2012 University of Wyoming Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 06/27/2011

I. Plan Overview

1. Brief Summary about Plan Of Work

Agriculture is at a crossroads and faces many challenges and opportunities in the 21st century. Agriculture, as well as land-grant institutions, are challenged to compete in a global economy while still responding to the needs of a diverse U.S. population. Ensuring that agriculture remains profitable and sustainable, while addressing environmental concerns, places new demands on the industry. Issues involving production agriculture, natural resource management, and quality of life generate diverse research and education directives. Stakeholders have been vital in identification and prioritization of needs. Strategies emphasize the engagement of Wyoming's people to improve and develop relevant and applied research and extension programming. The College of Agriculture and Natural Resources has a mission to serve the educational and information needs of students, Wyoming citizens and communities, and the global community by providing and distributing unbiased, scientifically sound information on production agriculture, natural resource management, and quality of life issues. Livestock continues to be a major component of Wyoming's agriculture. Forage-based animal agriculture is the only basic industry found in all 23 Wyoming counties, and marketing of livestock and livestock products accounts for approximately 78 percent of statewide agricultural cash receipts. Grazing animals convert grass from rangeland and forage (including alfalfa and crop aftermath) from cultivated lands into marketable products, therefore filling a demand for human consumption. Technological changes in production and processing of agricultural commodities, along with changing consumer demands, are altering the markets for producers, processors, and consumers. In this new era of production, processing and environmental issues will be driven by consumer demands and concerns. It is important to remember that environmental problems, economic changes, diseases, and social trends are contained neither by state or international borders. Wyoming's geographic isolation provides no protection from broad global issues and influences. The people of Wyoming, particularly those in rural areas, have needs that demand knowledge and skills in the social and human sciences. Examples of these needs are divestiture of the federal governments responsibilities in human services, balances between environmental protection and economic development, child and youth development, workforce preparedness, maintaining and ensuring a quality food supply, adjustments to significant demographic changes such as aging populations and geographic population shifts, and an increased impact of global economics and issues on U.S. markets and communities. Planned programs for research and extension at the University of Wyoming reflect efforts in the following initiative areas: Global Food Security and Hunger, Crop, Livestock and Horticulture Systems; Childhood Obesity , Nutrition and Health; Food Safety; Sustainable Energy; Climate Change; Sustainable Management of Rangeland Resources; 4-H and Youth Development (4-H); and Community Development Education.

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

Year	Extension		Research	
	1862	1890	1862	1890
2012	104.0	0.0	55.2	0.0
2013	104.0	0.0	55.2	0.0

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

Year	Extension		Research	
	1862	1890	1862	1890
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2015	104.0	0.0	55.2	0.0
2016	104.0	0.0	55.2	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
- ☐ Other

2. Brief Explanation

The merit review process for extension programs covers all programs conducted by UW CES. A team leadership model is utilized to review program plans and direction for CES programs as outlined in the 2003 UW CES Strategic Implementation Plan and 2009 UW CES Academic Plan. Program initiative teams develop and review programs on an annual basis. Five area external advisory teams comprised of stakeholders review CES programs annually. Teams make decisions to maintain, modify, or create new programs to meet the needs identified through external and internal stakeholder input. CES initiated a competitive grants program which supports innovative projects that address emerging issues in the state. In 2009 an internal grant program was initiated targeting innovative programs that address energy issues. Proposals are reviewed by internal and external individuals. Projects must have an education/outreach plan, produce measurable outcomes, and show measurable impacts. Annual reports as well as a final report and an impact statement must be submitted for each approved project. Project review will be conducted by a committee composed of: two field-based Extension professionals; two campus-based Extension professionals; and one representative from UW academic colleges.

Research review process: all projects supported with formula funds (Hatch, Multi-State, McIntire-Stennis, Animal Health) must be approved projects. The project proposal is transmitted to the department head and the head appoints a minimum of two internal scientific reviewers who are knowledgeable in the field to review the proposal. After a proposal is revised based on the above review, it is transmitted to the Experiment Station Director. The director's office assigns three external scientific reviewers who are knowledgeable in the field to review the

proposal. The Wyoming Agricultural Experiment Station also administers an internal competitive grants program using a portion of its federal dollars. Proposals are reviewed by a ten member university-wide committee. Each proposal is also sent to a minimum of two external reviewers. The committee submits recommendations for project funding to the AES director.

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?

Faculty and CES specialists report multi-state and integrated activities through the UW College of Agriculture and Natural Resources faculty update reporting system. Cross-discipline activities, multi-state, and joint research have been common in the past, so these requirements are not new to Wyoming. Joint research can be audited through the projects that were at one time called regional projects. In UW's Plan of Work 2012-2016, Wyoming will commit 25 percent of its Hatch funds to the integrated activities; Extension has also committed 25 percent of Smith-Lever funds to integrated and 25 percent to multi-state programs. Reports which are submitted annually document both multi-state and integrated activities. CES will annually conduct a survey of field educators to document multi-state activities. The strategic plan for the College of Agriculture and Natural Resources calls for collaboration in all three functions, instruction, research, and outreach. To encourage multi-disciplinary and collaborative research efforts, the Wyoming Agricultural Experiment Station established a competitive grants program that emphasizes research across disciplines and colleges. Multi-disciplinary and integrated research efforts are quite common in the College of Agriculture and Natural Resources. Over half of the research projects are integrated and the majority of those are multi-disciplinary. This is particularly true of the research efforts dealing with competitiveness and profitability of agriculture and sustainable energy, rangeland resources, and climate change. Initiative teams formed as a result of the CES strategic plan have members representing CES educators, state specialists and faculty members, and UW College of Agriculture and Natural Resources department heads. The intent of the initiative teams is to build communication and develop a more integrated program for research and extension. The CES strategic plan has identified five initiative areas which provide greater focus for extension personnel. National priorities identified by NIFA have been either integrated into existing planned programs or added to research and extension efforts at UW. Those initiatives redefined by stakeholders are Global Food Security and Hunger including Crop, Livestock and Horticulture Systems; 4-H/Youth Development; Childhood Obesity - Nutrition and Health; Food Safety; Sustainable Energy; Climate Change; Sustainable Management of Rangeland Resources; and Community Development Education. The programs identified in the College of Agriculture and Natural Resource's 5-Year Plan of Work address the critical issues of strategic importance for the state and region. These issues were identified through extensive input from research and teaching faculty, CES personnel, and college stakeholders during the college's academic planning process. The program initiatives listed in the 5-Year Plan of Work are consistent with those at the national level. Researchers at UW's College of Agriculture and Natural Resources are involved in approximately 20 multi-state projects. The college's researchers have also been successful with research involving multi-institutions. A few specific examples include: research projects on Reproductive Performance in Domestic Ruminants; Certified Seed Production; Weed Resistance Management Strategies; Direct Harvest Dry Bean Production; Rural Communities & Public Lands in the West; Benefits & Costs of Natural Resources Policies Affecting Public & Private Lands; Steps to a New You; and Risk Management for Ag Families. There is also on-going multi-institution research programming through the R&E Centers. In addition, researchers have been successful in integrating research programs with various federal and state agencies and organizations.

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

All counties have targeted advisory meetings to gain stakeholder input on reaching limited resource audiences in the Cent$ible Nutrition Program (EFNEP). County 4-H staff have established 4-H Expansion and Review committees to specifically address outreach efforts toward underserved youth audiences. In addition, the Research and Extension Centers located around the state have targeted under-represented populations to serve as members of advisory boards. Training has been provided for staff to encourage diversity in representation on advisory committees and in program planning. County personnel also utilize collaborative partners to learn needs within communities of the state. CES has partnered with the Natural Resource Conservation Service (NRCS) with representatives meeting quarterly to assess joint needs and work cooperatively in development and delivery of programs. Each of the four Research & Extension Centers has an advisory committee that meets annually. These advisory committees provide information on existing research and outreach programs and input regarding priority needs for research and outreach. Planned programs will incorporate stakeholder input on reaching underserved audiences in all planning and delivery efforts.

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

The programs describe the expected outcomes and impacts. Each program utilized a logic model in planning which clearly outlines expected outcomes and plans for evaluation. Each of the research faculty, educators, and specialists will write impact statements, some of which are used for the impact reporting to NIFA and others for county commissioners, state and national legislators, university administration, and clientele. The College's 5-Year Plan of Work describes the expected outcomes and impact for each of the state's initiatives. Information concerning the expected outcomes and impacts is presented in an evaluative manner so that expectations have been made clear. Within each initiative, outcomes concerning work with external agencies including multi-state and multi-institutions are also addressed and encouraged. By focusing on specific outputs and outcomes as identified within the plan, there will be more consistency in reporting program effectiveness. Through the college's strategic planning efforts there appears to be a more concerted effort to streamline research programs to address identified goals of the initiative teams. Research and extension personnel are seeking ways through the Plan of Work to work more closely together in order to address the needs of the state and region. As these efforts continue, the college can anticipate an improved effectiveness in its research and extension programs.

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

The College of Agriculture and Natural Resources research and extension efforts are focused in five initiative areas which implement eight planned program foci. Initiative teams include area and county educators, state specialists, and department heads which enable improved communication. State teams meet multiple times during the year to plan and develop interdisciplinary programs which address clientele needs. These efforts also encourage more integration between research and extension. The five new planned programs added last year will be integrated into the initiative teams efforts. The new Sustainable Agricultural Research and Extension Center (SAREC), located near Lingle, allows for more efficiency of research efforts and dissemination of results to agriculture clientele. In 2006, the Laramie Research and Extension Center was established, which combined the animal science farms, veterinary sciences laboratoary animal facilities, the plant sciences greenhouses at UW, and the McGuire Ranch into a multifunctional integrated center. Collaborative efforts and partnerships have increased efficiency and leveraged resources to enable statewide impact.

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
- ☐ Other

Brief explanation.

Stakeholder input comes to the College of Agriculture and Natural Resources Cooperative Extension Service and Agricultural Experiment Station through a variety of methods. A joint research and extension needs assessment process was completed in 2004. A stratified sample was used to determine program and research needs in the state. In addition to the mail survey, a phone survey was conducted with a random sample of Wyoming residents. Both surveys also addressed preferred delivery methods by Wyoming citizens. A CES working group is assessing methods to gather statewide input. Recommended methods included a statewide research and extension needs assessment survey implemented every five years sampling random Wyoming Citizens to identify emerging issues. Additionally county focus groups will be utilized to identify local emerging issues. Stakeholder input gathered through all methods is shared with faculty and CES initiative teams comprised of field educators, extension specialists, UW department heads, and administrators. Information is used in development of CES programs and applied research. All counties have had targeted advisory meetings to gain stakeholder input on reaching limited resource audiences in the Cent$ible Nutrition Program. County 4-H educators have established 4-H Expansion and Review committees to specifically address outreach efforts toward underserved youth audiences. Training has been provided for staff to encourage diversity in representation on advisory committees. County personnel also utilize collaborative partners to learn needs within communities of the state. Since 2004, CES and the Agriculture and Natural Resources College has partnered with the Natural Resource Conservation Service (NRCS) with representatives meeting quarterly to assess joint needs and work cooperatively in development and delivery of programs. In 2007, UW CES had a CSREES program review of the total extension system. Each of the four Research & Extension Centers has an advisory committee that meets annually. These advisory committees provide information on existing research and outreach programs and input regarding priority needs for research and outreach. The College of Agriculture and Natural Resources maintains a separate statewide advisory committee. The committee meets annually to exchange information on the college's programs and to seek input of future concerns and issues. Three departments, Animal Science, Family and Consumer Sciences, and Veterinary Sciences, have separate advisory committees that provide input on programs in those departments. In April 2008 CES and AES went through an academic planning process which included stakeholders to provide

vision for new issues and program direction. In 2009,the College of Agriculture and Natural Resources academic plan which includes planned programs for AES and CES, was adopted by University of Wyoming Trustees.

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
- ☐ Other

Brief explanation.

As a public land-grant institution, UW has a historic commitment to provide access to higher education. UW CES, with offices in each of the state's 23 counties and the Wind River Indian Reservation, provides a presence for the university across the state. UW AES, with four research and extension centers throughout Wyoming is able to provide resources to area agriculture producers to accomodate dissemination of research efforts. UW CES and AES actively engages stakeholders in assessing needs and identifying issues of importance to the state through a variety of methods. A CES working group implemented as part of the 2009 academic plan has explored effective and efficient methods to gather stakeholder input. Recommendations include a random survey of Wyoming citizens every five years to identify emerging state issues. CES area and county educators will conduct a minimum of one focus group, by initiative, in each county every three years to identify emerging issues; a rotation system will be established for counties. Advisory committee members are nominated by extension staff by subject matter interest. Selection to serve on advisory committees is based on gender, geographic representation, race, national origin, and underserved audiences. In addition, the Wyoming County Commissioners Association has formed an advisory committee of county commissioners who meet with the CES Director during quarterly meetings of their association. Research and Extension Center Advisory committees are represented by CES educators, industry leaders, and landowners (government and private) in all counties that they service. Advisory committee members are nominated by CES, AES, and administrative personnel and meet one to two times per year. In addition to these systematic methods of gathering stakeholder input, both AES and CES utilize both individual and groups throughout the state to identify relevant issues of critical importance. Just a few examples include: Commodity groups - such as Wyoming Wool Growers, Stock Growers, Wyoming Wheat Growers, Wyoming Crop Improvement Association, local and state nutrition councils, youth organizations such as Big Brothers, Big Sisters, and school districts. These groups and individuals provide input through both formal and informal discussions with both research and extension personnel. Faculty and CES specialists also gather relevant input from professional colleagues in Wyoming and across the nation.

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
- ☐ Other

Brief explanation.

Stakeholder input is collected through a variety of methods to reach the broadest scope of individuals and groups in Wyoming. CES utilizes annual area advisory meetings which involve both traditional and non-traditional stakeholders. In addition to face to face advisory meetings, on-line surveys and focus groups are used to identify needs and issues. The AES also utilizes annual advisory meetings to gain input on research activities. Surveys, both mail and on-line are used to assess needs. CES educators and researchers target key stakeholders such as agriculture commodity groups, youth organizations,and schools through meetings where discussion is held on needs and issues. University of Wyoming educators and faculty access needs throughout the year based on individual contact with citizens at meetings and in local communities.

3. A statement of how the input will be considered

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

Brief explanation.

Stakeholder input is used by AES and CES initiative teams to identify emerging issues. Input gathered is used in program planning, evaluation of current programs, and redirection of programs when applicable. Stakeholder input from area advisory groups, county commissioners, and area teams assist in staffing priorities. Search committees comprised of local stakeholders provide input on interviewing and hiring decisions for CES. Input from all sources is utilized in development, implementation, and evaluation of extension and research programs.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	Community Development Education
2	4-H and Youth Development
3	Sustainable Management of Rangeland Resources (SMRR)
4	Global Food Security and Hunger, Crop, Livestock and Horticulture Systems
5	Climate Change
6	Sustainable Energy
7	Childhood Obesity, Nutrition, and Health
8	Food Safety

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Community Development Education

2. Brief summary about Planned Program

The socioeconomic viability of families in Wyoming is central to the work of the Community Development Education (CDE) initiative team of the University of Wyoming Cooperative Extension Service. This plan reflects the relatively new arrangement of self-organized teams of educators, specialists, and faculty to address state issues. The CDE team delivers programming on the topics of community development, family resource management and entrepreneurship. The CDE initiative team is building on past work to offer more targeted programming given its resources.

