2012 Colorado State University Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 06/23/2011

I. Plan Overview

1. Brief Summary about Plan Of Work

The Agricultural Experiment Station (AES) and Extension at Colorado State University are committed to excellence in basic and applied research and translation of this research through Extension programs to crop (including ornamental) and animal (including equine) agriculture. Extension will continue to emphasize non-formal education and transfer of knowledge to audiences throughout the state, based on research information from the AES, the colleges of Agricultural Sciences, Applied Human Sciences, Engineering, Veterinary Medicine and Natural Resources. Programs will emphasize best management practices in addressing issues that affect Coloradans. Upon recommendation of NIFA reviewers, the following summary is reformatted so that each program area is presented in the same way and relevant information is more easily retrievable across programs. Five headings are used to organize the summary for each program:

- **Program Goals**
- **Extension, AES, or Integrated**
- **New Programs, and/or Addressing NIFA Priorities**
- **Ongoing, Consistent, and/or Successful Programs**
- **Cross-cutting or Cross-disciplinary Initiatives.**

4-H Youth Development

Program Goals: 4-H will affect positive change in life skills (including leadership, citizenship, decision making, and communication) and in STEM (including interest, knowledge, and application of science process skills) for youth ages 5 to 18.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: STEM priority will benefit from available and promised content and resource support from National 4-H Headquarters, Colorado State University, Extension, and county partners.

Ongoing, Consistent, and/or Successful Programs: Colorado State University Extension reaches Colorado's K-12 youth through 4-H youth development programs in 4-H clubs, after-school and school enrichment. Development of volunteers who provide much of the leadership for 4-H, and private fund-raising are associated activities. 4-H Youth Development emphasizes personal growth of young people through experiential learning with well-designed curricula and projects.

Cross-cutting or Cross-disciplinary Initiatives: Most 4-H Youth Development programs, while focusing on youth development, are built around content that may be supported by one or more college-based specialists.

Family Economic Stability

Program Goals: Family Economic Stability programs will affect positive change in participants' financial knowledge and skills, contributing to their ability to avoid bankruptcy, economic crisis, loss of jobs, and other money-related difficulties. AgrAbility programs will help farmers avoid accidents and reduce incidence of serious injury and disability.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: *DollarWorks2*

Ongoing, Consistent, and/or Successful Programs: Family and Consumer Science (FCS)

programs are experiencing change, driven by a need to focus expertise and programs that are available to meet needs of Coloradans. CSU Extension now seeks to provide applied research and Extension education in a coordinated set of programs related to nutrition and health, food safety, and family economic stability. Financial stability of families is the area of focus for non-nutrition FCS programming. Colorado families' financial instability includes increasing rates of bankruptcy, economic crises and loss of jobs. Working in partnership with state and nongovernmental agencies, agents will deliver *DollarWorks2* and other curricula relevant to individuals and families in difficult economic times. A search is currently underway for a content specialist to support this work. Work teams in parenting and healthy homes have been suspended in order to keep attention on the three determined focus areas for programming. AgrAbility programming will continue. Other grant-funded programs in these areas will continue, but will not report under Planned Programs in 2011.

Cross-cutting or Cross-disciplinary Initiatives: Consumer economics is a vehicle that can assist 4-H in reaching STEM targets.

Food Safety

Program Goals: Food Safety programs will reduce the economic burden and human suffering that can be caused by food-borne illness in the US.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Food Safety will be reconsidered as a stand-alone Extension Work Team in order to more fully address the NIFA priority. Food Safety research and education may be integrated into other Work Teams so that they are not limited to program delivery by FCS agents, but rather viewed as integral in many aspects of AES and Extension outreach.

Ongoing, Consistent, and/or Successful Programs:

- **Food safety training for food service managers and employees**
- **Food safety education for high risk audiences, their caregivers, and health care professionals**
- **Food safety information for consumers including Farmers' Market vendors and their customers.**

Cross-cutting or Cross-disciplinary Initiatives: AES food safety research emphasizes pre-harvest management of livestock to prevent transmission of human pathogens in livestock production and handling and post-harvest detection and management systems to prevent contamination of meat and plant products with human pathogens.

Global Food Security and Hunger

Program Goals: Adoption of improved crop production technologies, wheat cultivars and productive and sustainable agriculture systems will assure communities, families, and individuals have enough food to eat, and that hunger is not a factor in their well-being.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: The AES research program in human nutrition focuses on basic research to understand

- **the interactions between plant composition and human health,**
- **the interrelationships between nutrition, exercise, and human health, and**
- **the basic biochemistry of human nutrition.**

Molecular biology and genomics will open new pathways for crop plant improvement and pest management that support economic development, enhance human health through more nutritious and safer food products, and find fundamental solutions through renewable and sustainable crop production and pest management. Research in animal and plant production systems will inform Extension activities and programs as CSU contributes to solving the dilemmas inherent in this NIFA priority.

Ongoing, Consistent, and/or Successful Programs: AES will focus on fundamental and applied research in breeding, nutrition, physiology, behavior, integrated resource management systems, economics,

health, and range/forage management. Extension outreach will span the breadth of the topics of research to assure that industry participants have practical knowledge in modern plant, beef, dairy, and sheep production systems, biosecurity, economic and risk management, and response to policy and consumer changes. Outreach to youth involved in livestock production and judging events will continue as part of experiential learning in 4-H, FFA, and college judging. Crop production in the state will benefit from AES and Extension through improved crops which resist environmental and biological pests. Producers will realize increased prices and lower cost of production. Consumers will benefit from higher human nutritional values of food.

Cross-cutting or Cross-disciplinary Initiatives: This work of necessity will include animal and plant production systems and will integrate Extension education in disseminating research results. CSU Extension will:

- **Conduct basic and applied research in animal and plant productions systems;**
- **Deliver workshops and educational classes for producers;**
- **Communicate results through demonstration plots and field days;**
- **Provide individual counseling for producers and clientele on specific animal and plant production problems.**

"Wheat Improvement" is a well-organized and highly-functioning Extension work team that will maintain its structure and contribute to the NIFA priority goal of global food security.

Cross-cutting or Cross-disciplinary Initiatives: As recommended by NIFA reviewers, CSU Extension's Work Teams for animal production and plant production systems work teams were combined with the goal of global food security.

Natural Resources and Environment

Program Goals: Programs will sustain and/or improve the quality and quantity of Colorado's natural resources and environment.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: The Census of Agriculture reports decreasing numbers of mid- and large-sized farms and a significant increase in the number of small farms. Small acreage owners/operators frequently may not possess much agricultural or business knowledge. AES and Extension will address the needs of small acreage producers and work with agricultural industry personnel and governmental agencies to assure that land managers and communities can evaluate a broad range of opportunities to enhance viability while respecting the environment.

Ongoing, Consistent, and/or Successful Programs: AES and Extension programs address the growing competition for finite water, land, and air resources in a state with a growing human population by:

- **educating agricultural and resource industry professionals;**
- **researching technical and economic issues related to improved resource utilization; and**
- **enhancing international competitiveness.**

Cross-cutting or Cross-disciplinary Initiatives: Nutrient management and odor and dust control.

Community Resource Development

Program Goals: CRD Programs will provide tools so that citizens can make informed decisions to increase tax revenues, maintain and/or increase employment, and maintain and/or grow valued community resources.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: Community Resource Development (CRD), and its partner, Economic Development, are highlighted by the Vice President for Engagement and Director of Extension.

Ongoing, Consistent, and/or Successful Programs: Colorado communities are changing rapidly as a result of many factors, including loss of agricultural water, influx of retirement populations,

development of gas and oil industries, incidence of military deployment, and changes in cultural composition of residents. Communities struggle to develop and maintain resources: human, financial, physical, social, environmental, and political. They also are challenged to provide the organizational capacity to assess, plan, and implement activities to address resource development and management. These issues especially are acute in smaller rural communities. Colorado's rural communities are relatively unique in terms of sparse populations, a high natural amenity and public lands base, a transitory population, and relatively low public service provision. Communities require knowledge to evaluate their resource base, their economic and social service alternatives, and their futures.

Cross-cutting or Cross-disciplinary Initiatives: CRD technologies will be provided through training and technical assistance to Extension agents, as the system views CRD as a process rather than an issue. The goal is to intentionally integrate CRD into all issues work.

Sustainable Energy

Program Goals: Diffuse and adopt renewable energy sources and sustainable practices that reduce dependence on nonrenewable energy through public knowledge of energy efficiency and clean energy options.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: Clean energy interests and efforts were organized as an Extension "strategic initiative team" in fall, 2008. Progress by the team is reflected in showing the work as a planned program. While not all clean energy is sustainable, it is an area of high interest to county partners, as documented by a search of county priorities on Web sites throughout the state. The Work Team's objective is to educate a core group of Extension agents about renewable energy options and energy efficiency, and to broadly educate all Extension agents on the basics of renewable energy. Deliverables include:

- **demonstration sites,**
- **short term classes,**
- **partnerships with campus faculty,**
- **green jobs programs for schools,**
- **school enrichment materials using STEM-based standards.**

Ongoing, Consistent, and/or Successful Programs: The long range intention is that Extension will be considered the educational entity of choice in the area of clean energy. These activities and intentions are recognized as outputs, as the planned program is very new and not fully resourced. The Work Team will create its Logic Model and articulate outcomes for the immediate, short, and long term.

Cross-cutting or Cross-disciplinary Initiatives: A newly hired Clean Energy Specialist will more effectively connect Extension's clean energy efforts with multiple research and teaching opportunities that are ongoing in several colleges on campus.

Childhood Obesity

Program Goals: Prevention or reduction of incidence of childhood obesity and improved health outcomes for children.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: The Nutrition and Wellness Work Team is and will be focused on three areas, including Childhood Obesity, which is listed as a planned program in response to the NIFA priorities.

Ongoing, Consistent, and/or Successful Programs: One outcome example is improved healthful dietary and activity habits in children. An associated indicator is increased fruit and vegetable consumption (report improved knowledge, increased consumption or intent to increase consumption.) A second indicator is increased physical activity (report increased knowledge, increased activity [e.g. steps], or intent to increase activity.) Target audiences include children (birth through high school), parents, teachers

and other school staff.

Cross-cutting or Cross-disciplinary Initiatives: Some of the outcomes and indicators determined by the work team have significant potential for collaboration across various program areas within Extension, by content or audience, and across campus.

Health Promotion and Disease Prevention

Program Goals: Reduced incidence of chronic diseases (such as diabetes, heart disease, obesity and cancer), thus reducing health insurance premiums and mortality rates, and increasing employee productivity.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: The Health Promotions and Disease Prevention Work Team will provide research-based nutrition and health education to a variety of audiences across Colorado in an effort to promote healthful nutrition, activity and lifestyle behaviors.

This will include the establishment of an interdisciplinary research consortium led by plant productions systems professionals to determine relationships between metabolites and disease and to identify metabolites in animal and crop foods to help prevent disease and improve health.

Ongoing, Consistent, and/or Successful Programs: This work team participated in the FCS focusing activity in June, 2009, and has specific outcome targets and indicators by which they can collect their data.

Cross-cutting or Cross-disciplinary Initiatives: This content was previously developed and delivered together with Food Safety. The two have been separated into planned programs, in part due to NIFA Priorities. And, some work by plant systems professionals has been assigned here, on recommendation of NIFA reviewers.

Climate Change

Program Goals: No programs are currently planned that specifically address and/or can be reported under this NIFA priority

Extension, AES, or Integrated: n/a

New Programs, and/or Addressing NIFA Priorities: n/a

Cross-cutting or Cross-disciplinary Initiatives: n/a

NOTE: Extension has acquired an on-line planning and reporting system. Data for FY 2011 will be drawn from that system. Work Team Plans of Work are entered into the system now, and many individual plans are drafted. As of March 16, no training has been conducted for reporting.

