

# 2014 University of Nevada Extension Plan of Work

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## I. Plan Overview

### 1. Brief Summary about Plan Of Work

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##### 1. Brief Summary about Plan Of Work

This plan of work encompasses the five major program areas consistent with the NIFA-stated goals: (1) Global Food Security and Hunger, (2) Climate Change and Natural Resources, (3) Sustainable Energy, (4) Childhood Obesity, Health and Nutrition, and (5) Food Safety. In addition, this plan of work includes two state mandated program areas: (6) Human and Family Development and (7) Community and Economic Development.

#### **Global Food Security and Hunger**

This NIFA goal seeks to improve community and global capacity to strengthen food security and fight hunger through sustainable agricultural systems. The US has not yet updated its food system to effectively address the negative short and long term effects of hunger on the nation's human capital. UNCE's research and education seeks to increase food security through integrated food systems, supporting the public demand for "farm to fork" agricultural enterprises. This includes analyses and development of public policy to support the social infrastructure necessary to integrate production, processing, distribution and consumption systems.

#### **Climate Change and Natural Resources**

Through adoption of innovative technologies and cultural practices, agricultural producers, landscape designers, homeowners, and public lands managers have the opportunity to lead and mitigate many influences of climate change. UNCE works with agricultural producers to select low-water use alternative crops, integrating applied research and extension to solve problems related to climate change. This program area also includes educating landscape workers, homeowners and local officials how to conserve and protect natural resources and mitigate damages due to flooding, wildfire, and drought.

#### **Sustainable Energy**

Global and domestic demands for sources of sustainable energy can be addressed through the production of bio-fuel crops. Additionally, UNCE harnesses the best science available to educate the general public about environmentally responsible choices and lifestyles.

#### **Childhood Obesity, Health, and Nutrition**

The prevalence of childhood obesity has dramatically increased nationwide. Almost one-third of children in the US are overweight or at risk for overweight; increasing their probability of developing chronic illnesses such as high blood pressure, high cholesterol, and Type 2 diabetes. In Nevada 14% of children less than 5 years of age are overweight. The underlying causes range from genetic propensity to socio-economic, cultural and environmental influences resulting in unhealthful eating and physical activity practices. Many of these issues stem from poverty-based nutrition. To effectively address obesity and malnutrition, UNCE programs are designed to effect change within families and communities.

#### **Food Safety**

Food-borne illness continues to be an urgent issue across the US. The Center for Disease Control estimates that annually 1 out of 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of food-borne diseases. Agricultural producers and food consumers in Nevada require education about the importance of safe food production, handling, and processing to help reduce the risk associated with food-borne illness. UNCE seeks to build food safety programs on a par with other land grant universities in the US. This means strengthening the capacity of producers to develop comprehensive farm plans which include Good Agricultural Practices (GAPs), Good Handling Practices (GHPs), and Hazard Analysis and Critical Control Points (HACCP) protocols. With Nevada's steady growth in "farm to fork" food supply sources, UNCE must educate all agricultural producers, regardless of operation size, to control and prevent accidental biological, chemical or physical hazards that could contaminate food products during production, storage, and transportation.

### **Human and Family Development**

Nevada has some of the highest rates in the nation with regards to teen pregnancy, high school dropouts, and domestic violence. Because Nevada also ranks among the highest nationally in number of youth who do not successfully transition to adulthood, programs are designed to teach rural disenfranchised limited resource 18-24 year olds the skills to improve their employability and potential to attend post-secondary educational programs. Approximately 25% of youth and adults in Nevada have inadequate literacy skills and more than half of the state's third-grade students read below their grade level. Also the percentage of Spanish-speaking immigrants is expected to increase statewide over the next quarter century, so it is likely that larger numbers of children who are English language learners and at risk for low achievement will be entering Nevada schools. UNCE programs seek to ensure that preschoolers have the reading skills needed to succeed. UNCE also teaches parents and childcare givers the skills to encourage positive youth development.

### **Community and Economic Development**

UNCE programs integrate research and education to help local communities address economic and development problems. Just a few of the challenges are business retention and expansion, tourism development, in- and out-migration and diversification of income sources. UNCE faculty work in tandem with the University's Center for Economic Development and Small Business Development Center on a variety of issues including economic expansion, water allocations and small business development. UNCE is also committed to educating appointed and elected leaders in land use planning, public policy, ethics, and problem-solving.

### **Summary**

This changed plan of work (POW) is intended to address more effectively the NIFA goal areas. This plan will require adequate time and sufficient funding to implement fully. In order to effectively address the complex issues facing citizens in Nevada, the US, and globally, UNCE must increase its interdisciplinary and multidisciplinary problem-solving approaches. This assumes that UNCE maintain and grow its collaborative partnerships with diverse community organizations, university academic units, local leadership, under-served populations, and federal and state agencies. As the outreach unit of the land grant university, it is especially important that UNCE seek and seize opportunities to integrate university research with Extension programming. Finally, it is possible that over time the two additional state mandated programs featured in this plan of work (Human and Family Development and Community and Economic Development) may be incorporated into the five major NIFA program areas. This will demonstrate ongoing holistic evolution of research and teaching programs in Nevada that build stronger communities and families and innovate businesses and economies, while sustaining natural resources.

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2014	34.0	0.0	0.0	0.0
2015	34.0	0.0	0.0	0.0
2016	35.5	0.0	0.0	0.0
2017	36.5	0.0	0.0	0.0
2018	36.5	0.0	0.0	0.0

**II. Merit Review Process**

**1. The Merit Review Process that will be Employed during the 5-Year POW Cycle**

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

**2. Brief Explanation**

UNCE's merit review process comprises multiple steps. Annually UNCE tenure-track faculty prepare a Role Statement detailing their teaching, research, and service activities for the coming calendar year. Extension faculty review their individual Role Statements with their Area Director and/or Department Chair who ensures the quality and relevance of planned programming efforts effectively address formally identified program goals. Both the Area Director and the UNCE Dean/Director for UNCE review and approve the plan.

Annually, UNCE faculty evaluate their peers' teaching, research, and service activities to assess overall performance and program quality. Peers consider the results of formal needs assessments, programs developed in response, and the substance of documented outcomes and impacts in rating peer performance and providing narrative feedback. Area Directors also conduct an annual review of faculty performance and provide narrative feedback. Area Directors then meet individually with faculty to discuss the documented results of the peer review and Area Director's review. The UNCE Dean/Director also reviews and signs off on the evaluation documents.

Program outcomes and impacts are reviewed by a Non-University External Panel (UNCE Advisory Committee) which includes key representative community and industry stakeholders.

Also, to improve and ensure the quality of UNCE publications, a blind peer review process is utilized involving internal and external experts. Additionally, several UNCE faculty contribute specialized program content to eXtension Communities of Practice (CoP). Subsequently their program content is reviewed in the eXtension CoP selection process.

Finally, some UNCE programming is part of the Multi-state Review Committee (MRC) process and are documented, reviewed and approved by the sponsoring regional association. These committees are responsible for the review, evaluation, and recommendation of western multistate programs which may involve research, academic programs, extension, and/or international programs.

### **III. Evaluation of Multis & Joint Activities**

#### **1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?**

All UNCE programs address formally identified needs involving stakeholder input. Additionally, these programs address identified needs specific to under-served/under-represented populations of the state.

Scholarship has long been recognized as an expectation of UNCE community-based faculty. All major programs are grounded in research theory and deliberate attempts are made to include other university departments and faculty in their overall design. Programs are rigorously evaluated so as to contribute to the knowledge base of theory in practice. Not only are campus-based faculty expected to be involved in the evaluation design, but UNCE faculty are expected to take a scholarly approach to their work.