Wyoming residents face numerous challenges -- energy development impacting communities lacking adequate infrastructures, expanding growth in some areas and declines in others, aging population, declining youth population, workforce housing and development, land use, and more. Based on the research of Flora, Flora and Fey (2004) to uncover characteristics of successful communities, the community capitals framework was developed as an approach to analyze communities. They found that the most successful, healthy, and sustainable communities paid attention to seven types of capital: natural, cultural, human, social, political, financial and built capitals. This approach focuses on identifying community capitals and the interactions between these seven capitals. The following is a list of the seven community capitals and defining characteristics.

- Natural Capital: air quality, land, water and water quality, natural resources, biodiversity and scenery.
- Cultural Capital: religions, values, heritage recognition and celebration.
- Human Capital: population, education, skills, health, creativity, youth, diverse groups.
- Social Capital: trust, norms of reciprocity, network structure, group membership, cooperation, common vision and goals, leadership, depersonalization of politics, acceptance of alternative views, diverse representation.
- Political Capital: level of community organization through the use of government; ability of government to garner resources for the community.
- Financial Capital: tax burden/savings, state and federal tax monies, philanthropic donations, grants, contracts, regulatory exemption, investments, reallocation, loans, poverty rates.
- Built Capital: housing, transportation, infrastructure, telecommunications infrastructure and hardware, utilities, buildings. Through relevant educational programming, UW Cooperative Extension can impact the three base blocks in Wyoming communities and can help grow several of the "capitals" identified in the Flora, Flora and Fey research to help sustain rural communities. The vision for this program area is to facilitate the creation of sustainable rural communities throughout Wyoming.

A profitable, sustainable, and globally competitive rural sector is essential for the well-being of Wyoming communities, households, and social structure. Effective new venture development is a key component in attaining this. Through the implementation of this program, Wyoming's opportunity for businesses, particularly for new ventures, will be improved.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	5%		5%	
602	Business Management, Finance, and Taxation	5%		5%	
604	Marketing and Distribution Practices	5%		5%	
608	Community Resource Planning and Development	50%		50%	
801	Individual and Family Resource Management	25%		25%	
802	Human Development and Family Well-Being	5%		5%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%		5%	
	Total	100%		100%	

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

1. Situation and priorities

In the last ten years Wyoming has experienced significant economic growth stemming from its natural resources of gas, oil, and coal. While jobs in the energy sector often pay well, most residents hold service sector positions that are typically low paying and are often seasonal. Sound financial management will increase the stability and security of households as well as the happiness of household members. The

first critical need is the management of credit and debt. Seven out of 10 low and middle income households report using their credit cards as a safety net. In Wyoming about 2,500 people file for bankruptcy protection each year. The second critical issue is the spending habits of adolescents. Many adolescents earn income, of which they spend 98 percent, and do not have to pay for many living expenses such as housing. The third critical issue is improving the financial health of Wyoming households. Information collected from UW Cooperative Extension Service Area Advisory Committees identified retirement planning, consumer decision making skills, estate planning and family resource management as the top issues in the state.

Leadership development was identified as a need by the Wyoming Rural Development Council's Community Assessments. This was later reaffirmed by Area Advisory Committees and the Extension Research Needs Assessment in 2004. The Wyoming Business Council has shared their vision of community economic development using a building block model. At the base are three blocks; leadership development, workforce development, and community capacity building. The second level has two blocks, existing business development and entrepreneur development, and one block on the top for recruiting.

Wyoming is vulnerable because of its historical dependence on agriculture and extraction industries, coupled with its sparse population. Thus diversification is imperative for the survival of many communities. Extension provides educational offerings, resources and referrals designed to help existing and potential entrepreneurs enhance their prospects for success. Specific areas of emphasis are small businesses, especially in rural areas; new opportunities in entrepreneurial agriculture and natural resource enterprises (e.g., agritourism); and the strong and growing interest in entrepreneurship among youth and young adults, women, ethnic minorities, and immigrants. Management, financing and business diversification are areas essential for helping clients establish, maintain, and enhance their businesses. Information collected from Area Advisory Committees identified family business and entrepreneurship as an important issue within the state.

The federal government manages a significant amount of the land area in the Western United States. In Wyoming, the Forest Service, Bureau of Land Management, National Park Service, Bureau of Reclamation, and Fish and Wildlife Service control 29.8 million acres or about one-half of the land surface area of the state. Due to its large land holdings, management decisions by federal land management agencies can have significant impacts on the economies and lifestyles of communities in Wyoming. Researchers are working with Wyoming communities, assisting them with identifying impacts of change, developing community network resources, and identifying growth opportunities for existing businesses. Multistate projects interface retailers, small manufacturers, and home-based businesses; helping these businesses identify economic development and growth opportunities in their rural locations.

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 following assumptions are made about this planned program and the people involved. 1) The program effects cannot be achieved without the partnership and collaboration of organizations, teachers

and trainers who reach target audiences. 2) Teachers will use video segments of financial resource management within their curriculums. 3) The necessary resources will be made available. 4) Leadership/gatekeepers will allow collaborations. 5) Media outlets to be available for Extension programming throughout the state. 6) Funding will be available to provide resource material at affordable prices and pay for use of technology time. 7) Funding for research on household credit use is received.

Communities will continue to change and need to deal with change. Informed and trained community leaders and publics affect desired change. The College of Agriculture and Natural Resources is positioned to provide education and research to assist community leaders and publics. Wyoming CES has the expertise and resources to provide training and education to communities in necessary processes. Research efforts are designed to focus on community and economic analysis and improving efficiency to capture and retain dollars whether in the form of existing or new ventures. However, these resources are limited and scarce and will need to be leveraged with other resource sources, partnerships and collaborations. Extension alone cannot address complex community issues. It takes multiple disciplines, expertise, available research, manpower and more. Extension can assist in addressing issues by sharing relevant research and expertise, as well as providing educational programs that prepare people to participate and lead in addressing community issues. Wyoming communities will accept and use leadership and education from UW CES to increase their ability to deal with community issues. It is also assumed that many communities will need to be educated or informed as to the resources and expertise that UW CES can bring to bear and the potential benefits of embracing such training, collaboration, and facilitation. Leadership is a shared responsibility throughout communities. In-depth training will increase skills, knowledge and confidence of participants. Trained participants will tackle organizational, business and community issues to sustain rural communities.

The University of Wyoming Cooperative Extension is positioned to provide research based education to its clientele. Programming in entrepreneurship is one of three objectives of the Community Development Education Initiative, with limited staff; resources brought to bear on this objective will be limited.

Research efforts will provide solid economic information to assess one or more of the community capitals and help reduce the emotionalism associated with discussions regarding the management of public lands.

2. Ultimate goal(s) of this Program

The CDE program has four focus areas with the following objectives:

1) The performance goal is to increase the general financial literacy and fiscal responsibility of residents. 2) To facilitate the creation of sustainable rural communities throughout Wyoming. Ultimately, there will be stronger, more effective partnerships and collaboration within and between communities, as well as improved problem-solving, decision-making, group process skills, and leadership in community members, youth, workforce development, and the volunteer base. 3) Decision-makers and enterprises will gain expertise to make better economic decisions, diversify economic activities, manage resources, and develop effective financial plans. This in turn will help vitalize rural communities and the well-being of individuals, issues of primary importance in Wyoming. 4) Research based information improves the decision making process by providing decision makers with more reliable and credible information on which to base their decisions.

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
2012	10.0	0.0	2.1	0.0
2013	10.0	0.0	2.1	0.0
2014	10.0	0.0	2.1	0.0
2015	10.0	0.0	2.1	0.0
2016	10.0	0.0	2.2	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Educational and research activities and efforts of the CDE program include:

Development of models to explain the potential impact policy changes have on the ability of communities to capture and retain dollars.

Family resource management programs will reach out to a broad spectrum of constituents throughout Wyoming using a variety of anticipated programs. Outputs include methods such as train-the-trainer workshops, home-study courses, and such approaches as the Internet (www.uwyo.edu/CES/FRM/), and satellite. Also included are publications, meetings, news releases, and feature articles.

Community-based leadership training institutes; (EVOLVE) Extension Volunteer Organization for Leadership Vitality and Education. Skill training workshops; i.e., board training. General public information and educational efforts; i.e., public media materials; information/educational meetings and workshops; books, booklets, bulletins, training materials; providing data. Facilitation of community processes. Analyses of community data and economic impact. Assessments to identify individual strengths and areas to be strengthened to guide personal development and grow talent. Media resources to promote community capital development Extension education and increase awareness of Extension resources.

Outputs for entrepreneurship programs include publications and one-on-one consultations, and web sites.

Training institute for municipal clerks and treasurers to develop workforce and soft skills in developing capacity in their city/county roles.

Research efforts will include economic analysis of potential public land management decisions and rural community planning.

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

Extension

Direct Methods	Indirect Methods

☑ Education Class	☐ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☐ TV Media Programs
☐ Demonstrations	☑ Web sites
☑ Other 1 (Elluminate Web Conferencing)	☑ Other 1 (News releases/features)
☑ Other 2 (Scientific Presentations)	☐ Other 2

3. Description of targeted audience

The University of Wyoming College of Agriculture and Natural Resources is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in programs regardless of their race, national origin, gender, age, religion, or disability. The ultimate consumer of the educational products for financial management programs will be all individuals (including youth and senior citizens), families (including low-income families), and in general people at risk of experiencing financial stress. The group of educators, specialists, and faculty responsible for leading and delivering the outputs in the program is the smallest of the University of Wyoming's Cooperative Extension Service initiative teams. A priority for program development is to use methods of information and instruction that make it possible for the most constituents to be assisted while minimizing face-to-face work. Thus the team will emphasize train-the-trainer courses, newsletters, and electronic delivery of information and programming.

Targeted audiences for leadership development include: Elected officials. Members and leaders of formal and informal community organizations. Faith-based leaders and members. Business owners/managers/employees. Trade/produce groups. Educational entities. Federal/state/local agency leaders/members.

Entrepreneurship programs target audiences who will manage or may develop ventures relating to food and agricultural systems, a non-farm extension of a farm business, forestry, home trades, crafts, services, etc. Other audiences through which Wyoming CES programs may be delivered include: teachers, public and private agencies, business owners/managers/employers, trade/produce groups, educational entities, identified publics, youth groups/students, and small acreage owners.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	700	2000	200	1000
2013	700	2000	200	1000
2014	700	2000	200	1000
2015	700	2000	200	1000
2016	700	2000	200	1000

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

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	2	0	2
2013	2	0	2
2014	3	1	4
2015	3	1	4
2016	3	1	4

V(H). State Defined Outputs

1. Output Target

- Family Resource Management programs will ultimately benefit all families in Wyoming. Short term effects may be increased grant funding and increased involvement in regional and multi-state projects.Target is number of programs.
  2012:1 **2013:**1 **2014:**1 **2015:**1 **2016:**1

- Number of individuals participating in programs. Target is number of individuals.

  2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

- Number of programs in group process, leadership, facilitation, and other CD topics delivered. Target is number of programs.
  2012:30 **2013:**30 **2014:**30 **2015:**30 **2016:**30

- Entrepreneurship output targets include: number of individuals assisted.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**5

- Research efforts will include community economic analysis on efficiency of existing firms, ability to capture and retain dollars, potential to attract new businesses, and ability to make informed decisions on land management and community development.
  2012:2 **2013:**2 **2014:**3 **2015:**3 **2016:**3

V(I). State Defined Outcome

O. No	Outcome Name
1	Permanent changes in practices as determined by follow-up surveys with those attending meetings, events, and workshops. Target is number of participants reporting positive practice changes.
2	One or more management principles from educational programs on personal finance management are adopted by workshop participants. Target is number of participants reporting outcome.
3	Participants of leadership classes will develop skills and confidence necessary for community participation, find resources to enhance community capital, recognize the needs for community vision, capacity building, and direction, and strengthen inner-community relationships. Target is number of participants reporting positive outcomes through program evaluations.
4	Research: Transfer of knowledge regarding decisions on public land management and community development.
5	Research: Development of impact models that will contribute to community development as well as mitigate unwanted consequences. Target is number of impact models developed.

Outcome # 1

1. Outcome Target

Permanent changes in practices as determined by follow-up surveys with those attending meetings, events, and workshops. Target is number of participants reporting positive practice changes.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**100

3. Associated Knowledge Area(s)

- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☑ 602 - Business Management, Finance, and Taxation
- ☑ 604 - Marketing and Distribution Practices
- ☑ 608 - Community Resource Planning and Development
- ☑ 801 - Individual and Family Resource Management
- ☑ 802 - Human Development and Family Well-Being
- ☑ 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

One or more management principles from educational programs on personal finance management are adopted by workshop participants. Target is number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**100

3. Associated Knowledge Area(s)

- ☐ 601 - Economics of Agricultural Production and Farm Management
- ☐ 602 - Business Management, Finance, and Taxation

- ☐ 604 - Marketing and Distribution Practices
- ☐ 608 - Community Resource Planning and Development
- ☑ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☐ 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 3

1. Outcome Target

Participants of leadership classes will develop skills and confidence necessary for community participation, find resources to enhance community capital, recognize the needs for community vision, capacity building, and direction, and strengthen inner-community relationships. Target is number of participants reporting positive outcomes through program evaluations.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:100	**2013:**100	**2014:**100	**2015:**100	**2016:**100

3. Associated Knowledge Area(s)

- ☐ 601 - Economics of Agricultural Production and Farm Management
- ☐ 602 - Business Management, Finance, and Taxation
- ☐ 604 - Marketing and Distribution Practices
- ☐ 608 - Community Resource Planning and Development
- ☐ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☑ 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 4

1. Outcome Target

Research: Transfer of knowledge regarding decisions on public land management and community development.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**3 **2015:**3 **2016:**3

3. Associated Knowledge Area(s)

- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☑ 602 - Business Management, Finance, and Taxation
- ☐ 604 - Marketing and Distribution Practices
- ☑ 608 - Community Resource Planning and Development
- ☐ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☑ 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

Outcome # 5

1. Outcome Target

Research: Development of impact models that will contribute to community development as well as mitigate unwanted consequences. Target is number of impact models developed.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1 **2013:**1 **2014:**1 **2015:**1 **2016:**1

3. Associated Knowledge Area(s)

- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☐ 602 - Business Management, Finance, and Taxation

- ☑ 604 - Marketing and Distribution Practices
- ☑ 608 - Community Resource Planning and Development
- ☐ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☑ 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

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 (changes in technology)

Description

Factors external to the College of Agriculture and Natural Resources that will influence programs and results include: formation of collaborations; a shift in demographics; a shift in state and regional economic situations; shifts in local, state, university, and national policy, and changes in technology. External factors which can affect leadership activities include competing public priorities which affect participation; competing programatic challenges and limited resources. Many communities are under pressure to deal with multiple changes/issues. A significant portion of community members often resist such change or choose to ignore it. Resources will continue to be scarce and may diminish. This is only one of three objectives of the CDE initiative team and the CDE team is only one of five UW CES SIT teams. Consequently, UW CES resources brought to bear on this objective will be limited. Leadership training has become a popular subject of concern across the nation, which increases the opportunity and need for UW CES programming, but also increases the competition from other sources offering leadership training and community facilitation.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☐ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Efforts to evaluate programs will include: 1.) Pre- and post-tests regarding knowledge and skills gained by participants, 2.) Post-meeting/workshops evaluations and tests of program participants, and 3.) Follow-up surveys of educators and community organizations. For family resource management educational programs and activities, the following skills will be measured to determine impacts achieved. These are the management principles by which immediate and intermediate outcomes will be evaluated. 1.) Communication information is shared in a timely way, active listening, variety of communication methods used, expresses ideas clearly. 2.) Problem Solving; problem defined, criteria developed, alternative solution explored and evaluated, solution chosen and monitored. 3.) Decision Making methods of decision-making are defined and understood by those involved. Examples include compromise, consensus, majority, one-man rule or spontaneous agreement. 4.) Goal Achievement; clearly defined goals, planning processes used to establish a course of action, progress made towards goal achievement, priority setting. 5.) Financial Skills; financial goals established, plans for managing debt and/or savings, record keeping utilized, fiscal control, financial security. In general, efforts will occur to assess the effectiveness of individual programs by the CDE Initiative team each year during the autumn.