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

Year	Extension		Research	
	1862	1890	1862	1890
2012	140.0	0.0	50.0	0.0
2013	143.0	0.0	50.0	0.0
2014	146.0	0.0	50.0	0.0
2015	150.0	0.0	50.0	0.0

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

Year	Extension		Research	
	1862	1890	1862	1890
2016	0.0	0.0	0.0	0.0

II. Merit Review Process

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

- Internal University Panel
- External Non-University Panel
- Combined External and Internal University External Non-University Panel

2. Brief Explanation

All projects conducted by the AES and Extension are subjected to a peer review process. Each college at Colorado State University has adopted a process for conducting a peer review on all AES and Extension projects submitted for support by state and federal funds. Criteria, as requested by NIFA reviewers, include alignment with college priorities, resource allocation, and meeting needs of Coloradoans.

In addition, Extension programs are subject to review by the Program Leadership Team (PLT) and Core Competency Area (CCA) leaders. Extension is identifying, through a focusing effort, areas of emphasis for program delivery. For example, in June 2009, FCS professionals have agreed to focus on Nutrition & Health, Food Safety, and Family Financial Stability in the near future. Agents, specialists, Extension administration, and the college dean participated in the facilitated sessions to determine the focus areas. In March, 2010, CCA Leaders, Work Team Leaders, county agents, county directors, Regional Directors, and Extension administration convened to focus programs in other areas. Currently, Extension specialists and agents team together on 20 work teams (WT), jointly lead by a specialist and an agent. Each WT has completed a Logic Model, including providing a situation statement, identification of inputs, outputs and impacts. The WT Plans of Work were approved by the Associate Director by July 1, 2009. All plans will be updated again by July 1. It is expected there will be fewer WT's, and that they will focus on issues. Additional groups will provide content support, process direction, and/or audience/delivery training.

At the county level, all county Extension programs are required at a minimum to have an Extension Advisory Committee composed of constituents, partner agencies (such as the school districts, councils on aging, county health and human services, commodity groups, etc.).In addition, many counties have multiple 'program' advisory groups that guide the county staff in identification of specific programs of emphasis. In the most recent survey of these committees, the 59 Extension county programs have a total of 112 advisory committees involving close to 2000 individuals in the program review process. County programs are reviewed and evaluated by these county advisory groups. The primary criteria is meeting needs in the county.

III. Evaluation of Multis & Joint Activities

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

The AES and Extension are active participants in meetings of Advisory Committees consisting of state, county, and organizational leaders.AES and Extension programs are discussed and input is solicited on future priorities for research activities.In addition, the AES regularly participates in meetings held by CSU Extension where current and future program needs are discussed.A variety of joint research programs are conducted with USDA-ARS programs in Fort Collins, Akron, and other locations as well as collaborative programs with USDA-FS, USDA-NRCS and USDA-NASS.Numerous programs are also conducted in cooperation with individuals.

Regional listening sessions lead by the AES and Extension are held in the various regions of the state (southeast, northeast, San Luis Valley, southwest, and northwest). Both AES and Extension programs are modified to reflect the input received where appropriate and feasible.All sessions are open to the public and advertised in the local media prior to the meeting.

Critical issues addressed by multi-state and integrated activities include the following: 1) invasive plants; 2) obesity; 3) animal and municipal waste management; 4) food safety; 5) community development; 6) water quality and environmental issues; and the emerging area of

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

Framework for the Future: A Strategic Plan for Cooperative Extension identifies a core value of Colorado Extension as "We are accessible to all constituencies and honor diverse viewpoints." Acting on that value, all Extension individual and work team plans of work must address the issue of reaching out to under-served and under-represented audiences. NIFA reviewers' suggestion that documentation be provided that diverse populations are actually being served is addressed through data collected in Contribution Reports from all agents and compiled by Work Team Leaders. This will be continued; however, there is no obvious reporting rubric for these data. In-service education has been, and continues to, support this programming and reporting requirement. Active 4-H Expansion and Review committees in each county continue to address this issue as it relates to the 4-H program. In addition, the Diversity Catalyst Team has identified three goals: Ensuring that diverse communities are served by Extension (Hispanics and the urban core are two examples); increasing the cultural competency of Extension staff; and improving the organizational profile in regards to underrepresented groups (recruitment, hiring, and retaining). The Team has a strategic plan in place with specific, targeted strategies for accomplishing the goals.

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

A variety of measures will be used based on the goals of each program. Outcomes in the Logic Model typically reportable by Extension and AES are increase in knowledge, change in attitude, and change in behavior such as adoption of recommendations or of improved plant/animal systems. Each program will have a completed Logic Model with identified outputs and outcomes for each of their respective program areas. However, documenting long term results (changes in condition), as requested by NIFA reviewers, remains problematic. The rigor that is required by such program evaluation and the presence of multiple extrinsic factors are

often beyond the capability of field staff to manage. Specialists may have the knowledge and experience for such research design, but with fewer state-wide programs underway, there are complexities in aggregating data to demonstrate impact.

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

Plans of Work are updates and reviewed annually, assuring necessary changes are made as suggested through the review process, or as indicated by the evaluations conducted on specific programs. Formative evaluations conducted at programs' conclusions provide feedback to improve quality and efficacy. These are not often reported, as requested by NIFA reviewers, as they do not address outcomes but rather the success of outputs. Extension is exploring options that will more clearly link program to performance as we seek to focus our planned programs and collect data that we can aggregate and that will be impactful in presenting the value of Extension's work to stakeholders. The goal is continual evaluation and strengthening of program efforts, including changes that will increase effectiveness and efficiency.

All projects conducted by the AES are subjected to a peer review process. Each college at Colorado State University has adopted a process for conducting a peer review on all AES projects submitted for support by state and federal funds. The peer review process involves the Dean/Department Head soliciting reviews from faculty on the research approach and methodology followed by incorporation of suggested changes by the investigator.

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 (Survey of County Commissioners regarding Extension Programs in their county.)

Brief explanation.

The AES and Extension annually utilize multiple means of obtaining stakeholder input on programs conducted and solicit input on changes in program direction.The AES and Extension support programs in 7 of the 8 colleges on the Colorado State University campus as well as at 9 off-campus research centers 54 individual county offices and 3 area programs serving 59 counties. Each year, the off-campus research centers hold a public meeting where research results are presented and proposed programs are discussed. Public input is solicited on all proposed programs.It should be noted that many of the programs discussed involve faculty and staff located

on the Fort Collins campus as well as at the off-campus research centers and Extension county or area offices. Each County/Area Extension program is required to have a stakeholder advisory committee, representing all programmatic and geographic areas, as well as the diversity found in the county. Evidence of the advisory committee must be documented in performance appraisals, as well as during the regularly scheduled affirmative action reviews.These advisory committees are expected to meet on a regular basis and provide guidance on programming and target audiences. Finally, a state Extension Advisory Committee, representing both program recipient groups, as well as programmatic collaborators provides oversight and input at the state level.Yearly the county advisory committees review the county plans of work which are then incorporated into the statewide work team plans.These plans are reviewed by the state Extension Advisory Committee for additional input and acceptance. Yearly there is a call for additional work teams so that additional priority areas may be identified and state wide focus provided. Diversity among stakeholders is expected, but as NIFA reviewers have noted, it is not documented.

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
- Use Surveys
- Other (Council for Agricultural Research, Extension, and Teaching)

Brief explanation.

We identify stakeholder groups through input from county staff and advisory committee members.We engage community partners in the process and request feedback on appropriate individuals and groups to be included in the stakeholder input process.

Both AES and Extension meet regularly with advisory committees to solicit feedback on programs and also invite the general public to participate in listening sessions.

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 specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public
- Other (Review of county Web sites to discern priorities)

Brief explanation.

AES and Extension staff meet regularly with advisory committees and other stakeholders to solicit input on program direction, focus, implementation and success.In addition, CSU has required a yearly satisfaction survey of county commissioners regarding the Extension program in their county. That survey has provided valuable information on county needs and the impact/success of the Extension programs.

3. A statement of how the input will be considered

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

Brief explanation.

Input from stakeholder groups/individual is expected to be reflected in programming changes - both suggestions for new programs and changes to existing programs at the county/area level.In addition, programmatic suggestions are funneled from county stakeholders to the State Extension Advisory Committee for consideration, recommendation, and implementation.The AES research program is modified based on input from stakeholders. Examples include an evaluation of oilseeds that was initiated to assess bio-energy potential based on stakeholder requests; multi-disciplinary and integrated activities are conducted on invasive plants; and the goals of wheat breeding program that reflect the needs of the wheat industry. In essence, ongoing interaction with stakeholders through formal and informal means is used to insure program relevancy.

V. Planned Program Table of Content

S. No.	PROGRAM NAME
1	4-H Youth Development
2	Family Economic Stability
3	Food Safety
4	Global Food Security and Hunger
5	Plant Production Systems
6	Natural Resources and Environment
7	Community Resource Development
8	Sustainable Energy
9	Childhood Obesity
10	Health Promotion and Disease Prevention

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

4-H Youth Development

2. Brief summary about Planned Program

Colorado State University will enhance outreach to Colorado's youth through 4-H and Youth Development programs in county 4-H clubs, schools, after-school programming, state-wide programs, and special interest learning experiences.This program emphasizes personal growth of young people through experiential learning with well-designed curricula and projects.There is a special emphasis on Science, Technology, Engineering and Math (STEM)-related curriculum and activities, in helping prepare the next generation of scientists. Development of volunteers to provide much of the leadership to this organization and increased private fund-raising are especially important.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	5%		0%	
806	Youth Development	95%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Overall in 2009 - 2010, 95,697 Colorado youth were reached by 4-H. Youth Development programs. Specifically, 14,213 youth participated in traditional 4-H Clubs. 4-H club programs are most effective in bringing youth and adults together in a long-term relationship for experiential learning. Special interest, short term programs served 6,919 Colorado youth. After-school programs served 8,341 Colorado youth. School enrichment through 4-H resources served 63,743 Colorado youth. 4-H Youth Development programs in Colorado will continue to affect positive change in life skills and in Science, Technology, Engineering and Math (STEM) for youth ages 5 - 18.

2. Scope of the Program

- In-State Extension

- Multistate Extension

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

1. Assumptions made for the Program

- In Colorado, 33 percent of K-12 youth are responsible for taking care of themselves after school (Afterschool Alliance)
- 77 percent of children from single-parent Colorado households have a parent who works.
- Family-based programs that work with parents and youth together, such as 4-H, have a powerful influence on not only the home management skills of youth but also the developmental level of the youth.
- Caring adults are interested in being a part of the development of youth and will become and stay as volunteers if they are supported appropriately (recruited, trained, evaluated, and recognized).

2. Ultimate goal(s) of this Program

Colorado's 4-H Youth Development program will help develop youth into contributing, effective members of society through experiences that develop their leadership, citizenship and life skills. Science, Technology, Engineering and Math (STEM) emphasis will contribute to preparing the next generation of scientists in the US. As numerous volunteers serve as positive role models for youth, another goal of the Colorado 4-H Youth Development program is to recruit, train, retain, evaluate and recognize an increasing number of volunteer leaders.

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	47.0	0.0	0.0	0.0
2013	48.0	0.0	0.0	0.0
2014	49.0	0.0	0.0	0.0
2015	50.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Support traditional club programs by recruiting and establishing new clubs;
- Conduct after school and school enrichment programs that provide curriculum in Science, Technology, Engineering and Math (STEM), leadership, citizenship and life skills development;
- Develop new curriculum in response to new audience needs;
- Strengthen the volunteer management system needed to implement the 4-H Youth Development

program by: conducting agent trainings to develop volunteer management skills; developing tools to support volunteer management system; delivering volunteer leader training; developing new funding support through individual and group solicitation, grant applications and fee-for-service programs.

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

Extension

Direct Methods	Indirect Methods
• Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites

3. Description of targeted audience

- For 4-H Youth Development programming - all Colorado youth, ages 5 - 19.
- For volunteers - interested adults, parents, community members, seniors, partner agencies.
- For increased funding - potential funding entities, including grant providers.