Finally, integrated and multistate programs have generally realized the outcomes expected. The multi-state research program and Western Coordinating Committee projects are reviewed by RCIC (which is represented by both Extension and Research) for progress during the course of the project and at project termination. The reviews are documented and housed at the Executive Director's office in the western region. This process will continue to be used. Additionally, UNCE faculty and campus faculty with UNCE appointments are expected to demonstrate program outcomes and impacts as part of their annual evaluations. Therefore, peers and administration both have an opportunity to review outcomes and impacts of all UNCE programs.

#### **2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?**

UNCE programs are designed to address community based issues as identified through formal needs assessments. Research and scholarly activity have long been recognized as an expectation of UNCE faculty and comprise at least 25% of all tenure-track faculty appointments. Programs are grounded in science and involve comprehensive literature reviews, applied research, and a plan, based on the Logic model, for achieving short, medium, and long-term outcomes and impacts. Programs are rigorously evaluated so as to contribute to the knowledge base of theory in practice while achieving significant impacts to effect positive change. Program collaborators periodically review and evaluate programs for efficacy in addressing identified issues. Collaborators include federal and state agencies, county and local governments, community stakeholders, private and non-profit groups, and campus-based faculty.

#### **3. How will the planned programs describe the expected outcomes and impacts?**

The planned programs describe expected outcomes and impacts under each program area and are quantified consistently with the Logic model. Formative evaluation is used to target program areas for improvement and refinement while summative evaluation is used to

report program outcomes and impacts.

#### **4. How will the planned programs result in improved program effectiveness and/or**

The planned programs enhance program efficacy by providing clear linkages between situation, inputs, and outcomes. Anticipated outcomes are quantifiable. The plan may be adjusted and refined as necessary to address changing issues, populations, and budgets.

### **IV. Stakeholder Input**

#### **1. Actions taken to seek stakeholder input that encourages 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 of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals
- Survey of selected individuals from the general public

#### **Brief explanation.**

Stakeholder involvement is the key to program development. UNCE needs assessments and program evaluations directly involve stakeholders. Input is gathered throughout the year through the use of nominal group process, individual interviews, direct observation, and surveys. This information is used to further refine programs in order to better serve stakeholders.

#### **2(A). A brief statement of the process that will be 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
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

**Brief explanation.**

Through a variety of methods, UNCE faculty identify individuals and groups to evaluate the extent to which programs effectively address issues or need further refinement. Because UNCE programs are issues based, needs assessments are conducted regularly. Assessment methods include public meetings, public forums, nominal group processes, key informant interviews, and surveys of general and targeted populations. Assessments identify program opportunities and approaches that can be addressed programmatically within the five NIFA priority areas. Evaluations involve the input of traditional and non-traditional program audiences.

**2(B). A brief statement of the process that will be 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 traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

**Brief explanation.**

A variety of methods is used to collect stakeholder input. Collection of data varies in terms of appropriate method and timing. On an annual basis, stakeholder input is gathered, analyzed and reported.

**3. A statement of how the input will be considered**

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

**Brief explanation.**

Stakeholder input is routinely used to identify emerging issues, to direct and redirect Extension programs, and in the hiring process. Stakeholders include local elected and appointed officials, community leaders, citizens, underserved groups and individuals, university leadership, university academic faculty, and UNCE faculty and staff. Therefore, the areas targeted in this plan of work reflect the views of a broad set of stakeholders. Stakeholder input is used to determine the necessary qualifications of those hired and to create new positions as new funding becomes available. Stakeholders also participate in UNCE faculty searches. Additionally, stakeholder input is used to help establish program priorities and to acquire necessary funding.

## V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Global Food Security and Hunger
2	Climate Change and Natural Resources
3	Sustainable Energy
4	Childhood Obesity, Health and Nutrition
5	Food Safety
6	Human and Family Development
7	Community and Economic Development



## **V(A). Planned Program (Summary)**

### **Program # 1**

#### **1. Name of the Planned Program**

Global Food Security and Hunger

#### **2. Brief summary about Planned Program**

The objective of this goal is to improve the global food system and address local food security using a systems approach. Although Nevada's agricultural industry is comparatively smaller than its western neighbors, it remains important to Nevada's economic recovery. UNCE's plan integrates applied research and education to improve the skills of agricultural producers. Programs seek to strengthen cultural management practices and advance rangeland stewardship. This includes identifying and effectively controlling noxious and invasive weeds, pests, and disease. With an increase in small acreage operations and a rising trend in localized food production and consumption, programs emphasize building the skill set of beginning farmers and ranchers while helping larger scale producers increase profitability. Specific programs include: alternative crop selection and marketing, hoop house production techniques, community supported agriculture (CSAs) planning, risk management practices, adaptive management of rangelands, herd health improvement, and adoption of sustainable agriculture technologies. A special emphasis addresses the needs of agricultural producers on American Indian reservation lands. This includes strengthening the capacity of federal and state agency personnel to work more effectively with American Indian producers. UNCE's programs, particularly those tailored for the Great Basin ecosystem, may directly contribute to international work in emerging economies with similar physical attributes.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
101	Appraisal of Soil Resources	10%			
111	Conservation and Efficient Use of Water	15%			
121	Management of Range Resources	10%			
205	Plant Management Systems	10%			
211	Insects, Mites, and Other Arthropods Affecting Plants	5%			
216	Integrated Pest Management Systems	10%			
307	Animal Management Systems	10%			
601	Economics of Agricultural Production and Farm Management	5%			
602	Business Management, Finance, and Taxation	5%			
604	Marketing and Distribution Practices	10%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%			
806	Youth Development	5%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)**

## 1. Situation and priorities

USDA defines food security as uninterrupted access to a sufficient supply of nutritious, safe food year round through socially acceptable means. Food insecurity poses numerous threats to quality of life. It results in chronic health problems and diseases that have increased the costs of health care and the costs of caring for these individuals through public revenue sources. Adults with chronic nutrition related health problems are less able to provide adequately for their families nor nurture and guide their children. Research indicates that food insecure households tend to be rural or urban rather than suburban. In 2012, roughly 802 million people in 76 countries qualified as food insecure; 50 million Americans and 17 million children qualified as food insecure. Due to global recession, an increasing number of American middle class families joined the nations' vulnerable food insecure population. This is particularly the case in Nevada which in recent years has led the nation in unemployment and number of homes underwater.

Alfalfa or grass hay is produced on over 92% of Nevada's croplands and numerous enterprise budgets have demonstrated that producing hay in Nevada is a risky financial enterprise in most years. In addition to the economic risk, Nevada agricultural producers compete with urban and environmental interests for scarce water resources. Because issues related to water supply are critical to Nevada's agricultural producers, alternative crop production systems are of great interest. At the same time, reliable data are lacking concerning the agronomic and cultural techniques necessary to successfully produce many alternative crops with commercial potential. Because Nevada is unique in many respects, agronomic

data from other states have limited applicability to Nevada. Therefore, the establishment of various applied research and demonstration trials is necessary to building the knowledge base concerning potential alternative crop production systems in Nevada. The information developed from these trials can then be used to develop educational programs to help commercialize potentially profitable crops.

Rangeland health, noxious weed control, and rangeland revegetation remain high priority issues. Noxious and invasive weeds are widespread throughout Nevada and threaten the productivity of cropland, pasture, and rangeland. Priorities include identifying weeds that threaten agricultural productivity and establishing early detection, rapid response weed control measures in addition to IPM systems.