For entrepreneurship educational programs and activities, the following methods will be used to determine effects achieved: 1.) Tracking of community interest and contact development, 2.) Program evaluation forms, 3.) Social capital surveys, pre and post where interventions are long-term, 4.) Interviews with key stakeholders.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☐ Telephone
- ☑ On-Site

Interview

- ☐ Structured

- ☑ Unstructured
- ☐ Case Study
- ☐ Observation
- ☐ Portfolio Reviews
- ☑ Tests
- ☐ Journals
- ☑ Other (Focus groups)

Description

Leadership institutes will use end of session questionnaires with Likert scales and open-ended questions. A post-test online survey (or hard copy) developed by Dr. Kenneth Pigg, University of Missouri Extension Sociologist, administered six to twelve months after completion of intensive leadership training. Focus groups may be used to determine impact.

Efforts to evaluate financial management programs include: pre- and post-tests regarding knowledge and skills gained by participants. Post meeting/workshop evaluations and tests of program participants, and follow-up surveys of educators and community organizations.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

4-H and Youth Development

2. Brief summary about Planned Program

4-H is the Cooperative Extension System's dynamic educational program for today's youth. Through a program delivery system which includes all 23 counties in Wyoming as well as the Wind River Indian Reservation, 4-H presents a strong, positive image challenging young people to prepare for their future roles as leaders. Adult volunteer leaders are a key to success in the 4-H program. Trained leaders provide support and training to members in local clubs. Recruitment, training, and management of volunteers is a major thrust of the 4-H youth development program.

Youth in the traditional 4-H program have the opportunity to expand their knowledge base, increase their life skills and develop leadership abilities in order to become responsible, contributing citizens. This type of impact will improve the overall quality of life in Wyoming.

Wyoming is not immune to high-risk behaviors among its youth. The current 4-H program will benefit by offering life skills education to non-traditional audiences. While 4-H projects and clubs remain the backbone of UW CES youth development efforts, additional youth can be reached through collaboration with other community youth groups and non-traditional delivery methods.

3. Program existence :

- ○ New (One year or less)
- ○ Intermediate (One to five years)
- ◉ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	10%		10%	
802	Human Development and Family Well-Being	25%		25%	
806	Youth Development	65%		65%	
	Total	100%		100%	

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

1. Situation and priorities

In Wyoming there are an estimated 75,000 youth between the ages of 8 and 18 according to the U.S. Census Bureau. Of those youth, over 7,000 are enrolled in the traditional club program. The main focus of 4-H is the development of life skills, knowledge and leadership. According to the Search Institute "youth who have ten or fewer of the 40 external and internal assets are at high risk of developing at-risk behaviors". All of the 40 external and internal assets are likely to be developed by youth involved in the 4-H program. Youth in the traditional 4-H program have the opportunity to expand their knowledge base, increase their life skills and develop leadership abilities in order to become responsible, contributing citizens. This type of impact will improve the overall quality of life in Wyoming. Adult volunteers are critical to implementing and expanding the youth development efforts of CES.

This leaves 68,000 youth in the state of Wyoming who are not being served by the traditional 4-H club program. Non-traditional youth development programs will target youth with focus on the development of life skills and values.

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 4-H and Youth Development program has the following assumptions: 1.) Volunteers care about kids 2.) Volunteers want to be involved with kids 3.) Volunteers are safe, responsible, and caring adults 4.) Resources are available to make the situations of the logic model happen 5.) Adults will engage with Extension Staff.

Assumptions made for the traditional 4-H/youth program include:

- Partnerships will be formed.
- Public entities will cooperate.

- External funds will be sought.

Assumptions for non-traditional 4-H programs:
- Partnerships can be formed.
- Funds will be available
- Schools will open their doors
- Adults will volunteer
- Governing bodies will cooperate.

2. Ultimate goal(s) of this Program

Trained adult volunteers have skills and abilities in which they are able to foster youth to become responsible productive adults. Youth in the traditional 4-H program have the opportunity to expand their knowledge base, increase their life skills and develop leadership abilities in order to become responsible, contributing citizens. This type of impact will improve the overall quality of life in Wyoming.

Through a variety of alternative teaching methods, the non-traditional 4-H program is designed to motivate underserved and high risk youth to become involved, serve as leaders, and become responsible, productive adults.

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
2012	31.0	0.0	0.0	0.0
2013	31.0	0.0	0.0	0.0
2014	31.0	0.0	0.0	0.0
2015	31.0	0.0	0.0	0.0
2016	31.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Activities include volunteer training on the following topics: Ages and stages of youth; Risk Management; Youth Development Concepts; Non-profit Management/Coordination; Financial Management/IRS Issues; Project Training; Learning Styles; Club Maintenance; Recruitment and Retention.

Traditional 4-H will focus on project or leadership activities; teach and/or facilitate educational programs; recruitment of new members, training, camps, clinics, contests, media, and assessment.

Non-traditional 4-H activities will include: Cloverbuds (pre 4-H); After school programs; School enrichment; Youth Leadership; Marketing; and Camps.

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☐ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Camps)	☐ Other 1
☐ Other 2	☐ Other 2

3. Description of targeted audience

The University of Wyoming College of Agriculture and Natural Resources is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in Extension programs regardless of their race, national origin, gender, age, religion, or disability. 4-H Volunteers will be recruited from the following groups: Adults in the Community, Other Agencies, Civic Groups,Youth Groups, and the General Public.

Traditional 4-H youth audiences will target:

- Youth
- Volunteers
- Families
- Community.

The target audience for non-traditional 4-H will include: Underserved and high risk youth who do not participate in the traditional 4-H Youth program in Wyoming.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	3000	5000	7000	10000
2013	3000	5000	8000	10000
2014	3000	5000	8000	10000
2015	3000	5000	8000	10000
2016	3000	5000	8000	10000

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

2012:0 **2013:**0 **2014:**0 **2015:**0 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	0	1	1
2013	0	1	1
2014	0	1	1
2015	0	1	1
2016	0	1	1

V(H). State Defined Outputs

1. Output Target

- Number of youth enrolled in the traditional 4-H program. Target is number of youth enrolled in traditional 4-H club programs.
  2012:8000 **2013:**8000 **2014:**8000 **2015:**8000 **2016:**8000

- Number of educational events, camps, training workshops, clinics implemented. Target is number of programs and events.
  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**200

- Number of volunteers enrolled as leaders in the 4-H program. Target is number of volunteers enrolled in the 4-H program.
  2012:3000 **2013:**3000 **2014:**3000 **2015:**3000 **2016:**3000

- Number of volunteers participating in formal training programs. Target is number of volunteers participating in training programs.
  2012:1000 **2013:**1000 **2014:**1000 **2015:**1000 **2016:**1000

- Number of non-traditional programs established. Target is number of non-traditional programs.

  2012:20 **2013:**20 **2014:**20 **2015:**20 **2016:**20

- Number of youth enrolled in non-traditional youth development programs. Target is number of youth enrolled in non-traditional programs.
  2012:10000 **2013:**10000 **2014:**10000 **2015:**10000 **2016:**10000

V(I). State Defined Outcome

O. No	Outcome Name
1	Wyoming youth will acquire knowledge which builds life skills including critical thinking, public speaking, teamwork, self-discipline, responsibility, decision making, self-esteem, communication, and leadership. Target is number of youth reporting outcome.
2	Wyoming youth build assets and essential life skills to lead productive, responsible, and healthy lifestyles. Target is number of participants reporting outcome.
3	Non-traditional youth participating in programs serve in leadership roles, serve on governing bodies, act as mentors, and teach other youth.Target is number of participants reporting outcome.
4	Volunteers demonstrate knowledge of youth development principles. Target is number of participants reporting outcome.
5	Trained adult volunteers will demonstrate skills and abilities in which they are able to foster youth to become responsible adults. Target is number of participants reporting outcome.

Outcome # 1

1. Outcome Target

Wyoming youth will acquire knowledge which builds life skills including critical thinking, public speaking, teamwork, self-discipline, responsibility, decision making, self-esteem, communication, and leadership. Target is number of youth reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:3000 **2013:**3000 **2014:**3000 **2015:**3000 **2016:**3000

3. Associated Knowledge Area(s)

- ☐ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☑ 806 - Youth Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

Wyoming youth build assets and essential life skills to lead productive, responsible, and healthy lifestyles. Target is number of participants reporting outcome.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1000 **2013:**1000 **2014:**1000 **2015:**1000 **2016:**1000

3. Associated Knowledge Area(s)

- ☐ 801 - Individual and Family Resource Management
- ☑ 802 - Human Development and Family Well-Being
- ☑ 806 - Youth Development

4. Associated Institute Type(s)

- [x] 1862 Extension
- [ ] 1862 Research

Outcome # 3

1. Outcome Target

Non-traditional youth participating in programs serve in leadership roles, serve on governing bodies, act as mentors, and teach other youth.Target is number of participants reporting outcome.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (•) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**200

3. Associated Knowledge Area(s)

- [ ] 801 - Individual and Family Resource Management
- [x] 802 - Human Development and Family Well-Being
- [x] 806 - Youth Development

4. Associated Institute Type(s)

- [x] 1862 Extension
- [ ] 1862 Research

Outcome # 4

1. Outcome Target

Volunteers demonstrate knowledge of youth development principles. Target is number of participants reporting outcome.

2. Outcome Type :

- (•) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1000 **2013:**1000 **2014:**1000 **2015:**1000 **2016:**1000

3. Associated Knowledge Area(s)

- ☐ 801 - Individual and Family Resource Management
- ☐ 802 - Human Development and Family Well-Being
- ☑ 806 - Youth Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 5

1. Outcome Target

Trained adult volunteers will demonstrate skills and abilities in which they are able to foster youth to become responsible adults. Target is number of participants reporting outcome.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:500	**2013:**500	**2014:**500	**2015:**500	**2016:**500

3. Associated Knowledge Area(s)

- ☑ 801 - Individual and Family Resource Management
- ☑ 802 - Human Development and Family Well-Being
- ☑ 806 - Youth Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

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 (background of participants)

Description

Funding for youth development is necessary for the program. Most youth educator positions in counties are jointly funded by county government. Youth and adults face time allocation challenges.

Factors that may affect programs and results include natural disasters, economy, demographic patterns, public policy changes, background and experiences of participants, government regulations and competing public priorities. Each of these affect communities and families.

Public policy and competing public priorities could impact youth development programs; specifically the ability to work with schools to implement school enrichment or after school programs. Population changes impacting the number of school age youth in communities could impact program direction.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☑ Time series (multiple points before and after program)
- ☑ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Use and adopt the "Life Skills Evaluation Model" for evaluation of youth development programs.

A variety of methods will be used to evaluate programs within 4-H and youth development. Age of participant and length of activity will be factors considered in determining methodology for evaluation.Youth educators will utilize pre- and post-test, end of session surveys, follow-up surveys by phone, e-mail, mail, on-site observation, case study, sampling and interviews that are either structured or unstructured.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☐ Structured
- ☑ Unstructured

- ☑ Case Study
- ☑ Observation
- ☑ Portfolio Reviews
- ☑ Tests
- ☐ Journals
- ☐ Other

Description

Evaluation of total participants at some educational activities. On-site, mail, or telephone surveys may be used to gather impact data. Unstructured interviews with volunteers will be used to determine impact. Pre and post tests, and observation will also be utilized in evaluation to the 4-H youth and volunteer managment program. In addition, teacher reports may be used when implementing non-traditional youth programs.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Sustainable Management of Rangeland Resources (SMRR)

2. Brief summary about Planned Program

Wyoming's tremendous natural resources support an abundance of recreational opportunities but they also provide the basis for a number of industries that are very important to the state's economy. Therefore, the way in which natural resources are managed, governed and used is of great importance to Wyoming residents. About 73 percent of Wyoming agriculture is based on livestock production. At least 95 percent of Wyoming's livestock operations utilize rangeland, and many of these operations use public land leases as a portion of their forage base. Forty-eight percent of the land area in Wyoming is publicly-owned and is managed by government agencies. Livestock on public rangelands is managed by producers in cooperation with government agencies. Continual educational and research efforts are essential for both agricultural producers and agency personnel to maintain or improve their management skills, to minimize producer-agency conflict and, ultimately, to keep the land healthy and productive, and to maintain or increase the profitability of range livestock production operations. Natural resource management policies administered by agencies have significant impacts on Wyoming's economy and quality of life. These agencies are influenced by public input. Private lands are also extremely important as watersheds, wildlife habitats and other values significant to all citizens. Despite the many natural resource-related opportunities, many Wyomingites are not directly tied to natural resources and agriculture. This results in lack of knowledge and experience regarding natural resource systems, their management and the industries they support. Unfortunately, a segment of the general public appears to believe that any use of even renewable resources is damaging. There is often conflict and occasional litigation among interest groups that differ on how resources should be used and managed. Natural resources are important to all segments of the Wyoming population. The natural resource focus of the college will provide research and educational programs designed to foster an understanding of Wyoming's ecosystems as related to the concerns and needs of the state.

Extension is uniquely positioned in that we have existing volunteer youth development programming infrastructure already built in the 4-H program featuring offices in all of Wyoming's 23 counties, several thousand volunteer staff and thousands of youth already acquainted with the 4-H program. These youth present an immediate natural resource education audience and an opportunity to reach the broader youth audience with the educational resources we have. Building stronger natural resource programs, enhancing natural resource teaching opportunities within existing high-interest projects (like market livestock and shooting sports projects) and increasing youth development opportunities are key. This will continue to foster interest in natural resource careers, knowledge about the land, how to be good stewards of the land, and how to be prepared to make informed decisions about the use and management of Wyoming's natural resources as adults.

The SMRR initiative team will work collaboratively with the PSAS initiative team which reports under Global Food Security and Hunger program to develop, implement and evaluate programs designed for small acreage land owners.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	5%		5%	
102	Soil, Plant, Water, Nutrient Relationships	5%		5%	
103	Management of Saline and Sodic Soils and Salinity	5%		5%	
104	Protect Soil from Harmful Effects of Natural Elements	5%		5%	
111	Conservation and Efficient Use of Water	5%		5%	
112	Watershed Protection and Management	5%		5%	
121	Management of Range Resources	5%		5%	
123	Management and Sustainability of Forest Resources	5%		5%	
131	Alternative Uses of Land	5%		5%	
132	Weather and Climate	5%		5%	
135	Aquatic and Terrestrial Wildlife	5%		5%	
136	Conservation of Biological Diversity	5%		5%	
205	Plant Management Systems	5%		5%	
206	Basic Plant Biology	5%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		5%	
213	Weeds Affecting Plants	5%		5%	
306	Environmental Stress in Animals	5%		5%	
311	Animal Diseases	5%		5%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	5%		5%	
605	Natural Resource and Environmental Economics	5%		5%	
	Total	100%		100%	

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

1. Situation and priorities

Wyoming has abundant natural resources. A variety of ecosystems and agroecosystems from near

pristine wilderness to well managed forests, rangelands, and urban landscapes make Wyoming a unique and inviting place. Wyoming's economy is based on use of its natural resources (minerals, energy, and agricultural products) by U.S. and global economies. The state is characterized by rural areas and wildlife resources and serves as a national and international travel destination. Management of natural resources and associated environmental issues permeate nearly every aspect of life in the state. A compilation of advisory board input from several areas of the state recommended a focused effort to educate the general public on natural resource topics and issues. To raise awareness and knowledge regarding natural resources, research efforts will focus on sustainable production practices, water quality, and alternative land uses, and will serve as an information base to assist UW CES' ability to educate Wyoming citizens to make informed decisions that will improve public policy, reduce conflict and contribute to the economic and ecological sustainability of Wyoming communities. Many of these research programs are integrated with extension efforts and are multidisciplinary as well as multi-state in nature. The SMRR team will work collaboratively with the PSAS initiative to provide education to small acreage land owners.

