

2008 University of Nevada Research Plan of Work

I. Plan Overview

1. Brief Summary about Plan Of Work

The research programs of the NAES are integral to the College of Agriculture, Biotechnology and Natural Resources and are associated with the College of Human and Community Sciences, and the School of Medicine. Central to the mission is the protection, utilization and management of soil water, air, plant and animal resources, the economic vitality of the agriculture industry, and the quality of the environment. Of equal importance is the utilization of food in health promoting human diets and the social and economic well being of individuals and families. Research is conducted in the laboratories of the Max C. Fleischmann College of Agriculture, Knudsen Resource Center, Howard Medical Sciences, Bureau of Mines building, and the Sarah Fleischmann College of Human and Community Sciences. Six field laboratory sites are also utilized for research, including: Main Station Field Laboratory, which houses the large animal surgical facility and laboratory and the meats laboratory; Valley Road Field Laboratory, which houses the College of Agriculture Equestrian Center; Newlands Research and Extension Center; Gund Ranch Rangeland Research Center; and the Jay Dow Sr. Wetlands Research Laboratory.

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

Year	Extension		Research	
	1862	1890	1862	1890
2008	0.0	0.0	92.0	0.0
2009	0.0	0.0	95.0	0.0
2010	0.0	0.0	98.0	0.0
2011	0.0	0.0	101.0	0.0
2012	0.0	0.0	104.0	0.0

II. Merit Review Process

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

- Expert Peer Review

2. Brief Explanation

Scientific peer review drives the initial selection of research projects that comprise the NAES research portfolio. NAES solicits applications from CABNR/NAES scientists in a general call for proposals that identifies the priority areas. Faculty submit the proposals through an NAES web based application process and the individual contributing departments are responsible for obtaining scientific peer review. We have initiated a web based peer review process for department peer review and Experiment Station administrative use for evaluating the proposed research for the Nevada Agricultural Experiment Station. The department will submit their ranked evaluation of the research proposals for that respective department, and the Director, in consultation with the Associate Director, will approve the research projects based on the departmental recommendations, peer review rankings and comments and stakeholder input.

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?

The RFP (Request for Proposal) solicitation sent to faculty and listed on our website identifies the research priorities as identified by NAES strategic planning which includes stakeholder input. The individual projects are approved based on the project's contribution to critical issues of importance to Nevada and to the educational programs of UNR.

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

Underserved and under-represented populations interests are included in the Nevada Agricultural Experiment Station and College of Agriculture, Biotechnology and Natural Resources research priorities that were established by a college and university wide strategic planning process. The University of Nevada is an equal opportunity university and aggressively pursues recruiting underserved students. In the past 10 years, the number of minority students attending UNR has doubled.

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

On an annual basis, selected research projects are identified to prepare impact statements for submission into the CSREES annual report and for consideration for University and College publications. In addition, every year each NAES funded research project is required to submit an annual progress report to CRIS an AD421 which features outcomes and impacts. These annual reports are reviewed by an NAES administrative team and are evaluated for outcomes and impact. On multi-year projects, continued funding requires good progress towards accomplishing the research goals and providing impact.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

The newly implemented web based NAES priority grant submission and peer review process is designed to improve faculty efficiency in soliciting research funding from NAES. NAES strategic planning has identified priority research areas that are stakeholder driven and designed to enhance our stakeholders effectiveness.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Targeted invitation to non-traditional stakeholder individuals
- Use of media to announce public meetings and listening sessions
- Other (Conduct Field Lab Days at our Field Stations)
- Targeted invitation to selected individuals from general public
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals

Brief explanation.

We have and will continue to conduct tours throughout the state for the purpose of obtaining stakeholder input. During these tours we invite participants to town hall meetings through general press coverage in the local newspapers, and we invite stakeholder groups and individuals through personal contact, i.e., email, telephone, etc., to attend. We hold an annual "Field Lab Day" at our Main Station Field Laboratory and the Gund Range Research Station where there is an excellent dialog between stakeholders and NAES faculty and administrators.;

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

- Other (Informal discussions with key stakeholders)
- Use Advisory Committees
- Needs Assessments
- Open Listening Sessions

Brief explanation.

We currently have a broadly based CABNR/NAES advisory committee that meets and provides advice 1-3 times per year. In addition, we have an associate dean for outreach and his office schedules and coordinates town hall meetings throughout the state with the purpose of obtaining direct input to the NAES research portfolio. The primary responsibility of the associate dean for outreach is to connect the CABNR/NAES teaching and research programs to the citizens of Nevada. Our partnership with Nevada Cooperative Extension provides assistance and access to stakeholders. Informal discussions with key stakeholders provides important input into our programs.

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

- Other (Conduct Field Lab Day for stakeholders)
- Meeting specifically with non-traditional groups
- Meeting with the general public (open meeting advertised to all)
- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals

Brief explanation

We routinely attend meetings of our traditional stakeholder organizations, i.e., Nevada Farm Bureau, Cattlemen's, Woolgrowers, etc., as well as Bureau of Land Management, Native American Agricultural Producers, Nevada Department of Wildlife. In addition, we meet regularly with representatives from State and Federal agencies and local governments regarding our teaching and research programs.

3. A statement of how the input will be considered

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

Brief explanation.

