

2010 Colorado State University Combined Research and Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

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The Agricultural Experiment Station 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 emphasizes non-formal education and transfer of knowledge to audiences throughout the state, based on research information from the College of Agricultural Sciences, as well as the Colleges of Applied Human Sciences, Engineering, Veterinary Medicine and Natural Resources. These programs address best management practices, merchandising, finance, policy, food quality, landscape design, environmental impacts and community development, 4-H youth development and family and consumer education.

Animal agriculture is the leading agriculture activity in Colorado. In 2007, livestock and livestock product sales in Colorado were valued at \$4.271 billion and the value of dairy production was \$516 million. Livestock and livestock products accounted for 68% of crops and livestock sales in the state. Colorado State University assists producers using multi-departmental, multi-college and multi-county interactions.

Colorado State University assists with the economic development of Colorado's livestock and equine industry, works to enhance environmental quality, and to enhance the public health of citizens with improved livestock environmental solutions by educating livestock and equine industry professionals and small acreage owners in best management practices for nutrient management and odor and dust control; researching technical and economic issues related to improved animal production practices; and being actively involved with livestock and equine industry personnel, governmental agencies, and small acreage owners, to assure that the latest knowledge is incorporated in management and regulatory decisions.

Crop production in the state benefits from research and Extension related to improved crops which resist environmental and biological pests. Producers realize increased prices and lower cost of production. Consumers benefit from higher human nutritional values of food. Molecular biology and genomics are opening new pathways for crop plant improvement and pest management, to 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. This includes the establishment of an interdisciplinary research consortium to determine relationships between metabolites and disease, and to identify metabolites in animal and crop foods to help prevent disease and improve health.

CSU Extension and Experiment station programs address the growing competition for finite water, land, and air resources in a state with a growing human population. We do this by educating agricultural and resource industry professionals, researching technical and economic issues related to improved resource utilization, and enhancing international competitiveness. By being actively involved with agricultural industries and governmental agencies, we seek to assure that the latest knowledge is incorporated in management and regulatory decisions. 21st century agriculture will focus on a broader array of food products of higher value, differentiated in the marketplace and produced with much higher cost land and water resources in more crowded environments.

Colorado is an urban state, with 80% of the population living in urban areas. The green industry of Colorado comprises a significant part of Colorado agriculture; it has been recognized as "agriculture" by the Colorado General Assembly. The industry includes production, wholesale, and retail sales for floriculture, nursery, and tree crops, garden supplies, irrigation equipment, outdoor equipment, and development and care services for landscapes, such as golf courses, landscape design and construction, and landscape maintenance for homes, businesses, and public gardens and cemeteries. 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 \$1.67 billion in direct sales. (This generates an economic impact of \$2.1 to \$5.0 billion depending on the economic multiplier used.) 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. Colorado State University supports the green industry by educating professionals, researching commercial and residential issues related to ornamental plantings and landscape restoration, and providing continuing education to industry employees and citizens on best practices for

plant selection, plant production and maintenance, water conservation and irrigation, pest control, and landscape design.

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. The Census of Agriculture reports decreasing numbers of mid- and large-sized farms and a significant increase in the number of small farms; the latter category of individuals frequently does not contain much agricultural business knowledge. CSU Experiment Station and Extension are addressing small acreage producers through educating professionals on supply and marketing chains, product differentiation, consumer product marketing, corporate accounting, risk and financial management tools and rural entrepreneurship. By working with agricultural industry personnel and governmental agencies, we assure that land managers and communities can evaluate a broad range of opportunities to enhance viability.

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, changes in military deployments, 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. 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.

Our family and youth programs are also experiencing change. Many of the health threats for adolescents are social and behavioral. Health-risk behaviors are often established during youth and extend into adulthood. The most costly and widespread adolescent health problems – unintended pregnancy, sexually-transmitted infections, violence, suicide, unintended injuries, and the use of alcohol, tobacco and other drugs – are potentially preventable. The risk indicators confirm that focused attention, money, and uninterrupted effort over time will produce good results. The challenge of our program is to provide unique research-based university outreach efforts in partnership with local and state government to address these concerns.

Colorado State University reaches Colorado’s youth through 4-H youth development programs in 4-H clubs, after-school and school enrichment. This program emphasizes personal growth of young people through experiential learning with well-designed curricula and projects. Development of volunteers to provide much of the leadership to this organization and private fund-raising are especially important. Positive youth development addresses broader developmental needs of youth and focuses on the development of assets, in contrast to deficit-based models which focus solely on youth problems. Studies have shown that youth who have developed these assets are involved in positive group settings and become productive citizens and successful young adults.

Colorado State University provides applied research and Extension education in a coordinated set of programs related to community health, working in partnership with state and nongovernmental agencies. Our goal is to be a leading source of research-based information promoting the health of individuals, families, and communities. Statewide and community programs include health promotion and chronic disease prevention, food security for limited resource families, food safety, early childhood and out-of-school age care, strengthening families, family economics and credit management, and healthy home environments.

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	150.0	0.0	50.0	0.0
2011	150.0	0.0	50.0	0.0
2012	150.0	0.0	50.0	0.0
2013	150.0	0.0	50.0	0.0
2014	150.0	0.0	50.0	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 CE projects submitted for support by state and federal funds. Documentation is available upon request for the specific process adopted by each College and approved by the AES Director.