Agricultural producers have the opportunity to diversify farming operations to satisfy increasing consumer demand for locally grown, specialty products. Producers need education on developing local food production, sales and distribution systems. Additional programs are needed that focus on the feasibility of producing niche products in a high desert environment.

Program priorities include: strengthening sustainable production systems that conserve, protect and enhance soil and water resources; reliable cultural management and enterprise budget information; IPM systems; organic production; sustainable agricultural technologies; integrated food production systems; alternative niche crops; market and distribution systems; and educating the nonagricultural public about the role that agriculture plays in the state's economic recovery.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- Consumer demand for locally grown, specialty products will remain stable or increase.
- Agricultural producers who diversify farming operations to include specialty products may increase profits.
  - Producers who are knowledgeable about local food production, sales, and distribution systems are likely to participate in local production and distribution.
  - Knowledge about enterprise budgets and business planning will strengthen agricultural operations of all sizes.
  - The number of small scale beginning farmers and ranchers will increase or remain stable.
  - Comprehensive control of noxious and invasive weeds is critical to strengthening sustainable agricultural systems.
  - Consumer demand will increase or remain stable for organic certified agricultural products.
  - Improvements in soil health and productivity will increase farm profitability and improved environmental quality.
  - The use of sustainable agricultural practices improves, protects, and conserves soil, water, air, and

wildlife.

- Low-income, vulnerable populations are at highest risk for food insecurity.
- Funding of the program will continue in a stable manner.

**2. Ultimate goal(s) of this Program**

- Increase agricultural production.
- Improve rangeland health through knowledgeable stewardship.
- Improve the state's and nation's need to satisfy the demand for affordable and nutritious food.
- Address hunger and food insecurity in vulnerable populations.
- Assure the economic sustainability of Nevada's agricultural industries.
- Promote economically sound and environmentally safe agricultural practices.
- Teach and provide support to producers in order to optimize farm profitability.
- Increase the use of sustainable agricultural practices to improve, protect and conserve soil, water, air, and wildlife.
  - Improve cultural management in innovative production environments, such as hoop houses and high tunnels.
  - Improve soil health and productivity, resulting in increased farm profitability and improved environmental quality.
  - Boost local, state, and national agricultural productivity.
  - Improve the reproductive performance of animals.
  - Enhance livestock herd health.
  - Strengthen animal and plant management systems.
  - Reduce effects of animal and plant insects, diseases, and toxins.
  - Increase the skill set and competitive capacity of beginning farmers and ranchers.
  - Protect crops and plants from weeds and other pests without causing other damage.
  - Expand existing IPM systems.
  - Improve marketing and distribution practices for agricultural producers.
  - Diversify and strengthen the state's economy through creation of jobs in agriculture and related sectors.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	9.0	0.0	0.0	0.0
2015	9.0	0.0	0.0	0.0
2016	9.0	0.0	0.0	0.0
2017	9.0	0.0	0.0	0.0
2018	9.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- 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.
  - Establish herbicide demonstration/research plots to evaluate the efficacy of these products under local conditions.
  - Expand use of IPM systems.
  - Coordinate Nevada IPM efforts with other western states.
  - Educate Nevada land managers, producers, and the general public regarding invasive weed identification and control.
  - Strengthen the cultivation management and marketing skills of new and 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. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> <li>• Demonstrations</li> <li>• Other 1 (Extension publications)</li> <li>• Other 2 (Trade Publications/Print Media)</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• TV Media Programs</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Email PSAs)</li> <li>• Other 2 (Advertisements )</li> </ul>

**3. Description of targeted audience**

The target audiences for these outreach programs include beginning and existing small acreage operators and large scale crop and livestock producers. Specific programs target American Indian, Latino/Hispanic, and women and youth agricultural producers. USDA agencies and other government entities that conduct work in this area are an audience and frequently a program partner. Additional audiences include agricultural service industries, lenders, and policy makers at the local, state, and federal levels.

## **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of individuals who gain knowledge about improved human, plant, and animal management systems for sustainable agriculture.
2	Number of clientele who implement improved human, plant, and animal management systems for sustainable agriculture.

### **Outcome # 1**

#### **1. Outcome Target**

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

**2. Outcome Type** : Change in Knowledge Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 101 - Appraisal of Soil Resources
- 111 - Conservation and Efficient Use of Water
- 121 - Management of Range Resources
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 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

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 2**

#### **1. Outcome Target**

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

**2. Outcome Type** : Change in Action Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 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
- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices



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

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect 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 availability)

#### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector along with severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**

The evaluation studies for the program Logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational

materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

## **V(A). Planned Program (Summary)**

### **Program # 2**

#### **1. Name of the Planned Program**

Climate Change and Natural Resources

#### **2. Brief summary about Planned Program**

The objective of this NIFA goal is to understand and mitigate the effects of climate change on natural resources through innovative sustainable natural resource management and collaborative stewardship. UNCE's plan will continue to combine applied research with education to improve the skills and success of agricultural producers, green industry technicians, landscape contractors, fire fighter professionals, homeowners, and the general public. Programs will seek to strengthen cultural management practices and advance rangeland stewardship.

Programs will emphasize: 1) reducing and mitigating damages to homeowners and rangeland from wildfire; 2) selection and cultivation of low water use crops; 3) agricultural risk management practices particularly relating to drought; 4) rangeland health improvement; and 5) adoption of resource conservation and protection strategies and technologies.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
102	Soil, Plant, Water, Nutrient Relationships	5%			
111	Conservation and Efficient Use of Water	10%			
112	Watershed Protection and Management	10%			
121	Management of Range Resources	10%			
122	Management and Control of Forest and Range Fires	10%			
131	Alternative Uses of Land	10%			
133	Pollution Prevention and Mitigation	10%			
205	Plant Management Systems	10%			
213	Weeds Affecting Plants	10%			
307	Animal Management Systems	10%			
605	Natural Resource and Environmental Economics	5%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

By 2080, climate change researchers predict a 7 degree Fahrenheit (3.8 degree C) increase in temperature and a decrease in reliable precipitation patterns for much of the US. These grim predictions will require a proactive natural resource management approach in a state that receives less than 9 inches of precipitation annually. Diverse, competing demands for scarce water resources are likely to increase. Efficient water use and the protection of water quality are essential to the sustainability of Nevada's rangeland health, wildlife habitat, agricultural industry, and continued economic growth. Additionally, invasive and noxious weeds threaten the productivity of Nevada's range and forest lands, of which approximately 87% are public.

Climate change issues will remain volatile and controversial as they receive increasing attention from policy makers and the public. Diverse and competing interests for Nevada's natural resources will complicate climate change issues further. Science based information will become more valuable as mitigation strategies for climate change evolve.

Interdisciplinary and multidisciplinary programs will focus on the effects and mitigation of climate change on natural resources. These include: 1) measuring current trends and predicting future impacts of climate change on Nevada's natural resource base; 2) moderating expected damage and identifying potential opportunities related to climate change, including managing for drought and wildfire; and 3) mitigating or reducing the pace of climate change through changes to agricultural systems and adaptive management of natural resources.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- Over time applying and using sound scientific based management principles can bring about improvements in rangeland health, weed management, watershed health, and mitigate the impacts of wildfires.
  - Compliance with the Clean Water Act requires ongoing education of property owners, land managers, and landscape industry professionals.
  - The potential for listing of sage grouse as threatened or endangered indicates shifting public policies and competing public priorities for Nevada's natural resources.
    - Because Nevada is the driest state in the nation, conservation, efficient use, and protection of water resources are critical issues.
    - The removal of water resources from agricultural to commercial and urban usage poses the potential for negative environmental externalities.
    - Nevada is particularly challenged by severe drought and subsequent significant wildfire events.
    - Soil, water, rangeland, and wildlife comprise much of Nevada's renewable natural resource wealth.
    - Multiple economic and social competing demands will increase for Nevada's natural resources.
    - Noxious weeds spread easily between public and private lands and require collaborative partnerships to control effectively.
  - A sufficient supply of clean water is critical to sustaining rural communities, commerce and industry, and urban areas.
    - While water will be relatively scarce to agricultural and urban areas alike, climate change will exacerbate water scarcity.
    - Education and science based information are essential to encourage water conservation and protection.
    - Advances in irrigation technologies and adoption of innovative cultural practices can sustain agricultural production in Nevada.
    - Funding of the program will continue in a stable manner.

