.
Not reporting on this Output for this Annual Report

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.
Not reporting on this Output for this Annual Report

Output #5

Output Measure

- "Living with Fire" website hits.
Not reporting on this Output for this Annual Report

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	Number of producers or individuals or learn or apply changes in operations to increase niche farming opportunities for Nevada Producers.
6	Number of individuals who gain knowledge about improved human, plant, and animal management systems for sustainable agriculture.
7	Number of individuals who implement improved human, plant, and animal management systems for sustainable agriculture.

Outcome #1

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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

Number of producers or individuals or learn or apply changes in operations to increase niche farming opportunities for Nevada Producers.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of individuals who gain knowledge about improved human, plant, and animal management systems for sustainable agriculture.

2. Associated Institution Types

- 1862 Extension

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)

Nevada is experiencing increasing numbers of small scale producers who are either beginning or considering beginning a farm/ranch operation. Programs are need that are specifically designed for recent and/or future small scale farmers. The goal is to help agricultural producers increase profits and improve quality of life. By learning financial management tools and entrepreneurial skills producers can improve the efficiency of their operations. On-the-ground training and support is necessary to help beginning and niche producers succesfully grow and market their products.

What has been done

In its second year of funding, Nevada's USDA-NIFA grant funded Beginning Farmer and Rancher program (i.e., Herds & Harvests), offered 32 educational workshops that reached 212 beginning farmers and ranchers. Workshop topics included: So You Want to be a Vegetable Producer (66); Processing and Selling Locally Grown Meat (91); and Field Crops: Old versus New (56).

Results

More than 65% of workshop participants reported changing some aspect of their agricultural business based upon the knowledge gained in the Herds & Harvest workshops. Of the 21 items listed on the program evaluation, 20 items had statistically significant differences between pre- and post-test scores. Top rated knowledge and behavioral change indicators included: 1) How to decide if Tef is a potential alternative crop; 2) What production practices are required to sell meat to Whole Foods Markets; 3) How to use plants and farming practices for insect control; 4) What criteria/regulations are needed to sell meat to Whole Foods Markets; and 5) How to decide if cellulosic biomass is a potential alternative crop. More than 65% of workshop participants reported changing some aspect of their agricultural business based upon the knowledge gained in the Herds & Harvest workshops. As a result of this educational program one farmer changed

his fertilization program which nearly doubled grass/alfalfa mix yields. Seven southern Nevada small farm operators, through one-on-one mentoring created enterprise budgets for 9 different enterprises or whole farm operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #7

1. Outcome Measures

Number of individuals who implement improved human, plant, and animal management systems for sustainable agriculture.

2. Associated Institution Types

- 1862 Extension

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)

Efficient production of field crops and forages is essential to maintaining the economic viability of Nevada's 2,950 agricultural operations. Each year, Nevada farmers and ranchers produce commodities that generate nearly \$5.13 million in income, with crop sales, which include nursery and greenhouse production, accounting for approximately 43% of this value (NASS, 2011). The livestock industry generates much of the remaining farm income and the majority of farmland in Nevada is devoted to supplying the forage and nutritional needs of cattle. A significant beef industry also requires effective stewardship of thousands of acres of public rangelands. Also, it is estimated that the number of small farms (less than 50 acres) in Nevada has increased steadily in

recent years; but until the 2012 census figures are published the data are inconclusive.

What has been done

UNCE faculty combine applied research and teaching to educate agricultural producers on specific subjects designed to improve their skill set and subsequently their success. Teaching methods include field demonstrations featuring research plots to strengthen cultural management practices while exploring water-conserving crops, managing rangelands, and identifying and controlling for weeds, pests, and disease. UNCE faculty also emphasize business and marketing planning to help producers increase profitability. Applied research results are published in Extension peer reviewed publications, including journal articles and Extension curricula, and reported at field days, workshops, and annual professional meetings.