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	10000	45000	85000	250000
2013	10000	45000	85000	250000
2014	10000	45000	85000	250000
2015	10000	45000	85000	250000
2016	10000	45000	85000	250000

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	2	0

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

V(H). State Defined Outputs

1. Output Target

- Increased funding for 4-H Youth Development through private dollars by increasing support from the Colorado 4-H Foundation. (These have been increased based on our 2005-06 actual of $240,000.)
  2012:275000 **2013:**300000 **2014:**325000 **2015:**350000 **2016:**375000

- Number of web hits regarding 4-H topics, excluding pages of Agent Resources and Blog areas of the site.
  2012:500000 **2013:**525000 **2014:**550000 **2015:**575000 **2016:**600000

- Number of youth reached by all 4-H delivery methods including organized clubs, after school, school enrichment.
  2012:92500 **2013:**95000 **2014:**97500 **2015:**100000 **2016:**100000

- New and/or revised curriculum to meet changes in needs for youth audiences.

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

- Number of volunteer management trainings held and tools developed.

  2012:100 **2013:**100 **2014:**125 **2015:**125 **2016:**150

- Number of volunteer leaders.

  2012:8000 **2013:**8000 **2014:**8250 **2015:**8250 **2016:**8500

- Number of on-line e-Learning orientation modules completed by volunteers.

  2012:550 **2013:**600 **2014:**650 **2015:**700 **2016:**750

- Grant dollars generated to support 4-H Youth Development programs.

  2012:120000 **2013:**140000 **2014:**160000 **2015:**180000 **2016:**200000

- Value of volunteers' time that Colorado 4-H adult volunteers provide to 4-H programming, based an average donation of 128 hours/year/volunteer at $20.47/hour (national average for value of time, adjusted for Colorado)
  2012:17500000 **2013:**20000000 **2014:**22500000 **2015:**25000000 **2016:**25000000

- Increased volunteer leaders' effectiveness as measured by retention rate of first year leaders.

2012:80 **2013:**80 **2014:**85 **2015:**85 **2016:**85

- Number of new volunteer leaders engaged and strengthening leadership capacity in community functions

2012:30 **2013:**35 **2014:**40 **2015:**45 **2016:**45

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of youth reporting positive change in life skills including leadership, citizenship, decision making and communications skills as a result of 4-H participation
2	Percent of volunteers reporting increased skills in area of responsibility
3	Percent of youth reporting increased knowledge of Science, Technology, Engineering and Math (STEM) competencies through 4-H participation
4	Percent of youth reporting change in behavior based on 4-H participation in Science, Technology, Engineering and Math (STEM) education/activities
5	Percent of participating youth who increased knowledge through Meat Quality Assurance (MQA) training
6	Percent of participating youth who changed behavior as a result of Meat Quality Assurance (MQA) training. Indicators may include making ethical decisions, being careful in storing medications, or properly handling and caring for animals
7	Percent of participating youth demonstrating improved behavior in science learning, such as career exploration, leading or teaching groups, or volunteer experiences
8	Percent of participating youth applying science process skills, including incorporation of science learning in community service and/or entrepreneurship/career success
9	Percent of participating youth increasing knowledge and/or skills in Science, Technology, Engineering and Math (STEM)content and/or careers
10	Percent of participating youth increasing positive attitude and/or aspirations about Science, Technology, Engineering and Math (STEM) learning and careers
11	Percent of participating youth increasing science process skills (observation, comparison, hypothesis), use of the scientific method, or problem solving.
12	Percent of participating volunteers who increased knowledge regarding community leadership
13	Percent of participating volunteers increasing skills: helping youth develop life skills; solving problems; connecting to the community; demonstrating pride in accomplishments
14	Percent of participating volunteers who consider they have made a positive impact on the lives of others.
15	Percent of participating volunteers who have learned valuable skills

Outcome # 1

1. Outcome Target

Percent of youth reporting positive change in life skills including leadership, citizenship, decision making and communications skills as a result of 4-H participation

2. Outcome Type : Change in Condition Outcome Measure

2012:80	**2013:**80	**2014:**80	**2015:**80	**2016:**80

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of volunteers reporting increased skills in area of responsibility

2. Outcome Type : Change in Condition Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percent of youth reporting increased knowledge of Science, Technology, Engineering and Math (STEM) competencies through 4-H participation

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Percent of youth reporting change in behavior based on 4-H participation in Science, Technology, Engineering and Math (STEM) education/activities

2. Outcome Type : Change in Knowledge Outcome Measure

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

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Percent of participating youth who increased knowledge through Meat Quality Assurance (MQA) training

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Percent of participating youth who changed behavior as a result of Meat Quality Assurance (MQA) training. Indicators may include making ethical decisions, being careful in storing medications, or properly handling and caring for animals

2. Outcome Type : Change in Action Outcome Measure

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

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Percent of participating youth demonstrating improved behavior in science learning, such as career exploration, leading or teaching groups, or volunteer experiences

2. Outcome Type : Change in Action Outcome Measure

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

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Percent of participating youth applying science process skills, including incorporation of science learning in community service and/or entrepreneurship/career success

2. Outcome Type : Change in Action Outcome Measure

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

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Percent of participating youth increasing knowledge and/or skills in Science, Technology, Engineering and Math (STEM)content and/or careers

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 10

1. Outcome Target

Percent of participating youth increasing positive attitude and/or aspirations about Science, Technology, Engineering and Math (STEM) learning and careers

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 11

1. Outcome Target

Percent of participating youth increasing science process skills (observation, comparison, hypothesis), use of the scientific method, or problem solving.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 12

1. Outcome Target

Percent of participating volunteers who increased knowledge regarding community leadership

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 13

1. Outcome Target

Percent of participating volunteers increasing skills: helping youth develop life skills; solving problems; connecting to the community; demonstrating pride in accomplishments

2. Outcome Type : Change in Action Outcome Measure

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

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 14

1. Outcome Target

Percent of participating volunteers who consider they have made a positive impact on the lives of others.

2. Outcome Type : Change in Condition Outcome Measure

2012:35	**2013:**35	**2014:**35	**2015:**35	**2016:**35

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 15

1. Outcome Target

Percent of participating volunteers who have learned valuable skills

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**75

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (competing family priorities)

Description

Participation in 4-H Youth Development programs does not come without cost.If funding is not sufficient, scholarship help for families may not be available and individuals may be forced to not participate.Families have the opportunity to choose from many different activities for youth.4-H may lose membership to other youth activities.At the same time, population shifts to urban sites could increase 4-H Youth Development participation if 4-H is able to establish relevant programs in non-rural environments.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during 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.

Description

Regular pre-post evaluations are used.An evaluation consultant has guided 4-H Youth Development staff in developing and using instruments state-wide to collect impact data on life skills acquired/increased due to 4-H participation. These learned skills will continue to be practiced and refined so that life skills and Science, Technology, Engineering and Math (STEM) outcomes can be accurately documented and effectively communicated.

2. Data Collection Methods

- Sampling
- Whole population

- On-Site
- Unstructured
- Case Study
- Observation
- Tests
- Other (Record Books)

Description

Pre-post tests, standard survey technology.Observation/case studies are routinely conducted by 4-H Youth Development professionals and volunteers.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Family Economic Stability

2. Brief summary about Planned Program

Extension will continue an active work teams in the area of Family Economic Stability - family financial management.

Two Work Teams have been suspended due to focused programming by FCS professionals on campus and in county offices: •Healthy Homes - indoor air quality •Growing Strong Colorado Families

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
723	Hazards to Human Health and Safety	10%		0%	
801	Individual and Family Resource Management	50%		0%	
802	Human Development and Family Well-Being	20%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%		0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%		0%	
805	Community Institutions, Health, and Social Services	10%		0%	
	Total	100%		0%	

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

1. Situation and priorities

- Financial stability of families is the area of focus for non-nutrition FCS programming.
- Colorado families' financial instability includes increasing rates of bankruptcy, economic crises, loss of jobs, etc.

• Continued high levels of on-farm accidents exist, resulting in serious injury and disability. AgrAbility programming continues.

2. Scope of the Program

- In-State Extension
- Multistate Extension

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

1. Assumptions made for the Program

Assumptions for this program include:

•If given the opportunity to learn financial management skills, individuals and families will choose to practice those skills, resulting in increased financial stability

•Farm families who have access to information on coping with disabilities within their families will eagerly put new knowledge to work.

2. Ultimate goal(s) of this Program

Family Economic Stability programs will affect positive change in participants' financial knowledge and skills, contributing to their ability to avoid bankruptcy, economic crisis, loss of jobs, and other money-related difficulties. AgrAbility programs will help farmers avoid accidents and reduce incidence of serious injury and disability.

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	12.0	0.0	0.0	0.0
2013	12.0	0.0	0.0	0.0
2014	12.0	0.0	0.0	0.0
2015	12.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Educational activities include:

•Adoption of curriculum, training for agents and other service providers, educational programs on financial management for individuals and families.

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Public Service Announcement • Newsletters • Web sites

3. Description of targeted audience

Colorado families, including diverse and difficult- to-reach populations.

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	150000	300000	1000	0
2013	150000	300000	1000	0
2014	150000	300000	1000	0
2015	150000	300000	1000	0
2016	0	0	0	0

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	5	5
2013	0	5	5
2014	0	5	5
2015	0	5	5

Year	Research Target	Extension Target	Total
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- AgrAbility workshops held.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**0

- Trainings held in family financial management.

  2012:150 **2013:**150 **2014:**150 **2015:**150 **2016:**0

- Number of newsletters/publications distributed.

  2012:250000 **2013:**250000 **2014:**250000 **2015:**250000 **2016:**0

- Grant dollars (external) generated to support this program.

  2012:750000 **2013:**750000 **2014:**750000 **2015:**750000 **2016:**0

- Number of individuals trained in agribility issues (dealing with disabilities on the farm/ranch.)

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of individuals trained in family financial management, financial management in later life, teen financial management, and other family finance programs.
  2012:150 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of volunteers supporting this program

  2012:30 **2013:**30 **2014:**30 **2015:**30 **2016:**0

- Numbers of partnering agencies supporting this program

  2012:150 **2013:**150 **2014:**150 **2015:**150 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants demonstrating change in knowledge of financial management.
2	Percent of participants intending to change behavior and/or reporting change in attitudes regarding financial management.
3	Percent of participants in financial management training demonstrating change in behavior.
4	Percent of families indicating improvement in financial health due to changes based on skills learned in financial management trainings.
5	Percent of individuals demonstrating increase in knowledge regarding strategies for dealing with disabilities on the farm or ranch.
6	Percent of participants in AgrAbility workshops reporting change in behavior regarding coping with disabilities on the farm/ranch.
7	Percent of workshop alumni who report enhanced quality of life as the result of AgrAbility training.

Outcome # 1

1. Outcome Target

Percent of participants demonstrating change in knowledge of financial management.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants intending to change behavior and/or reporting change in attitudes regarding financial management.

2. Outcome Type : Change in Action Outcome Measure

2012:60	**2013:**60	**2014:**60	**2015:**60	**2016:**0

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percent of participants in financial management training demonstrating change in behavior.

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Percent of families indicating improvement in financial health due to changes based on skills learned in financial management trainings.

2. Outcome Type : Change in Condition Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Percent of individuals demonstrating increase in knowledge regarding strategies for dealing with disabilities on the farm or ranch.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:70	**2013:**70	**2014:**70	**2015:**70	**2016:**0

3. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management

- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Percent of participants in AgrAbility workshops reporting change in behavior regarding coping with disabilities on the farm/ranch.

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Percent of workshop alumni who report enhanced quality of life as the result of AgrAbility training.

2. Outcome Type : Change in Condition Outcome Measure

2012:20	**2013:**20	**2014:**20	**2015:**20	**2016:**0

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

Individuals' ability to attend fee-for-service programs may be impacted by economic downturns.Extension's ability to provide programming and scholarships for these programs may be affected if appropriations continue to decrease and staff is lost.Absence of a Family Resource Specialist limits agents' access to research-based information they can share with Coloradans. A recent search for this position was unsuccessful; however, the position has been advertised again and Extension looks forward to welcoming a colleague in this vital position.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Comparison between locales where the program operates and sites without program intervention

Description

Regular pre-post evaluations are used.Formative evaluations are often used during programs to adjust focus and direction.Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- On-Site
- Case Study
- Observation
- Tests

Description

Pre-post tests.Standard survey methods.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Extension has an active work team for Food Safety Education. Programs include:

- Food safety training for food service managers and employees
- Food safety education for high risk audiences, their caregivers, and health care professionals
- Food safety information for consumers including Farmers' Market vendors and their customers.