Rangelands comprise over 80 percent of Wyoming's land base. Range livestock production, recreation, and wildlife habitat are some of the dominant uses of rangelands. Rangelands also provide water for homes and municipalities, irrigation, industries, fisheries, wildlife and livestock. In semi-arid Wyoming, rangeland uses need to be compatible with maintaining the quality and quantity of water resources. Livestock grazing and wildlife habitat management must also be compatible as both are important for the sustainability of the State's rangeland resources and its economy.

Given the importance of natural resources to the State of Wyoming, it is imperative for Wyoming residents, including youth, to be knowledgeable about the use and management of natural resources. The desire to be engaged and learning about natural resources is already at the top of the list for many residents of Wyoming. Since natural resources are such an important part of Wyoming's way of life, there are wide-spread avenues to utilize their importance and attractiveness to reach youth by employing the eight essential elements of youth development. For many topics, including natural resource appreciation, the childhood years are often "the teachable moment."

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 program effects cannot be achieved without the partnership and collaboration of Federal agencies, industry, and state agencies. The necessary resource will be available. The college is capable of providing the leadership along with the scientific information. Public is interested and open to information on natural resources. Informed citizens need knowledge of natural resources and their management to participate in public policy formation.

Rangeland management practices have ecological consequences.

- Improved knowledge and skills will result in improved practices.
- Proven rangeland management practices will result in sustainability of the rangeland resources, agricultural operations and help rural communities.

Youth are interested in natural resources.

- Youth understand that knowledge of natural resources is an important enhancement to their quality of life.
- The childhood years are "the teachable moment."

2. Ultimate goal(s) of this Program

The vision is that decision makers will gain scientific information to make sound environmental decisions on ecosystem management. Knowledge and awareness is expected to increase the ability of Wyoming citizens to make informed decisions that will improve public policy, reduce conflict and contribute to the economic and ecological sustainability of Wyoming communities.

Expected long-term outcomes from this program include:

- Improved rangeland health, productivity, and profitability.
- More profit for range-based agricultural enterprises.
- Improve values of rangelands for multiple uses.
- Sustain economic base of communities relying on rangeland industries.
- Promote rural social and cultural stability.

To educate the youth about the use and management of natural resources, increasing their interest in natural resources and related careers.

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
2012	14.0	0.0	10.0	0.0
2013	14.0	0.0	10.0	0.0
2014	14.0	0.0	10.0	0.0
2015	14.0	0.0	10.0	0.0
2016	14.0	0.0	10.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Natural resource programs will reach out to a broad spectrum of constituents throughout Wyoming using a variety of sources. Workshops on sustainable rangeland and animal management principles will be offered within each extension area within the state. Provide professional development opportunities for rangeland professionals. Develop written educational materials on rangeland and animal management practices and principles (fact sheets, bulletins, media, presentations, Web). Conduct technical consultation on rangeland and animal management, and monitoring of rangelands. Develop media on rangeland management principles (radio, TV, press). Conduct research and demonstrations on sustainable natural resource management principles. Work with individual rangeland managers on developing, implementing, and evaluating sustainable management practices.

Develop and/or present programs on natural resources at youth activities. Produce or update currently produced educational materials targeted to youth on natural resource education. Produce

information/education modules emphasizing natural resource topics for 4-H leader use in 4-H project with large enrollment.

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Short courses)	☑ Other 1 (Publications)
☑ Other 2 (field days, plot tours)	☑ Other 2 (Referred journals)

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in programs regardless of their race, national origin, gender, age, religion, or disability. The College of Agriculture and Natural Resources is committed to transmitting unbiased scientific-based information to solve local and regional natural resource conflicts involving state, Federal, and private resources. All efforts will be made to provide information through direct contact, publications, newsletters, Web sites and other methods. The general public and exurban landowners, agricultural producers and federal and state land management agency personnel are the target audience.

General youth and traditional 4-H are among the target audiences for natural resource youth programs.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	300	3000	100	500
2013	300	3000	100	500
2014	300	3000	100	500
2015	300	3000	100	500
2016	400	3000	100	500

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

2012:1 **2013:**1 **2014:**1 **2015:**1 **2016:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	8	1	9
2013	8	1	9
2014	9	2	11
2015	9	2	11
2016	9	3	12

V(H). State Defined Outputs

1. Output Target

- Number of programs implemented. Target is number of programs.

  2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**15

- Documented media efforts implemented. Target is number of media efforts such as magazines, TV, radio, newspaper inserts.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**5

- Number of individuals participating in educational programs or activities. Target is number of participants.

  2012:300 **2013:**300 **2014:**300 **2015:**300 **2016:**400

- Number of agency personnel, range professionals, and general public participating in training. Target is number of participants.

  2012:250 **2013:**250 **2014:**250 **2015:**250 **2016:**250

- Number of youth related natural resource programs implemented. Target is number of programs.

  2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**5

- Number of youth participating in natural resource educational programs or activities. Target is number of participants.

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**200

- Research: Transfer knowledge and increase appreciation of sustainable rangeland production.

  2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**25

- Research - Number of research publications, bulletins, reports, and presentations on watershed management. Target is number of outputs reported.

  2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**25

V(I). State Defined Outcome

O. No	Outcome Name
1	Raise the understanding of the general public on the interaction of natural resource use in Wyoming's economy. Citizens will make better informed decisions on natural resource issues and topics. Target is number of participants reporting outcome.
2	Increased enrollment in 4-H natural resource programs (projects, camps, activities). Target is number of increased youth participation in natural resource programs.
3	Raise awareness, knowledge, and skills for development, implementation and evaluation of land management plans that include management of grazing and browsing animals, and adjusting managment as necessary to meet objectives. Target is number of participants reporting outcome.
4	Research: Transfer knowledge and increase appreciation of sustainable rangeland production. Target is number of projects reporting outcome.
5	Research: Transfer knowledge and increase appreciation of watershed management. Target is number of projects reporting outcome.

Outcome # 1

1. Outcome Target

Raise the understanding of the general public on the interaction of natural resource use in Wyoming's economy. Citizens will make better informed decisions on natural resource issues and topics. Target is number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100	**2013:**100	**2014:**100	**2015:**100	**2016:**100

3. Associated Knowledge Area(s)

- ☐ 101 - Appraisal of Soil Resources
- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 103 - Management of Saline and Sodic Soils and Salinity
- ☐ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 121 - Management of Range Resources
- ☑ 123 - Management and Sustainability of Forest Resources
- ☑ 131 - Alternative Uses of Land
- ☐ 132 - Weather and Climate
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☐ 136 - Conservation of Biological Diversity
- ☐ 205 - Plant Management Systems
- ☐ 206 - Basic Plant Biology
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 306 - Environmental Stress in Animals
- ☐ 311 - Animal Diseases
- ☐ 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

Increased enrollment in 4-H natural resource programs (projects, camps, activities). Target is number of increased youth participation in natural resource programs.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**100

3. Associated Knowledge Area(s)

- ☐ 101 - Appraisal of Soil Resources
- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 103 - Management of Saline and Sodic Soils and Salinity
- ☐ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☐ 111 - Conservation and Efficient Use of Water
- ☐ 112 - Watershed Protection and Management
- ☑ 121 - Management of Range Resources
- ☑ 123 - Management and Sustainability of Forest Resources
- ☐ 131 - Alternative Uses of Land
- ☑ 132 - Weather and Climate
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☐ 136 - Conservation of Biological Diversity
- ☐ 205 - Plant Management Systems
- ☐ 206 - Basic Plant Biology
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 306 - Environmental Stress in Animals
- ☐ 311 - Animal Diseases
- ☐ 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting
- ☐ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 3

1. Outcome Target

Raise awareness, knowledge, and skills for development, implementation and evaluation of land management plans that include management of grazing and browsing animals, and adjusting managment as necessary to meet objectives. Target is number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**50

3. Associated Knowledge Area(s)

- ☐ 101 - Appraisal of Soil Resources
- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 103 - Management of Saline and Sodic Soils and Salinity
- ☐ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 121 - Management of Range Resources
- ☑ 123 - Management and Sustainability of Forest Resources
- ☑ 131 - Alternative Uses of Land
- ☐ 132 - Weather and Climate
- ☐ 135 - Aquatic and Terrestrial Wildlife
- ☐ 136 - Conservation of Biological Diversity
- ☐ 205 - Plant Management Systems
- ☐ 206 - Basic Plant Biology
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 306 - Environmental Stress in Animals
- ☐ 311 - Animal Diseases
- ☐ 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting
- ☐ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 4

1. Outcome Target

Research: Transfer knowledge and increase appreciation of sustainable rangeland production. Target is number of projects reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**3

3. Associated Knowledge Area(s)

- ☑ 101 - Appraisal of Soil Resources
- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 103 - Management of Saline and Sodic Soils and Salinity
- ☐ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 111 - Conservation and Efficient Use of Water
- ☐ 112 - Watershed Protection and Management
- ☑ 121 - Management of Range Resources
- ☑ 123 - Management and Sustainability of Forest Resources
- ☑ 131 - Alternative Uses of Land
- ☑ 132 - Weather and Climate
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☑ 136 - Conservation of Biological Diversity
- ☑ 205 - Plant Management Systems
- ☐ 206 - Basic Plant Biology
- ☑ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☑ 213 - Weeds Affecting Plants
- ☐ 306 - Environmental Stress in Animals
- ☐ 311 - Animal Diseases
- ☐ 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

Outcome # 5

1. Outcome Target

Research: Transfer knowledge and increase appreciation of watershed management. Target is number of projects reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**3 **2015:**3 **2016:**3

3. Associated Knowledge Area(s)

- ☐ 101 - Appraisal of Soil Resources
- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 103 - Management of Saline and Sodic Soils and Salinity
- ☑ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 112 - Watershed Protection and Management
- ☑ 121 - Management of Range Resources
- ☑ 123 - Management and Sustainability of Forest Resources
- ☑ 131 - Alternative Uses of Land
- ☐ 132 - Weather and Climate
- ☑ 135 - Aquatic and Terrestrial Wildlife
- ☐ 136 - Conservation of Biological Diversity
- ☐ 205 - Plant Management Systems
- ☐ 206 - Basic Plant Biology
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 306 - Environmental Stress in Animals
- ☐ 311 - Animal Diseases
- ☐ 314 - Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting
- ☑ 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

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 (Technology changes)

Description

Factors external to the University of Wyoming College of Agriculture and Natural Resources that could influence results include 1) any changes in state and regional economics, 2) any changes in public policy or regulations, 3) change in technology, and 4) information from special interest groups. 5) weather conditions such as drought; 6) market conditions; 7) political/public policy considerations; 8) appropriation changes within UW CES.

The following external factors can potentially have a large impact on this youth program and/or its results:

- The general level of interest in current Wyoming natural resource issues (may affect the involvement of the potential youth audience)
- Traditional 4-H leaders and parents commitment to animal and FCS projects.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☐ Before-After (before and after program)
- ☐ During (during program)
- ☑ Time series (multiple points before and after program)
- ☑ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☑ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Efforts will be made to assess the success of individual programs through educational efforts, publications, and peer review of the projects. Unstructured surveys will be conducted between program locales and those without program intervention. Feedback from media partners who broadcast radio and TV education materials will be gathered in addition to informal polls to determine public perception of natural resources conducted on-line or with media partners. Testimonials from clientele. Monitor level of

inquiries for assistance. Tracking permitted number of animal unit months in active management programs which are a result of extension activities and programs. Document the number of land managers that adopt rangeland management plans and monitoring practices. Evaluate success of clients in achieving land and animal management objectives and level of conflict pertaining to resource use.

Evaluation of natural resource programs targeted toward youth: Gathering testimonials.

- Conduct spot surveys of audience.
- Gather input from program volunteers who employed these materials.
- Monitor natural resource 4-H program area project enrollment.

2. Data Collection Methods

☑ Sampling

☐ Whole population

Survey (Mail, Telephone, On-Site).

☐ Mail

☐ Telephone

☑ On-Site

Interview

☑ Structured

☑ Unstructured

☐ Case Study

☑ Observation

☐ Portfolio Reviews

☑ Tests

☑ Journals

☐ Other

Description

A sample population will be surveyed to determine the benefits of the program and to make adjustments. The goal is to provide the best science possible. A variety of data collection methods will be used including sampling of participants in programs, surveys, informal and formal interviews with program participants. Both informal and formal methods of data collection will be used including documenting testimonials, tracking impact of monitoring practices and other program components.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Global Food Security and Hunger, Crop, Livestock and Horticulture Systems

2. Brief summary about Planned Program

The University of Wyoming College of Agriculture and Natural Resources will work on multidisciplinary programs in both extension and research to improve food security and reduce hunger. All members of the food system, from producer to consumer, make decisions that affect the nature of the food supply. These decisions reflect changing consumer needs, technological advances in food production, processing, and distribution. Working with stakeholders, programs will be planned that advance sustainable agriculture production to increase the availability of food, keep food affordable, and raise the income of those in agriculture production. Livestock producers throughout Wyoming face an ever changing industry with issues such as; increasing cost of production, increasing pressure for individual animal identification, changing requirements for marketing knowledge. In addition, this program addresses needs of urban and small acreage landowners, providing education in sustainable and environmentally sound horticultural practices and maintenance of healthy urban and production forests. AES will provide additional support to strengthen knowledge areas related to pests, pest management, nutrient relationships, variety improvement, biological efficiency, biological pest control, and management of additional pest species such as diseases and nematodes. Research development will include an increase in horticultural research at the UW R & E Centers. In addition AES will provide support to address other issues in livestock systems in several areas such as pest management, poisonous plants, and wildlife/livestock disease interfaces. Much of these research efforts are collaborative in nature and involve multiple disciplines, multiple states, and USDA facilities located at Akron and Fort Collins, Colorado.

These efforts will impact not only Wyoming, but the country and ultimately the global food system. Partnering with nutrition education efforts UW CES will reduce hunger sustainably. Although nutrient deficiencies are not a predominant health concern in the general population, some segments of the population are at risk. Pregnant women and children are at risk from inadequate nutrition because rapid growth and development increase their nutritional needs. Some in the low-income segment of Wyoming are still undernourished. Forming collaborative networks, UW CES plans to promote growing local food, farmers markets, and increasing educational efforts in food preparation and preservation skills.