The stakeholder input is relied upon to establish the research portfolio for NAES, and that includes identification of priority areas, identifying important new issues and the actual approval and funding of new and continuing projects.

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Agricultural Production in a Semi-Arid Environment
2	Economic Development with Emphasis in Rural Areas
3	Natural Resource Management and Environmental Sciences in the Great Basin and Sierran Ecosystems
4	Nutrition and Health

V(A). Planned Program (Summary)

1. Name of the Planned Program

Agricultural Production in a Semi-Arid Environment

2. Brief summary about Planned Program

Our Plan of Work (POW) goals are to increase the overall quality and health of Nevada livestock through research and outreach, to understand the biology of plants through basic research, develop potential alternative crops, and to evaluate and promote improved marketing of Nevada products.

NAES research programs are continuing to focus on developing alternative crops that require less water including evaluating the potential to establish wine grape and native seed industries in Nevada. Future research on alternative crops will be directed at developing sources for biomaterial and bio-fuel production in Nevada. In addition, research continues on abiotic stress in plants and the genetic basis for resistance to stress. NAES scientist are using genomic analysis to select for production traits in livestock that will be optimized for the Nevada Arid Rangelands and improving the health of livestock in increased production. Research on our field laboratories is directed to improved livestock/range management, the use of livestock to control noxious weeds and decrease threats of fire, improved forage production and the development of livestock models for human diseases.

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

4. Program duration : Medium Term (One to 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

- 121 15% Management of Range Resources
- 203 15% Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 215 10% Biological Control of Pests Affecting Plants
- 301 10% Reproductive Performance of Animals
- 303 10% Genetic Improvement of Animals
- 304 10% Animal Genome
- 308 10% Improved Animal Products (Before Harvest)
- 311 10% Animal Diseases
- 901 5% Program and Project Design, and Statistics
- 903 5% Communication, Education, and Information Delivery

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

1. Situation and priorities

Nevada's landscape is largely arid to semi-arid desert rangelands, with croplands adjacent to the limited number of rivers and streams. The state includes over 70 million acres of land, approximately 87% public land and 13% privately owned. Of the 13% in private farms and ranches, 87% is considered rangeland, 8% cropland, and 5% woodland and other uses. Over 90% of the land in Nevada is considered rangeland, with approximately 80% available for livestock grazing at certain times of the year.

Livestock, particularly cow-calf operations are the primary agricultural enterprises in Nevada. For the past several years, the cattle producers have experienced a chronic depression of prices. To support ranching as a viable business enterprise in Nevada, NAES has focused its attention on research designed to help producers market as high quality and healthy animals as possible. The foundation of all of these efforts is a three tiered marketing strategy whereby producers separate their cattle and strategically time their marketing. In an effort to meet the increasingly pressing education need of alternative marketing strategies, the principles of the University of Nebraska's agriculture marketing and risk management course have also been adopted. Approximately 20% of most ranches annual income is realized in cull cow sales. In January, 1997, USDA implemented rule changes which made "B" maturity cattle ineligible for Choice grading. These rule changes reduce the value of culled cows by as much as \$150 per carcass. In an effort to minimize this loss, NCE developed a marketing alternative education program.

The alternative marketing strategies identified above are successful only if the animals arrive at the feed lot or other grazing areas in a healthy condition. Thus preconditioning management, enhancing the immune system, and overall stress reduction, is a major focus of all research and educational programming for livestock producers.

The 8% private land considered cropland includes 66% as harvested crops, 26% as pasture, and 8% as idle acres or other uses. Specific crops harvested include 235,000 acres of irrigated alfalfa for hay, 270,000 acres meadow and other hay production, 17,000 acres wheat and barley, 10,000 acres alfalfa for seed production, 8,000 acres for potatoes, and 5,000 acres in garlic, onions and other crops. These figures show that 92% of the cropland produce hay for livestock.

Priorities include increasing overall quality and health of livestock production in Nevada and the west through research and education programming. To develop and understanding of plant biology through basic resesarch and evaluate potential new plant industries for Nevada. To conduct research and education programming directed at marketing Nevada generated products.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Internal linkages include the Nevada Cattlemen’s Association, local veterinarians, Nevada Farm Bureau and other agricultural organizations. Multi-state research and integrated extension programs will be administered through the Regional Coordination and Implementation Committee (RCIC) of the Western Association.

Multi-state research programs will be governed through the Western Association of Agricultural Experiment Station Directors (WAAESD), involving peer and program review and subsequent recommendations by the Regional Coordination and Implementation Committee (RCIC), a sub-committee of WAAESD.

Coordination of multi-state extension, research and integrated research and extension activities will be governed by the Western Extension Directors (WED) and WAAESD. A peer and program review committee with broad based multi-functional representation entitled The Regional Coordination and Implementation Committee (RCIC) will conduct the initial review and make recommendations to WED and WAAESD.

2. Ultimate goal(s) of this Program

There are three primary outcomes expected of the research aspect of this goal. The first is to increase the overall quality and health of the livestock produced through research and education. Secondly, it is to understand and improve the quality of plants through basic research. Additionally, marketing will continue to be a major focus of research and education. All educational programming and research is multi-faceted and will be detailed in annual reports.