In addition, Extension programs are subject to review by the Program Leadership Team (PLT) and Core Competency Area (CCA) leaders. Extension identified, through a futuring effort, 6 areas of emphasis in programming: Strong Families, Healthy Homes; Nutrition, Health, and Food Safety; 4-H and Youth Development, Sustainable Community Development; Natural Resources and the Environment; and Competitive & Sustainable Agricultural Systems. The Futuring effort included representation from constituents, funders, partner agencies, and CE staff. In each of those areas, the Futuring Report suggested a focused approach. Currently, Extension specialists and agents team together on 20 work teams, jointly lead by a specialist and an agent. Each work team has completed a logic model, including providing a situation statement, identification of inputs, outputs and impacts. Those logic model plans were evaluated by additional Extension staff who committed to work as a part of the work team. These program plans were reviewed and approved by an external Colorado Extension Advisory Committee of non-Extension, non-University professionals. This state-level advisory committee has representation from Extension constituents, partners (green industry, agricultural organizations, human service agencies), and county commissioners.

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 county programs are then categorized under the six core competency areas and are further reviewed by the State Extension Advisory Committee.

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 bioenergy.

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. In-service education has been, and continues to support this 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 their 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 the program. Example outcomes include adoption of improved plant/animal systems, adoption of recommendations by constituents, success in attracting contract and grant funding, and economic impact. Each work team operating under the six core competency areas in Extension has completed a logic model and identified both outputs and outcomes for each of their respective program areas.

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

Programs will be subject to annual review as well as a more in depth review each 5 years. All projects conducted by the CAES are subjected to a peer review process. Each College at Colorado State University has adopted a process for conducting a peer review on all CAES 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. In addition, each Extension work team conducts a yearly update of their specific logic model plan, making necessary changes as suggested through the review process, or as indicated by the evaluations conducted on the specific program. The goal is continual evaluation and strengthening of program efforts, including changes that will increase effectiveness and efficiency.

IV. Stakeholder Input

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

- Survey of traditional stakeholder individuals
- Survey of the general public
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey specifically with non-traditional groups
- Survey of selected individuals from the general public
- Targeted invitation to traditional stakeholder groups
- Use of media to announce public meetings and listening sessions
- Targeted invitation to non-traditional stakeholder groups
- Survey specifically with non-traditional individuals
- Other (Survey of County Commissioners regarding Extension Programs in their county.)
- Targeted invitation to non-traditional stakeholder individuals

Brief explanation.

The Agricultural Experiment Station (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 59 individual county offices and 3 area programs. 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 CE

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.

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 Internal Focus Groups
- Use Surveys
- Other (Council for Agricultural Research, Extension, and Teaching)
- Use Advisory Committees
- Use External Focus Groups
- Open Listening Sessions

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 specifically with non-traditional groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

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 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

- Redirect Extension Programs
- Redirect Research Programs
- To Identify Emerging Issues
- 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 CAES research program is modified based on input from stakeholders. For example, an evaluation of oil seeds was initiated to assess bio-energy potential based on stakeholder requests; multi-disciplinary and integrated activities are conducted on invasive plants; goals of wheat breeding program reflects needs of the wheat industry; and numerous other examples could be cited. 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	Strong Families, Healthy Homes
3	Nutrition and Food Safety
4	Animal Production Systems
5	Plant Production Systems
6	Natural Resources and Environment
7	Community Resource Development
8	Clean Energy Strategic Initiative

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. 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 than five years)

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
216	Integrated Pest Management Systems	1%		0%	
307	Animal Management Systems	1%		0%	
802	Human Development and Family Well-Being	5%		0%	
806	Youth Development	93%		0%	
Total		100%		0%	

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

1. Situation and priorities

Overall in 2007/08, 83,328 Colorado youth were reached by 4-H. Youth Development programs. Specifically, 16,083 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 3,259 Colorado youth. School aged child care served 5,814 Colorado youth. School enrichment through 4-H resources served 58,172 Colorado youth. Priorities for the program include:

- Increase the number of youth reached by the 4-H Youth Development program by expanding traditional 4-H club membership in the urban areas of the state, without affecting in-school, after-school, or rural club programs. With 85 percent of Colorado citizens living in an urban environment, the urban areas of the state hold the most promise for expansion of the program.

•Re-think the kinds of projects that 4-H offers. If educational opportunities are aligned with the interests of young people, traditional club and special interest enrollment numbers can grow. •Volunteer 4-H leaders are essential to the success of the 4-H Youth Development program. Volunteers must be pulling in the same direction as Extension staff to create an effective 4-H team. Effective volunteer recruitment, training, recognition, and evaluation are necessary, and will be a priority. •Funding for 4-H is essential to the program's growth. Therefore, emphasis on fundraising will continue, including encouraging donors to endow the future of the 4-H program by creating endowed 4-H agent positions in every county of Colorado. •Identify the optimal staffing pattern for state, regional, area, and county delivery of the 4-H program including state and regional specialists, county and area Extension agents, and 4-H program assistants.

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. •Poor parent-child relationships, disorganized homes, abuse and neglect, poor attachment and non nurturing parenting styles are directly linked to the major problem behaviors that occur in youth. •Family-based programs that work with parents and youth together 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, recognized).