### **2. Ultimate goal(s) of this Program**

- Maintain and restore rangeland health, reduce weeds, improve watershed health, and mitigate the impacts of wildfire.
  - Protect, sustain, and improve terrestrial and aquatic wildlife habitat in Nevada.
  - Conserve and effectively use water resources for agricultural and urban purposes.
  - Protect and manage watersheds and riparian areas.
  - Improve soil conservation and quality.
  - Identify alternative means of coping with global climate change.
  - Apply collaborative problem-solving to mitigate natural resource disputes.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	3.0	0.0	0.0	0.0
2015	3.0	0.0	0.0	0.0
2016	3.0	0.0	0.0	0.0
2017	4.0	0.0	0.0	0.0
2018	4.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Educate and partner to enable the recovery of the sage grouse habitat to avoid its listing as a threatened or endangered species.
- Conduct applied research to determine management options that slow or stop the cycle of cheat grass and fire on previously burned areas through range rehabilitation, seeding programs, and nontraditional approaches to grazing management.
  - Educate property owners about managing wildfire risk through fuels reduction strategies.
  - 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.
  - Educate the public on responsible use and the value of multiple uses on rangelands.
  - Illustrate the need for management and control of pinion-juniper forests to restore watershed, wildlife habitat, and forage values on rangelands.
  - 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.
    - Provide educational training and collaborative problem solving to facilitate rehabilitation of degraded watersheds, protect and manage watersheds, and conserve, manage, and enhance efficient water use.
    - Educate producers and agency personnel to evaluate, monitor, and sustainably manage range resources.
    - Demonstrate through applied research the role of riparian friendly grazing strategies in sustaining water quality and range health.
    - Educate the public on responsible use and the value of multiple uses on rangelands.
    - Demonstrate the need for pinion-juniper forest control to restore watershed, wildlife habitat, and forage values on rangelands.
    - Educate the public with respect to adapting to global climate change
    - Partner with and educate the general public, livestock producers, and agency personnel to improve noxious and invasive weed control.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Extension Publications)</li> <li>● Other 2 (Trade Publications/Print Media)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● eXtension web sites</li> <li>● Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

The target audience includes agricultural producers, mining industry representatives, environmentalists, green industry professionals, small acreage owners, the general public, federal and state natural resource management agencies, and other resource managers.

**V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(H). State Defined Outputs**

**1. Output Measure**

- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.



**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of individuals who gain knowledge about improved human, plant, and animal management systems that relate to climate change and/or natural resource use.
2	Number of individuals applying or using new knowledge to improve human, plant, and animal management systems as related to climate change and/or natural resource use.

### **Outcome # 1**

#### **1. Outcome Target**

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

**2. Outcome Type :** Change in Knowledge Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 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
- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 213 - Weeds Affecting Plants
- 307 - Animal Management Systems
- 605 - Natural Resource and Environmental Economics

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 2**

#### **1. Outcome Target**

Number of individuals applying or using new knowledge to improve human, plant, and animal management systems as related to climate change and/or natural resource use.

**2. Outcome Type :** Change in Action Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 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
- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems

- 213 - Weeds Affecting Plants
- 307 - Animal Management Systems
- 605 - Natural Resource and Environmental Economics

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect 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 availability)

#### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**

The evaluation studies for the program logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of

educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

## **V(A). Planned Program (Summary)**

### **Program # 3**

#### **1. Name of the Planned Program**

Sustainable Energy

#### **2. Brief summary about Planned Program**

The U.S. remains reliant upon nonrenewable energy sources despite the negative environmental impacts on air, soil, and water quality. The current demand for alternative sustainable energy sources is unprecedented. In response, industrial and agricultural producer interest in bio-fuel crops has increased. Unfortunately, science based information is lacking concerning the adaption and production potential of these crops in Nevada. This knowledge gap severely slows efforts to complete feasibility analyses to develop a sustainable energy industry or provide recommendations regarding the production of these crops.

This relatively new program emphasizes applied research focused on the agronomic potential for alternative bio-fuel crops in Nevada. Additionally it addresses energy conservation through environmentally responsible lifestyles, including recycling, alternative transportation, energy use, and conservation.

Immediate expansion of this program is necessary. Public policy education is needed regarding wind and solar energy production, implications of energy subsidies and conservation incentives, the influence of community policies and practices on energy use and conservation, the effects of sustainable community development on local businesses, and the costs and benefits of alternative waste management strategies.

**3. Program existence :** New (One year or less)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
131	Alternative Uses of Land	15%			
133	Pollution Prevention and Mitigation	25%			
205	Plant Management Systems	25%			
403	Waste Disposal, Recycling, and Reuse	10%			
605	Natural Resource and Environmental Economics	10%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	15%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Nevada, as the rest of the US, relies heavily on nonrenewable energy. Currently Nevada imports 90% of its energy consumed from outside the state. Yet, Nevada ranks second nationally in terms of its capacity to generate electricity from solar and geothermal sources. Nevada's Energy Portfolio Standard requires 25% of electricity come from renewable energy resources by 2025. Additionally, the demand for sources of bio-fuels for transportation will continue to increase. Approaches to enhancing biomass production will become very important.

Applied research and educational programs are needed to educate the public about sources of sustainable, renewable energy. This includes discovery of a portfolio of programs to develop biomass used for bio-fuels, design optimum crops for bio-energy production, and produce value-added bio-based industrial products. Sustainable energy also encompasses programs that seek to enhance public awareness of the long term environmental effects of reliance upon nonrenewable energy sources. These programs must provide science based alternatives to reduce reliance on nonrenewable energy sources, including alternative transportation, recycling, and designing functional sustainable communities.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

- Bio-fuels are a set of emerging technologies that will provide the basis for additional agricultural revenue to those with large quantities of crop residues.
- Interest will continue to grow in this area and biofuels will become a part of the energy complex of this country, as well as the world.
- As long as traditional energy sources are less expensive, movement to biofuels will be slow.
- A large investment of public resources is necessary to support the development of a science based bio-fuels industry.
- Funding of the program will continue in a stable manner.

**2. Ultimate goal(s) of this Program**

- Identify which bio-fuels are best suited to Nevada's climate and resource base.
- Depending on the emergence of technologies suited for Nevada's primary sources of bio-fuels, develop economically and socially viable alternative energy sources and production processes that can provide additional revenue to agricultural producers and processors.
- Enhance public awareness and motivation to live environmentally responsibly lifestyles to include waste recycling, alternative transportation, and designing functional sustainable communities.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	0.5	0.0	0.0	0.0
2015	0.5	0.0	0.0	0.0
2016	1.0	0.0	0.0	0.0
2017	1.0	0.0	0.0	0.0
2018	1.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct applied research on alternative crops as potential bio-fuels and methods of production that are well-suited for Nevada.
- Report on and adapt research to educate producers outlining benefits and costs.
- Educate the public about sustainable practices, renewable energy use, and environmentally responsible lifestyles.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Music/Dance videos, materials)</li> <li>● Other 2 (Extension publications)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● eXtension web sites</li> <li>● Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

Target audiences include agricultural producers, the general public, citizen and special interest groups, related industries, and federal, state, and local government agencies.