Much of the work to achieve the goal identified above is in the basic research program of the NAES.

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
2008	0.0	0.0	22.0	0.0
2009	0.0	0.0	23.0	0.0
2010	0.0	0.0	24.0	0.0
2011	0.0	0.0	25.0	0.0
2012	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Conduct research to enhance agricultural production in Nevada, publish the research findings in peer reviewed journals, educate our stakeholders through outreach by conducting rural tours and participating in town hall meetings, holding field lab open houses to demonstrate our research findings, submit news releases on new findings, publish a quarterly bulletin entitled "Insights" News from the College of Agriculture, Biotechnology and Natural Resources and the Nevada Agricultural Experiment Station, mail a quarterly postcard entitled "Research with Impact" featuring a specific research accomplishment of the Nevada Agricultural Experiment Station (this outreach piece received an award from the Association for Communications Excellence), Include publications on the CABNR/NAES web page, report impacts through a web based link entitled Nevada Dividends, and share results with extension faculty for inclusion in the extension outreach programs.

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"> ● Education Class ● One-on-One Intervention ● Other 1 (town hall meeting) ● Other 2 (field lab open houses) 	<ul style="list-style-type: none"> ● Web sites ● TV Media Programs ● Public Service Announcement ● Newsletters

3. Description of targeted audience

The target audience for research and educational programming is agriculture and livestock producers, veterinarians, agency personnel and local governmental organizations as well as students taking class or participating in research activities.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1200	4000000	300	500000
2009	1500	4000000	350	500000
2010	1750	4000000	400	500000
2011	2500	4000000	500	500000
2012	0	0	0	0

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :1 2009 :0 2010 :0 2011 :1 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	94	0
2009	96	0
2010	97	0
2011	98	0
2012	100	0

V(H). State Defined Outputs

1. Output Target

- Peer reviewed journal articles, publications in commodity group publications, presentations at scientific meetings, presentations at stakeholder, native american and agency meetings.

2008 :55 2009 :60 2010 : 65 2011 :70 2012 :0

V(I). State Defined Outcome

1. Outcome Target

peer reviewed journal articles, publications, in trade journals, presentations at scientific meetings, stakeholder, native american and agency presentations

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :55 2009 : 60 2010 : 65 2011 :70 2012 : 0

3. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 301 - Reproductive Performance of Animals
- 303 - Genetic Improvement of Animals
- 311 - Animal Diseases
- 903 - Communication, Education, and Information Delivery

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Public Policy changes
- Government Regulations
- Competing Programatic Challenges
- Economy

Description

Over the past 5 years, we have endured catastrophic fires at one of our remote field labs, and recently we had a flood in Reno that flooded our Main Station Field Lab in Reno, both of which directly our research productivity, financial status, and available resources. A decrease in appropriations could directly impact our ability to address all of our research priorities as would public policy changes.

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

1. Evaluation Studies Planned

- During (during program)
- Before-After (before and after program)

Description

The research programs of NAES are evaluated through peer and stakeholder review, and only those projects that pass both reviews are funded. In addition, annual evaluations are conducted on each funded project and continuation of a multi-year project is contingent on appropriate accomplishments the previous year. Stakeholder input is obtained through involving stakeholders on review panels, presenting accomplishments at town hall meetings, field lab open houses, meetings with agency personell and by personal contact with stakeholders.

2. Data Collection Methods

- Unstructured
- Journals
- Portfolio Reviews
- Sampling
- Observation

Description

The impact of various research projects of NAES are determined annually for submission into the USDA Impact database. Collecting impacts are the responsibility of the project PI's and developed in coordination with the office of the Associate Director of NAES.. They estimate economic, environmental, social impacts and the impact of the research results on the scientific discipline is monotored by evaluating publication both peer reviewed and others, and a review of the publication portfilio generated for that specific project. Stakeholder input is obtained through town hall meetings, field lab open houses, stakeholder review panels, obtaining input from extension and individual contacts.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economic Development with Emphasis in Rural Areas

2. Brief summary about Planned Program

Nevada scientists will continue to conduct economic analysis of various rural labor and public policy issues, research improving childcare and youth development in Nevada. Research will continue in economic development through the economic development center and analysis and development of rural healthcare.

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

4. Program duration : Medium Term (One to 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

- 601 20% Economics of Agricultural Production and Farm Management
- 603 20% Market Economics
- 605 20% Natural Resource and Environmental Economics
- 606 10% International Trade and Development
- 608 10% Community Resource Planning and Development
- 803 10% Sociological and Technological Change Affecting Individuals, Families and Communities
- 903 10% Communication, Education, and Information Delivery

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

1. Situation and priorities

Nevada continues to be the fastest growing state in the nation. In 1990, the population of Nevada was 1,201,833 persons, representing a 50 percent increase from 1980. Most of the states' growth is the result of immigration with nearly a third of new residents coming from California. The statewide population density is 10.2 persons/square mile (the national average is 61 persons/square mile). The majority of the population resides in Clark County (61.7%) and Washoe County (21.2%) and these figures are expected to increase. The remainder of the state is sparsely populated with 11 counties considered frontier (less than 6 persons/square mile), and four counties considered rural (more than 6 persons but less than 10/square mile). With nearly 90 percent of the states' population located in two metropolitan areas, Nevada is the tenth most urbanized state in the country.