2. Ultimate goal(s) of this Program

Th goal of the 4-H program is to develop youth into contributing, effective members of society through experiences that develop their leadership, citizenship and life skills. This goal is accomplished through the help of numerous volunteers who serve as positive role models for youth. Thus, a secondary goal of the 4-H 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
2010	50.0	0.0	0.0	0.0
2011	50.0	0.0	0.0	0.0
2012	50.0	0.0	0.0	0.0
2013	50.0	0.0	0.0	0.0
2014	50.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Support traditional club program by recruiting and establishing new clubs •Conduct after school and school enrichment programs that provide curriculum in 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 •Develop 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
<ul style="list-style-type: none"> ● Demonstrations ● Group Discussion ● One-on-One Intervention ● Education Class ● Workshop 	<ul style="list-style-type: none"> ● Public Service Announcement ● Web sites ● Newsletters

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 (Boys and Girls Clubs, etc.).

For increased funding - potential funders, 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 methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	6000	500	75000	200000
2011	6500	1000	16250	85000
2012	6500	1000	16250	85000
2013	6500	1000	16250	85000
2014	6500	1000	16250	85000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	0
2011	0	2	0
2012	0	2	0
2013	0	2	0
2014	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 2005-06 actual of \$240,000.)

2010 :200000	2011 :250000	2012 : 250000	2013 :250000	2014 :250000
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- Number of web hits regarding 4-H topics

2010 :1000000	2011 :1250000	2012 : 1250000	2013 :1500000	2014 :1500000
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- Number of youth reached by all 4-H delivery methods-club, after school, school enrichment. These numbers are being revised upward based on actual numbers for 2006-07 program year.

2010 :90000	2011 :90000	2012 : 95000	2013 :95000	2014 :100000
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- New/revised curriculum to meet changes in needs for youth audiences.

2010 :5	2011 :5	2012 : 5	2013 :5	2014 :5
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- Number of volunteer management trainings held and tools developed.

2010 :50	2011 :50	2012 : 60	2013 :60	2014 :60
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- Number of volunteer leaders. (These have been reduced to reflect the anticipated increase from a current base of 8900.)

2010 :7600	2011 :7650	2012 : 7700	2013 :7750	2014 :7780
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- Number of on-line e-Learning orientation modules completed by volunteers.

2010 :500	2011 :500	2012 : 500	2013 :500	2014 :500
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- Amount of grant dollars generated to support 4-H Youth Development programs.

2010 :900000	2011 :950000	2012 : 1000000	2013 :1000000	2014 :1000000
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- Value of volunteers' time that Colorado 4-H adult volunteers provide to 4-H programming, based an average donation of 128 hours/volunteer at \$19.51/hour (national average for value of time)

2010 :15000000	2011 :15000000	2012 : 15000000	2013 :15000000	2014 :15000000
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- Increased volunteer leaders' effectiveness as measured by retention rate of first year leaders.

2010 :75	2011 :75	2012 : 75	2013 :75	2014 :75
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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.

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

2010 :80 2011 : 80 2012 : 80 2013 :80 2014 : 80

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #2

1. Outcome Target

Percent of volunteers reporting increased skills in area of responsibility.

2. Outcome Type : Change in Condition Outcome Measure

2010 :75 2011 : 75 2012 : 75 2013 :75 2014 : 75

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Participation in 4-H 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

- During (during program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Case Study
- Comparisons between program participants (individuals,group,organizations) and non-participants
- After Only (post program)
- Before-After (before and after program)

Description

Regular pre-post evaluations are used.An evaluation consultant is working with 4-H Youth Development staff to review instruments that can be used state-wide to collect impact data on life skills acquired/increased due to 4-H participation.

2. Data Collection Methods

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

Description

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

V(A). Planned Program (Summary)

Program #2

1. Name of the Planned Program

Strong Families, Healthy Homes

2. Brief summary about Planned Program

Extension has active work teams in the areas of:

- Family Economic Stability - family financial management

- Healthy Homes - indoor air quality
- Growing Strong Colorado Families In addition we have a strong program in agribility that has significant outcomes.

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

4. Program duration : Short-Term (One year or less)

5. Expending formula funds or state-matching funds : No

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
723	Hazards to Human Health and Safety	10%		10%	
801	Individual and Family Resource Management	20%		20%	
802	Human Development and Family Well-Being	50%		50%	
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%		10%	
805	Community Institutions, Health, and Social Services	10%		10%	
	Total	100%		100%	

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

1. Situation and priorities

There is a diversity of problems facing Colorado's families and households including:

- financial instability (increasing rates of bankruptcy, economic crises loss of jobs)
- increasing numbers of youth in daycare, after school care, and self care
- lack of parenting skills and/or lack of opportunities to strengthen parenting skills
- exposure to indoor air pollutants resulting in long-term health issues
- continued high levels of on-farm accidents resulting in serious injury and disability

Colorado has work teams who have identified each of these issues as a priority and will be working in each of these areas to improve individuals' and families' lives.

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 will choose to practice those skills, resulting in increased financial stability
- Training for day care and after-school care providers will increase providers' ability to assure a safe and educational environment, resulting in increased student learning and school readiness
- Given the opportunity to learn parenting skills, parents will parent more appropriately resulting in less stress and more well-adjusted children.
- Providing indoor air quality education, especially as it relates to radon or other pollutants, will allow individuals to choose methods to reduce exposure, resulting in less health related issues.
- 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

Ultimate goals of this program are:

- Increased knowledge and practice of basic financial management skills including saving for emergencies and retirement.
- Improved quality of child and out-of-school-age care statewide, including remote and difficult to reach populations.
- Decreases in family management problems, including reduced problem behaviors in youth and increased family bonding and attachment (increased family stability).
- Increased number of homes tested and mitigated for for radon and other health hazards and increased documentation available to potential buyers of existing homes regarding "healthy home history."
- Increased knowlege and skills in dealing with disabilities in the farm/ranch environment will result in fewer accidents and injuries and more profitable farming/ranching operations.