The use of volunteers will be employed to fortify our efforts at meetings and tours. Collaborative partners may include local and state Weed & Pest, local and federal Conservation Services, Wyoming State Forestry, the Wyoming Stock Growers and Wool Growers associations, and Crop Improvement Association. Volunteers include Master Gardeners and producers as cooperators. Through the use of UW CES technology and equipment, such as remote sensing, guidance and leadership will be provided by educators and specialists to improve traditional management practices. Partnerships will be formed with ag businesses, federal agencies, and other universities to deliver timely information to producers and business owners.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ○ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%		5%	
111	Conservation and Efficient Use of Water	5%		5%	
202	Plant Genetic Resources	5%		5%	
204	Plant Product Quality and Utility (Preharvest)	5%		5%	
205	Plant Management Systems	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		5%	
212	Pathogens and Nematodes Affecting Plants	5%		5%	
213	Weeds Affecting Plants	5%		5%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	5%		5%	
301	Reproductive Performance of Animals	5%		5%	
302	Nutrient Utilization in Animals	5%		5%	
305	Animal Physiological Processes	5%		5%	
307	Animal Management Systems	10%		10%	
311	Animal Diseases	5%		5%	
502	New and Improved Food Products	5%		5%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
704	Nutrition and Hunger in the Population	5%		5%	
	Total	100%		100%	

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

1. Situation and priorities

More than one billion people, one sixth of the world's population suffer from chronic hunger. Without enough food, adults struggle to work and children struggle to learn. Global food supplies must increase by an estimated 50 percent to meet expected demand in the next 20 years. Advancing sustainable agriculture-led growth increases the availability of food, keeps food affordable, and raises the income of the poor. In 2008, 49.1 million people lived in food-insecure households, including 16.7 million children. This means at times during the year, these households were uncertain of having, or unable to acquire, enough food to meet the needs of all their members because they had insufficient money or other

resources for food. The hunger rate was 3.7 percent. In 2009 Wyoming had over 30,000 recipients of the food stamp program in 12,337 households. This represents a 34.6 percent increase in recipients and 31 percent increase in households from 2008. Nearly half of these recipients in 2008 across the U.S. and Wyoming were children.

Crop and livestock producers across Wyoming are challenged with increasing production costs, global market competition, environmental pressure, and decreased labor availability. Alternative markets, improved management practices, and cost efficiency are critical to ensure profitability and sustainability for Wyoming producers.

The value of agriculture to Wyoming's economy approaches $1 billion each year, and agriculture's contribution to open spaces, wildlife, and recreation is even greater. The largest component of Wyoming agriculture is the beef cattle industry, accounting for approximately 78 percent of all cash receipts and 82.5 percent of all livestock production. Sheep, lamb, and wool receipts in 2008 were $36.1 million. Forage sustains the Wyoming livestock industry. Hay is the leading crop in Wyoming with the last ten years average production valued at $19 + million annually, mostly marketed through livestock.

In Wyoming, horticulture involves commercial production of vegetables, fruits, herbaceous and woody ornamentals, turf grass sod and seed. Wyoming horticulture also involves all of these products in the consumer's homes, landscapes or businesses. Demand for consumer-based horticulture is a large local, area, and statewide need. Wyoming's environment includes less than optimal soil conditions, a very harsh climate for many horticultural crops and growing practices; the variation in elevation across the state as well as short to very short growing seasons all contribute to difficult growing conditions.

Statistics show that while in Wyoming the number of farms has remained relatively constant, farm size has declined; evidence of the increasing number of smaller-size operations. Since 1987 the total number of farms in Wyoming increased only two percent, while the number of farms between 10 and 49 acres increased fully 55 percent. In Wyoming, managers of farms with less than 50 acres make decisions that affect 44,018 acres. This proliferation of new landowners has the potential to benefit the communities in which they reside in a variety of ways. However, many of these new landowners have little knowledge of resource management in Wyoming's ecosystems. Thus their expectations of the land and their land management techniques can be inappropriate for sustainable management. Agriculture and natural resource professionals are presently struggling to determine how to most effectively meet the educational needs of these new landowners and potential entrepreneurs.

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

Educators and faculty in the College of Agriculture and Natural Resources have the expertise to plan, implement, and evaluate community-based programs for audiences. Extension educators have established solid networks and support in many areas throughout Wyoming to assist community leaders in addressing agriculture and nutrition issues concerning individuals and families. National support from the United States Department of Agriculture would provide sufficient financial resources to support planning

and programming in communities. Funding will be secure throughout the course of the project. People will be motivated to gain awareness, knowledge and skills. Individuals will incorporate skills and change behaviors. Educators can serve as catalysts for change.

2. Ultimate goal(s) of this Program

Ultimate goals of this program include:
- Increase agriculture production to meet global demands
- Reduce hunger sustainably
- Raise the income of the rural poor
- Reduce the number of children and adults suffering from under-nutrition

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
2012	26.0	0.0	30.0	0.0
2013	26.0	0.0	30.0	0.0
2014	26.0	0.0	30.0	0.0
2015	26.0	0.0	30.0	0.0
2016	26.0	0.0	30.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Any or all channels of the media will be used to familiarize the public with UW College of Agriculture and Natural Resources areas of research and extension programming and personnel. Newsletter articles distributed both electronically and through the mail by county offices, area teams, and the University of Wyoming will reach producers locally, regionally, and statewide. Public educational programs by extension specialists and educators presenting research-based information will be held in response to local, state, and national crop and livestock production, horticultural and nutrition issues. Demonstrations of technology and skills training will be included in education curriculum to enhance educational effectiveness. Field tours will be organized to provide producers with the opportunity to observe improved sustainable agricultural practices.

Areas of focus in livestock systems emphasis will be placed on the four main areas: herd management, herd development, cropping systems and livestock development, risk and operation management techniques and alternatives to enhance the stability of Wyoming livestock producers. Fostering development of local food systems, which includes promoting use of local foods, can improve energy efficiency of the food system while yielding many other benefits. CES plans to enhance efficiency within local food systems by improving relationships among local food producers and consumers in Wyoming.

- development and pilot-testing of *Wyoming Local Food Expos* in at least two communities; development and distribution of the *Wyoming Local Foods Guide* (print and electronic versions) which will include a directory of specialty crops and other local food products, nutrition and food safety resources, recipes for using local foods, factsheets related to local foods in Wyoming, and tips on sustainable living.

The *Foods Guide* will be uniquely Wyoming but will draw from several existing examples.

• development and implementation of a training module to provide UW CES educators statewide with the knowledge and skills to successfully promote local foods.

EFNEP adult curriculum taught in a series of lessons; adult one-time lessons; youth curricula taught in a series of lessons and day camps; displays and demonstrations; state and community partnerships with agencies serving the low-income; training for educators; evaluation of program; ongoing-updating of curricula and materials.

Other nutrition efforts will focus on educational programs; media outreach; health fairs; training; assessment and data collection; and research in human health and disease .

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☐ Group Discussion	☑ Newsletters
☐ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Field days)	☑ Other 1 (Applied Research)
☐ Other 2	☑ Other 2 (Publications)

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in programs regardless of their race, national origin, gender, age, religion, or disability. All efforts will be made to provide information through direct contact and through publications, newsletters, Web sites and other methods. The general public and exurban landowners, agricultural producers and specific target audience groups for the CNP (EFNEP) program: low-income adults, youth in Title I schools.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	20000	50000	500	1000

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2013	20000	50000	500	1000
2014	20000	50000	500	1000
2015	20000	50000	500	1000
2016	20000	50000	500	1000

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

2012:4 **2013:**5 **2014:**3 **2015:**3 **2016:**3

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	25	3	28
2013	25	3	28
2014	25	3	28
2015	25	3	28
2016	25	3	28

V(H). State Defined Outputs

1. Output Target

- Number of educational programs focusing on global food security and hunger, crop, livestock, or horticulture systems. Target is the number of programs.
  2012:350 **2013:**350 **2014:**350 **2015:**350 **2016:**350

- Number of participants attending programs focusing on global food security and hunger, livestock, crop, and horticulture systems. Target is the number of individual participants
  2012:6500 **2013:**6500 **2014:**6500 **2015:**6500 **2016:**6500

- Number of partnerships formed with other agencies,or organizations and volunteers integrated into programs. Target is the number of partnerships and/or volunteers.
  2012:150 **2013:**200 **2014:**200 **2015:**300 **2016:**300

- Increased adoption of sustainable agriculture methods and practices which result in increased production of the food supply. Target is 10 to 20% of total Wyoming Ag Operations participants reporting outcome.
  2012:100 **2013:**100 **2014:**200 **2015:**200 **2016:**200

- Research: Number of research publications, bulletins, reports, and presentations on crop, livestock, and horticulture systems. Target is number of outputs reported.
  2012:20 **2013:**25 **2014:**25 **2015:**25 **2016:**25

V(I). State Defined Outcome

O. No	Outcome Name
1	Increased knowledge of agriculture producers on sustainable cropping and livestock systems. Target is number of producers reporting outcome.
2	Improved sustainable agriculture production practices resulting in an increased food supply. Outcome is number of producers reporting outcome.
3	Awareness created through extension and research efforts. Target is number of participants in extension and research programs reporting that they have gained awareness on topic.
4	Wyoming producers will benefit through an increased value of livestock and crops related to improved cropping practices, herd selection, and management. Target is number of producers reporting positive outcome as a result of educational efforts.
5	Research: Transfer knowledge and increase awareness of research on crop, livestock, and horticulture systems. Target is number of projects reporting outcome.

Outcome # 1

1. Outcome Target

Increased knowledge of agriculture producers on sustainable cropping and livestock systems. Target is number of producers reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**200 **2014:**200 **2015:**200 **2016:**300

3. Associated Knowledge Area(s)

- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 111 - Conservation and Efficient Use of Water
- ☐ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☐ 205 - Plant Management Systems
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 212 - Pathogens and Nematodes Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- ☐ 216 - Integrated Pest Management Systems
- ☐ 301 - Reproductive Performance of Animals
- ☐ 302 - Nutrient Utilization in Animals
- ☐ 305 - Animal Physiological Processes
- ☑ 307 - Animal Management Systems
- ☐ 311 - Animal Diseases
- ☑ 502 - New and Improved Food Products
- ☐ 601 - Economics of Agricultural Production and Farm Management
- ☐ 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

Improved sustainable agriculture production practices resulting in an increased food supply. Outcome is number of producers reporting outcome.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:10 **2013:**10 **2014:**25 **2015:**25 **2016:**25

3. Associated Knowledge Area(s)

- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 111 - Conservation and Efficient Use of Water
- ☐ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☐ 205 - Plant Management Systems
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 212 - Pathogens and Nematodes Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- ☐ 216 - Integrated Pest Management Systems
- ☐ 301 - Reproductive Performance of Animals
- ☐ 302 - Nutrient Utilization in Animals
- ☐ 305 - Animal Physiological Processes
- ☑ 307 - Animal Management Systems
- ☐ 311 - Animal Diseases
- ☑ 502 - New and Improved Food Products
- ☐ 601 - Economics of Agricultural Production and Farm Management
- ☐ 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Awareness created through extension and research efforts. Target is number of participants in extension and research programs reporting that they have gained awareness on topic.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☑ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☑ 212 - Pathogens and Nematodes Affecting Plants
- ☑ 213 - Weeds Affecting Plants
- ☑ 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- ☑ 216 - Integrated Pest Management Systems
- ☑ 301 - Reproductive Performance of Animals
- ☑ 302 - Nutrient Utilization in Animals
- ☑ 305 - Animal Physiological Processes
- ☑ 307 - Animal Management Systems
- ☑ 311 - Animal Diseases
- ☑ 502 - New and Improved Food Products
- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☑ 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 4

1. Outcome Target

Wyoming producers will benefit through an increased value of livestock and crops related to improved cropping practices, herd selection, and management. Target is number of producers reporting positive outcome as a result of educational efforts.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**25

3. Associated Knowledge Area(s)

- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 111 - Conservation and Efficient Use of Water
- ☐ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☐ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☐ 212 - Pathogens and Nematodes Affecting Plants
- ☐ 213 - Weeds Affecting Plants
- ☐ 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- ☐ 216 - Integrated Pest Management Systems
- ☑ 301 - Reproductive Performance of Animals
- ☐ 302 - Nutrient Utilization in Animals
- ☐ 305 - Animal Physiological Processes
- ☑ 307 - Animal Management Systems
- ☐ 311 - Animal Diseases
- ☐ 502 - New and Improved Food Products
- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☐ 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 5

1. Outcome Target

Research: Transfer knowledge and increase awareness of research on crop, livestock, and horticulture systems. Target is number of projects reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:10 **2013:**10 **2014:**12 **2015:**15 **2016:**15

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 111 - Conservation and Efficient Use of Water
- ☑ 202 - Plant Genetic Resources
- ☑ 204 - Plant Product Quality and Utility (Preharvest)
- ☑ 205 - Plant Management Systems
- ☑ 211 - Insects, Mites, and Other Arthropods Affecting Plants
- ☑ 212 - Pathogens and Nematodes Affecting Plants
- ☑ 213 - Weeds Affecting Plants
- ☑ 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- ☑ 216 - Integrated Pest Management Systems
- ☑ 301 - Reproductive Performance of Animals
- ☑ 302 - Nutrient Utilization in Animals
- ☑ 305 - Animal Physiological Processes
- ☑ 307 - Animal Management Systems
- ☑ 311 - Animal Diseases
- ☑ 502 - New and Improved Food Products
- ☑ 601 - Economics of Agricultural Production and Farm Management
- ☑ 704 - Nutrition and Hunger in the Population

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

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

Description

Many conditions and situations that exist in Wyoming are similar to those in other parts of the country, for example, the following:

• Food choices made available and advertised to consumers by producers • Access to timely and accurate information • Coordination and cooperation of federal agencies and state partners • Existence of local collaboration • Level of funding at federal, state and local level • Willingness of private sector-funders, such as corporations, foundations, and community organizations, to collaborate with Wyoming Cooperative Extension Service.

Weather extremes and drought may affect producers in agriculture or horticulture issues. Funding is vital to this program; changes in appropriations could impact funding. Additionally, global market changes impact both research and extension programs in profitable and sustainable agriculture.

If EFNEP funding is decreased, appropriations will impact program delivery. Population changes impact limited resource audiences eligible for program.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

National EFNEP reporting program is used. Entry and exit data is collected on program participants. Case studies and success stories are gathered by nutrition educators. Collection of pre-, post-, and follow-up evaluation data as part of other programs.

Systematic evaluation utilizing a variety of methods will be used to document outcomes and impact to clientele. This program includes three focuses: livestock systems; crop systems; and urban horticulture. Each focus has developed a logic model which includes specific evaluation plans and methods. Educational activities will use written evaluations following the program, as follow-up; pre-and

post -test to measure knowledge and aspirations. Follow-up evaluations either by mail, phone, or personal visit will document medium and long term outcomes.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☐ Case Study
- ☑ Observation
- ☐ Portfolio Reviews
- ☑ Tests
- ☐ Journals
- ☐ Other

Description

Multiple methods will be used. Sampling will be utilized to gather evaluative data from media education efforts. Surveys, by mail, telephone, or on-site will be used with program participants. Observation and unstructured interviews will be used to determine medium to long term outcomes. Tests including pre- and post- will be used to measure knowledge gained.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

Wyoming's distinct high desert ecosystem defines the challenges for agriculture in the state and thus the research and extension agenda for the University of Wyoming Agricultural Experiment Station and Cooperative Extension Service. Basic work in carbon storage in such ecosystems, the implications of agricultural and land management practices on storage, and education related to these questions are key challenges. Plant species and variety adaption to the changing ecosystem will be critical to maintaining the agricultural productivity for the state. Understanding the implications of drought for grasslands and cropping ecosystem management and informing land managers and producers is also a critical challenge. The implications of climate change for invasive species and ecosystem management implications are important opportunities for UW AES and CES. Educational programs and research addressing key issues in climate change will enhance agriculture production and profitability in the state. In addition, extension educational programs will address energy efficiency. Renewable energy and utilizing energy efficiency technologies assist with mitigation of greenhouse gas emissions.