Nevada's economy is expanding much faster than the national economy. State taxable sales have grown between 8-13%, gaming revenues between 5-8%, and industrial employment was in the 6.5-7.2% range. Combined with a low inflation rate, the growth rates for taxable sales and gaming revenues indicate significant growth in real terms. Most of the growth is concentrated in southern Nevada where new mega-resort casinos continue to be built and taxable gaming revenues and taxable sales have continued their increases. Northern Nevada has experienced meaningful growth in taxable sales and employment, but gaming activities declined during 1996. From projections by Western Blue Chip (1997), Nevada can look forward to sustained economic growth, though the growth rate will decline from rates achieved in the past.

Nevada's growth has been driven by internal and external forces. Internally, construction spending remains the locomotive of growth; externally, Nevada has benefited from growth at the national level and to a lesser degree, an inflow of workers and businesses from California. This inflow of workers and businesses is likely to slow down as recovery in California takes hold, but the slower inflow will be compensated by the more general stimulus Nevada will get from a California recovery.

Recent national and international occurrences have impacted growth in Nevada. The collapse of Asian monetary systems and the gold market have been felt in this state. The price of gold has decreased to below \$300 per ounce, seriously impacting many of Nevada's frontier counties.

Economic impact studies and subsequent education and community leadership efforts will continue to be undertaken to help

Nevada communities cope with their specific economic situations.

It is estimated that 10.2 percent of Nevadans live in poverty. The fastest growing segment of the population living in poverty is single women with dependent children. According to the 1990 Census, 27.6% of Nevadans were less than 20 years of age. Most are white (72%). However, compared to the state as a whole, a greater proportion of youth are ethnic minorities. Fourteen-percent are Hispanic, 9 percent are African-American, 3 percent are Asian, and 2 percent are Native-American. It is estimated that 15.2 percent of children in Nevada live in poverty. This is a significant increase from 6.3 percent in 1980.

Nevada also has one of the highest rates of working women. In 1990, 63 percent of women were working outside the home. Likewise, Nevada has one of the highest rates of single-parent households. There are approximately 83 licensed childcare facilities in Nevada. It is unknown how many children are in unlicensed care. However, according to a 1988 study, 90% of home care providers are unlicensed and 37 percent of children under five are cared for in home care setting. Better quality centers seem to have long waiting lists. Since research has shown that parents regularly turn to their child care provider for parenting information, providers will continue to be used as volunteers in distributing NCE parenting information.

Public education remains an important issue due to crowded classrooms and high dropout rates. In 1989, only 60 percent of estimated eligible Nevada students graduated. The Nevada Literacy Coalition estimates that over a quarter of a million Nevada adults and youth lack adequate literacy skills. The coalition defines literacy as a person's possession of the essential skills and knowledge in speaking, reading, writing English and performing arithmetic operations, at levels which allow competent functioning. Among at-risk students, reading skills have been shown to be the best predictor of later successful adult adjustment. Nevada employers identify a lack of basic literacy skills as impacting the productivity of their companies.

Teens who drop out of high school face enormous odds for achieving financial success in life. Over their lifetime, high school dropouts will earn only about 75% as much as high school graduates, and less than half of what college graduates are likely to make during their life

2. Scope of the Program

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

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

1. Assumptions made for the Program

Because all of the educational efforts are both collaborative and community-based, internal and external linkages are extensive. Economic development efforts always include local formal and informal decision-makers, local government, state government, and frequently federal agencies, such as the Small Business Development Center. Most children, youth and family efforts involve NCE and NAES faculty, local school districts, state agencies, juvenile justice system, parks and recreation departments, non-profit youth serving organizations, and frequently local businesses.

Multi-state research programs will be governed through the Western Association of Agricultural Experiment Station Directors (WAAESD), involving peer and program review and subsequent recommendations by the Research Implementation Committee (RIC), a sub-committee of WAAESD.

Coordination of multi-state extension, research and integrated research and extension activities will be governed by the Western Extension Directors (WED) and WAAESD. A peer and program review committee with broad based multi-functional representation entitled The Regional Coordination and Implementation Committee (RCIC) will conduct the initial review and make recommendations to WED and WAAESD.

2. Ultimate goal(s) of this Program

Strategies and potential action and approaches to achieve the goal include:

- Research and subsequent education for decision-makers on the changing economic dynamics and their implications for their communities.
- Leadership development opportunities for community decision-makers.

- The creation, implementation and evaluation of community decision-making models.
- Education and evaluation research targeting the most vulnerable youth to increase their capacity related to life skills.
- Research and education on literacy.

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
2008	0.0	0.0	6.0	0.0
2009	0.0	0.0	6.0	0.0
2010	0.0	0.0	7.0	0.0
2011	0.0	0.0	8.0	0.0
2012	0.0	0.0	8.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Nevada scientists will continue to conduct economic analysis of various rural labor and public policy issues, research improving childcare and diverse needs of custodial grandparents in Nevada. Research will continue in economic development through the economic development center and analysis and development of rural healthcare.