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
2010	12.0	0.0	0.0	0.0
2011	12.0	0.0	0.0	0.0
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

V(F). Planned Program (Activity)

1. Activity for the Program

Educational activities include:

- Adoption of curriculum, training for agents, educational programs on financial management for families.
- Training

(face-to-face and on-line) for care givers. •Training for couples, parents of young children and disabled farmers •Parenting classes for parents and train-the-trainer classes for individuals who work with parents •Training using EPA-based indoor air quality education for agents, then the general public, builders, realtors, homeowner's associations, and home owners.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Group Discussion ● Demonstrations ● Education Class ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Web sites ● Newsletters ● Public Service Announcement

3. Description of targeted audience

Colorado families, including diverse and difficult- to-reach populations. Care givers in day care and out-of-school-age care locations. Parents of young children. Disabled farmers. Owners and potential owners of homes.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	150000	300000	1000	0
2011	150000	300000	1000	0
2012	150000	300000	1000	0
2013	150000	300000	1000	0
2014	150000	300000	1000	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	10	0
2011	0	5	0
2012	0	5	0
2013	0	5	0
2014	0	5	0

V(H). State Defined Outputs

1. Output Target

- Number of trainings held on indoor air quality issues.

2010 :75 2011 :75 2012 : 75 2013 :75 2014 :75

- Number of parenting programs held.

2010 :150 2011 :150 2012 : 150 2013 :150 2014 :150

- Agrability workshops held.

2010 :10 2011 :5 2012 : 5 2013 :5 2014 :5

- Number of trainings held for care providers.

2010 :100 2011 :100 2012 : 100 2013 :100 2014 :100

- Trainings held in family financial management.

2010 :150 2011 :150 2012 : 150 2013 :150 2014 :150

- Number of newsletters/publications distributed.

2010 :250000 2011 :250000 2012 : 250000 2013 :250000 2014 :250000

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

2010 :750000 2011 :750000 2012 : 750000 2013 :750000 2014 :750000

- Number of individuals trained in indoor air quality issues and re-mediation.

2010 :2500 2011 :1050 2012 : 1100 2013 :1150 2014 :1150

- Number of individuals trained in parenting skills.

2010 :3000 2011 :3500 2012 : 3500 2013 :3500 2014 :3500

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

2010 :50 2011 :50 2012 : 50 2013 :50 2014 :50

- Number of care provides trained in parenting, positive discipline, child and family development, communication.

2010 :35 2011 :40 2012 : 40 2013 :40 2014 :40

- Number of individuals trained in family financial management, financial management in later life, teen financial management, and other family finance programs.

2010 :2500 2011 :150 2012 : 150 2013 :200 2014 :200

- Number of volunteers supporting this program

2010 :30 2011 :30 2012 : 30 2013 :30 2014 :30

- Numbers of partnering agencies supporting this program

2010 :150 2011 :150 2012 : 150 2013 :150 2014 :150

- Number of radon kits distributed

2010 :1000 2011 :1000 2012 : 1000 2013 :1000 2014 :1000

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of attendees gaining knowledge in parenting skills, effective communication, positive discipline, stress management.
2	Percent of participants changing attitudes regarding parenting, communication, positive discipline, stress management.
3	Percent of participants intending to change behavior as a result of parenting training.
4	Percent of individuals documenting change in behavior in parenting skills, communication, positive discipline, stress management.
5	Percent of attendees in indoor air quality training reporting increase in knowledge.
6	Percent of attendees changing attitudes/intending to change behavior based on knowledge gained at training on indoor air quality.
7	Percent of participants reporting change in behavior based on knowledge gained through training in indoor air quality.
8	Individual homes, and thus communities will have significantly improved indoor air quality based on remediation of indoor air pollutants.
9	Percent of participants demonstrating change in knowledge of financial management.
10	Percent of participants intending to change behavior/reporting change in attitudes regarding financial management.
11	Percent of participants in financial management training demonstrating change in behavior.
12	Family financial health significantly improved due to changes based on skills learned in financial management trainings.
13	Percent of individuals demonstrating increase in knowledge regarding strategies for dealing with disabilities on the farm/ranch.
14	Percent of participants in agribility workshops reporting change in behavior regarding coping with disabilities on the farm/ranch.

Outcome #1

1. Outcome Target

Percent of attendees gaining knowledge in parenting skills, effective communication, positive discipline, stress management.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :70 **2011 : 70** **2012 : 70** **2013 :70** **2014 : 70**

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #2

1. Outcome Target

Percent of participants changing attitudes regarding parenting, communication, positive discipline, stress management.

2. Outcome Type : Change in Action Outcome Measure

2010 :60 **2011 : 60** **2012 : 60** **2013 :60** **2014 : 60**

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #3

1. Outcome Target

Percent of participants intending to change behavior as a result of parenting training.

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011 : 50** **2012 : 50** **2013 :50** **2014 : 50**

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #4

1. Outcome Target

Percent of individuals documenting change in behavior in parenting skills, communication, positive discipline, stress management.