3. Program existence :

- (●) New (One year or less)
- ( ) Intermediate (One to five years)
- ( ) Mature (More than five years)

4. Program duration :

- ( ) Short-Term(One year or less)
- ( ) Medium-Term (One to five years)
- (●) Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- (●) Yes
- ( ) No

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

- (●) Yes
- ( ) No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
104	Protect Soil from Harmful Effects of Natural Elements	10%		10%	
112	Watershed Protection and Management	10%		10%	
132	Weather and Climate	20%		20%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%		10%	
205	Plant Management Systems	10%		10%	
306	Environmental Stress in Animals	10%		10%	
307	Animal Management Systems	10%		10%	
605	Natural Resource and Environmental Economics	10%		10%	
608	Community Resource Planning and Development	10%		10%	
	Total	100%		100%	

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

1. Situation and priorities

One of the most challenging issues facing our world today is change in the earth's climate. This has particular importance for agriculture because environment, climate and weather are such critical factors in the production system. Food is a fundamental human need and its supply is largely a function of agricultural production making climate change a critical issue for quality of life on the planet. In the high desert ecosystems of Wyoming, agricultural production can be highly influenced by rather small changes in temperature and precipitation patterns. As a result, climate and the capability to adjust to small changes in climate is a critical ongoing issue for Wyoming agriculture.

Wyoming is a rangelands state where small changes in temperature and growing season and amount and timing of precipitation can have a dramatic effect on the success of plant communities in the ecosystem. Best species and variety selection as well as effectiveness of production practices will change as aspects of climate changes. Invasive species are a particular problem in the dry cold desert ecosystem as small changes in climate can shift the competitive relationship among plant species. This can have a significant effect on plant community diversity and rangelands productivity. Periodic and sustained drought is another critical factor in the success of agriculture in Wyoming. Some evidence suggests that drought and other climate variability may be more of a factor as the climate warms. In addition, strategies to control global warming will likely create opportunities for Wyoming agriculture to both profit and contribute to mitigation of forces driving change in climate.

Wyoming's distinct high desert ecosystem defines the challenges for agriculture in the state and thus the research and extension agenda for the University of Wyoming Agricultural Experiment Station and Cooperative Extension Service. Basic work in carbon storage in such ecosystems, the implications of agricultural and land management practices on storage, and education related to these questions are key challenges. Plant species and variety adaption to the changing ecosystem will be critical to maintaining the agricultural productivity for the state. Understanding the implications of drought for grasslands and

cropping ecosystem management and informing land managers and producers is also a critical challenge. The implications of climate change for invasive species and ecosystem management implications are important opportunities for UW AES and CES.

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

Educators and faculty in the College of Agriculture and Natural Resources have the expertise to plan, implement, and evaluate programs for agriculture and horticulture audiences. Extension educators have established solid networks and support in many areas throughout Wyoming to assist agriculture producers, commodity groups, and agencies in addressing climate change issues concerning agriculture production and urban horticulture. National support from the United States Department of Agriculture would provide sufficient financial resources to support planning and programming on this topic. Funding will be secure throughout the course of the project. People will be motivated to gain awareness, knowledge and practices. Individuals will incorporate new practices. Educators can serve as catalysts for change.

2. Ultimate goal(s) of this Program

One of the most challenging issues facing our world today is change in the earth's climate. This has particular importance for agriculture because environment, climate and weather are such critical factors in the production system. The ultimate goal of this program is to develop research and extension educational programs which increase the capacity for agriculture producers to adjust to small changes in climate.

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
2012	3.0	0.0	4.0	0.0
2013	3.0	0.0	4.0	0.0
2014	3.0	0.0	4.0	0.0
2015	3.0	0.0	4.0	0.0
2016	3.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

UW Research and Extension activities will focus on best species and variety selection as well as effectiveness of production practices as aspects of climate changes. Invasive species, and drought will be addressed through educational programs which enhance strategies to control global warming and will likely create opportunities for Wyoming agriculture to both profit and contribute to mitigation of forces driving change in climate.

Basic work in carbon storage in ecosystems, the implications of agricultural and land management practices on storage, and education related to these questions will be addressed. Plant species and variety adaption to the changing ecosystem will be critical to maintaining the agricultural productivity for the state. Educational programs will help producers and land managers understand the implications of drought for grasslands and cropping ecosystem management. The implications of climate change for invasive species and ecosystem management implications are important opportunities for UW AES and CES.

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☐ Public Service Announcement
☑ Workshop	☐ Billboards
☐ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☐ Demonstrations	☑ Web sites
☑ Other 1 (Field days)	☑ Other 1 (Refereed Publications)
☐ Other 2	☑ Other 2 (Research)

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Specific target audience groups for the climate change program include agriculture producers, commodity groups, and agriculture agencies. Horticulture and small acreage audiences will also benefit from water conservation and risk management components of the program.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	100	1000	0	0
2013	100	1000	0	0
2014	200	1000	0	0

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2015	200	1000	0	0
2016	200	1000	0	0

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

2012:0 **2013:**1 **2014:**1 **2015:**1 **2016:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	1	0	1
2013	2	1	3
2014	2	1	3
2015	3	1	4
2016	2	1	3

V(H). State Defined Outputs

1. Output Target

- Number of agriculture producers participating in educational programs. Target is number of program participants.
  2012:200 **2013:**200 **2014:**300 **2015:**300 **2016:**300

- Number of educational programs conducted targeting climate change. Target is the number of programs.
  2012:5 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Research: Evaluation of production practices in the face of climate changes. Target is number of research projects.
  2012:100 **2013:**100 **2014:**200 **2015:**500 **2016:**2

- Research: Determine the relationship between climate change and competition among native and invasive plant species. Target is number of research projects.
  2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**1

- Research: Evaluate strategies to mitigate release of greenhouse gases into the atmosphere. Target is number of research projects.
  2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**2

V(I). State Defined Outcome

O. No	Outcome Name
1	Awareness created through extension and research efforts. Target is the number of participants in extension and research programs reporting that they have gained awareness on topic.
2	Agriculture, horticulture and small acreage participants will increase awareness of climate change and the impact on horticulture production. Target is number of participants reporting outcome.
3	Producers will implement practices in animal and plant production which will mitigate climate change. Target is the number of producers reporting outcome.
4	Research: Create awareness of production practices, invasive plant species, and potential to mitigate greenhouse gas emissions in the face of climate change. Target is number of projects reporting this outcome.

Outcome # 1

1. Outcome Target

Awareness created through extension and research efforts. Target is the number of participants in extension and research programs reporting that they have gained awareness on topic.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:50 **2013:**100 **2014:**200 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☑ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 112 - Watershed Protection and Management
- ☑ 132 - Weather and Climate
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 205 - Plant Management Systems
- ☑ 306 - Environmental Stress in Animals
- ☑ 307 - Animal Management Systems
- ☑ 605 - Natural Resource and Environmental Economics
- ☐ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Agriculture, horticulture and small acreage participants will increase awareness of climate change and the impact on horticulture production. Target is number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:50 **2013:**100 **2014:**100 **2015:**100 **2016:**100

3. Associated Knowledge Area(s)

- ☑ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 112 - Watershed Protection and Management
- ☑ 132 - Weather and Climate
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 205 - Plant Management Systems
- ☑ 306 - Environmental Stress in Animals
- ☑ 307 - Animal Management Systems
- ☑ 605 - Natural Resource and Environmental Economics
- ☐ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 3

1. Outcome Target

Producers will implement practices in animal and plant production which will mitigate climate change. Target is the number of producers reporting outcome.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:5	**2013:**10	**2014:**25	**2015:**50	**2016:**50

3. Associated Knowledge Area(s)

- ☑ 104 - Protect Soil from Harmful Effects of Natural Elements
- ☑ 112 - Watershed Protection and Management
- ☑ 132 - Weather and Climate
- ☑ 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- ☑ 205 - Plant Management Systems
- ☑ 306 - Environmental Stress in Animals
- ☑ 307 - Animal Management Systems
- ☑ 605 - Natural Resource and Environmental Economics
- ☐ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- [x] 1862 Extension
- [ ] 1862 Research

Outcome # 4

1. Outcome Target

Research: Create awareness of production practices, invasive plant species, and potential to mitigate greenhouse gas emissions in the face of climate change. Target is number of projects reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:1 **2013:**2 **2014:**2 **2015:**3 **2016:**3

3. Associated Knowledge Area(s)

- [x] 104 - Protect Soil from Harmful Effects of Natural Elements
- [ ] 112 - Watershed Protection and Management
- [x] 132 - Weather and Climate
- [x] 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- [x] 205 - Plant Management Systems
- [ ] 306 - Environmental Stress in Animals
- [x] 307 - Animal Management Systems
- [ ] 605 - Natural Resource and Environmental Economics
- [ ] 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- [ ] 1862 Extension
- [x] 1862 Research

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

Description

Weather extremes and drought may affect program participation. Funding is vital to this new program, changes in appropriations could impact funding. Additionally, global market changes impact both research and extension programs in agriculture.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☐ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Programs will be formally evaluated with written questionnaire feed back by producers in attendance at educational events. In some cases, follow-up phone calls will be included in the evaluation process.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☑ Telephone

- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☐ Case Study
- ☑ Observation
- ☐ Portfolio Reviews
- ☐ Tests
- ☐ Journals
- ☐ Other

Description

A variety of methods will be utilized to gather evaluation data. End of session evaluations will be distributed. Group and individual follow-up with program participants using mail, telephone, and in-person discussions will provide data on implementation of new practices. Observation will also be used with individual producers who have participated in educational activities.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

The University of Wyoming College of Agriculture and Natural Resources research and extension efforts in sustainable energy will focus on efficiency and conservation specifically in relation to farm and agriculture production. In addition, residential and public conservation education will be targeted toward the general public and businesses. In 2009, UW CES partnered with the School of Energy Resources at UW to fund an Energy Extension Coordinator who provides leadership and coordination for extension energy programs in the College. Initial training for field extension educators is planned; a Western SARE grant was obtained by Montana State University in collaboration with the UW CES Energy Extension Coordinator to implement a Western Region training on energy issues. In addition to educational programs to raise awareness and knowledge, CES plans development of a Web site for information, publications, and a set of educational videos. To maximize outreach efforts, partnerships will be developed with the College of Engineering and Applied Science, School of Energy Resources, the Wyoming State Energy Office, Wind Energy Research Center, USDA Rural Development, Natural Resource Conservation Service, and the Wyoming Business Council.

The State of Wyoming is well known for being a critical source of the nation's supply of natural resources. For example, 37 different states utilize Wyoming's coal to generate electricity. Wyoming also has experienced significant economic growth over the last decade due to revenue generated from taxes and royalties paid by the gas, oil, and coal industries. Because fossil fuels are essentially an irreplaceable base for Wyoming's vibrant energy industry, the University of Wyoming's College of Agriculture and Natural Resources strives to conduct research and direct extension programming efforts to help ensure prudent use of the state's precious resources. In addition to fossil fuel resources, Wyoming also possesses abundant renewable energy resources including wind, solar, hydroelectric, geothermal, and biomass. Both small-scale, such solar photovoltaics or geothermal heat bumps, and utility-scale, primarily wind energy, will be addressed. Development of renewable technologies such as specific systems that can be used in agriculture production and/or farmsteads and small-scale power generation where power can be sold such as wind energy will be addressed. UW currently has ongoing research in biomass processing and transportation. As an energy rich state, conservation and preservation of our natural resources, both land and water is an ongoing effort for both extension and research.

UW will continue research efforts on carbon capture technologies (reducing CO2 emissions from utilization of fossil fuels). Other projects include photosynthetic bacteria hydrogen production as a source of renewable energy; and various oilseed crops as potential feedstock for biodiesel production. UW CES, through an internal energy grant program, purchased an oilseed press which will be utilized in demonstrations. UW is involved in a multistate research project that is evaluating various forage crops for cellulosic biofuel production (ethanol). The College of Agriculture and Natural Resources participates heavily with the Reclamation and Restoration Center for projects focusing on evaluation of natural resource management related to energy development, reclamation of mined sites and wind energy development. Many investigators in Agriculture and Applied Economics are involved in evaluating energy development and rural communities, as well as the value of natural resources (helping federal agencies make informed decisions about utilization of public lands and water).

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	20%		20%	
121	Management of Range Resources	20%		20%	
131	Alternative Uses of Land	0%		10%	
133	Pollution Prevention and Mitigation	0%		10%	
401	Structures, Facilities, and General Purpose Farm Supplies	10%		10%	
402	Engineering Systems and Equipment	20%		20%	
608	Community Resource Planning and Development	30%		10%	
	Total	100%		100%	

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

1. Situation and priorities

The State of Wyoming is well known for being a critical source of the nation's supply of natural resources. For example, 37 different states utilize Wyoming's coal to generate electricity. Wyoming also has experienced significant economic growth over the last decade due to revenue generated from taxes and royalties paid by the gas, oil, and coal industries. Because fossil fuels are essentially an irreplaceable base for Wyoming's vibrant energy industry, the University of Wyoming's College of Agriculture and Natural Resources strives to conduct research and direct extension programming efforts to help ensure prudent use of the state's precious resources.

The federal government's objective to create a more sustainable energy sector has renewed emphasis on finding ways to use Wyoming's fossil fuels in a cleaner, more environmentally friendly manner. Additionally, the passage of the American Clean Energy and Security Act of 2009 (H.R. 2454) along with provisions in the Clean Energy Jobs and American Power Act has prompted investigations into utilization of the state's renewable resources. Results of a poll conducted in 2008 demonstrated that Wyoming residents favored a variety of solutions to meet the nation's energy needs, including near-unanimous support for the development and use of renewable energy. Ninety-seven percent of the respondents indicated support for wind power.

The federal government is the proprietor of approximately 49 percent of the surface and 66 percent of the subsurface in Wyoming. Congress expressed its sense that 10,000 MW of electricity from non-hydro renewable resources should be generated from public lands. The College of Agriculture and Natural Resources is in a unique position to help make sound science-based decisions on use of natural resources to develop new sources of renewable energy.

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

1) Information exists that can improve the sustainability of energy efforts in Wyoming. 2) UW College of Agriculture and Natural Resources personnel are dedicated to collection and distribution of non-biased, research-based information. 3) People will be interested in renewable energy, energy conservation, and reclamation efforts and will be motivated to change practices. 4) Increased understanding of the biofuel industry will increase participation by Wyoming farmers. 5) Adoption of recommended practices will lead to sustainability of energy resources in Wyoming. 6) Funding will be secure for speaker honorariums, facilitation, travel, accommodations, publications, and media.

2. Ultimate goal(s) of this Program

The University of Wyoming's College of Agriculture and Natural Resources strives to conduct research and direct extension programming efforts to help ensure prudent use of the state's precious resources.

Both UW AES and CES are in a unique position to help citizens make sound science-based decisions on the use of natural resources to develop new sources of renewable energy.

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

Year	Extension		Research	
	1862	1890	1862	1890
2012	4.0	0.0	3.0	0.0
2013	4.0	0.0	4.0	0.0
2014	4.0	0.0	5.0	0.0
2015	4.0	0.0	5.0	0.0
2016	4.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Media will be used to familiarize the public with UW College of Agriculture and Natural Resources areas of programming and personnel in regard to sustainable energy. Media releases in local newspapers, radio spots and television advertisements will inform the public of upcoming extension programs. Newsletter articles distributed both electronically and through the mail by county offices, area teams, and the University of Wyoming will reach general public and agriculture producers locally, regionally, and statewide. Public educational programs with invited speakers and extension specialists and educators presenting research-based information will continue to be held in response to local, state, and national energy sustainability. Demonstrations of technology and skills training will be included in education curriculum to enhance educational effectiveness. Field tours will be organized to provide producers with the opportunity to observe industry procedure (i.e., tour of an ethanol plant).