Food safety research emphasizes pre-harvest management of livestock to prevent transmission of human pathogens in livestock production and handling and post-harvest detection and management systems to prevent contamination of meat and plant products with human pathogens.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	0%		20%	
703	Nutrition Education and Behavior	25%		40%	
704	Nutrition and Hunger in the Population	1%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	20%		20%	
724	Healthy Lifestyle	25%		0%	
805	Community Institutions, Health, and Social Services	9%		10%	
	Total	100%		100%	

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

1. Situation and priorities

•Food-borne illness in the US is a major economic burden and cause of human suffering and death.Economic and social consequences of food-borne illness are estimated to be over $3 billion each year, with lost productivity estimated at $30-40 billion.It is estimated that food-borne contaminants cause approximately 76 billion illnesses, 325,000 hospitalizations, and 5,000 deaths int he US each year. The risk of food-borne illness is especially important when hazardous food is served in group settings (eating establishments, child and assisted care facilities) and/or to high risk individuals (seniors, young children, pregnant women, immune-compromised individuals).

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

•Given accurate knowledge and support, individuals at risk for food-borne illness and major diseases will increase their understanding, change attitudes and behaviors, and ultimately be less at risk, less hungry and healthier.

2. Ultimate goal(s) of this Program

Food Safety Education

•Increase the proportion of consumers who follow key food safety practices.
•Improve food employee behaviors and food preparation practices that relate directly to food-borne illnesses in retail food establishments.
•Increase the proportion of high risk consumers and their caregivers who follow key food safety practices.
Food Safety Research

•Pre-harvest management of livestock to prevent acquisition of human pathogens in livestock production and handling.
•Post-harvest detection and management systems to prevent contamination of meat products with human pathogens.
•Assessment of production systems and regulatory protocols for effective food safety.

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	16.0	0.0	6.0	0.0
2013	16.0	0.0	6.0	0.0
2014	16.0	0.0	6.0	0.0
2015	16.0	0.0	6.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Food Safety Education

- Food Safety training for consumers, high risk audiences and their caregivers.(Eat Well for Less, La Cocina Saludable, Work site Wellness, Safe Home Food Preparation and Preservation, Promotion at Farmers Markets.)
- Food Safety Training for Food Service Managers and Workers (Food Safety Works, ServSafe, Food Safety for Food Bank Workers).Some of these programs are fee-based.

Promoting Food Security

- Multi-lesson series programs-Eat Well for Less, La Cocina Saludable]
- Single event programs targeting limited resource families
- Newsletters-Senior Nutrition News

Research

- Technical and extension publications
- Development of new technologies for improving food safety
- Development of recommendations on diet, exercise or other health related topics

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

Extension

Direct Methods	Indirect Methods

• Education Class • Workshop • Group Discussion • Demonstrations	• Public Service Announcement • Newsletters • Web sites • Other 1 (Multimedia kiosks)

3. Description of targeted audience

Food Safety Education

- Consumers, High Risk Audiences (pregnant, immune-compromised, elderly).
- Food handlers and their managers at retail food establishments.
- Producers and processors of plant and animal agricultural products.

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	25000	150000	2500	0
2013	25000	150000	2500	0
2014	25000	150000	2500	0
2015	25000	150000	2500	0
2016	0	0	0	0

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	10	20	0
2013	10	20	0
2014	10	20	0
2015	10	20	0

Year	Research Target	Extension Target	Total
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of trainings in food safety held.

  2012:1000 **2013:**1000 **2014:**1000 **2015:**1000 **2016:**0

- Grant dollars (external) received to support Food Safety

  2012:500000 **2013:**500000 **2014:**500000 **2015:**500000 **2016:**0

- Number of individuals reached by newsletters distributed on food safety .

  2012:500000 **2013:**500000 **2014:**500000 **2015:**500000 **2016:**0

- Number of individuals trained via workshops in food safety

  2012:10000 **2013:**10000 **2014:**10000 **2015:**10000 **2016:**0

- Number of partnering agencies in Colorado who collaborated in food safety efforts.

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of volunteers supporting food safety

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of curricula developed or reviewed that support food safety

  2012:20 **2013:**20 **2014:**20 **2015:**20 **2016:**0

- User Fees Generated through Food Safety work.

  2012:30000 **2013:**30000 **2014:**30000 **2015:**30000 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants at trainings in Food Safety indicating an increase in knowledge gained
2	Percent of participants reporting a change in attitude regarding Food Safety.
3	Percent of participants indicating a change in behavior as a result of Food Safety training
4	Number of new technologies in pre-harvest livestock management adopted to reduce and/or avoid contamination of meat and/or plant products with human pathogens.
5	Number of new technologies in handling and/or post-harvest detection and management systems adopted to prevent contamination of meat and plant products with human pathogens.

Outcome # 1

1. Outcome Target

Percent of participants at trainings in Food Safety indicating an increase in knowledge gained

2. Outcome Type : Change in Knowledge Outcome Measure

2012:70	**2013:**70	**2014:**70	**2015:**0	**2016:**0

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants reporting a change in attitude regarding Food Safety.

2. Outcome Type : Change in Action Outcome Measure

2012:70	**2013:**70	**2014:**70	**2015:**0	**2016:**0

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percent of participants indicating a change in behavior as a result of Food Safety training

2. Outcome Type : Change in Knowledge Outcome Measure

2012:70	**2013:**70	**2014:**70	**2015:**0	**2016:**0

3. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Number of new technologies in pre-harvest livestock management adopted to reduce and/or avoid contamination of meat and/or plant products with human pathogens.

2. Outcome Type : Change in Action Outcome Measure

2012:5	**2013:**5	**2014:**5	**2015:**5	**2016:**0

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

4. Associated Institute Type(s)

- 1862 Research

Outcome # 5

1. Outcome Target

Number of new technologies in handling and/or post-harvest detection and management systems adopted to prevent contamination of meat and plant products with human pathogens.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:5	**2013:**5	**2014:**5	**2015:**5	**2016:**0

3. Associated Knowledge Area(s)

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

4. Associated Institute Type(s)

- 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.)

Description

To better align with NIFA priorities, the Planned Program Area previously reported as Nutrition and Food Safety has been separated into two program areas. Targets are estimated by dividing the previously reported numbers between the two program areas.

Research programs are dependent on funding from external agencies.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)

Description

Regular pre-post evaluations are used.Formative evaluations are often used during a program to adjust focus and direction.Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- On-Site
- Case Study
- Observation
- Tests

Description

Pre-post tests.Standard survey methods.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

AES will focus on fundamental and applied research in breeding, nutrition, physiology, behavior, integrated resource management systems, economics, health, and range/forage management.Extension outreach will span the breadth of the topics of research to assure that industry participants have practical knowledge in modern plant, beef, dairy, and sheep production systems, biosecurity, economic and risk management, and response to policy and consumer changes. Outreach to youth involved in livestock production and judging events will continue as part of experiential learning in 4-H, FFA, and college judging.

Extension currently has Work Teams in:

1. Small Ruminants

2. Sustaining Agriculture in Colorado

3. Agriculture and Business Management

4. Beef

5. Wheat Improvement

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	1%		0%	
202	Plant Genetic Resources	1%		0%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	1%		0%	
204	Plant Product Quality and Utility (Preharvest)	25%		0%	
205	Plant Management Systems	1%		0%	
206	Basic Plant Biology	1%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	1%		0%	
212	Pathogens and Nematodes Affecting Plants	1%		0%	
213	Weeds Affecting Plants	1%		0%	
215	Biological Control of Pests Affecting Plants	1%		0%	
216	Integrated Pest Management Systems	1%		0%	
301	Reproductive Performance of Animals	5%		10%	
302	Nutrient Utilization in Animals	5%		10%	
303	Genetic Improvement of Animals	0%		20%	
307	Animal Management Systems	25%		30%	
311	Animal Diseases	5%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
601	Economics of Agricultural Production and Farm Management	14%		10%	
702	Requirements and Function of Nutrients and Other Food Components	1%		0%	
	Total	100%		100%	

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

1. Situation and priorities

Animal agriculture is a major economic sector in the United States and the leading agricultural activity in Colorado.In 2007, live meat animal sales in Colorado were valued at $4.787 billion and the value of dairy production was $516 million.Livestock and livestock products accounted for 72% of crop and livestock sales in Colorado.Remaining competitive requires that the industry produce with the most technically sophisticated systems available while considering environmental and animal welfare dimensions to maintain confidence of the consuming

Ruminant agriculture on range is the only significant agricultural enterprise which is ubiquitous in Colorado.In addition to novel and economic production practices, today's livestock producers must be knowledgeable of alternative supply chains to select a lucrative market, be aware of animal identification and trace-back requirements, understand the effects of emerging animal public health conditions, and understand the international and domestic trade environment and trends and how to respond with risk management strategies.

As recommended by NIFA reviewers, this Planned Program assumes the previously-named Animal Production Systems Knowledge Areas (KAs) and also many of those of the now differently focused Planned Program, Plant Production Systems. Together, these efforts by AES and Extension will address the Global Food Security NIFA priority.

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

Animals: Research in beef production management systems and nutrition is conducted on owned facilities at the Agricultural Research, Development, and Education Center (ARDEC), Eastern Colorado Research Center, Southeastern Colorado Research Center, and the Rouse Ranch in Saratoga, Wyoming.An integrated "Beef Alliance" coordinates teaching, research, and outreach in beef across all facilities focused on value-added production systems.Strong relationships exist between animal scientists and agricultural management and marketing economists.ARDEC hosts seed stock herds for Angus and Hereford, as well as a ram test.The University has several significant assets, including the Western Center for Integrated Resource Management, the Center for Genetic Evaluation of Livestock, the Congressionally sponsored National Beef Cattle Evaluation Consortium and strength in research and graduate programs in beef nutrition and breeding.The San Juan Basin Research Center conducts research and outreach on cow-calf, forage and range management systems.Livestock industry outreach includes a team of campus specialists in livestock management systems, economics, trade, policy, manure management, meat science, alternative marketing chain participation, and animal identification systems.

Plants: Successful applied crop science, environmental science, and pest management do not occur in the absence of scientists actively involved in fundamental plant and pest sciences. Colorado State has created the Cancer Prevention Laboratory (CPL) imbedded among strong programs of plant breeding and crop production research to address interactions between crop composition and human health. Professional agriculturalists and agribusiness people will require much more education in the relationships of ecosystem variables.

2. Ultimate goal(s) of this Program

Adoption of improved crop production technologies, wheat cultivars and productive and sustainable agriculture systems will assure communities, families, and individuals have enough food to eat, and that hunger is not a factor in their well-being.

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	25.0	0.0	29.0	0.0
2013	25.0	0.0	29.0	0.0
2014	25.0	0.0	29.0	0.0
2015	25.0	0.0	29.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

· Develop improved animal production systems that are economical and environmentally sound including genetics and breeding, nutrition, and management components.

· Develop information and methods to improve reproductive efficiency including increasing pregnancy rate, decreasing embryonic mortality and decreasing prenatal mortality.

· Conduct extension and outreach programs to enhance animal agriculture in Colorado and the West.

· Molecular biology and genomics of crop plants and their pests, mechanisms of biological resistance to pests, mechanisms of invasion of weed species, and understand the molecular and cellular foundations for crop improvement and crop pest management.

· Research in genetic determinants of host plant resistance, fundamental mechanisms of biological invasions, and ecology, bio-informatics, genomics, and population genetics of pests.