2. Outcome Type : Change in Action Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #5

1. Outcome Target

Percent of attendees in indoor air quality training reporting increase in knowledge.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 805 - Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Target

Percent of attendees changing attitudes/intending to change behavior based on knowledge gained at training on indoor air quality.

2. Outcome Type : Change in Action Outcome Measure

2010 :60 2011 : 60 2012 : 60 2013 :60 2014 : 60

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 805 - Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Target

Percent of participants reporting change in behavior based on knowledge gained through training in indoor air quality.

2. Outcome Type : Change in Action Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 805 - Community Institutions, Health, and Social Services

Outcome #8

1. Outcome Target

Individual homes, and thus communities will have significantly improved indoor air quality based on remediation of indoor air pollutants.

2. Outcome Type : Change in Condition Outcome Measure

2010 :100 2011 : 150 2012 : 200 2013 :250 2014 : 250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 723 - Hazards to Human Health and Safety
- 801 - Individual and Family Resource Management
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 805 - Community Institutions, Health, and Social Services

Outcome #9

1. Outcome Target

Percent of participants demonstrating change in knowledge of financial management.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :75 2011 : 75 2012 : 75 2013 :75 2014 : 75

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #10

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :60 2011 : 60 2012 : 60 2013 :60 2014 : 60

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #11

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #12

1. Outcome Target

Family financial health significantly improved due to changes based on skills learned in financial management trainings.

2. Outcome Type : Change in Condition Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

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

Outcome #13

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #14

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

2010 :50

2011 : 50

2012 : 50

2013 :50

2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. 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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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.Absence of a Family Resource Specialistlimits agents' access to research-based information they can share with Coloradoans.

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

1. Evaluation Studies Planned

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

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

Description

Pre-post tests. Standard survey methods.

V(A). Planned Program (Summary)

Program #3

1. Name of the Planned Program

Nutrition and Food Safety

2. Brief summary about Planned Program

Extension has active work teams in the following areas:

Food Safety Education including

- Food Safety Training for Food Service Managers and employees
- Food Safety Education for High Risk Audiences, their caregivers, and Health Care Professionals
- For consumers -- Information for Farmers' Market Vendors and Customers
- Health Promotion/Chronic Disease Prevention
- Strong Women, Strong Bones
- Heart Disease
- Diabetes Awareness, Prevention and Management
- Nutrition Education for Low-income Audiences
- Nutrition and Wellness

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. 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 than five years)

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	0%		20%	
703	Nutrition Education and Behavior	75%		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.	2%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxins	6%		20%	
724	Healthy Lifestyle	11%		0%	
805	Community Institutions, Health, and Social Services	5%		10%	
	Total	100%		100%	

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

1. Situation and priorities

•Foodborne illness in the US is a major economic burden and cause of human suffering and death. Economic and social consequences of foodborne illness are estimated to be over \$3 billion each year, with lost productivity estimated at \$30-40 billion. It is estimated that foodborne contaminants cause approximately 76 billion illnesses, 325,000 hospitalizations, and 5,000 deaths in the US each year. The risk of foodborne 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, immuno-compromised individuals). • The number of persons with type 2 diabetes in Colorado has increased over 70% in the past ten years. The Colorado Department of Public Health and Environment (CDPHE) estimates that 143,000 persons are diagnosed with diabetes, but another 74,200 are likely to have the disease and not know it. •Osteoporosis is a major health issue for 55% of people over age 50.

2. Scope of the Program

- Multistate Integrated Research and Extension
- Multistate Research
- In-State Research
- Multistate Extension
- In-State Extension
- 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 foodborne illnesses in retail food establishments. •Increase the proportion of high risk consumers and their caregivers who follow key food safety practices.

Health Promotion/Chronic Disease Prevention

•Increase the number to persons with diabetes who receive formal diabetes education. •Prevent new cases of diabetes through changes in diet. •Reduce the proportion of adults with osteoporosis

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.

Nutrition Research

•Determine important relationships between diet and health •Evaluate the relationships between plant composition, food processing, and diet on bioavailability of nutrients and interactions with disease and obesity •Study the impact of diet and exercise on human health

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
2010	28.0	0.0	6.0	0.0
2011	28.0	0.0	6.0	0.0
2012	28.0	0.0	6.0	0.0
2013	28.0	0.0	6.0	0.0
2014	28.0	0.0	6.0	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, Worksite 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).
 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

Health Promotion/Chronic Disease Prevention

- 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 (worksite wellness).
- Youth program- Food Friends-Making New Foods Fun for Kids, Eating Right Is Basic, Chef Combo's Fantastic Adventures in Tasting and Nutrition, Professor Popcorn 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
<ul style="list-style-type: none"> ● Demonstrations ● Workshop ● Group Discussion ● Education Class 	<ul style="list-style-type: none"> ● Public Service Announcement ● Web sites ● Newsletters ● Other 1 (Multimedia kiosks)

3. Description of targeted audience

Food Safety Education

- Consumers, High Risk Audiences (pregnant, immuno-compromised, elderly).
 - Food Handlers and their managers at retail food establishments.
 - Producers and processors of plant and animal agricultural products.
- Health Promotion/Chronic Disease Prevention

- Individuals at risk for diabetes, heart disease, obesity(adults and youth)

- Seniors at risk for osteoporosis.
- Youth - nutrition focus

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	50000	250000	5000	0
2011	50000	250000	5000	0
2012	50000	250000	5000	0
2013	50000	250000	5000	0
2014	50000	250000	5000	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	25	20	0
2011	20	20	0
2012	20	20	0
2013	20	20	0
2014	20	20	0

V(H). State Defined Outputs

1. Output Target

- Number of trainings in nutrition and food safety held.