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"> ● Other 2 (field lab open houses) ● One-on-One Intervention ● Other 1 (town hall meetings) ● Education Class 	<ul style="list-style-type: none"> ● Public Service Announcement ● Web sites ● TV Media Programs ● Newsletters

3. Description of targeted audience

Educators, community leaders, decision-makers, parents, native american organizations and health care organizations.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1200	4000000	300	500000
2009	1500	4000000	350	500000
2010	1750	4000000	400	500000
2011	2500	4000000	500	500000
2012	2750	4000000	550	500000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :0 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	87	0
2009	87	0
2010	87	0
2011	88	0
2012	90	0

V(H). State Defined Outputs

1. Output Target

- peer reviewed scientific journal articles, publications on economic development , presentations at scientific meetings, presentations at stakeholder, native american, health care organizations, agency and local government meetings.

2008 :22 2009 :24 2010 :26 2011 :28 2012 :0

V(I). State Defined Outcome

1. Outcome Target

Peer reviewed scientific journal articles, publications on economic development, presentations at scientific meetings, presentations at stakeholder, native american, health care, agency and local government meetings,

2. Outcome Type : Change in Action Outcome Measure

2008 :22 2009 :24 2010 :26 2011 :28 2012 :0

3. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 603 - Market Economics
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Competing Programmatic Challenges
- Economy
- Public Policy changes
- Appropriations changes
- Government Regulations

Description

Over the past 5 years, we have endured catastrophic fires at one of our remote field labs, and recently we had a flood in Reno that flooded our Main Station Field Lab in Reno, both of which directly effected our research productivity, financial status, and available resources. A decrease in appropriations could directly impact our ability to address all of our research priorities as would public policy changes.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)

Description

The research programs of NAES are evaluated through peer and stakeholder review, and only those projects that pass both reviews are funded. In addition, annual evaluations are conducted on each funded project and continuation of a multi-year project is contingent o

Stakeholder input is obtained through town hall meetings, field lab open houses, meetings with agency personell, local governmental officials and by personal contact with stakeholders.

2. Data Collection Methods

- Sampling
- Unstructured
- Journals
- Observation
- Portfolio Reviews

Description

The impact of various research projects of NAES are determined annually for preparation of NAES publications. Collecting impacts are the responsibility of the project PI's and developed in coordination with the office of the Associate Director of NAES.. They estimate economic, environmental, social impacts and the impact of the research results on the scientific discipline is monotored by evaluating publication both peer reviewed and others, and a review of the publication portfilio generated for that specific project. Impacts are reported on the NAES web page.

V(A). Planned Program (Summary)**1. Name of the Planned Program**

Natural Resource Management and Environmental Sciences in the Great Basin and Sierran Ecosystems

2. Brief summary about Planned Program

To address these critical issues, NAES research is focused on evaluating long term vegetation changes in the Great Basin, measuring heavy metal contamination in Nevada's waterways, pheromone protection of forests, evaluating livestock grazing for noxious weed management, compatibility of wildlife and livestock grazing, evaluating post wildland fire restoration and grazing systems, evaluating forest wildfires and ecosystems recovery, studying the role of soil chemistry in natural production of perchlorate and soil transport properties using NAES field labs to conserve water and improve water quality and evaluating sage grouse and pygmy rabbit habitats and developing a conservation plan compatible with Nevada agriculture.

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

4. Program duration : Medium Term (One to 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**

- 102 10% Soil, Plant, Water, Nutrient Relationships
- 112 20% Watershed Protection and Management
- 121 25% Management of Range Resources
- 133 10% Pollution Prevention and Mitigation
- 605 25% Natural Resource and Environmental Economics
- 903 10% Communication, Education, and Information Delivery

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

Nevada's landscape is largely arid to semi-arid desert rangelands, with croplands adjacent to the limited number of rivers and streams. The state includes over 70 million acres of land, approximately 87% public land and 13% privately owned. The two primary government land management agencies, BLM and USFS, are responsible for management of approximately 76% of Nevada's land. Of the 13% in private farms and ranches, 87% is considered rangeland, 8% cropland, and 5% woodland and other uses. Over 90% of the land in Nevada is considered rangeland, with approximately 80% available for livestock grazing at certain times of the year.

Nevada, with a population of approximately 1.3 million, is the fastest growing state in the nation. Over 94% of the people live in cities larger than 25,000 population. Approximately 5,500 people, or less than 1% live on Nevada's 2,700 farms and ranches. Nevada's population, therefore is simultaneously one of the most urbanized of all states and is also considered frontier, with less than 6 persons/square mile. Further, less than 25% of the state's citizens are native born.

Decisions about the utilization of natural resources, particularly public lands and water, have major impacts on ecosystem sustainability as well as the socioeconomic wellbeing of current and future generations. Yet views of what constitute appropriate land and natural resource use are increasingly polarized. Federal initiatives for natural resource management often shift with the latest election.

2. Scope of the Program

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

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

1. Assumptions made for the Program

An extensive review of scientific work show that the Great Basin rangeland resource has changed significantly over the past 150 years. The change has resulted in a reduction in plant species diversity and a movement toward extensive monocultures of pinion juniper and larger scrub species rather than mosaics of grassland savannas and shrubs. In addition, alien plant species that can form extensive monoculture plant communities are becoming ever-larger components of the Great Basin environment. The effect of this trend is a reduction of forages for a diverse population of wildlife and domestic livestock. In turn, this change is reducing the economic sustainability of the Great Basin livestock industry and the continued sustainability of recreational activities developed around wildlife.