· Extension will include applied research and education relevant to emerging issues of Colorado's agricultural industries, including bio-security, safe and effective pesticide use, and implementation of effective pest management strategies that do not rely on pesticides. •Evaluate new crop, range, and livestock systems in semi-arid environments including disciplinary and interdisciplinary work in crop and soil sciences, animal sciences, pest sciences, range science, wildlife biology and ecology, forest science, water sciences, economics, and landscape design and policy applicable to the state and region.

· Disseminate findings through extension educational programs aimed at changing practices to control pests.

· Proper diagnosis of plant problems, entomology related to plants and structures, weed control and recommendations of integrated pest management strategies.

•Workshops and educational classes for producers
•Demonstration plots and field days to showcase the results
•Individual counseling on producers specific problems
•Conduct basic and applied research on plants, livestock, primarily beef, dairy, sheep, and horses

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (Field Days)	• Public Service Announcement • Newsletters • Web sites

3. Description of targeted audience

Individual agricultural producers, commodity groups, agri-business partners

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	35000	5000	1000	1000
2013	35000	5000	1000	1000
2014	35000	5000	1000	1000
2015	35000	5000	1000	1000
2016	0	0	0	0

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	30	4	0
2013	30	4	0
2014	30	4	0

Year	Research Target	Extension Target	Total
2015	30	4	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of attendees at workshops/trainings/field days

  2012:5000 **2013:**5000 **2014:**5000 **2015:**5000 **2016:**0

- Amount of grant dollars garnered to support animal research and outreach programs

  2012:1500000 **2013:**1500000 **2014:**1500000 **2015:**1500000 **2016:**0

- Number of workshops presented.

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of volunteers supporting this work

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of agencies partnering in this program effort.

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants in workshops/trainings/field days indicating an increase in knowledge gained
2	Percent of participants indicating change in behavior/ best practices adopted
3	Economic impact of the change in behavior reported, reported in dollars
4	Number of new technologies adopted to increase food production

Outcome # 1

1. Outcome Target

Percent of participants in workshops/trainings/field days indicating an increase in knowledge gained

2. Outcome Type : Change in Knowledge Outcome Measure

2012:60	**2013:**60	**2014:**60	**2015:**60	**2016:**0

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Percent of participants indicating change in behavior/ best practices adopted

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Economic impact of the change in behavior reported, reported in dollars

2. Outcome Type : Change in Condition Outcome Measure

2012:100000	**2013:**100000	**2014:**100000	**2015:**100000	**2016:**0

3. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Number of new technologies adopted to increase food production

2. Outcome Type : Change in Action Outcome Measure

2012:5	**2013:**5	**2014:**5	**2015:**5	**2016:**0

3. Associated Knowledge Area(s)

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems
- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 303 - Genetic Improvement of Animals
- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management
- 702 - Requirements and Function of Nutrients and Other Food Components

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 Programmatic Challenges

Description

Individuals' ability to attend fee-for-service programs may be impacted by economic downturns. Extension's ability to provide programming and scholarships for these programs may be impacted if appropriations continue to decrease and staff is lost.Inclement weather may impact an individual producer's ability to remain viable. Government subsidy programs may impact the viability of an individual producer.Availability of funding for research programs will govern magnitude and scope of program.

The threat of impending farm crises including credit, land values, low commodity prices, weather (wind, temperatures, and rain), etc. may affect evaluation results.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Case Study

Description

Regular pre-post evaluations are used. Formative evaluations are often used during programs to adjust focus and direction.Case studies are used to clearly demonstrate impact. NIFA reviewers' and stakeholders' request for longer-term evaluation strategies must be considered in light of the rigor required for such studies, and the existence of multiple variables outside the scope of AES research and/or Extension activities.

2. Data Collection Methods

- Sampling
- Case Study
- Observation
- Tests

Description

Pre-post tests.Standard survey methods are the usual protocol for Extension evaluation.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Plant Production Systems

2. Brief summary about Planned Program

Plant biology linking basic science with applied science is important to bring the results of basic plant science toward a usable form for applied agricultural sciences.Molecular biology and genomics are opening many new pathways for crop plant improvement and pest management, which will enhance the economic development of agricultural regions, enhance human health through more nutritious and safer food products, and find fundamental solutions to societal issues through renewable and sustainable crop production and pest management.Successful applied crop science, environmental science, and pest management only occur through collaboration with scientists actively involved in fundamental plant and pest sciences.

Extension has active work teams in:

•Pest Management, with a sub-team on Diagnostics and Pest Management •Plant Introduction and Invasive Species •Wheat-Based Dryland Cropping Systems

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		10%	
202	Plant Genetic Resources	0%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		10%	
204	Plant Product Quality and Utility (Preharvest)	2%		0%	
205	Plant Management Systems	45%		20%	
206	Basic Plant Biology	5%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		10%	
212	Pathogens and Nematodes Affecting Plants	5%		10%	
213	Weeds Affecting Plants	10%		10%	
215	Biological Control of Pests Affecting Plants	3%		10%	
216	Integrated Pest Management Systems	20%		10%	
	Total	100%		100%	

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

1. Situation and priorities

Colorado State has a history of providing crop selection and testing in other agronomic crops and fruits and vegetables to support the development of these agricultural industries in Colorado.In 2007, wheat generated $608 million in commodity sales, dry beans $21 million, potatoes $181 million, and other agronomic crops and vegetable and fruit crops generated $1,216 million, in Colorado.The value of these industries to the Colorado economy through other related economic activity is at least double these combined amounts.

Colorado expenditures on garden-related products, landscape and lawn service, and other related green industries (irrigation, botanical gardens, and outdoor equipment) have averaged 10 percent annual growth since 1993, resulting in over $2.0 billion in direct sales, in 2007. The value of the Colorado golf industry alone is $1.2 billion. The landscape-related industries of Colorado employ nearly 34,000 positions (6 percent average annual growth) with a payroll of $825 million annually (18 percent average annual growth). Thirty percent of industry revenues are generated from out of state (domestic and international) sales.The Colorado Green Industry accounts for 25% of Colorado's total agriculture production, ranks second behind the cattle/dairy industry, and is 4 times larger than the corn and wheat industry.

A diverse and expanding pest complex requires enhanced management skills that often increase production costs.A conservative loss estimate of 5 to 10% due to plant pests could cost Colorado producers in urban and rural settings $50 to $100 million annually.There is a long-term need for a

comprehensive, high quality, integrated pest management system encompassing the disciplines of entomology, plant pathology and weed science. •Fundamental plant biology linking basic science with applied science is important to bring the results of basic plant science toward a usable form for applied agricultural sciences.Molecular biology and genomics are opening many new pathways for crop plant improvement and pest management, which will enhance the economic development of agricultural regions, enhance human health through more nutritious and safer food products, and find fundamental solutions to societal issues through renewable and sustainable crop production and pest management. •Non-hybrid crop plants require public investment in genetic improvement to provide varieties of cultivars which improve yield, resist environmental and pest stresses, and serve the consuming public.Colorado State has a history of providing cultivar breeding for wheat, dry beans, and potatoes to serve the industries in climatic zones represented in Colorado. •Colorado is an urban and urbanizing state in which demographic evolution is changing the scope of "agriculture."The landscape (green) industry of Colorado, and the nation, is large and growing and comprises a significant part of Colorado agriculture. •Management of weeds, insect pests and plant pathogens is one of the most costly inputs that clientele in agriculture, the green industry, and consuming households must finance every year in Colorado.A diverse and expanding pest complex requires enhanced management skills that often increase production costs. •The Colorado ecosystem is shared by agricultural producers, a rapidly growing human population, and wildlife.As competition grows for finite water, land, and air resources, and as agricultural and natural resource policies and international markets change, opportunities to maximize the economic value of agriculture in Colorado will change continuously.The complex relationships of ecosystem variables must be well understood to predict these opportunities.

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

•Successful applied crop science, environmental science, and pest management do not occur in the absence of scientists actively involved in fundamental plant and pest sciences. •Colorado State has created the Cancer Prevention Laboratory (CPL) imbedded among strong programs of plant breeding and crop production research to address interactions between crop composition and human health.

•Professional agriculturalists and agribusiness people will require much more education in the relationships of ecosystem variables.

2. Ultimate goal(s) of this Program

PPS Program goals will emphasize the following areas:
•Molecular biology and genomics of crop plants and their pests, mechanisms of biological resistance to pests, mechanisms of invasion of weed species, and understand the molecular and cellular foundations for crop improvement and crop pest management. •Combine the knowledge of human nutrition and plant

genetics to extend crop selection, germplasm screening, and crop improvement with the objective to build greater amounts of compounds relevant to improved human health and disease prevention into these crops. •Research in plant selection and improvement, limited-irrigation landscape plant cultivation, and landscape policies, and outreach in landscape industry plant selection, cultivation management, and Master Gardener education and volunteer development. •Research in genetic determinants of host plant resistance, fundamental mechanisms of biological invasions, and ecology, bio-informatics, genomics, and population genetics of pests.Extension will include applied research and education relevant to emerging issues of Colorado's agricultural industries, including bio-security, safe and effective pesticide use, and implementation of effective pest management strategies that do not rely on pesticides. •Evaluate new crop, range, and livestock systems in semi-arid environments including disciplinary and interdisciplinary work in crop and soil sciences, animal sciences, pest sciences, range science, wildlife biology and ecology, forest science, water sciences, economics, and landscape design and policy applicable to the state and region. •Disseminate findings through extension educational programs aimed at changing practices to control pests. •Proper diagnosis of plant problems, entomology related to plants and structures, weed control and recommendations of integrated pest management strategies.

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	15.0	0.0	26.0	0.0
2013	15.0	0.0	26.0	0.0
2014	15.0	0.0	0.0	0.0
2015	15.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Conduct basic and applied research in plant productions systems. • Workshops and educational classes for producers. •Utilize demonstration plots and field days to communicate program results. •Use individual counseling with producers and clientele on specific plant production problems

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

Extension

Direct Methods	Indirect Methods

• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (Field Days)	• Public Service Announcement • Newsletters • Web sites • Other 1 (Radio reports)

3. Description of targeted audience

Individual agricultural producers, homeowners, agribusinesses, and commodity organizations.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2012	40000	250000	0	0
2013	40000	250000	0	0
2014	40000	250000	0	0
2015	40000	250000	0	0
2016	0	0	0	0

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	15	3	0
2013	15	3	0
2014	15	3	0
2015	15	3	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of new technologies released

  2012:2 **2013:**2 **2014:**2 **2015:**2 **2016:**0

- Number of attendees at workshops/trainings/field days.

  2012:20000 **2013:**20000 **2014:**20000 **2015:**20000 **2016:**0

- Amount of grant dollars garnered to support natural plant production systems research and outreach.

  2012:1000000 **2013:**1000000 **2014:**1000000 **2015:**1000000 **2016:**0

- Number of Extension workshops focusing on plant production systems.

  2012:250 **2013:**250 **2014:**250 **2015:**250 **2016:**0

- Number of volunteers supporting plant production systems work.

  2012:250 **2013:**250 **2014:**250 **2015:**250 **2016:**0

- Number of newsletters distributed in support of this plan of work.

  2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**0

- Number of workshops, educational classes for producers

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of demonstration plots and field days

  2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**0

- Number of individual consultations

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of agencies partnering in this work

2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants at workshops/trainings/field days indicating an increase in knowledge gained.
2	Percent of participants indicating change in behavior/best practices adopted.
3	Economic impact of the change in behavior reported.
4	Adoption of improved wheat cultivars.

Outcome # 1

1. Outcome Target

Percent of participants at workshops/trainings/field days indicating an increase in knowledge gained.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Percent of participants indicating change in behavior/best practices adopted.

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 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
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Economic impact of the change in behavior reported.

2. Outcome Type : Change in Condition Outcome Measure

2012:650000	**2013:**750000	**2014:**750000	**2015:**750000	**2016:**0

3. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Adoption of improved wheat cultivars.

2. Outcome Type : Change in Condition Outcome Measure

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

3. Associated Knowledge Area(s)

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 202 - Plant Genetic Resources
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 206 - Basic Plant Biology
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants

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 Programmatic Challenges

Description

Public policies and weather and other natural diseases will affect the adoption of new crop production technologies. Most of the advances are multi-year activities and cumulative rather than episodic in nature.