The Sustainable Agriculture Research and Extension Center (SAREC) located at Lingle, Wyoming will provide a resource base for integrating agriculture production and renewable energy based programs.

Educational programs will emphasize sustainable energy practices such as bio-fuels and wind energy, reclamation and restoration of disturbed lands, and energy conservation practices. Other methods will include individual interaction with landowners educating them on resources available to assist them with sustainable energy practices. UW CES will provide coordination with other colleges on the UW campus such as Engineering and the School of Energy Resources, state and federal agencies to provide education on this topic, and funding for this effort. UW CES will also provide educational opportunities for professionals involved with reclamation and restoration of disturbed lands.

The University of Wyoming's College of Agriculture and Natural Resources will conduct research and direct extension programming efforts to help ensure prudent use of the state's precious resources.

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

Extension

Direct Methods	Indirect Methods

☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (AES Field Days)	☑ Other 1 (Research)
☐ Other 2	☑ Other 2 (Publications)

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Participants will include policy makers for county, state, and federal government agencies, crop producers, livestock producers, energy companies, general public, and the scientific community. An existing secondary audience will be the media, general public, and interest groups not directly involved in production agriculture (i.e., environmental groups). Energy conservation methods will be targeted at both agriculture and general public audiences.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	100	2000	100	1000
2013	200	2000	100	1000
2014	200	5000	100	1000
2015	200	5000	100	1000
2016	200	5000	100	1000

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

2012:1 **2013:**1 **2014:**1 **2015:**1 **2016:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	3	3	6
2013	4	3	7
2014	5	3	8

Year	Research Target	Extension Target	Total
2015	5	3	8
2016	5	3	8

V(H). State Defined Outputs

1. Output Target

- Number of individuals participating in sustainable energy programs. Target is the number of contacts.

  2012:100 **2013:**100 **2014:**100 **2015:**200 **2016:**200

- Determine ecosystem services affected by energy development and reclamation efforts. Target is number of publications, reports, bulletins, and presentations.

  2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**15

- Evaluate the potential for production of bioenergy. Target is number of publications, reports, bulletins, and presentations.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**5

- Number of educational programs or activities focusing on sustainable energy by CES. Target is the number of educational programs implemented.

  2012:4 **2013:**5 **2014:**5 **2015:**5 **2016:**5

- Number of collaborative partnerships formed to address sustainable energy in Wyoming. Target is the number of partnerships.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**5

V(I). State Defined Outcome

O. No	Outcome Name
1	Awareness created focusing on sustainable energy topics. Target is the number of individuals reporting this outcome.
2	Partnerships will be developed with agencies and organizations to expand sustainable energy efforts. Target is the number of partnerships formed.
3	New technologies or devices used in ag production systems and/or farmsteads. Target is the number of new technologies developed.
4	Research: Create awareness of ecosystem services affected by energy development and reclamation efforts. Target is number of projects reporting this outcome.
5	Research: Create awareness on the potential to produce bioenergy. Target is number of projects reporting this outcome.

Outcome # 1

1. Outcome Target

Awareness created focusing on sustainable energy topics. Target is the number of individuals reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**100

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 121 - Management of Range Resources
- ☑ 131 - Alternative Uses of Land
- ☑ 133 - Pollution Prevention and Mitigation
- ☑ 401 - Structures, Facilities, and General Purpose Farm Supplies
- ☑ 402 - Engineering Systems and Equipment
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☑ 1862 Research

Outcome # 2

1. Outcome Target

Partnerships will be developed with agencies and organizations to expand sustainable energy efforts. Target is the number of partnerships formed.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:3 **2013:**5 **2014:**7 **2015:**7 **2016:**7

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 121 - Management of Range Resources

- ☐ 131 - Alternative Uses of Land
- ☐ 133 - Pollution Prevention and Mitigation
- ☑ 401 - Structures, Facilities, and General Purpose Farm Supplies
- ☑ 402 - Engineering Systems and Equipment
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 3

1. Outcome Target

New technologies or devices used in ag production systems and/or farmsteads. Target is the number of new technologies developed.

2. Outcome Type :

- ◉ Change in Knowledge Outcome Measure
- ◯ Change in Action Outcome Measure
- ◯ Change in Condition Outcome Measure

2012:1 **2013:**1 **2014:**2 **2015:**2 **2016:**2

3. Associated Knowledge Area(s)

- ☐ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 121 - Management of Range Resources
- ☐ 131 - Alternative Uses of Land
- ☐ 133 - Pollution Prevention and Mitigation
- ☑ 401 - Structures, Facilities, and General Purpose Farm Supplies
- ☑ 402 - Engineering Systems and Equipment
- ☐ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 4

1. Outcome Target

Research: Create awareness of ecosystem services affected by energy development and reclamation efforts. Target is number of projects reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:4 **2013:**4 **2014:**4 **2015:**4 **2016:**4

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☑ 121 - Management of Range Resources
- ☑ 131 - Alternative Uses of Land
- ☐ 133 - Pollution Prevention and Mitigation
- ☐ 401 - Structures, Facilities, and General Purpose Farm Supplies
- ☑ 402 - Engineering Systems and Equipment
- ☑ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

Outcome # 5

1. Outcome Target

Research: Create awareness on the potential to produce bioenergy. Target is number of projects reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**2

3. Associated Knowledge Area(s)

- ☑ 102 - Soil, Plant, Water, Nutrient Relationships
- ☐ 121 - Management of Range Resources
- ☐ 131 - Alternative Uses of Land
- ☑ 133 - Pollution Prevention and Mitigation
- ☑ 401 - Structures, Facilities, and General Purpose Farm Supplies
- ☑ 402 - Engineering Systems and Equipment

- ☐ 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

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

Description

Funding for this new program will be essential in development and implementation of both research and extension efforts. Weather extremes may be a factor in agriculture production outcomes regarding crops for alternative fuels.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

A variety of evaluation methods will be used for educational programs including end of session

evaluations, follow-up evaluations by phone, mail, or electronic communication, observation, pre- and post-tests. Data will be gathered to document data for outcomes and outputs.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☐ Telephone
- ☐ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☐ Case Study
- ☑ Observation
- ☐ Portfolio Reviews
- ☐ Tests
- ☐ Journals
- ☐ Other

Description

A variety of methods will be utilized dependent on audience and type of educational event.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Childhood Obesity, Nutrition, and Health

2. Brief summary about Planned Program

The University of Wyoming College of Agriculture and Natural Resources primary objective in this planned program on childhood obesity, nutrition and health is to promote the health and well-being of children, adolescents, and adults so that throughout life they practice healthy nutrition and lifestyle habits.

To prevent and reduce childhood obesity UW Cooperative Extension will utilize strategies to promote lifelong, healthy eating habits, and physical activity among young people. Developing networks with schools, other youth serving organizations and agencies, and health professionals will be vital to reach targeted youth. CES programs such as 4-H and EFNEP currently work with youth and will provide opportunities to build upon existing special interest and traditional nutrition programs for children. In addition, families of youth need to gain knowledge and skills in nutrition, food preparation, and the importance of physical activity to make this programming successful. Professional development for extension educators working in 4-H and nutrition will be necessary to develop technical skills.

The health of our citizens is greatly influenced by their food choices and degree of physical activity. Rising rates of obesity and overweight among adults and children resulting from poor nutrition and physical inactivity increase their risk of chronic disease. Negative body image also contributes to poor nutrition and inactivity among many individuals. The UW Cooperative Extension Service faces challenges in addressing program priorities and actions that must address the changes occurring in the United States today. The orientation of food and nutrition research and education are addressed toward health priorities. High-quality educational and research programs have the potential to affect food behavior and to help promote better health of Wyoming residents.

CES's Dining with Diabetes program addresses Type 2 diabetes, the most common metabolic disease in the world. In the U.S. alone, the associated health care cost exceeds $130 billion per year. Many studies have demonstrated that with proper nutrition and consistent physical activity habits, Type 2 diabetes can be delayed, controlled, or even prevented. The program modeled after the Dining with Diabetes program started in West Virginia, includes a series of classes which cover nutrition, physical activity, food demonstrations, and sampling of healthy, tasty food.

Research will focus on fetal nutrient deficiency in human pregnancy which occurs due to a variety of situations, such as maternal malnutrition, reduced placental efficiency, adolescence pregnancy, closely spaced pregnancy, pregnancy with multiple fetuses and hyperemesis gravid arum, which has long-term consequences for offspring health, including high incidences of obesity and Type 2 diabetes. Much of this research is being done with model systems using sheep and is a collaborative effort involving scientists from several states and different colleges.

In Wyoming the Extension Food Nutrition Education Program (EFNEP) is integrated with the Supplemental Nutrition Assistance Program Education (SNAP-Ed) to form the Cent$ible Nutrition Program. EFNEP is in two counties, Natrona and Laramie.

3. Program existence :

- ○ New (One year or less)
- ◉ Intermediate (One to five years)
- ○ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
305	Animal Physiological Processes	0%		50%	
703	Nutrition Education and Behavior	80%		50%	
704	Nutrition and Hunger in the Population	10%		0%	
724	Healthy Lifestyle	10%		0%	
	Total	100%		100%	

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

1. Situation and priorities

Childhood obesity has more than tripled in the past 30 years. The prevalence of obesity among children aged 6 to 11 years increased from 6.5% in 1980 to 19.6% in 2008. The prevalence of obesity among adolescents aged 12 to 19 years increased from 5.0% to 18.1%.

Childhood obesity has both immediate and long-term health impacts:

• Obese youth are more likely to have risk factors for cardiovascular disease, such as high cholesterol or high blood pressure. In a population-based sample of 5- to 17-year-olds, 70% of obese youth had at least one risk factor for cardiovascular disease.

• Obese children and adolescents are more likely to become obese as adults. One study found that approximately 80 percent of children who were overweight at age 10 to 15 years were obese adults at age 25 years. Another study found that 25 percent of obese adults were overweight as children. The latter study also found that if overweight begins before 8 years of age, obesity in adulthood is likely to be more

severe, and therefore more at risk for associated adult health problems, including heart disease, type 2 diabetes, stroke, several types of cancer, and osteoarthritis.

• Approximately 13,000 of 57,000 Wyoming children ages 10 to17 years (22.9%) are considered overweight or obese according to BMI for age standards. Wyoming ranks third among the 50 states and D.C. in overall prevalence.

Wyoming residents are at risk as reflected by various health-related data. For example, over 20 percent of Wyoming adults report no leisure time physical activity; 47 percent of Wyoming high school students report not being enrolled in a physical education class; and, 78 percent of both Wyoming adults and high school students do not eat recommended amounts of fruits and vegetables. Additionally, research in Wyoming, Montana, and Idaho documented body dissatisfaction as a significant predictor of self-consciousness keeping respondents from participating in physical activity.

Adipose tissue development begins during development in utero, but the vast majority of adipose tissue growth occurs postnatally. Early postnatal growth of adipose tissue is driven by hyperplasia or proliferation of undifferentiated preadipocytes and subsequent hypertrophy of adipocytes, characterized by accumulation of storage lipids. While regulation of postnatal lipogenesis has been characterized reasonably well, relatively little information is available on the biological mechanisms by which maternal nutrition alters adipose tissue growth and development in offspring. UW AES researchers intend to investigate the role of maternal nutrition in programming of pre- and postnatal body composition.

Rates of diabetes are reaching epidemic proportions. Over 18 million Americans have this disease, and another 41 million have prediabetes, a condition that may lead to diabetes. Wyoming statistics are also alarming. In 2003, an estimated 21,500 people in Wyoming (5.8% of adults) had been told that they have diabetes, and nearly 8,000 additional individuals have diabetes but are unaware of it.

When the USDA released the Dietary Guidelines for Americans in 2005, Tommy G. Thompson, then Secretary of Health and Human Services, identified the number one message of the new guidelines as getting the most nutrition out of calories consumed. Number two was finding a balance between food and physical activity. The key recommendations include an emphasis on increased consumption of fruits and vegetables, whole grains, and low-fat dairy and increased physical activity.

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

Educators and faculty in the College of Agriculture and Natural Resources have the expertise to plan, implement, and evaluate community-based programs for audiences. Extension educators have established solid networks and support in many areas throughout Wyoming to assist community leaders in addressing nutrition issues concerning children, youth, and families. National support from the United States Department of Agriculture would provide sufficient financial resources to support planning and

programming in communities. Funding will be secure throughout the course of the project. People will be motivated to gain awareness, knowledge and skills. Individuals will incorporate skills and change behaviors. Educators can serve as catalysts for change.

In the 35 plus years EFNEP has been in existence, evaluation data shows the educational activities help limited resource families change behavior. Hands on activities in small groups are effective methods with low income families.

2. Ultimate goal(s) of this Program

The University of Wyoming College of Agriculture and Natural Resources primary objective in this planned program on childhood obesity, nutrition and health is: to promote the health and well-being of children and adolescents so they become healthy and well-functioning adults.

Goals of additional educational activities of the nutrition and health program:

Diet Quality: Individuals, Families and Household level: 1) Increased adoption of healthy food practices 2) Participation in regular physical activity. Food Resource Management: Individuals, Families and Household level will: 1) Use a variety of food resources to reduce food costs, 2) Provide culturally acceptable meals that are balanced for cost as well as for nutritional value.

Dining with Diabetes: the ultimate goal of this program is to provide educational programs that increase the likelihood that people make healthy food choices consistent with the most recent Dietary Guidelines for Americans and My Pyramid. Through food and nutrition education, seek to improve the health and lives of patients with diabetes and their families.

EFNEP: the goal is to provide educational programs that increase the likelihood that people make healthy food choices consistent with the most recent Dietary Guidelines for Americans and MyPyramid.

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
2012	13.0	0.0	4.0	0.0
2013	13.0	0.0	4.0	0.0
2014	13.0	0.0	4.0	0.0
2015	13.0	0.0	4.0	0.0
2016	13.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Nutrition efforts will focus on educational programs which increase knowledge and skills in nutrition needs of children and incorporate physical activity into lifestyle; media outreach; health fairs; training; assessment/data collection. Programs which teach body size acceptance will also be targeted to youth.

EFNEP adult curriculum taught in a series of lessons; adult one-time lessons; youth curricula taught in a series of lessons and day camps; displays and demonstrations; state and community partnerships with agencies serving the low-income; training for educators; evaluation of program; Ongoing- Updating of curricula and materials.

Since skeletal muscle is the main site for utilization of glucose and fatty acids in the body and insulin resistance in skeletal muscle is the key step in the incidence of type 2 diabetes, we hypothesize that impaired fetal skeletal muscle growth due to nutrient deficiency plays an important role. Our goal is to understand how the development of fetal skeletal muscle affects the properties of skeletal muscle of adulthood, and to develop effective strategies to mitigate or avoid incidence of diabetes and obesity caused by impaired skeletal muscle development due to fetal nutrient deficiency.

UW AES researchers intend to investigate the role of maternal nutrition in programming of pre- and postnatal body composition.

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☑ Group Discussion	☑ Newsletters
☐ One-on-One Intervention	☑ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Health Fairs)	☑ Other 1 (Publications)
☑ Other 2 (Camps)	☐ Other 2

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Specific target audience groups for the CNP (EFNEP) program: Low-income adults, Youth in Title I schools.