The Nevada Agricultural Experiment Station will continue to coordinate the activities of the Federal and State agencies to address the highest priority issues and concerns relating to the management and protection of our public lands and natural resources, and the rural families and communities most dependent on them. The Initiative will be a coordinated mix of research, education and action programs. The leadership of the agencies will establish program priorities and commit resources. Other public and private organizations with expertise or a stake in the Initiative programs have been invited to participate in planning and implementation.

2. Ultimate goal(s) of this Program

Our Vision_Healthy rangelands that meet the needs and values of multiple users and are managed to meet the needs of future generations. A vital part of our vision is thriving rural communities and families that are partners in the stewardship of our rangelands.

Goals_ Develop research and education programs that will provide the science-based knowledge and skills required to manage for healthy and productive rangelands, provide abundant renewable natural resources, and support the economic and value-based sustainability of our rural communities and families and our urban stakeholders.

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
2008	0.0	0.0	27.0	0.0
2009	0.0	0.0	27.0	0.0
2010	0.0	0.0	28.0	0.0
2011	0.0	0.0	29.0	0.0
2012	0.0	0.0	30.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

To address these critical issues, NAES research will be conducted on evaluating long term vegetation changes in the Great Basin, measuring heavy metal contamination in Nevada’s waterways, pheromone protection of forests, evaluating livestock grazing for noxious weed management, compatibility of wildlife and livestock grazing, evaluating post wildland fire restoration and grazing systems, evaluating forest wildfires and ecosystems recovery, studying the role of soil chemistry in natural production of perchlorate and soil transport properties using NAES field labs to conserve water and improve water quality and evaluating sage grouse and pygmy rabbit habitats and developing a conservation plan compatible with Nevada agriculture.

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"> ● Other 1 (town hall meetings) ● Other 2 (field lab open houses) ● Education Class ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Newsletters ● TV Media Programs ● Web sites ● Public Service Announcement

3. Description of targeted audience

The target audiences for research and educational programming are livestock producers, veterinarians, environmentalists, local governments, native american groups and agency personnel.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1200	4000000	300	500000
2009	1500	4000000	350	500000
2010	1750	4000000	400	500000
2011	2500	4000000	500	500000
2012	2750	4000000	550	500000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 : 1 2011 : 0 2012 : 0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	176	0
2009	176	0
2010	178	0
2011	178	0
2012	180	0

V(H). State Defined Outputs

1. Output Target

- Peer reviewed scientific publications, publications in natural resource and environmental organization publications, presentations at scientific meetings, presentations at stakeholder, native american and agency meetings.

2008 :22

2009 :25

2010 : 28

2011 :30

2012 :0

V(I). State Defined Outcome**1. Outcome Target**

Peer reviewed journal articles, presentations at scientific meetings, articles in natural resource and environmental science magazines, presentations at stakeholder, native american and agency meetings.

2. Outcome Type : Change in Action Outcome Measure

2008 :22

2009 : 25

2010 : 28

2011 :30

2012 : 0

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 133 - Pollution Prevention and Mitigation
- 605 - Natural Resource and Environmental Economics

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Public Policy changes
- Government Regulations
- Appropriations changes
- Economy
- Competing Programatic Challenges
- Natural Disasters (drought,weather extremes,etc.)

Description

Over the past 5 years, we have endured catastrophic fires at one of our remote field labs, and recently we had a flood in Reno that flooded our Main Station Field Lab in Reno, both of which directly our research productivity, financial status, and available resources. A decrease in appropriations could directly impact our ability to address all of our research priorities as would public policy changes.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- During (during program)
- Before-After (before and after program)

Description

The research programs of NAES are evaluated through peer and stakeholder review, and only those projects that pass both reviews are funded. In addition, annual evaluations are conducted on each funded project and continuation of a multi-year project is contingent on appropriate accomplishments the previous year. Stakeholder input is obtained through involving stakeholders on review panels, presenting accomplishments at town hall meetings, field lab open houses, meetings with agency personell and by personal contact with stakeholders.

2. Data Collection Methods

- Observation
- Sampling
- Journals
- Unstructured
- Portfolio Reviews

Description

The impact of various research projects of NAES are determined annually for submission into the USDA Impact database. Collecting impacts are the responsibility of the project PI's and developed in coordination with the office of the Associate Director of NAES.. They estimate economic, environmental, social impacts and the impact of the research results on the scientific discipline is monitored by evaluating publication both peer reviewed and others, and a review of the publication portfolio generated for that specific project. Stakeholder input is obtained through town hall meetings, field lab open houses, stakeholder review panels, obtaining input from extension and individual contacts.

V(A). Planned Program (Summary)

1. Name of the Planned Program

Nutrition and Health

2. Brief summary about Planned Program

Our POW goal is to conduct research to better understand healthy life style habits, and educational programs that focuses on healthy life style habits.

NAES research is focusing on stem cell transplantation to treat human disease, nutritional intervention in the treatment of cancer, nutritional protection from side stream cigarette smoke, evaluating the beneficial effect of functional foods, studying school education programs on children's nutrition, and studying youth development.