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

1. Evaluation Studies Planned

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

- Case Study

Description

Regular pre-post evaluations are used.Formative evaluations are often used during the program to adjust focus and direction.Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- On-Site
- Case Study
- Observation
- Tests

Description

Pre-post tests. Standard survey methods.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Natural Resources and Environment

2. Brief summary about Planned Program

The Census of Agriculture reports decreasing numbers of mid- and large-sized farms and a significant increase in the number of small farms. Small acreage owners/operators frequently may not possess much agricultural or business knowledge. AES and Extension will address the needs of small acreage producers and work with agricultural industry personnel and governmental agencies to assure that land managers and communities can evaluate a broad range of opportunities to enhance viability while respecting the environment.

AES and Extension programs address the growing competition for finite water, land, and air resources in a state with a growing human population by:

- educating agricultural and resource industry professionals;
- researching technical and economic issues related to improved resource utilization; and
- enhancing international competitiveness.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	0%		10%	
102	Soil, Plant, Water, Nutrient Relationships	30%		10%	
103	Management of Saline and Sodic Soils and Salinity	0%		10%	
104	Protect Soil from Harmful Effects of Natural Elements	1%		0%	
111	Conservation and Efficient Use of Water	15%		15%	
112	Watershed Protection and Management	3%		10%	
121	Management of Range Resources	20%		10%	
122	Management and Control of Forest and Range Fires	2%		0%	
123	Management and Sustainability of Forest Resources	5%		10%	
124	Urban Forestry	5%		0%	
131	Alternative Uses of Land	13%		0%	
132	Weather and Climate	0%		10%	
134	Outdoor Recreation	1%		0%	
403	Waste Disposal, Recycling, and Reuse	0%		10%	
605	Natural Resource and Environmental Economics	5%		5%	
	Total	100%		100%	

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

1. Situation and priorities

Development of management practices that are compatible with a high quality environment requires new methods of study that involve entire agro-eco-systems.Quantitative relationships between agriculture, natural resource use, and environmental quality must be defined.This will require a more thorough understanding of basic biological/ecological processes, as well as computer-aided systems management research.Continuing to use natural resources to produce agricultural, range, and forestry products requires new multiple use strategies which are realistic in terms of biological, economic, social and environmental constraints.Transport and fate of pesticides, fertilizers, and other agricultural chemicals, as well as threatened and endangered species, biodiversity, habitat, wetlands, and water are all issues of concern.Knowledge must be developed to understand and evaluate competitive land use impacts and interactions on agricultural, range, and forest lands.This research provides the basis for developing agricultural and forestry management systems that are more compatible with conservation and environmental goals.

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

Colorado State is in the ideal geographic position to address irrigated agro-eco-system level issues.Colorado has a wide diversity of water supply/management regimes that include ground water, diverse surface water management in five river systems, and various diversions of West Slope water.Faculty have an international reputation in agro-eco-system modeling and soil carbon dynamics and associations with the NSF Long Term Ecological Research Short-Grass Prairie unit near Ault, the USDS-ARS Great Plains Systems Unit in Akron, a five-university dry-land agriculture research team, the modeling group at the Natural Resources Ecology Laboratory on campus, atmospheric sciences research programs at CU and CSU, the US Geological Survey, USDA-NRCS, USDA-ERS, a strong set of dry land cropping extension agents, and the dry land crops industries.Colorado State has field research laboratories at Walsh, Rocky Ford, Ft. Collins, Cortez, Center, Orchard Mesa, Rogers Mesa, and Fruita capable of experimentation on cropping systems.State and grant funding will continue at current levels to provide facilities and support required to conduct an applied, field based research and outreach program.

2. Ultimate goal(s) of this Program

Programs will sustain and/or improve the quality and quantity of Colorado's natural resources and environment. The following activities will help achieve this goal:

- Conduct natural resources research to develop agricultural and forestry management systems that are compatible with conservation and environmental goals and economically sustainable.
- Study the effects of climate and climate variation on plant, animal and microbial ecosystems to allow an assessment of the impacts of global change on agricultural and natural ecosystems.
- Develop and test technical, institutional, or social solutions to water quality and quantity problems in Colorado.
- Develop technologies for managing agricultural and municipal wastes.
- Provide educational programs for urbanites on horticultural practices and the environment resulting in less pollution and more efficient water use.
- Sustain local agriculture while lessening adverse impacts on the environment.

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	30.0	0.0	11.0	0.0
2013	30.0	0.0	11.0	0.0
2014	30.0	0.0	11.0	0.0
2015	30.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

• Conduct workshops and educational classes for producers, landowners, and agency personnel.
• Establish demonstration plots and field days to share research and outreach results.
• Consult with individual producers and landowners to address local problems.
• Conduct basic and applied research on environmental and natural resources issues.
• Conduct natural resources research to develop agricultural and forestry management systems that are compatible with conservation and environmental goals and economically sustainable.
• Develop and test technical, institutional, or social solutions to water quality and quantity problems in Colorado.
• Develop technologies for managing agricultural and municipal wastes.
• Provide educational programs for urbanites on horticultural practices and the environment resulting in less pollution and more efficient water use.
• Sustain local agriculture while lessening adverse impacts on the environment.

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations • Other 1 (Field Days)	• Public Service Announcement • Newsletters • Web sites • Other 1 (Radio spots)

3. Description of targeted audience

Individual agricultural producers, landowners, commodity groups, regulatory agencies, agribusinesses, and local, state, and federal land management agencies.

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	2000000	2500	0
2013	20000	2000000	2500	0
2014	20000	2000000	2500	0
2015	20000	2000000	2500	0
2016	0	0	0	0

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	25	45	0
2013	25	45	0
2014	25	45	0
2015	25	45	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of attendees at workshops/trainings/field days.

  2012:15000 **2013:**15000 **2014:**15000 **2015:**15000 **2016:**0

- Amount of grant dollars garnered to support natural resources research and outreach.

  2012:1000000 **2013:**1000000 **2014:**1000000 **2015:**1000000 **2016:**0

- Number of Master Gardener and Wildlife Master volunteer hours

  2012:55000 **2013:**55000 **2014:**55000 **2015:**55000 **2016:**0

- Value of volunteer time at $20.25/hr (nationally recognized value.)

  2012:1000000 **2013:**1000000 **2014:**1000000 **2015:**1000000 **2016:**0

- Number of volunteers supporting this program.

  2012:2000 **2013:**2000 **2014:**2000 **2015:**2000 **2016:**0

- Number of partnering agencies supporting this program.

  2012:200 **2013:**200 **2014:**200 **2015:**2000 **2016:**0

- Number of new technologies adopted by producers.

  2012:3 **2013:**3 **2014:**3 **2015:**3 **2016:**0

- Pounds of food donated to local food banks through Master Gardener efforts.

  2012:30000 **2013:**30000 **2014:**30000 **2015:**30000 **2016:**0

- Number of curriculum pieces developed and/or reviewed in support of this planned program.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**0

- Number of Small Acreage Workshops Delivered

2012:6 **2013:**6 **2014:**6 **2015:**6 **2016:**0

- Number of Demonstration Plots established/maintained to share research and outreach results

2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**0

- Number of field days conducted to share research and outreach results

2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**0

- Number of individual producers and/or landowners receiving consultation to address local problems.

2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of Native Plant Master Volunteer Hours

2012:1000000 **2013:**1000000 **2014:**1000000 **2015:**1000000 **2016:**0

- Value of Native Plant Masters' volunteer time (at $20.25/hour)

2012:55000 **2013:**55000 **2014:**55000 **2015:**55000 **2016:**0

- User fees in dollars, collected through Natural Resources & Environment programming

2012:100000 **2013:**100000 **2014:**100000 **2015:**100000 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants in workshops/trainings/field days indicating an increase in knowledge gained about agriculture/horticultural practices and the environment.
2	Percent of participants indicating change in behavior/best practices adopted.
3	Economic impact in dollars reported as a result of the change in behavior.
4	Percent of participants gaining knowledge to change irrigation practices in order to provide a cleaner environment.
5	Percent of participants indicating they changed behavior in order to have less pollution and more efficient water use.

Outcome # 1

1. Outcome Target

Percent of participants in workshops/trainings/field days indicating an increase in knowledge gained about agriculture/horticultural practices and the environment.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:60	**2013:**60	**2014:**60	**2015:**60	**2016:**0

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
- 111 - Conservation and Efficient Use of Water
- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants indicating change in behavior/best practices adopted.

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 103 - Management of Saline and Sodic Soils and Salinity
- 111 - Conservation and Efficient Use of Water
- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources

- 124 - Urban Forestry
- 131 - Alternative Uses of Land
- 132 - Weather and Climate
- 403 - Waste Disposal, Recycling, and Reuse

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Economic impact in dollars reported as a result of the change in behavior.

2. Outcome Type : Change in Condition Outcome Measure

2012:150000	**2013:**150000	**2014:**150000	**2015:**150000	**2016:**0

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 103 - Management of Saline and Sodic Soils and Salinity
- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 121 - Management of Range Resources
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 131 - Alternative Uses of Land
- 403 - Waste Disposal, Recycling, and Reuse
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Percent of participants gaining knowledge to change irrigation practices in order to provide a cleaner environment.

2. Outcome Type : Change in Condition Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Percent of participants indicating they changed behavior in order to have less pollution and more efficient water use.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:40	**2013:**40	**2014:**40	**2015:**40	**2016:**0

3. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 605 - Natural Resource and Environmental Economics

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Local, state, and federal funding changes will impact ability to conduct programs.Significant changes in regulatory environment could dramatically alter the scope and goals of both research and extension programs.This is most notable in Colorado with respect to policies affecting use of public lands and both surface and ground water.Both water quantity and water quality are critical issues to the future of agriculture in the semi-arid west. More and more agricultural producers are operating in a market-oriented, individual-responsibility environment, with less reliance on price supports. Producers are moving toward differentiated, consumer-oriented products.

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Case Study

Description

Regular pre-post evaluations are used.Formative evaluations are often used during programs to adjust focus and direction.Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- Case Study
- Observation
- Tests

Description

Pre-post tests and standard survey methods.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Community Resource Development

2. Brief summary about Planned Program

Research and outreach will be targeted to municipal, county, state, and federal agencies, nongovernmental organizations, and citizens to provide information and analysis promoting community development.This will include community impact analysis of economic activity, community organization for progress, evaluation of the drivers of local development, and workforce professional and personal development.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	0%		40%	
602	Business Management, Finance, and Taxation	10%		0%	
603	Market Economics	2%		0%	
604	Marketing and Distribution Practices	8%		0%	
605	Natural Resource and Environmental Economics	0%		30%	
608	Community Resource Planning and Development	75%		20%	
610	Domestic Policy Analysis	5%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%		10%	
	Total	100%		100%	

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

1. Situation and priorities

Communities struggle to develop and maintain resources (human, financial, physical, social, environmental, and political.They are also challenged in providing the needed organizational capacity to

assess, plan, and implement activities to address resource development and management.A lack of critical mass in smaller rural areas exacerbates issues found in all areas of the state.More specifically, rural areas of the US and Colorado face challenges due to marked differences in economic, educational, health and social opportunities relative to more urban areas.Colorado has some unique needs due to more sparse populations, a high natural amenity base (and share of public lands), a more transitory population and relatively low public service provision.People in rural areas tend to be older, poorer, more likely to be uninsured, and less educated than their urban counterparts.Communities require knowledge to evaluate their resource base, their economic and social service alternatives, and their futures.

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 competencies of CRD have been around for a long time and are still appropriate.
- Program planning is not always a one-time process.What is developed will need constant monitoring and adjustment.
- CSU and Extension are experiencing financial and political stress that requires us to engage new and expanding audiences.
- Extension has the organizational capacity to facilitate team building, situation assessment, and prioritize applied research needs in communities of Colorado.