**V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(H). State Defined Outputs**

**1. Output Measure**

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.



**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of individuals who gain knowledge about sustainable energy and environmentally responsible lifestyles.
2	Number of individuals who implement sustainable energy practices and environmentally responsible lifestyles.

### **Outcome # 1**

#### **1. Outcome Target**

Number of individuals who gain knowledge about sustainable energy and environmentally responsible lifestyles.

**2. Outcome Type :** Change in Knowledge Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 2**

#### **1. Outcome Target**

Number of individuals who implement sustainable energy practices and environmentally responsible lifestyles.

**2. Outcome Type :** Change in Action Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 205 - Plant Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

#### **4. Associated Institute Type(s)**

- 1862 Extension

## **V(J). Planned Program (External Factors)**

## 1. External Factors which may affect 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 availability)

### Description

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect the Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

## V(K). Planned Program - Planned Evaluation Studies

### Description of Planned Evaluation Studies

The evaluation studies for the program Logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that

target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

Childhood Obesity, Health and Nutrition

**2. Brief summary about Planned Program**

The primary goal of programs within this NIFA goal is to improve human health and quality of life. Learning about and adopting healthy lifestyle, which include food choices and eating habits, are a necessary program component. Much of the activities in this program area focus on preschool and grade school youth and their parents. The benefits of physical activity as part of a healthy life style are included as well as with physical activities as part of teaching activities.

A number of educational approaches are designed to effectively target at-risk individuals and families, including low income and ethnic minorities. Programs combine research and education to target new parents, youth in school and after school as well as child care settings. Programs also target senior populations as well as women who struggle with substance abuse that correlates to underlying eating disorders and related health and nutrition problems.

Newsletters, publications, and other informational materials will be distributed to participants, families, teachers, professional health educators, and the general public through the UNCE website. New curriculum and educational materials are being developed and tested.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :**Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
702	Requirements and Function of Nutrients and Other Food Components	20%			
703	Nutrition Education and Behavior	20%			
704	Nutrition and Hunger in the Population	15%			
724	Healthy Lifestyle	15%			
801	Individual and Family Resource Management	10%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%			
805	Community Institutions, Health, and Social Services	10%			
	<b>Total</b>	100%			

## **V(C). Planned Program (Situation and Scope)**

### **1. Situation and priorities**

Almost one-third of children in America are overweight or at risk for overweight; increasing their probability of developing chronic illnesses such as high blood pressure, high cholesterol, and Type 2 diabetes. Data from the National Health and Nutrition Examination Survey (NHANES) (1976-80; 2007-08) showed that the prevalence of obesity increased for children aged 2-5 years, from 5.0% to 10.4%, as measured by heights and weights and converted to Body Mass Index (BMI). Nevada estimates the costs associated with treating conditions related to overweight and obesity is \$337 million annually. A recent report released by the Nevada Institute for Children's Research and Policy on the health status of children entering kindergarten in the Nevada school system (n=3,597) stated 21% of the children in the study were obese and an additional 13% were overweight.

A person's relationship with food and physical activity begins in infancy and is molded during childhood. Studies have demonstrated a link between low-income, and subsequently food insecure families, and negative health outcomes. This is particularly true for early childhood obesity and obesity in later years which leads to diminished societal productivity and increasing health care costs.

A related issue involves substance abuse, one of the leading health indicators of the Healthy People 2020 objectives. Substance abuse is associated with violence, STDs, pregnancy, motor vehicle crashes, homelessness, rising health care costs and obesity. Some of the common health and nutrition issues associated with stimulant and other illicit drug use include poor dietary practices and family meal planning, inactivity, extreme weight gain during recovery, body image dissatisfaction and disordered eating patterns, poor hygiene and mental health issues. Additionally these failed nutrition and physical activity practices within the family unit can have direct impacts on child health and obesity. Of particular interest to the health community is the widespread abuse of stimulants among women including cocaine, methamphetamine (meth) and other stimulants. The seductive allure and pleasurable side effects of stimulants, such as meth, include weight loss, increased energy levels, alertness, decreased appetite, and euphoria. These side effects, along with elevation of self-esteem make them the drug of choice among many young women.

### **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- The relationship between food and human health develops during infancy and continues during the early childhood years.
- High dosage educational programs that teach children about healthy food choices and physical activity can impact childhood obesity rates.
- Social acceptance of a variety of body shapes and sizes is important to the development of a positive,

individual relationship with food.

- Families who are educated along with young children can support the practice of healthy learned behaviors at home.
- Low-income families are at highest risk for health and nutrition problems.
- Substance abuse may be correlated with eating disorders.
- Funding of the program will continue in a stable manner.

**2. Ultimate goal(s) of this Program**

- Strengthen preschoolers' understanding of the relationship between food and human health.
- Strengthen the capacity of preschool educators to help children learn how to become healthier and more active.
- Build the capacity of parents to reinforce and practice healthy behaviors with children at home.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	8.0	0.0	0.0	0.0
2015	8.0	0.0	0.0	0.0
2016	8.0	0.0	0.0	0.0
2017	9.0	0.0	0.0	0.0
2018	9.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct research with respect to obesegenics, health, and nutrition.
- Conduct nutritional research and education to enhance human nutrition and nutrition-related behavior.
- Develop and provide intensive high dosage educational activities for preschool children about nutrition, physical activity, and social acceptance of diverse body shapes and sizes.
  - Develop and provide workshop and one-on-one intervention to educate parents of preschoolers about their child's development and how these issues impact their behavior.
  - Develop, teach and evaluate research based programs focused on health and nutrition.
  - Develop and contribute materials to eXtension COP and other national efforts in obesity, health and nutrition.
  - Partner with professional educators to educate youth and families to improve health and nutrition.
  - Publish curricula, journal articles, and fact sheets pertaining to health and nutrition.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Extension publications)</li> <li>● Other 2 (Music/Dance videos, materials)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● eXtension web sites</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Newspapers/Magazines/Print Media)</li> </ul>

**3. Description of targeted audience**

The primary target audience is pre-school and grade school children and their families. A secondary audience is professional educators and child care providers. Programs also target women struggling with substance abuse.

**V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(H). State Defined Outputs**

**1. Output Measure**



- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of individuals who gain knowledge about nutrition and health.
2	Number of individuals (adults & youth) who adopt one or more healthy lifestyle practices or food choices (behavior).

**Outcome # 1**

**1. Outcome Target**

Number of individuals who gain knowledge about nutrition and health.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 801 - Individual and Family Resource Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of individuals (adults & youth) who adopt one or more healthy lifestyle practices or food choices (behavior).

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 801 - Individual and Family Resource Management
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

**4. Associated Institute Type(s)**

- 1862 Extension

## **V(J). Planned Program (External Factors)**

### **1. External Factors which may affect Outcomes**

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Grant funding availability)

#### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect the Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

The evaluation studies for the program logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that

target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Food Safety

**2. Brief summary about Planned Program**

Agricultural producers and food consumers in Nevada require education about safe food production, handling and processing to help reduce the risk associated with food-borne illness. UNCE seeks to build food safety programs on a par with other land grant universities in the US. This means developing outreach programs designed to strengthen the capacity of producers to develop comprehensive farm plans which include Good Agricultural Practices (GAPs), Good Handling Practices (GHPs), and Hazard Analysis and Critical Control Points (HACCP). With Nevada's steady expansion of its "farm to fork" supply chain, UNCE must educate all agricultural producers, regardless of operation size, to control and prevent accidental biological, chemical or physical hazards that could contaminate food products during production, storage, and transportation.