2010 :1000 2011 :1000 2012 : 1000 2013 :1000 2014 :1000

- Grant dollars (external) received to support Nutrition and Food Safety

2010 :1000000 2011 :3000000 2012 : 3000000 2013 :3000000 2014 :3000000

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

2010 :500000 2011 :500000 2012 : 500000 2013 :500000 2014 :500000

- Technical publications on food safety and nutrition.

2010 :25 2011 :25 2012 : 25 2013 :25 2014 :25

- Number of individuals trained via workshops in nutrition and food safety

2010 :20000 2011 :20000 2012 : 20000 2013 :20000 2014 :20000

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

2010 :200 2011 :200 2012 : 200 2013 :200 2014 :200

- Number of volunteers supporting nutrition and food safety

2010 :150 2011 :150 2012 : 150 2013 :150 2014 :150

- Number of curriculums developed or reviewed that support nutrition and food safety

2010 :20 2011 :20 2012 : 20 2013 :20 2014 :20

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	Percent of participants demonstrating a change in knowledge regarding Nutrition.
5	Percent of participants documenting a change in behavior following participation in workshop on nutrition, diet, and health.
6	Facilitation of international trade of food products.
7	Basic research on human nutrition.

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

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

•1862 Extension

4. 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 Occuring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

•1862 Extension

4. 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 Occuring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

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

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

•1862 Extension

4. 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 Occuring Toxins
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Target

Percent of participants demonstrating a change in knowledge regarding Nutrition.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :70 2011 : 70 2012 : 70 2013 :70 2014 : 70

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

Outcome #5

1. Outcome Target

Percent of participants documenting a change in behavior following participation in workshop on nutrition, diet, and health.

2. Outcome Type : Change in Action Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Target

Facilitation of international trade of food products.

2. Outcome Type : Change in Condition Outcome Measure

2010 :0 2011 : 0 2012 : 0 2013 :0 2014 : 0

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources.
- 805 - Community Institutions, Health, and Social Services

Outcome #7

1. Outcome Target

Basic research on human nutrition.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :0 2011 : 0 2012 : 0 2013 :0 2014 : 0

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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.Immigration reform may change the nature ofthe audience.

Research programs are dependent on funding from external agencies.

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

1. Evaluation Studies Planned

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

Description

Regular pre-post evaluations are used.Formativ 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
- Tests
- Case Study
- Observation

Description

Pre-post tests.Standard survey methods.

V(A). Planned Program (Summary)

Program #4

1. Name of the Planned Program

Animal Production Systems

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 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 has Work Teams in:

1. Small Ruminants
2. Sustaining Agriculture in Colorado
3. Agriculture and Business Management
4. Beef

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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	50%		30%	
311	Animal Diseases	5%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
601	Economics of Agricultural Production and Farm Management	25%		10%	
	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 public. 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.

2. Scope of the Program

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

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

1. Assumptions made for the Program

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.

2. Ultimate goal(s) of this 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 region.

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
2010	15.0	0.0	5.0	0.0
2011	15.0	0.0	5.0	0.0
2012	15.0	0.0	5.0	0.0
2013	15.0	0.0	5.0	0.0
2014	15.0	0.0	5.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Workshops and educational classes for producers
- Individual counseling on producers specific problems
- Demonstration plots and field days to showcase the results
- Conduct basic and applied resesarch on 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
<ul style="list-style-type: none"> ● One-on-One Intervention ● Group Discussion ● Other 1 (Field Days) ● Education Class ● Demonstrations ● Workshop 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● Public Service Announcement

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 methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	25000	5000	1000	10000
2011	25000	5000	1000	1000
2012	25000	5000	1000	1000
2013	25000	5000	1000	1000
2014	25000	5000	1000	1000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	20	2	0
2011	20	2	0
2012	20	2	0
2013	20	2	0
2014	20	0	0

V(H). State Defined Outputs

1. Output Target

- Number of attendees at workshops/trainings/field days

	2010 :5000	2011 :5000	2012 : 5000	2013 :500	2014 :5000
● Amount of grant dollars garnered to support animal research and outreach programs					
	2010 :1500000	2011 :1500000	2012 : 1500000	2013 :1500000	2014 :1500000
● Number of technical and refereed journal articles published					
	2010 :20	2011 :20	2012 : 20	2013 :20	2014 :20
● Number of workshops presented.					
	2010 :50	2011 :50	2012 : 50	2013 :50	2014 :50
● Number of volunteers supporting this work					
	2010 :200	2011 :200	2012 : 200	2013 :200	2014 :200
● New technologies adopted by producers.					
	2010 :10	2011 :10	2012 : 10	2013 :10	2014 :10
● Number of agencies partnering in this program effort.					
	2010 :50	2011 :50	2012 : 50	2013 :50	2014 :50

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

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

2010 :60 **2011 : 60** **2012 : 60** **2013 :60** **2014 : 60**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #2

1. Outcome Target

Percent of participants indicating change in behavior/ best practices adopted

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011 : 50** **2012 : 50** **2013 :50** **2014 : 50**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #3

1. Outcome Target

Economic impact of the change in behavior reported

2. Outcome Type : Change in Condition Outcome Measure

2010 :100000 **2011 :** 100000 **2012 :** 100000 **2013 :**100000 **2014 :** 100000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Individuals' ability to attend fee-for-service programs may be impacted by economic downturns. Extensions'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 an impending farm crisis including credit, land values, low commodity prices, weather (wind, temperatures, rain), etc. may effect evaluation results.