2. Ultimate goal(s) of this Program

Community Resource Development Programs and expertise will provide tools so that citizens can make informed decisions to increase tax revenues, maintain and/or increase employment, and maintain and/or grow valued community resources.

Colorado State University is in a strong position to assist with the economic development of Colorado's agricultural and rural communities, as well as evolving industries related to these communities.Our role will be to educate professionals within communities with knowledge of community development and modern business practices, as well as researching technical and economic issues related to differentiated agricultural products in the ever-changing domestic and international market place. By being actively involved with agricultural industry personnel, rural communities, and governmental agencies, Extension and Research can assure that land managers, individual business owners, and community residents can evaluate a broad range of opportunities to enhance viability.

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	5.0	0.0	6.0	0.0
2013	5.0	0.0	6.0	0.0
2014	5.0	0.0	6.0	0.0
2015	5.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

• Training for Extension personnel in community mobilization, facilitation, economic development.
• Working with rural communities on a regional approach to small town tourism including making optimal use of environmental resources, respecting the socio-cultural authenticity of host communities while conserving their built and living cultural heritage and traditional values, and ensuring viable, long-term economic operations, including stable emp0loyment and income-earning opportunities.
• Conducting basic and applied research in areas exploring the interface between agribusiness, rural development, and natural-resource-amenity-based opportunities.
• Conducting workshops and other educational activities with Extension professionals and community stakeholders.

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

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Other 1 (Tourism rallies)	● Public Service Announcement ● Newsletters ● Web sites

3. Description of targeted audience

Community members, general public, consumers, community organizations. The intuitive success of Extension professionals in community/economic development will be enhanced for formalized training and opportunities to accurately report these on-going efforts.

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	2000	6000	200	0
2013	20000	6000	200	0
2014	2000	6000	200	0
2015	2000	6000	200	0
2016	0	0	0	0

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	10	1	0
2013	10	1	0
2014	10	1	0
2015	0	1	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of training opportunities for community members

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Amount of grant dollars garnered to support community development research and outreach.

  2012:1000000 **2013:**1000000 **2014:**1000000 **2015:**1000000 **2016:**0

- Number of agencies partnering in this effort.

  2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**0

- Number of volunteers supporting this planned program.

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of new technologies adopted by participants/communities.

  2012:20 **2013:**20 **2014:**20 **2015:**20 **2016:**0

- Number of collaborative projects implemented

  2012:15 **2013:**20 **2014:**25 **2015:**25 **2016:**0

- Number of community capacity-building activities, such as meetings, presentations, committee meetings, needs assessments, etc.

  2012:60 **2013:**60 **2014:**60 **2015:**60 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of community residents, businesses and leaders who increase their understanding of sustainable community development, tourism and economic development principles.
2	The number of communities that evaluate the potential for sustainable community development, tourism and economic development and prioritize to target specific interests, actions, and valued community resources to maintain and grow.
3	The number of communities which experience increased economic gain from sustainable community development, tourism, and economic development efforts including increased tax revenues, employment, and retention of community valued resources.
4	Percent of program participants reporting changing an attitude as a result of Community Resource Development programs.
5	Percent of participants reporting intent to change behavior and/or changing behavior as a result of these programs.
6	Percent of participants reporting increase in knowledge as a result of these programs.
7	Number of Colorado communities that have improved their built environment, while demonstrating stewardship of natural resources for future generations.
8	Number of communities in which Colorado youth and adults actively influence the development of their communities through skillful and informed engagement in planning, decision making, and implementation efforts.
9	Number of communities where citizens make informed decisions that sustain the integrity of natural resources while improving quality of life.

Outcome # 1

1. Outcome Target

Percent of community residents, businesses and leaders who increase their understanding of sustainable community development, tourism and economic development principles.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:65	**2013:**65	**2014:**65	**2015:**65	**2016:**0

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

The number of communities that evaluate the potential for sustainable community development, tourism and economic development and prioritize to target specific interests, actions, and valued community resources to maintain and grow.

2. Outcome Type : Change in Action Outcome Measure

2012:40	**2013:**40	**2014:**40	**2015:**40	**2016:**0

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

The number of communities which experience increased economic gain from sustainable community development, tourism, and economic development efforts including increased tax revenues, employment, and retention of community valued resources.

2. Outcome Type : Change in Condition Outcome Measure

2012:5	**2013:**5	**2014:**5	**2015:**5	**2016:**0

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4

1. Outcome Target

Percent of program participants reporting changing an attitude as a result of Community Resource Development programs.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 605 - Natural Resource and Environmental Economics

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 5

1. Outcome Target

Percent of participants reporting intent to change behavior and/or changing behavior as a result of these programs.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 602 - Business Management, Finance, and Taxation
- 604 - Marketing and Distribution Practices
- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 6

1. Outcome Target

Percent of participants reporting increase in knowledge as a result of these programs.

2. Outcome Type : Change in Knowledge Outcome Measure

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

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development
- 610 - Domestic Policy Analysis
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 7

1. Outcome Target

Number of Colorado communities that have improved their built environment, while demonstrating stewardship of natural resources for future generations.

2. Outcome Type : Change in Condition Outcome Measure

2012:2	**2013:**2	**2014:**2	**2015:**2	**2016:**0

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 8

1. Outcome Target

Number of communities in which Colorado youth and adults actively influence the development of their communities through skillful and informed engagement in planning, decision making, and implementation efforts.

2. Outcome Type : Change in Condition Outcome Measure

2012:5	**2013:**5	**2014:**5	**2015:**5	**2016:**0

3. Associated Knowledge Area(s)

- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 9

1. Outcome Target

Number of communities where citizens make informed decisions that sustain the integrity of natural resources while improving quality of life.

2. Outcome Type : Change in Condition Outcome Measure

2012:3	**2013:**3	**2014:**3	**2015:**3	**2016:**0

3. Associated Knowledge Area(s)

- 605 - Natural Resource and Environmental Economics
- 608 - Community Resource Planning and Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

Community Resource Development, and its partner, Economic Development, are highlighted by the Office of the Vice President for Engagement. With efforts to focus CSU Extension programming, we may consider CRD as a process rather than an issue. The goal is to intentionally integrate CRD into all issues work. A proposed model includes:

Built capital (human-made material = buildings, equipment, information, infrastructure)

Human and Social capital (people = skills, health, abilities, education; and connections = family, neighbors, community, and government)

Natural capital (natural resources &ndash food, water, metals, wood, and energy; ecosystem services = fisheries, fertile soil, water filtration, and CO2-Oxygen; beauty of nature = mountains, seashores, sunlight, rainbows, and bird songs)

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Case Study

Description

Regular pre-post evaluations are used.Formative evaluations are often used during the program to adjust focus and direction.Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- Case Study
- Observation
- Tests

Description

Pre-post tests.Standard survey methods. Some evaluation conducted through class projects in various CSU departments.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

The goals of this strategic initiative team are to:

- educate a core group of extension agents about renewable energy options and energy efficiency.
- broadly educate all extension agents on the basics of renewable energy.

Ultimately, we hope Extension will be seen as the educational entity of choice in the area of clean energy.

Strategies include developing fact sheets for the general public, identifying additional outside resources to support this work and partnering with community agencies to deliver educational programming.

Long term deliverables include:

- develop demonstration sites
- deliver short term classes
- partner with campus faculty
- develop green jobs program for schools
- develop school enrichment materials using STEM based standards

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
132	Weather and Climate	25%		0%	
402	Engineering Systems and Equipment	25%		0%	
605	Natural Resource and Environmental Economics	25%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%		0%	
	Total	100%		0%	

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

1. Situation and priorities

APLU released the results of a nationwide survey regarding the value of the Extension brand. Participants were asked to rank the importance of local issues that could be addressed through the CSU research-based information, including issues that are especially critical in the next five years. A total of 335 interviews were conducted online with Colorado residents from June to July 2008. The top characteristics that motivate consumers to use a resource are: trustworthy source, great staff, convenient access, current and reliable information, expert review, and quality of life.

In the survey, one of the top two issues they believe Extension should address was energy: bio-fuels, solar, wind, and biomass.

Some of Extension's traditional programs are timeless and will continue to serve our communities.But to remain viable, our programs and expertise must meet the current and changing needs of our world.We are quickly evolving from a fossil fuel-based economy to a sustainable and renewable-energy-based economy. This is one of the most significant changes of the past century. It is essential that we change along with the backbone of our energy paradigm.

Extension has an influential and important role to play in helping usher in this new era.Traditionally, Extension agents have been the most trusted and well regarded experts in agricultural matters.As such, we have the ear of those farmers and ranchers who own the very resources necessary to effectively build a new energy economy. Once trained, agriculture agents can act as information brokers to producers about everything from how to make their operation more energy-efficient, to the range of value-added opportunities that could help boost their bottom line. Essentially, agents could provide basic information and then link producers to professionals who can help erect a single wind turbine, lease their land to a utility for a large wind facility, grow fuel-producing crops, or construct an anaerobic digester&mdashand more. That said, ag agents can do none of this until they are trained to help their communities succeed.

Family & consumer science agents can also tap into the renewable energy boom.They can assist homeowners, businesses, rural operators, and communities with who can help them improve energy efficiency in their existing structures, or how to build new ones that employ geothermal, micro-hydrogen, solar and other clean energy sources. But these agents must first be trained to do so.

4-H agents can also play a meaningful role. By providing new curriculum for their club members, they can offer cutting-edge programs that could attract an entirely new demographic into the 4-H family. But our 4-H agents need to be supplied with these curriculums and trained in how to implement them.

Economic development agents will also be able to work with communities that may be interested in pursuing the economic benefits of renewable energy.For example, in Logan County, the wind farm produced $4.16 million for the County. Additionally, annual easement payments to property owners range from $4,000 to $6,000 and will add another $45 million over 30 years. During 2007, nearly 350 construction workers were employed in the area. They purchased temporary housing, food and supplies during their months there. Over 20 full-time, permanent jobs were created for wind technicians to service the wind turbines.

As our economic times become more tentative, it becomes increasingly more important to prove to our communities and stakeholders that we are an important, relevant and effective resource.To back that up, however, we must provide proper training and resources to our agents so they can confidently be among the leaders in their communities regarding all types of energy issues. It makes good sense to invest time, money and necessary efforts to augment the expertise of our agents so that they continue to stand out as Colorado's most reliable and trusted resource in the field. There has never been a better time&mdashor clearer understanding&mdashof how we can play an essential part in supporting our nation's transformation and independence.

By creating the Clean Energy Special Initiative Team (CESIT), we will begin to chip away at the task of answering to this change.

2. Scope of the Program

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

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

1. Assumptions made for the Program

In order for Extension to quickly get up to speed, we need to continue to foster partnerships both within the campus (CSU Clean Energy Supercluster, CSU Climate Initiatives and Carbon Assets, and others) and externally (the Governor's Energy Office, the National Renewable Energy Laboratory, Colorado Renewable Energy Society, the Collaboratory, the Farm Bureau, Colorado Harvesting Energy Network, Utility Companies, Colorado Solar Energy Industry Association, and more).The external partnerships are required because CSU's Clean Energy Supercluster's emphasis is on research and development rather than education, although they recognize this as an unmet need. CSU Extension's energy work intends to fill the educational gap, and help to make CSU the Green University for even more people.

The renewable energy and energy efficiency industries (RE&EE) generates $102 billion in annual revenue and provide more than 91,000 jobs in Colorado (2007) with potential for these industries to grow six-fold by 2030. Renewable energy is an emerging field for Extension both in Colorado, and across the country. The field crosses many different content and delivery/audience areas, including Community/Economic development, 4-H Youth Development, Family Economic Stability, and Competitive and Sustainable Agriculture systems. As an organization, we have had almost no resources or agents in this field, and there is an urgent need to train agents and develop materials for the public. This in turn will reduce carbon footprints, reduce global warming, reduce pollution and help drive the new energy economy.