**3. Program existence :** New (One year or less)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
308	Improved Animal Products (Before Harvest)	15%			
315	Animal Welfare/Well-Being and Protection	15%			
501	New and Improved Food Processing Technologies	10%			
504	Home and Commercial Food Service	10%			
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	25%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Food-borne illness continues to be an urgent issue across the United States. The CDC estimates that annually 1 out of 6 Americans (or 48 million people) get sick, 128,000 are hospitalized, and 3,000 die of food-borne diseases. Maintaining an affordable and safe national food supply is essential to agriculture and the nation. The ability to detect and prevent contamination by intentional or naturally occurring causes is a priority to ensuring food safety throughout the production, processing, and distribution system. Developing and providing outreach education based on accurate science will promote food safety from production to consumption. Crop and livestock production systems must be protected from economically significant pests, pathogens, diseases, and toxins whether naturally occurring or introduced. Throughout production, processing, distribution, and preparation, the food supply must be sheltered from contamination by organisms, toxins, and chemical residues that cause disease in or harm to humans. This new program will focus primarily on teaching agricultural producers farm safety planning as part of the National Good Agricultural Practices (GAPs) program. Producers will receive training and one-on-one support to develop farm/ranch plans to prepare for voluntary audits, conducted by Nevada Department of Agriculture inspectors, in compliance with the Food Safety and Modernization Act. This includes training for Nevada's growing number of community and school garden managers and suppliers to local farmer markets and restaurants. This program area includes Quality Assurance training for livestock producers to ensure ethical animal treatment and quality meat products. Finally, UNCE will train food workers in care facilities the knowledge and skills to ensure safe handling of food prepared for clientele.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- Food safety is a critical issue as the number of small producers, community and school gardens, and farm to fork supply operations increases.
- Farm workers are a critical audience for food safety hygiene training and GAPs/GHPs/HACCPs implementation.
- Cottage food industries and other small food manufacturers often lack the specific knowledge to process foods safely.
- Food service workers are a critical audience to reduce the risk of food borne illness in care and retail facilities.
- Food consumers benefit from improved understanding of practices to prevent food contamination and food-borne illness.
- Funding of the program will continue in a stable manner.

### **2. Ultimate goal(s) of this Program**

- Increase the number of methods that reduce food contamination and growth of food-borne organisms.
- Support the development and transfer of practices and intervention strategies that manage, reduce or eliminate food safety risk throughout the food chain.
- Increase the number of agricultural producers who develop farm plans to ensure food safety.
- Increase the number of agricultural producers who voluntarily complete farm/ranch audits to

receive farm safety certifications.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	0.5	0.0	0.0	0.0
2015	0.5	0.0	0.0	0.0
2016	1.0	0.0	0.0	0.0
2017	1.0	0.0	0.0	0.0
2018	1.5	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct a statewide assessment to identify specific food safety program topics and further identify target audiences.
- Provide educational and extension outreach support to market livestock and produce growers, to owners and operators of small and very small plants, and to food preparers and handlers, including minority populations such as Native Alaskans, Asian Pacific Islanders, and American Indians.
- Educate agricultural producers about methods to reduce food contamination and growth of food-borne organisms.
- Support the development and transfer of practices and intervention strategies that manage, reduce or eliminate food safety risk throughout the food chain.
- Educate agricultural producers about farm planning to ensure food safety.
- Educate agricultural producers about GAPs, GHPs, and HACCPs.
- Provide producers educational and extension support for the implementation of GAPs, GHPs, and HACCPs.
- Partner with Nevada Department of Agriculture to build awareness among producers of volunteer food safety certification processes.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

Extension	
Direct Methods	Indirect Methods



<ul style="list-style-type: none"><li>● Education Class</li><li>● Workshop</li><li>● Group Discussion</li><li>● One-on-One Intervention</li><li>● Demonstrations</li><li>● Other 1 (Extension publications)</li><li>● Other 2 (Trad Publications/Media)</li></ul>	<ul style="list-style-type: none"><li>● Public Service Announcement</li><li>● TV Media Programs</li><li>● Web sites other than eXtension</li><li>● Other 1 (Newspapers/Magazines/Print Medi )</li></ul>
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### 3. Description of targeted audience

This program targets agricultural producers, small acreage operators, and managers/operators of school/community gardens. Target audiences also include livestock producers who participate in Beef Quality Assurance (BQA) and 4-H/FFA youth participating in statewide and local competitive events with livestock projects. Food safety programs also target professionals in the retail food industry and custodial food providers in child and senior care facilities.

### V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

### V(H). State Defined Outputs

#### 1. Output Measure

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of individuals who gain knowledge about food-borne illness, farm/ranch food safety, and quality assurance.
2	Number of individuals who implement practices to prevent food-borne illness, which include farm/ranch food safety plans and quality assurance practices.

### **Outcome # 1**

#### **1. Outcome Target**

Number of individuals who gain knowledge about food-borne illness, farm/ranch food safety, and quality assurance.

**2. Outcome Type :** Change in Knowledge Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 308 - Improved Animal Products (Before Harvest)
- 315 - Animal Welfare/Well-Being and Protection
- 501 - New and Improved Food Processing Technologies
- 504 - Home and Commercial Food Service
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 2**

#### **1. Outcome Target**

Number of individuals who implement practices to prevent food-borne illness, which include farm/ranch food safety plans and quality assurance practices.

**2. Outcome Type :** Change in Action Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 308 - Improved Animal Products (Before Harvest)
- 315 - Animal Welfare/Well-Being and Protection
- 501 - New and Improved Food Processing Technologies
- 504 - Home and Commercial Food Service
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### **4. Associated Institute Type(s)**

- 1862 Extension

## **V(J). Planned Program (External Factors)**

### **1. External Factors which may affect Outcomes**

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Grant funding availability)

#### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect the Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

The evaluation studies for the program logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program

implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

## **V(A). Planned Program (Summary)**

### **Program # 6**

#### **1. Name of the Planned Program**

Human and Family Development

#### **2. Brief summary about Planned Program**

All children face risks as they grow and develop, and most children can benefit greatly from positive interactions with caring adults. Children who have strong interpersonal skills and support are less likely to participate in risky behaviors, such as drug and alcohol use, early sexual involvement and dropping out of school. UNCE's traditional 4-H program focuses on positive youth development as a proactive measure to ensure youth avoid risky behaviors. Additionally UNCE developed 4-H After School Club programs to teach children basic life skills including math, reading, science, positive communication, goal setting, self-responsibility, decision-making, and good nutrition. Youth who have these life skills are less likely to participate in risky behaviors.

Even though traditional 4-H programs are firmly established in every county, Nevada still ranks among the highest in the nation in: 1) number of reported acts of domestic violence; 2) per capita juvenile incarceration rates; 3) number of young adults unemployed and not in school; 4) teen suicides; 5) high school dropout rates; and 5) teen pregnancies. Nevada ranks among the lowest nationally for youth and adult literacy rates. These negative factors are exacerbated for disenfranchised youth from rural, limited-resource, and/or single parented families.