Results

As a result of participating in the Nevada Targeted States Risk Management program in 2012, approximately 46% producers reported they had made notable changes to their operation which made them more economically viable and 62% felt their quality of life had improved. Thirty-eight percent felt that their family goals had become easier to achieve. The Community Value-Added Processing program in Lincoln County gained approval from a USDA health inspector for the sale of packaged greens such as lettuce, spinach and arugula. A processing facility for bagged greens has been approved and is being constructed on one of the farms. Six farms are developing a growers' cooperative to better market and distribute products. This group spent much of the year seeking grants for low interest loans for capital start of a food hub. Burned area revegetation, wildlife habitat restoration, and livestock grazing are the controversial rangeland issues of highest priority in northeast Nevada. Grassroots collaborative approaches to resolution of these issues are gaining momentum in many Nevada communities. For example, the Northeastern Nevada Stewardship Group continued to implement natural resource educational and collaborative stewardship activities, including landowners' forums to learn about sage-grouse habitat and convening local sage-grouse working groups. Two new collaborative resource stewardship teams formed in northeastern Nevada as a result of rancher participation in the Shoesole Resource Management Group, in addition to UNCE's Range Management School.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
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
604	Marketing and Distribution Practices

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 (Grant funding available)

Brief Explanation

Nevada's slow economic recovery, in addition to the increasing demand for locally produced foods, inspired a steady increase in small farm/ranch operations, CSAs, and community and school gardens. Traditional large scale producers were challenged by severe drought conditions, the spread of invasive weeds, and the potential for sage-grouse to be listed as a threatened or endangered species.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UNCE faculty evaluate the outcomes and impacts of programs largely through participant/stakeholder self evaluations. Evaluations of selected Global Food Security and Hunger programs in 2012 include the Nevada Beginning Farmer and Rancher, Risk Management Education, Grow Your Own, Great Ideas for Growers, and IPM and related weed management programs. Evaluations comprise self-administered questionnaires involving pre-tests and post-tests administered immediately following the educational intervention. Six month follow-up surveys and interviews are also used frequently.

Key Items of Evaluation

In its second year of funding, Nevada's Beginning Farmer and Rancher program (i.e., Herds & Harvests), offered 32 educational workshops that reached 212 beginning farmers and ranchers. Workshop topics included So You Want to be a Vegetable Producer (66); Processing and Selling Locally Grown Meat (91); and Field Crops: Old versus New (56). Of the 21 items listed on the program evaluation, 20 items demonstrated statistically significant differences between pre and post-test scores.

Between 2011 and 2012, agricultural producers increased their participation in Nevada Targeted States Risk Management programs by 46% (from 2,629 participants in 2011 to 3,859 in 2012). Program evaluations administered six months following each workshop indicate that 64% of all program participants had incorporated skills and information from workshops into their operations and 85% reported that program topics were critical in the current agricultural business environment. Nearly 100% of participants reported that they would attend a Risk Management workshop in the future. Approximately

46% producers reported that .

An 8-week Grow Your Own program was offered 3 times in 2012 via interactive video to 13 sites across the state, including Duck Valley Reservation. This translates to 48 hours of instruction to 1,953 people. A program website (www.growyourownnevada.com) was developed for 24-hour program access. The website was accessed by approximately 6,479 visitors in 2012. Participants reported an average of 58.3% to 129.4% knowledge gains based on their use of the website.

Based in Lincoln County, Great Ideas for Growers is offered statewide via interactive video. Lincoln County producers received four hoop house grant awards from the National Resource Conservation Service (NRCS) cost-share program showing continued growth and confidence in specialty crop production. Three participating farms expanded the size of their farm's niche production, with one farm building 8 new hoop houses. 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. Seventeen landowners/managers out of the 110 in Lincoln County have continued their diversifying into new specialty crops. Eleven producers, who participated in education programs, continue to implement their knowledge growing vegetables in 27 hoop houses.

Nevada was awarded the requested Integrated Pest Management (IPM) grant funds totaling \$131,337 necessary to continue IPM programming in Nevada. IPM workshops (Weeds to Watch and Early Detection Rapid Response) were taught in 12 of 17 counties. The evaluation results indicated that of the 96 participants who responded, 80% felt the workshops were very useful to their work. The most important survey results indicate that over 80% of the respondents view pest management as an important part of their employment responsibilities and 85% provide advisement on pest management subjects to their clientele. In addition nearly 85% utilize self-knowledge to identify pests, which indicates a critical need in educational programs aimed at improving this level of self-knowledge.