2. Ultimate goal(s) of this Program

Programming from the Clean Energy Strategic Initiative Team activities will reduce the knowledge gap for people interested in renewable energy and energy efficiency, increasing implementation of energy efficient measure and installations of renewable energy projects. This in turn will reduce carbon footprints, reduce global warming, reduce pollution and help drive the new energy economy. The renewable energy and energy efficiency industries (RE&EE) generates $102 billion in annual revenue and provide more than 91,000 jobs in Colorado (2007) with potential for these industries to grow six-fold by 2030.

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

V(F). Planned Program (Activity)

1. Activity for the Program

Programming from the Clean Energy Strategic Initiative Team activities will reduce the knowledge gap for people interested in renewable energy and energy efficiency, increasing implementation of energy efficient measure and installations of renewable energy projects. Our first- and second-year plan (this is Year 2) includes:

- Create, staff, and maintain an oversight (steering) committee to lead Clean Energy work in Colorado Extension.
- Identify and enlist, then maintain the support and commitment of field agents who will either lead the subcommittees or participate on them.
- Identify and enlist the support and commitment from on-campus faculty who will either lead the subcommittees or participate on them.

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion • One-on-One Intervention • Demonstrations	• Newsletters • Web sites

3. Description of targeted audience

Colorado individuals, families and communities interested in clean energy.

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	200	500	250	0
2013	200	500	250	0
2014	200	500	250	0
2015	200	500	250	0
2016	0	0	0	0

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	2	0
2013	0	2	0
2014	0	2	0
2015	0	2	0

Year	Research Target	Extension Target	Total
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of trainings/workshops/field days/camps/classes conducted

  2012:20 **2013:**20 **2014:**20 **2015:**20 **2016:**0

- Amount of grant dollars generated to support clean energy

  2012:50000 **2013:**50000 **2014:**50000 **2015:**50000 **2016:**0

- Number of technical (fact sheets) generated about clean energy

  2012:10 **2013:**10 **2014:**10 **2015:**10 **2016:**0

- Number of volunteers supporting clean energy

  2012:50 **2013:**50 **2014:**50 **2015:**50 **2016:**0

- Number of partnering agencies/organizations around clean energy

  2012:20 **2013:**20 **2014:**20 **2015:**20 **2016:**0

- Number of Extension Agents trained

  2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**0

- Number of new technologies adopted by individuals/families/organizations/communities

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**0

- Number of curricula developed and/or disseminated for both formal and informal education.

  2012:5 **2013:**5 **2014:**5 **2015:**5 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants reporting increase in knowledge about clean energy
2	Percent of participants reporting change in behavior in energy use
3	Percent of participants reporting a change in condition in their home, business, community, etc.
4	Planning, development and implementation of bio-based, renewable energy projects (such as processing plant, wind farm, etc.)

Outcome # 1

1. Outcome Target

Percent of participants reporting increase in knowledge about clean energy

2. Outcome Type : Change in Knowledge Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 402 - Engineering Systems and Equipment
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants reporting change in behavior in energy use

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 402 - Engineering Systems and Equipment
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

1. Outcome Target

Percent of participants reporting a change in condition in their home, business, community, etc.

2. Outcome Type : Change in Condition Outcome Measure

2012:25	**2013:**25	**2014:**25	**2015:**25	**2016:**0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 402 - Engineering Systems and Equipment
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 4

1. Outcome Target

Planning, development and implementation of bio-based, renewable energy projects (such as processing plant, wind farm, etc.)

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 132 - Weather and Climate
- 402 - Engineering Systems and Equipment
- 605 - Natural Resource and Environmental Economics
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Description

Economic conditions and changes in public policy could drive outcomes up or impede success, depending on the direction of the changes. This work was organized as a "strategic initiative team" in fall, 2009. NIFA priorities and progress by the team are reflected in showing the work as a planned program for 2011. A new Clean Energy specialist, hired for a three-year fixed term position, starts May 10, 2010.

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)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

Description

Evaluation efforts are formative to date. Targets are made by conservative estimate.

2. Data Collection Methods

- Sampling
- On-Site
- Structured
- Unstructured
- Case Study
- Observation

Description

While organizing the initiative, team members must consider how to evaluate their success. A Clean Energy specialist starting Mary 10, 2010, will lead evaluation discussion and implementation. Funding agencies may require program results that will align with Extension priorities and Logic Models.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned Program

The Nutrition and Wellness Work Team is and will be focused on three areas, including Childhood Obesity, which is listed as a planned program in response to the NIFA priorities.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	50%		0%	
724	Healthy Lifestyle	50%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Healthful nutrition, activity and lifestyle behaviors are priorities for Coloradans. Adoption of healthful behaviors may reduce the incidence of chronic diseases, such as diabetes, heart disease, obesity and cancer, thus impacting health insurance premiums, mortality rates, and employee productivity.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Activities conducted through Extension's Health Promotion/Disease Prevention Work Team are reportable under Childhood Obesity as well as Global Food Security. One outcome example is improved healthful dietary and activity habits in children. An associated indicator is increased fruit and vegetable consumption (report improved knowledge,

increased consumption or intent to increase consumption.) A second indicator is increased physical activity (report increased knowledge, increased activity [e.g. steps], or intent to increase activity.)

2. Ultimate goal(s) of this Program

Prevention or reduction of incidence of childhood obesity and improved health outcomes for children.

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	5.0	0.0	0.0	0.0
2013	5.0	0.0	0.0	0.0
2014	5.0	0.0	0.0	0.0
2015	5.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Programming to parents and care givers so they can learn and convey the importance of healthful dietary and activity habits to children.

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop • Group Discussion	• Newsletters • Web sites

3. Description of targeted audience

Target audiences include children (birth through high school), parents, teachers and other school staff.

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	0	100	200
2013	100	0	100	200
2014	100	0	100	200
2015	100	0	100	200
2016	0	0	0	0

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	3	5	0
2013	3	5	0
2014	3	5	0
2015	3	5	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of workshops/trainings delivered to parents and/or care givers concerning healthful dietary and activity habits in children

  2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**0

- Number of participants in workshops

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of volunteers engaged in this work

  2012:25 **2013:**25 **2014:**25 **2015:**25 **2016:**0

- Number of external grant dollars generated for this work

  2012:50000 **2013:**50000 **2014:**50000 **2015:**50000 **2016:**0

- Number of agencies partnering in this work

  2012:15 **2013:**15 **2014:**15 **2015:**15 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants who learn and convey the importance of healthful dietary and activity habits to children.
2	Percent of participants who change behavior in order to improve healthful dietary and activity habits in children.

Outcome # 1

1. Outcome Target

Percent of participants who learn and convey the importance of healthful dietary and activity habits to children.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants who change behavior in order to improve healthful dietary and activity habits in children.

2. Outcome Type : Change in Action Outcome Measure

2012:50	**2013:**50	**2014:**50	**2015:**50	**2016:**0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Competing Programmatic Challenges

Description

Extension recognizes this critical need in Colorado and we are watching the development of NIFA priorities for policy and funding. Some of the outcomes and indicators for childhood obesity prevention have great potential for collaboration across various program areas within Extension, by content and/or by audience. Targets are estimated at a conservative level, and we expect to revise our plan after we have collected data from Year 1.

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)
- Case Study

Description

Work Teams will design evaluation strategies to document success in this NIFA priority.

2. Data Collection Methods

- Sampling
- Mail
- Telephone
- On-Site
- Structured
- Unstructured
- Case Study
- Observation

Description

Some of the outcomes and indicators for childhood obesity prevention have great potential for collaboration across various program areas within Extension, by content and/or by audience. While this provides programmatic richness, it complicates evaluation efforts.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Health Promotion and Disease Prevention

2. Brief summary about Planned Program

The Health Promotions and Disease Prevention Work Team will provide research-based nutrition and health education to a variety of audiences across Colorado in an effort to promote healthful nutrition, activity and lifestyle behaviors.

This will include the establishment of an interdisciplinary research consortium led by plant productions systems professionals to determine relationships between metabolites and disease and to identify metabolites in animal and crop foods to help prevent disease and improve health.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	10%		0%	
702	Requirements and Function of Nutrients and Other Food Components	10%		0%	
703	Nutrition Education and Behavior	40%		0%	
724	Healthy Lifestyle	40%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Adoption of healthful behaviors may reduce the incidence of chronic diseases, such as diabetes, heart disease, obesity and cancer, thus impacting health insurance premiums, mortality rates, and employee productivity.

2. Scope of the Program

- In-State Extension

- In-State Research

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

1. Assumptions made for the Program

Adoption of healthful behaviors may reduce the incidence of chronic diseases, such as diabetes, heart disease, obesity and cancer, thus impacting health insurance premiums, mortality rates, and employee productivity.

2. Ultimate goal(s) of this Program

Reduced incidence of chronic diseases (such as diabetes, heart disease, obesity and cancer), thus reducing health insurance premiums and mortality rates, and increasing employee productivity.

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	12.0	0.0	0.0	0.0
2013	12.0	0.0	0.0	0.0
2014	12.0	0.0	0.0	0.0
2015	12.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Health Promotion/Chronic Disease Prevention programs include:
- Strong Women, Strong Bones
- Heart Disease Awareness & Prevention
- Diabetes Awareness, Prevention and Management
- Nutrition Education for Low-income Audiences
- Nutrition and Wellness
- Multi-lesson series: Dining with Diabetes, Small Changes Make a Big Difference, Strong Women-Strong Bones, Moving Toward a Healthier You, Healthy Heart, Smart-START for a Healthy Heart
- Self-paced program - Self-Care for a Healthy Heart

- Single lessons - Workable Wellness (work site wellness).
- Youth programs: Food Friends-Making New Foods Fun for Kids, Eating Right Is Basic, Chef Combo's Fantastic Adventures in Tasting and Nutrition, Professor Popcorn

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

Extension

Direct Methods	Indirect Methods
• Education Class • Workshop	• Newsletters

3. Description of targeted audience

Adults in Colorado

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	100000	100	5000
2013	20000	100000	100	5000
2014	20000	100000	100	5000
2015	20000	100000	100	5000
2016	0	0	0	0

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	10	9	0
2013	10	9	0

Year	Research Target	Extension Target	Total
2014	10	9	0
2015	10	9	0
2016	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of Trainings Delivered on Health Promotion and/or Disease Prevention topics.

  2012:100 **2013:**100 **2014:**100 **2015:**100 **2016:**0

- Number of individuals trained in workshops related to health promotion and/or disease prevention.

  2012:2500 **2013:**2500 **2014:**2500 **2015:**2500 **2016:**0

- Grant funding (external) received to support this work

  2012:125000 **2013:**125000 **2014:**125000 **2015:**125000 **2016:**0

- Number of individuals reached by newsletters distributed on Health Promotion and Disease Prevention

  2012:125000 **2013:**125000 **2014:**125000 **2015:**125000 **2016:**0

- Number of volunteers engaged with these programs.

  2012:200 **2013:**200 **2014:**200 **2015:**200 **2016:**0

- Number of agencies partnering in this work.

  2012:150 **2013:**150 **2014:**150 **2015:**150 **2016:**0

- User fees generated through these programs.

  2012:25000 **2013:**25000 **2014:**25000 **2015:**25000 **2016:**0

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participants indicating an increase in knowledge regarding health promotion and/or disease prevention.
2	Percent of participants reporting a change in behavior following participation in a health promotion/disease prevention program.

Outcome # 1

1. Outcome Target

Percent of participants indicating an increase in knowledge regarding health promotion and/or disease prevention.

2. Outcome Type : Change in Knowledge Outcome Measure

2012:75	**2013:**75	**2014:**75	**2015:**75	**2016:**0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percent of participants reporting a change in behavior following participation in a health promotion/disease prevention program.

2. Outcome Type : Change in Action Outcome Measure

2012:60	**2013:**60	**2014:**60	**2015:**60	**2016:**0

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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

Description

This work team participated in the FCS focusing activity in June, 2009, and has specific outcome targets and indicators by which they can collect their data.

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)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

Description

Programs in this FCS area of focus include evaluation instruments for ongoing improvement of programs and also impact data.

2. Data Collection Methods

- Sampling
- Case Study
- Observation

Description

{NO DATA ENTERED}