This state mandated program area primarily addresses: 1) improving family literacy; 2) reducing developmental risk factors for school aged youth; 3) improve youth to adult transition rates in rural areas; 4) training first responders how to effectively interact with domestic violence victims; and 5) promoting positive youth and family development through its foundational 4-H programs.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	65%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	15%			
806	Youth Development	20%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)**

1. Situation and priorities

Nevada has one of the highest per capita juvenile incarceration rates in the nation. State and county costs of incarceration of Nevada juveniles continue to increase. Currently the average cost to incarcerate a juvenile is \$84 per day with a 7-month average stay for a total of approximately \$18,000 per child per year; few alternatives to state operated juvenile detention facilities exist. In comparison, positive youth development programming that targets first-time juvenile offenders is estimated to cost \$400 per family per year. Several Nevada studies indicate that taxpayers support community-based prevention programs rather than punitive detention programs.

Census data indicate that Nevada's rural communities have some of the highest rates in the nation regarding issue of youth having difficulty transitioning to the workplace or adulthood. Research supports the need to target families with the least financial resources and family support to help youth prepare themselves for post-secondary education or the world of work.

Family literacy is the foundation for youth success in school and later life. The Nevada Literacy Coalition estimates that nearly 25% of youth and adults in Nevada have inadequate literacy skills. This places Nevada's youth at extremely high risk for developing illiteracy-related problems in the future. Such problems include lack of grade retention, school failure, school dropout, delinquency, unemployment and underemployment. Approximately 51% of third grade and 47% of fourth grade students are below basic reading levels. Additionally, the percentage of Spanish-speaking immigrants is expected to increase in Nevada over the next 25 years, increasing the likelihood that larger numbers of children who are English-language learners and at risk for low achievement will enter Nevada public schools.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension

**V(D). Planned Program (Assumptions and Goals)**

## 1. Assumptions made for the Program

- The application of evidence based programs to appropriate audiences can effectively change to behavior and conditions.
  - Children with strong interpersonal skills and support are less likely to participate in risky behaviors, such as drug and alcohol use and early sexual involvement.
  - Children with strong interpersonal skills and support are more likely to stay in school and do better in school.
  - Educational programs focused on young adults, ages 18-24, unemployed and out of school can increase their likelihood of successful transition from youth to adulthood.
  - First time juvenile offenders who receive high dosage educational programming to improve self confidence and decision-making are less likely to reenter the juvenile system.
  - Youth who participate in in-school and after school 4-H clubs and programs develop the life skills necessary for positive successful youth development.
  - 4-H programs that emphasize science, technology, engineering, and mathematics (STEM) prepare Nevada youth to enter post-secondary educational programs, study STEM subjects, and prepare for STEM related careers.
  - First responders who are more knowledgeable about domestic violence crimes can effectively interact with victims of domestic violence.
  - Funding of the program will continue in a stable manner.

## 2. Ultimate goal(s) of this Program

- Increase Nevada 4-H youth program enrollment through 4-H clubs, camps, after-school programs, community center projects, home study sessions and school enrichment programs.
  - Increase the number of adult and teen volunteer leaders who help in these educational efforts.
  - Teach and provide support to 4-H volunteer leaders in order to strengthen 4-H youth experiential learning and developmental success.
    - Incorporate STEM components into 4-H and statewide youth development programs to better prepare youth for STEM post -secondary education and STEM related careers.
    - Increase the number of after-school sites to teach children basic life skills including math, reading, science, positive communication, goal setting, self-responsibility, decision-making and good nutrition.
    - Low-income and homeless youth attending urban and rural high-risk elementary schools receive positive support through after-school programs, resulting in lower high school dropout rates.
    - Nevada's child care providers have the knowledge and skills to provide safe and positive environments for children attending child care centers.
    - Through UNCE-Nevada GEAR UP first generation college-going students are better prepared to enter and succeed in college.
    - Rural unemployed and out-of-school youth, ages 18-24, realize more successful transition to adulthood, becoming more productive members of their communities.
    - Incarceration rates decline for Nevada's juvenile offenders, saving taxpayers millions of dollars.
    - Nevada's family literacy rates improve.
    - First responders to and victims of domestic violence learn the skills and utilize resources to diminish incident of violence.

## V(E). Planned Program (Inputs)



**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	8.0	0.0	0.0	0.0
2015	8.0	0.0	0.0	0.0
2016	8.0	0.0	0.0	0.0
2017	8.0	0.0	0.0	0.0
2018	8.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct research with respect to human and family development issues.
- Develop and publish research-based peer-reviewed curricula and journal articles in support of programs.
  - Expand eXtension Alliance for Better Child Care Community of Practice.
  - Support the positive development of at risk youth and young adults through the use of Nevada's Nationally Recognized Evidence-Based Programs, Bootstraps and Project Magic.
    - Teach parents of pre-school and elementary school youth how to increase family literacy.
    - Develop and use statewide 4-H STEM program to help prepare Nevada youth for success in secondary and post-secondary education and STEM careers.
      - Incorporate STEM components into UNCE Nevada GEAR UP program.
      - Train professional care givers the skills necessary to provide safe, positive environments for children.
      - Recruit, screen, and train adult volunteers to work effectively with youth.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> <li>• Other 1 (Extension publications)</li> <li>• Other 2 (Reports/Studies )</li> </ul>	<ul style="list-style-type: none"> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

Target audiences include youth, young adults, parents/families, child care providers and other youth/family professionals. Target audiences also include at risk families, including military families and seniors.

## **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of youth, families, and professionals who gain knowledge about positive human and family development.
2	Number of youth, families, and professionals who implement positive human and family development behaviors.

**Outcome # 1**

**1. Outcome Target**

Number of youth, families, and professionals who gain knowledge about positive human and family development.

**2. Outcome Type :** Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of youth, families, and professionals who implement positive human and family development behaviors.

**2. Outcome Type :** Change in Action Outcome Measure

**3. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges

- Populations changes (immigration, new cultural groupings, etc.)
- Other (Grant availability)

### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect the Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

The evaluation studies for the program logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

## **V(A). Planned Program (Summary)**

### **Program # 7**

#### **1. Name of the Planned Program**

Community and Economic Development

#### **2. Brief summary about Planned Program**

Record unemployment rates, shrinking gross domestic product, high housing foreclosures, and shrinking tax base has challenged most state economies for the last four years. Although recently the national economy has shown signs of improvement, Nevada's recovery continues at much slower pace than other states. This is why state, county, and community leaders are increasing economic development efforts centered on sustainable economic development.

Managing population growth and diversifying the economic base will comprise primary goals for Nevada for community leaders from urban and rural areas. While sustainable economic development programs have been offered in Nevada's urban and metropolitan areas (Washoe and Clark counties) for some time, the need for sustainable economic development in rural counties is even more critical.

This state mandated program area will strive to: 1) develop local leadership skills; 2) teach small business owners basic principles of business planning and management; 3) build the capacity of rural communities to develop comprehensive economic development strategies; 4) help counties develop regional strategies for sustainable development; and provide to state, counties and communities research and technical assistance related to sustainable economic and community development.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
605	Natural Resource and Environmental Economics	15%			
608	Community Resource Planning and Development	40%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%			
805	Community Institutions, Health, and Social Services	20%			
	<b>Total</b>	100%			

**V(C). Planned Program (Situation and Scope)**

1. Situation and priorities

The economic situation in Nevada remains grim. No state has been harder by the housing downturn than Nevada where home values have fallen nearly 70% since 2006. In 2012, Las Vegas, the state's largest city, reported 71% of mortgages under water. While unemployment declined from 14.2% in 2011 to 11.6% in 2012, Nevada reports the second highest unemployment rate in the US after Puerto Rico (14.2%). While the state works to diversify its tourism and mining dependent economy, economists estimate that Nevada's housing sector may require more than a decade to recover.