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

4. Program duration : Medium Term (One to five years)

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

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

- 702 40% Requirements and Function of Nutrients and Other Food Components
- 703 20% Nutrition Education and Behavior
- 802 10% Human Development and Family Well-Being
- 806 10% Youth Development
- 903 20% Communication, Education, and Information Delivery

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

1. Situation and priorities

According to the Nevada Hospital Association, over 60 percent of hospital costs in Nevada are directly attributable to lifestyle or behavioral choices such as smoking, chronic drinking, poor diet, poor weight management, and lack of exercise. The leading cause of death in Nevada is heart disease, followed by cancer, respiratory disease, stroke, and motor vehicle accidents. Further, deaths from liver disease, lung cancer, and pulmonary disease are among the highest in the country. This is a reflection of the higher number of smokers and the high rate of chronic drinking.

The Behavioral Risk Factor Survey (BRFS) provides estimates of high-risk behaviors among the adult population in the U.S. The Center for Disease Control has coordinated the survey since 1982. Since 1991, Nevada has participated in this survey. Obesity is associated with a number of chronic diseases including coronary heart disease, diabetes, and cancer. 20 to 25 percent of Nevadans are at risk for being overweight. Males, older adults and those with lower education levels are more likely to be overweight. Hypertension or high blood pressure affects 21 percent of Nevadans. Since obesity and hypertension are related, it is not surprising that the groups at higher risk are similar. Increasing age and lower education levels are positively related to high blood pressure.

Dietary characteristics, including dietary fat and fruit and vegetable intake were assessed also. Dietary fat was assessed using a series of questions regarding the frequency of eating certain types of high-fat foods. This information was then used to identify those at the highest risk with regard to total fat intake. Those with the highest intake, defined here as those who fell above the 75th percentile, include males, younger adults, and those with less education. Residents in the rural counties reported a slightly higher intake as well; 29 percent of rural respondents fall above the 75th percentile compared to 20 percent in Washoe County and 27 percent in Clark County. Further, it is estimated that 76 percent of Nevadans do not meet the National Cancer Institute recommendation of five servings of fruits and vegetables each day. Those with an income less than \$20,000 and young adults are least likely to meet this goal.

Ongoing programming to address lifestyle and behavioral choices have focused on prevention of heart disease and diabetes. The diabetes prevention program assists members of the minority population at risk for diabetes mellitus make appropriate lifestyle

modifications to prevent or delay the onset of the disease and/or its complications through education and awareness. The faith community and physicians are used to reach populations at risk for heart disease.

Although most data is derived from adults, food habits are established early in life. Needs assessment data indicate that families with limited resources are at high risk for poor nutrition that may put them at immediate risk to the cognitive and physical development of their children, and long-term risk for chronic diseases such as heart disease, diabetes, and cancer. While many agencies/organizations provide nutrition education to this clientele, there is no statewide mechanism to facilitate programs for families with limited resources. Thus the Nevada Nutrition Network, including representatives from all Nevada agencies/organizations that provide nutrition education, was formed to develop a statewide Food Stamp Nutrition Education Plan to increase the consumption of low-fat, calcium-rich foods by school-age children, initially focusing on adolescent girls (12-15 years) since they appear to be at greater risk. Focus groups have helped shape the educational program, which is currently being designed for implementation and evaluation.

Nevada's senior population has increased nearly twice as fast as the state's population over the past ten years, with 61 percent of senior citizens residing in Clark County. Health concerns largely relate to the high cost of health care providers, medication and health insurance. Other health concerns include availability and quality of health care, including the availability of program and services which are prevention oriented.

It is estimated that 20 percent of males, 17 percent of females, and 25 percent of children in Nevada are medically uninsured. These children are less likely to receive routine or preventive medical care. Further, when a family member is ill, an inability to pay often prevents them from seeking care until the illness has become very serious. Nine out of every ten pediatricians surveyed indicated that children from low-income families have difficulty accessing primary health care, citing inability to pay as the most important reason. To improve health care, almost half were in favor of school-based clinics.

Early and high quality prenatal care is an effective means of improving pregnancy outcome. It is estimated that for every dollar spent on prenatal care, ten dollars are saved on infant care. In Nevada, unfortunately, only 71 percent of pregnant women receive adequate prenatal care. According to the American Public Health Association, this is among the worst rates in the country (44th), although the proportion of women receiving care during their first trimester has increased from 24.7 percent in 1984 to 28 percent in 1990. Household income is believed to be the single most significant barrier to receiving early and effective prenatal care.

Low birth weight is defined as a birth weight of less than 2500 gm. Mothers most likely to have low-birth weight infants are also more likely to live in poverty, receive little or no prenatal care, have a low level of education, be unmarried, and be a member of a racial minority.

2. Scope of the Program

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

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

1. Assumptions made for the Program

One of the primary internal linkage is the Nevada Nutrition Network, which includes representatives from NCE, NAES, NV Bureau of Family Health Services, NV Dept of Education, Dairy Council of Utah/Nevada, NV Dept of Human Resources, Clark County School District, Washoe Health System, NV Dept of Human Resources, WIC, Inter-Tribal Council of Nevada, Inc., Clark County Health District, Community Food Bank of Clark County, and Sierra Health Services. This group has been formed to conduct nutrition education in middle schools. These same groups are included in other nutrition education programs.