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

1. Evaluation Studies Planned

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

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

- Case Study
- Observation
- Sampling
- Tests

Description

Pre-post tests. Standard survey methods.

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 than five years)

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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

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

PCProgram 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
2010	15.0	0.0	26.0	0.0
2011	15.0	0.0	26.0	0.0
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

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
<ul style="list-style-type: none"> ● Demonstrations ● Group Discussion ● One-on-One Intervention ● Workshop ● Other 1 (Field Days) ● Education Class 	<ul style="list-style-type: none"> ● Newsletters ● Public Service Announcement ● 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 methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	50000	250000	0	0
2011	50000	250000	0	0
2012	50000	250000	0	0
2013	50000	250000	0	0
2014	50000	250000	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	25	5	0
2011	25	5	0
2012	25	5	0
2013	25	5	0
2014	25	0	0

V(H). State Defined Outputs

1. Output Target

- Release of technologies adopted by growers such as crop cultivars, crop germplasm, or components of crop production systems.

2010 :2 2011 :2 2012 :2 2013 :2 2014 :2

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

2010 :10000 2011 :10000 2012 :10000 2013 :10000 2014 :10000

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

2010 :250000 2011 :250000 2012 :250000 2013 :250000 2014 :250000

- Technical publications in the topical area of plant production systems.

2010 :25 2011 :25 2012 :25 2013 :25 2014 :25

- Number of basic and applied research efforts in plant production systems: Number of workshops, educational classes for producers Number of demonstration plots and field days Number of individual consultations

2010 :50 2011 :50 2012 :50 2013 :50 2014 :50

- Number of Extension workshops focusing on plant production systems.

2010 :50 2011 :50 2012 : 50 2013 :50 2014 :50

- Number of volunteers supporting plant production systems work.

2010 :200 2011 :200 2012 : 200 2013 :200 2014 :200

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

2010 :100 2011 :100 2012 : 100 2013 :100 2014 :100

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 crop production technology as measured by agricultural statistics.
5	Adoption of improved wheat cultivars.
6	Potential of living mulches to decrease soil erosion.

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

2010 :50 **2011 : 50** **2012 : 50** **2013 :50** **2014 : 50**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011 : 50** **2012 : 50** **2013 :50** **2014 : 50**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #3

1. Outcome Target

Economic impact of the change in behavior reported.

2. Outcome Type : Change in Condition Outcome Measure

2010 :450000 **2011 :** 500000 **2012 :** 650000 **2013 :**750000 **2014 :** 750000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #4

1. Outcome Target

Adoption of crop production technology as measured by agricultural statistics.

2. Outcome Type : Change in Condition Outcome Measure

2010 :1 **2011 :** 1 **2012 :** 1 **2013 :**1 **2014 :** 1

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #5

1. Outcome Target

Adoption of improved wheat cultivars.

2. Outcome Type : Change in Condition Outcome Measure

2010 :0 **2011 :** 0 **2012 :** 0 **2013 :**0 **2014 :** 0

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #6

1. Outcome Target

Potential of living mulches to decrease soil erosion.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :0 2011 : 0 2012 : 0 2013 :0 2014 : 0

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Public Policy changes
- Competing Programatic 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)
- During (during program)
- Before-After (before and after 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

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

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

An increasing world population is placing greater demands on our natural resources. Public concern for a quality environment has increased as agriculture has become more complex and population pressures have increased. Natural resources must be conserved and their capacity maintained or improved in order to meet the needs of future generations. The long-term viability of agriculture and forestry production is tightly linked to proper use and protection of our soil, air and water resources. Impacts of urban horticulture on the environment are significant.

Extension has active work teams in:

•Sustainable landscapes •Water Resource Management

•Managing Agricultural and Natural Landscapes •Sustaining Agriculture in Colorado •Small Acreage Management

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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%	
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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 agroecosystems. 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

- Multistate Extension
- Multistate Research
- Integrated Research and Extension
- Multistate Integrated Research and Extension
- In-State Research
- In-State 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-ecosystem 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-ecosystem 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 dryland 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 dryland cropping extension agents, and the dryland 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

- **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
2010	25.0	0.0	11.0	0.0
2011	25.0	0.0	11.0	0.0
2012	25.0	0.0	11.0	0.0
2013	25.0	0.0	11.0	0.0
2014	25.0	0.0	11.0	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.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Other 1 (Field Days) ● One-on-One Intervention ● Group Discussion ● Demonstrations ● Education Class ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (Radio spots) ● Public Service Announcement ● Web sites ● Newsletters

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 methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	30000	200000	0	0
2011	30000	200000	0	0
2012	30000	200000	0	0
2013	30000	200000	0	0
2014	30000	200000	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	25	25	0
2011	25	25	0
2012	25	25	0
2013	25	25	0
2014	25	25	0

V(H). State Defined Outputs

1. Output Target

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

2010 :15000 2011 :15000 2012 : 15000 2013 :15000 2014 :15000

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

2010 :250000 2011 :250000 2012 : 250000 2013 :250000 2014 :250000

- Number of technical and refereed journal articles published.