Nevada's rural communities continue to deal with many of the same problems other rural communities across the US face, including a reduced demand for skilled workers in agriculture and natural resource extraction. This is due primarily to increased production efficiency and automation, continued lack of new knowledge-based and technology-based job creation, continued divergence between Nevada's rural and urban economic fortunes, and a continued inability to attract new manufacturers as a result of downward global pressures on wages. Compounding this problem is a general lack of skillful and knowledgeable personnel in Nevada's rural communities when it comes to sustainable, long-term development and economic diversification.

Nevada's rural communities currently depend heavily on the expertise of UNCE faculty to deliver the expertise needed. Extension faculty will develop local expertise, through educational programs, such as Engaged Leadership and the Local Leaders Institute, assist in strategic rural economic development, and provide technical assistance in a variety of program areas including natural resource development and management, rangeland conservation and reclamation, and local government administration.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension

- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- While the state works to diversify its tourism and mining dependent economy, economists estimate that Nevada's housing sector may require more than a decade to recover.
- Nevada's unemployment rate, particularly in urban areas, will remain higher than the national average until the state diversifies its economy to rely less heavily on gaming and tourism.
- Rural Nevada communities will continue to experience boom and bust cycles until leaders make concerted efforts to help diversify local economies to rely less heavily on nonrenewable resource extraction.
- Local government officials who acquire knowledge and develop skills in ethics, governance, and leadership can make effective decisions that lead to sustainable community and economic development.
- The majority (95%) of Nevada businesses are considered small by having fewer than 20 employees.
- Programs that build the capacity of small business owners to develop and follow business plans improve the likelihood of their success and longevity.
- Advisory boards and special interest groups can effectively assist local government efforts by acquiring leadership, collaborative problem solving, and effective decision-making skills.
- Comprehensive economic development strategies better prepare rural Nevada communities, particularly those with close proximity to Clark and Washoe counties, to manage long term growth.
- Regional economic development strategies can provide long term stability for Nevada's sustainable economic recovery and growth.
- Funding of the program will continue in a stable manner.

### **2. Ultimate goal(s) of this Program**

- People in rural communities work together as a regional team to develop and implement an economic development plan that builds on the current and emerging economic strengths of the region.
- Small business owners learn how to access and compete for local, state and federal procurement contacts.
- Small business owners learn basic business principles and the skills necessary to grow their individual businesses.
- Small business owners learn and demonstrate best practices through training, technical assistance, and connectivity with business support resources.
- Community stakeholders learn how to utilize development and planning tools, such as asset mapping, secondary data analysis, and social network analysis.
- Community stakeholders strengthen their capacity to participate in community development planning.
- UNCE guided and supported community based research produces community and regional economic development strategies for Nevada.
- Elected and appointed officials develop the capacity to support sustainable economic development and viability at the community, county, regional, and state levels.
- Elected and appointed officials strengthen their leadership and decision making ethics.
- Elected and appointed officials acquire practical knowledge about Nevada's fiscal system, land use planning, natural resource management, and economic growth.
- University students learn and practice civic engagement via Extension service learning assignments.
- University service learning builds social capital in Nevada's rural and urban communities.
- Nevada's rural communities end the boom bust cycles which have been tied to extraction of natural resources and those commodity prices since turning from territory to state.



- Nevada, on a statewide basis, diversifies its economy, decreases its unemployment and underemployment rates, increases its knowledge capital, and recovers from the housing crisis.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2014	5.0	0.0	0.0	0.0
2015	5.0	0.0	0.0	0.0
2016	5.0	0.0	0.0	0.0
2017	5.0	0.0	0.0	0.0
2018	5.0	0.0	0.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Strengthen capacity among community stakeholders to participate in community development planning, including asset mapping, secondary data analysis, and social network analysis.
- Conduct applied research to assess regional economic development strategies for Nevada.
- Conduct applied research to help rural communities develop business matching models.
- Develop educational resources to build the capacity of elected and appointed officials to support sustainable economic development and viability at the community, county, regional, and state levels.
- Conduct workshops for elected and appointed officials focused on leadership ethics, Nevada's fiscal system, land use planning, natural resource management, and economic development.
- Develop service learning activities via Extension programs to teach university students about civic engagement and community level problem solving.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> <li>• Other 1 (Reports/Studies)</li> <li>• Other 2 (Extension publications)</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• eXtension web sites</li> <li>• Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

Target audiences include elected and appointed leaders and officials, business owners, general public, youth leaders, service learning university students, land use planners, and economic development professionals.

### **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

### **V(H). State Defined Outputs**

#### **1. Output Measure**

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of individuals who gain knowledge about community and economic development.
2	Number of individuals who implement knowledge-based community and economic development.

**Outcome # 1**

**1. Outcome Target**

Number of individuals who gain knowledge about community and economic development.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of individuals who implement knowledge-based community and economic development.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

**4. Associated Institute Type(s)**

- 1862 Extension

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect 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 availability)

### **Description**

A number of factors could influence the extent to which UNCE is able to meet its programmatic goals as planned. Global economic conditions remain unstable which indicates a slow recovery from the worldwide recession. Nevada's county budgets will continue to vary. That is, while several rural counties that rely upon mining as a primary economic driver continue to prosper, the remaining counties struggle to upright a toppled housing sector and severely deflated tourism and gaming industries. The significant loss of revenue from those counties most affected by the housing debacle and decline in tourism, Clark and Washoe, will affect the Nevada's ability to fund public education due to diminished state revenues. At best, the state's economic recovery will occur slowly over the next decade. As Nevada seeks to diversify its economy, program changes are likely to occur as a function of changing community issues, populations, and competing public priorities and programs. Responsive public policy and government regulations, particularly as they relate to water and land resources, will likely influence the degree to which program goals are achieved. Negative externalities as a result of the recession and subsequent reconstruction have immeasurable potential to influence the extent to which UNCE can effectively address identified community based issues. Finally, natural disasters, such as drought and rising energy prices, are likely to significantly affect food production, supply, food prices, and in turn generate a myriad of related socioeconomic issues at the community level.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

The evaluation studies for the program logic models included in this plan will incorporate formative and summative approaches. Formative (process) evaluation will be used for the purpose of improving or refining a program by scrutinizing its teaching activities. This involves pre-testing of educational materials in order to assess their efficacy and quality. It may also involve tracking the number of educational materials and activities, number of program contacts, and the types of barriers encountered in reaching target teaching outcomes. The results of formative evaluations often lead to modifications to educational materials and activities in order to strengthen the program. The goal of formative evaluation is to identify ways in which to improve educational activities to make the program more efficient, more relevant, and more likely to accomplish a program's learning objectives and goals. Summative (impact) evaluation will be used to assess program outcomes (changes that occur as a result of the program, without necessarily establishing cause and effect conclusions) and impacts (effectiveness in changing target populations' knowledge/learning, behavior/action, or in conditions). Summative evaluation is typically appropriate for mature programs as it seeks to measure its overall success in reaching its target goals and occurs at the conclusion of the program or at planned benchmark points during program implementation. External evaluators may be used in order to increase evaluative objectivity. Because each of the plans addresses a broad combination of applied research and extension initiatives that target multiple audiences, methods, and intended outcomes, a combination of formative and summative evaluation is necessary to provide a comprehensive assessment. Quantitative and qualitative data will be collected. As appropriate, single case studies and experimental design (treatment and control groups) will be used in order to make comparisons between program participants and non-participants. In addition, funding partners often require specific methods and data for accountability reports.