Multi-state research programs will be governed through the Western Association of Agricultural Experiment Station Directors (WAAESD), involving peer and program review and subsequent recommendations by the Research Implementation Committee (RIC), a sub-committee of WAAESD.

Coordination of multi-state extension, research and integrated research and extension activities will be governed by the Western Extension Directors (WED) and WAAESD. A peer and program review committee with broad based multi-functional representation entitled The Regional Coordination and Implementation Committee (RCIC) will conduct the initial review and make

recommendations to WED and WAAESD.

2. Ultimate goal(s) of this Program

Examples of strategies and potential action and approaches to achieve the goal:

- Research to better understand and education that focuses on establishing healthy lifestyle habits, including diet, exercise and prevention of smoking among the following groups:

Elementary and middle school-aged children
 Adolescents
 Adults at worksite settings
 Seniors

- Biochemical and behavioral research to elucidate factors relating to chronic diseases, including but not limited to diabetes, heart disease, pulmonary disease and cancer, coupled with education to reduce the burden of the disease among populations displaying their greatest incidence.

- First-time parents gain an understanding of vital pre- and postnatal needs of mothers and their infants through behavior-focused education.

- Prevention of child abuse and neglect is a major education/research undertaking for all adults who are responsible for children. Child care providers, first-time parents, volunteers and adult mentors are specifically targeted.

- Violence prevention for all ages is the subject of both education and research.

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
2008	0.0	0.0	13.0	0.0
2009	0.0	0.0	14.0	0.0
2010	0.0	0.0	14.0	0.0
2011	0.0	0.0	14.0	0.0
2012	0.0	0.0	15.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Our POW goal is to conduct research to better understand healthy life style habits, and educational programs that focuses on healthy life style habits.

NAES research is focusing on stem cell transplantation to treat human disease, nutritional intervention in the treatment of cancer, nutritional protection from side stream cigarette smoke, evaluating the beneficial effect of functional foods, studying school education programs on children’s nutrition, and studying youth 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"> ● Education Class ● Other 1 (town hall meetings) ● One-on-One Intervention ● Other 2 (field lab open houses) 	<ul style="list-style-type: none"> ● TV Media Programs ● Web sites ● Newsletters ● Public Service Announcement

3. Description of targeted audience

The target audience for educational programming is consumers, health care personell, agency personnel, local school boards, and nutrition support groups.

V(G). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons(contacts) to be reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	1200	4000000	300	500000
2009	1500	4000000	350	500000
2010	1750	4000000	400	500000
2011	2500	4000000	500	500000
2012	2750	4000000	550	500000

2. (Standard Research Target) Number of Patents

Expected Patents

2008 :0 2009 :0 2010 :0 2011 :1 2012 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target
2008	26	0
2009	28	0
2010	29	0
2011	29	0
2012	30	0

V(H). State Defined Outputs

1. Output Target

- Peer reviewed scientific publications, publications in health and nutrition organization publications, presentations at scientific meetings, presentations at stakeholder, agency, school board, native american, and local governmental meetings.

2008 :22

2009 :25

2010 : 28

2011 :30

2012 :30

V(I). State Defined Outcome**1. Outcome Target**

Peer reviewed scientific publications, publications in natural resource and environmental organization publications, presentations at scientific meetings, presentations at stakeholder, nutrition and health, school board, local governmental and Federal and State agency meetings.

2. Outcome Type : Change in Action Outcome Measure

2008 :25

2009 : 30

2010 : 35

2011 :40

2012 : 0

3. Associated Knowledge Area(s)

- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 802 - Human Development and Family Well-Being
- 806 - Youth Development
- 903 - Communication, Education, and Information Delivery

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Appropriations changes
- Economy
- Government Regulations
- Competing Programatic Challenges
- Natural Disasters (drought,weather extremes,etc.)
- Public Policy changes

Description

Over the past 5 years, we have endured catastrophic fires at one of our remote field labs, and recently we had a flood in Reno that flooded our Main Station Field Lab in Reno, both of which directly our research productivity, financial status, and available resources. A decrease in appropriations could directly impact our ability to address all of our research priorities as would public policy changes.

V(K). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- During (during program)
- Before-After (before and after program)

Description

The research programs of NAES are evaluated through peer and stakeholder review, and only those projects that pass both reviews are funded. In addition, annual evaluations are conducted on each funded project and continuation of a multi-year project is contingent o

Stakeholder input is obtained through town hall meetings, field lab open houses, meetings with agency personell , local school boards, local government personell, health care organizations and by personal contact with stakeholders.

2. Data Collection Methods

- Portfolio Reviews
- Journals
- Unstructured
- Observation
- Sampling

Description

The impact of various research projects of NAES are determined annually for inclusion in NAES publications and reports. Collecting impacts are the responsibility of the project PI's and developed in coordination with the office of the Associate Director of NAES.. They estimate economic, environmental, social impacts and the impact of the research results on the scientific discipline is monitored by evaluating publication both peer reviewed and others, and a review of the publication portfolio generated for that specific projec. In addition, impacts are included on the NAES web page.