All other nutrition efforts targeted audience includes: general public, both adults and youth and policy makers.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	1000	4000	500	3000

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2013	1000	4000	1500	3000
2014	1000	4000	1500	3000
2015	1000	4000	1500	3000
2016	1000	4000	1500	3000

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

2012:0 **2013:**1 **2014:**1 **2015:**1 **2016:**1

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	3	1	4
2013	3	1	4
2014	3	1	4
2015	3	1	4
2016	3	2	5

V(H). State Defined Outputs

1. Output Target

- Number of educational programs delivered to youth. Target is number of programs.

  2012:20 **2013:**20 **2014:**30 **2015:**50 **2016:**50

- Number of youth participating in educational program targeting childhood obesity. Target is number of youth participating.

  2012:200 **2013:**200 **2014:**500 **2015:**500 **2016:**500

- Number of partnerships formed in local counties of professionals to collaborate on childhood obesity,nutrition, and health issues. Target is number of partnerships formalized.

  2012:5 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Research: Conduct research and present results on obesity, nutrition, and health. Target is number of publiations, reports, bulletins, and presentations.

  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Number of participants in educational programs offered in Nutrition initiative. Target is number of participants.

  2012:1500 **2013:**1500 **2014:**1500 **2015:**1500 **2016:**1500

- Increased adoption of healthy food practices and participation in regular physical activities. Target is number of participants reporting outcome.

  2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

V(I). State Defined Outcome

O. No	Outcome Name
1	Improved knowledge of food guide pyramid, serving sizes, and physical activity. Targets are the number of participants reporting outcome.
2	Improved eating behavior practices, food choices, and lifestyle habits. Targets are the number of participants reporting outcome.
3	Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skills in selection of healthy foods; improved body image. Target is number of participants reporting outcome.
4	Youth incorporate skills and change behaviors related to: increased physical activity; increased knowledge of healthy food choices; improved selection of healthy foods; understanding of serving sizes; improved body image.
5	Youth and families experience: improved nutritional health; reduced medical costs; health improved through community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.
6	Research: Create awareness of relationships between obesity, nutrition, and health. Target is number of projects reporting this outcome.

Outcome # 1

1. Outcome Target

Improved knowledge of food guide pyramid, serving sizes, and physical activity. Targets are the number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:200	**2013:**500	**2014:**500	**2015:**500	**2016:**500

3. Associated Knowledge Area(s)

- ☐ 305 - Animal Physiological Processes
- ☑ 703 - Nutrition Education and Behavior
- ☐ 704 - Nutrition and Hunger in the Population
- ☐ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

Improved eating behavior practices, food choices, and lifestyle habits. Targets are the number of participants reporting outcome.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100	**2013:**200	**2014:**500	**2015:**500	**2016:**500

3. Associated Knowledge Area(s)

- ☐ 305 - Animal Physiological Processes
- ☑ 703 - Nutrition Education and Behavior
- ☐ 704 - Nutrition and Hunger in the Population
- ☑ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- [x] 1862 Extension
- [ ] 1862 Research

Outcome # 3

1. Outcome Target

Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skills in selection of healthy foods; improved body image. Target is number of participants reporting outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:200 **2013:**200 **2014:**500 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- [ ] 305 - Animal Physiological Processes
- [x] 703 - Nutrition Education and Behavior
- [ ] 704 - Nutrition and Hunger in the Population
- [ ] 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- [x] 1862 Extension
- [ ] 1862 Research

Outcome # 4

1. Outcome Target

Youth incorporate skills and change behaviors related to: increased physical activity; increased knowledge of healthy food choices; improved selection of healthy foods; understanding of serving sizes; improved body image.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:100 **2013:**100 **2014:**200 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☐ 305 - Animal Physiological Processes
- ☑ 703 - Nutrition Education and Behavior
- ☐ 704 - Nutrition and Hunger in the Population
- ☐ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 5

1. Outcome Target

Youth and families experience: improved nutritional health; reduced medical costs; health improved through community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ◉ Change in Condition Outcome Measure

2012:50	**2013:**100	**2014:**200	**2015:**300	**2016:**300

3. Associated Knowledge Area(s)

- ☐ 305 - Animal Physiological Processes
- ☑ 703 - Nutrition Education and Behavior
- ☐ 704 - Nutrition and Hunger in the Population
- ☐ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 6

1. Outcome Target

Research: Create awareness of relationships between obesity, nutrition, and health. Target is number of projects reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**3 **2015:**3 **2016:**3

3. Associated Knowledge Area(s)

- ☑ 305 - Animal Physiological Processes
- ☑ 703 - Nutrition Education and Behavior
- ☐ 704 - Nutrition and Hunger in the Population
- ☐ 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

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

Description

Many conditions and situations that exist in Wyoming are similar to those in other parts of the country, for example, the following:

• Food choices made available and advertised to consumers by producers; • Access to timely and accurate information; • Coordination and cooperation of federal agencies and state partners, schools and other youth agencies; • Existence of local collaboration; • Level of funding at federal, state and local level; and • Willingness of community organizations, to collaborate with Wyoming Cooperative Extension Service.

If EFNEP funding is decreased, appropriations will impact program delivery. Population changes impact limited resource audiences eligible for program.

Availability of funding for research in childhood obesity.

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

1. Evaluation Studies Planned

- ☐ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☑ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

Systematic evaluation utilizing a variety of methods will be used to document outcomes and impact to clientele. This program focuses on: nutrition for youth; physical activity; and body image acceptance. Educational activities will use written evaluations following the program, as follow-up; pre- and post -test to measure knowledge and aspirations. Follow-up evaluations with teachers or parents either by mail, phone, or personal visit will document medium and long term outcomes.

2. Data Collection Methods

- ☑ Sampling
- ☐ Whole population

Survey (Mail, Telephone, On-Site).

- ☐ Mail
- ☐ Telephone
- ☐ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☐ Case Study
- ☑ Observation
- ☐ Portfolio Reviews
- ☑ Tests

- ☐ Journals
- ☐ Other

Description

Multiple methods will be used. Sampling will be utilized to gather evaluative data from media education efforts. Surveys, by mail, telephone, or on-site will be used with program participants parents and/or teachers. Observation and unstructured interviews will be used to determine medium to long term outcomes. Tests including pre- and post- will be used to measure knowledge gained.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Microbial contamination of food is a serious public health problem: Each year in the U.S., food-borne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths. With approximately 60% of food-borne illness outbreaks nationwide attributable to food-service establishments, food-service personnel are key to reducing the risk of food-borne illness. Additionally, home food preparers and consumers are important groups to reach with food safety education because their behaviors greatly affect the safety of food that they serve to others and/or eat themselves. USDA grants helped establish the Wyoming Food Safety Coalition (WFSC). For over 15 years WFSC has involved a partnership between UW CES, Wyoming Department of Agriculture, Department of Health and local environmental health specialists to deliver food safety training to food service personnel; schools; and consumers. The college is currently developing new, faster, more accurate, techniques for detection of E. coli and listeria contamination in food animal products.

3. Program existence :

- ○ New (One year or less)
- ○ Intermediate (One to five years)
- ◉ Mature (More than five years)

4. Program duration :

- ○ Short-Term(One year or less)
- ○ Medium-Term (One to five years)
- ◉ Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- ◉ Yes
- ○ No

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

- ◉ Yes
- ○ No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	90%		90%	
	Total	100%		100%	

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

1. Situation and priorities

Food is essential for life and a safe food supply is key to health. This plan seeks to reduce the risk of food-borne illness through research and education that will foster a safe, secure food supply.

Microbial contamination of food is a serious public health problem: Each year in the U.S., food-borne diseases cause approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths. With approximately 60 percent of food-borne illness outbreaks nationwide attributable to food-service establishments, food-service personnel are key to reducing the risk of food-borne illness. Additionally, home food preparers and consumers are important groups to reach with food safety education because their behaviors greatly affect the safety of food that they serve to others and/or eat themselves.

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

Educators and faculty in the College of Agriculture and Natural Resources have the expertise to plan, implement, and evaluate community-based programs for audiences. Extension educators have established solid networks and support in many areas throughout Wyoming to assist community leaders in addressing food safety issues concerning children, youth, and families. National support from the United States Department of Agriculture would provide sufficient financial resources to support planning and programming in communities. Funding will be secure throughout the course of the project. People will be motivated to gain awareness, knowledge and skills. Individuals will incorporate skills and change behaviors. Educators can serve as catalysts for change.

In the 35 plus years EFNEP has been in existence, evaluation data shows the educational activities

help limited resource families change behavior. Hands on activities in small groups are effective methods with low income families.

2. Ultimate goal(s) of this Program

Food service industry in Wyoming, individuals and families experience decreased incidence of food-borne illnesses.

Food Safety: Individuals, Families and Household level will have: 1) Improved personal hygiene such as hand washing, 2) Avoidance of cross-contamination, 3) Keeping foods at safe temperatures.

Individuals and families who use home food preservation techniques will adopt research based practices to ensure safe food products.

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
2012	3.0	0.0	2.0	0.0
2013	3.0	0.0	2.0	0.0
2014	3.0	0.0	2.0	0.0
2015	3.0	0.0	2.0	0.0
2016	3.0	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Cooperative Extension collaborates with the Wyoming Department of Agriculture, Consumer Health Division and Wyoming Environmental Health Association, and local health agencies in partnership as the Wyoming Food Safety Coalition. Educational efforts include a series of workshops or classes targeting food industry personal. In addition, utilizing ServSafe, the certification course of the National Restaurant Association in depth classes which include end of session certification testing are conducted. Classes, workshops, displays, and demonstrations are used to reach a general consumer audience. Youth are reached through school programs on handwashing and avoidance of cross contamination.

Educational programs on food preservation including pressure and water-bath canning, freezing, and drying foods will be delivered using multiple methods to ensure safety of the end product.

Research will focus on more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately deliniate genes that promote survival in the environment and result in disease

contamination of food.

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

Extension

Direct Methods	Indirect Methods
☑ Education Class	☑ Public Service Announcement
☑ Workshop	☐ Billboards
☐ Group Discussion	☑ Newsletters
☑ One-on-One Intervention	☐ TV Media Programs
☑ Demonstrations	☑ Web sites
☑ Other 1 (Research)	☑ Other 1 (Publications)
☑ Other 2 (News articles)	☐ Other 2

3. Description of targeted audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Specific target audience groups for the CNP (EFNEP) program: Low-income adults, Youth in Title I schools. All other food safety efforts targeted audiences include: general public, both adults and youth and policy makers.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	1000	2000	500	1000
2013	1000	2000	500	1000
2014	1000	2000	500	1000
2015	1000	2000	500	1000
2016	1000	2000	500	1000

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

2012:0 **2013:**0 **2014:**1 **2015:**1 **2016:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2012	2	0	2
2013	2	0	2
2014	2	0	2
2015	2	0	2
2016	2	0	2

V(H). State Defined Outputs

1. Output Target

- Research; Evaluate the ability to detect and analyze for the presence of food-borne pathogens. Target is number of publications, reports, bulletins, and presentations.
  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**10

- Number of food safety programs which promote safe handling practices in the public and food service industry.
  2012:10 **2013:**10 **2014:**15 **2015:**15 **2016:**15

- Number of partcipants in educational programs offered by the Wyoming Food Safety Coalition.

  2012:200 **2013:**300 **2014:**500 **2015:**500 **2016:**500

V(I). State Defined Outcome

O. No	Outcome Name
1	Improve personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is the number of participants reporting outcome.
2	Increased awareness and knowledge of food safety practices. Target is the number of participants reporting outcome.
3	Research: Transfer of knowledge on the ability to detect and analyze for the presence of food-borne pathogens. Target is the number of projects reporting this outcome.
4	Research: Research will result in easier, more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately deliniate genes that promote survival in the environment and result in disease contamination of food. Target is the number of projects with results that deomonstrate outcome.
5	Food service industry personnel pass ServSafe certification test. Target is the number of participants who complete course and pass test of the National Restaurant Association.

Outcome # 1

1. Outcome Target

Improve personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is the number of participants reporting outcome.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**200

3. Associated Knowledge Area(s)

- ☐ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 2

1. Outcome Target

Increased awareness and knowledge of food safety practices. Target is the number of participants reporting outcome.

2. Outcome Type :

- ◉ Change in Knowledge Outcome Measure
- ○ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:500 **2013:**500 **2014:**500 **2015:**500 **2016:**500

3. Associated Knowledge Area(s)

- ☐ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

Outcome # 3

1. Outcome Target

Research: Transfer of knowledge on the ability to detect and analyze for the presence of food-borne pathogens. Target is the number of projects reporting this outcome.

2. Outcome Type :

- (●) Change in Knowledge Outcome Measure
- ( ) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**2

3. Associated Knowledge Area(s)

- ☐ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

Outcome # 4

1. Outcome Target

Research: Research will result in easier, more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately deliniate genes that promote survival in the environment and result in disease contamination of food. Target is the number of projects with results that deomonstrate outcome.

2. Outcome Type :

- ( ) Change in Knowledge Outcome Measure
- (●) Change in Action Outcome Measure
- ( ) Change in Condition Outcome Measure

2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**2

3. Associated Knowledge Area(s)

- ☑ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- ☐ 1862 Extension
- ☑ 1862 Research

Outcome # 5

1. Outcome Target

Food service industry personnel pass ServSafe certification test. Target is the number of participants who complete course and pass test of the National Restaurant Association.

2. Outcome Type :

- ○ Change in Knowledge Outcome Measure
- ◉ Change in Action Outcome Measure
- ○ Change in Condition Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**50

3. Associated Knowledge Area(s)

- ☐ 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- ☑ 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- ☑ 1862 Extension
- ☐ 1862 Research

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

Description

Many conditions and situations that exist in Wyoming are similar to those in other parts of the country. External factors could include:

- Access to timely and accurate information.
- Coordination and cooperation of state and local partners.
- Level of funding at federal, state, and local level.
- Willingness of private sector-funders, such as business, foundations, and community organizations, to collaborate with UW CES.
- If EFNEP funding is decreased, appropriations will impact program delivery. Population changes impact limited resource audiences eligible for program.

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

1. Evaluation Studies Planned

- ☑ After Only (post program)
- ☑ Retrospective (post program)
- ☑ Before-After (before and after program)
- ☑ During (during program)
- ☐ Time series (multiple points before and after program)
- ☐ Case Study
- ☐ Comparisons between program participants (individuals, group, organizations) and non-participants
- ☐ Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- ☐ Comparison between locales where the program operates and sites without program intervention
- ☐ Other

Description

National EFNEP reporting program is used. Entry and exit data is collected on program participants. Case studies and success stories are gathered by nutrition educators.

All food safey programs have end of session written evaluations. Periodic follow up surveys are conducted with a sample of all program participants. Participants in ServSafe® classes complete an exam which is scored by the National Restaurant Association for certification purposes.

2. Data Collection Methods

- ☑ Sampling
- ☑ Whole population

Survey (Mail, Telephone, On-Site).

- ☑ Mail
- ☐ Telephone
- ☑ On-Site

Interview

- ☑ Structured
- ☑ Unstructured

- ☐ Case Study

- ☑ Observation
- ☐ Portfolio Reviews
- ☑ Tests
- ☐ Journals
- ☐ Other

Description

Entry and exit interviews and surveys with EFNEP participants. Observation of skills demonstrated regarding food safety practices.

Food safety industry participants complete end of session questionnaires. Follow up on change in practices is conducted by mail three months after program. Observation in the workplace is conducted by partnering agencies. ServSafe® certification training is evaluated through a test scored by the National Restaurant Association.

Pre and post tests and follow-up program data using written surveys, and interview information to determine impact of programs.

State Department of Agriculture and Health data will provide information on number of food-borne illness outbreaks reported in the state.