2010 :25 2011 :25 2012 : 25 2013 :25 2014 :25

- Number of Master Gardener and Wildlife Master volunteer hours

2010 :55000 2011 :55000 2012 : 55000 2013 :55000 2014 :55000

- Value of volunteer time at \$20/hr (nationally recognized value.)

2010 :1000000 2011 :1000000 2012 : 1000000 2013 :1000000 2014 :1000000

- Number of volunteers supporting this program.

2010 :2000 2011 :2000 2012 : 2000 2013 :2000 2014 :2000

- Number of partnering agencies supporting this program.

2010 :100 2011 :100 2012 : 100 2013 :100 2014 :100

- Number of new technologies adopted by producers.

2010 :10 2011 :10 2012 : 10 2013 :10 2014 :10

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

2010 :40000 2011 :40000 2012 : 40000 2013 :40000 2014 :40000

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

2010 :5

2011 :5

2012 :5

2013 :5

2014 :5

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.
4	Reducing cost of irrigation.
5	Impact of UV-B radiation on agriculture.
6	Small acreage management workshops.

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**2010** :60**2011** : 60**2012** : 60**2013** :60**2014** : 60**3. Associated Institute Type(s)**

- 1862 Extension

4. 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

Outcome #2**1. Outcome Target**

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

2. Outcome Type : Change in Action Outcome Measure**2010** :50**2011** : 50**2012** : 50**2013** :50**2014** : 50**3. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

4. 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

Outcome #3

1. Outcome Target

Economic impact of the change in behavior reported.

2. Outcome Type : Change in Condition Outcome Measure

2010 :150000 **2011 :** 150000 **2012 :** 150000 **2013 :**150000 **2014 :** 150000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #4

1. Outcome Target

Reducing cost of irrigation.

2. Outcome Type : Change in Condition Outcome Measure

2010 :0 **2011 :** 0 **2012 :** 0 **2013 :**0 **2014 :** 0

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 111 - Conservation and Efficient Use of Water

Outcome #5

1. Outcome Target

Impact of UV-B radiation on agriculture.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :0 **2011 :** 0 **2012 :** 0 **2013 :**0 **2014 :** 0

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 132 - Weather and Climate

Outcome #6

1. Outcome Target

Small acreage management workshops.

2. Outcome Type : Change in Action Outcome Measure

2010 :5 2011 : 5 2012 : 5 2013 :5 2014 : 5

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 101 - Appraisal of Soil Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 111 - Conservation and Efficient Use of Water
- 121 - Management of Range Resources
- 131 - Alternative Uses of Land

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

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

1. Evaluation Studies Planned

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

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

- Case Study
- Sampling
- Tests
- Observation

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 than five years)

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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

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

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

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
2010	5.0	0.0	6.0	0.0
2011	5.0	0.0	6.0	0.0
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

Year	Research Target	Extension Target	Total
2010	10	5	0
2011	10	5	0
2012	10	5	0
2013	10	5	0
2014	10	5	0

V(H). State Defined Outputs

1. Output Target

- Training opportunities for community members

2010 :10 2011 :10 2012 : 10 2013 :10 2014 :10

- Technical publications related to economics, public policy, community development and related areas.

2010 :10 2011 :10 2012 : 10 2013 :10 2014 :10

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

2010 :200000 2011 :200000 2012 : 200000 2013 :200000 2014 :200000

- Number of agencies partnering in this effort.

2010 :40 2011 :40 2012 : 40 2013 :40 2014 :40

- Number of volunteers supporting this planned program.

2010 :100 2011 :100 2012 : 100 2013 :100 2014 :100

- Number of new technologies adopted by producers.

2010 :5 2011 :5 2012 : 5 2013 :5 2014 :5

- Number of newsletters developed in support of this plan.

2010 :5 2011 :5 2012 : 5 2013 :5 2014 :5

- Number of newsletters distributed in support of this plan.

2010 :10 2011 :10 2012 : 10 2013 :10 2014 :10

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 which 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	Planning, development and implementation of bio-based, renewable energy projects (such as processing plan, wind farm).
5	Percent of program participants reporting changing an attitude as a result of these programs.
6	Percent of participants reporting intent to change behavior and/or changing behavior as a result of these programs.

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

2010 :55 **2011 : 65** **2012 : 65** **2013 :65** **2014 : 65**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

Outcome #2

1. Outcome Target

The number of communities which 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

2010 :5 **2011 : 5** **2012 : 5** **2013 :5** **2014 : 5**

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. 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

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.

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

Outcome #6

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

2010 :75

2011 : 75

2012 : 75

2013 :75

2014 : 75

3. Associated Institute Type(s)

- 1862 Extension

4. 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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Individuals' and communities' 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.Immigration reform may change the nature of the audience.Weather conditions may discourage tourism in some communities (severe drought, heavy snowfalls).Relevant data may be excluded due to the complexity of multiple reporting mechanisms.

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

1. Evaluation Studies Planned

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

Description

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

2. Data Collection Methods

- Observation
- Tests
- Case Study
- Sampling

Description

Pre-post tests. Standard survey methods.

V(A). Planned Program (Summary)

Program #8

1. Name of the Planned Program

Clean Energy Strategic Initiative

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:

- development of 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 : New (One year or less)

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

The National Association of State Universities and Land Grant Colleges (NASULGC) 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: biofuels, 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—and 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—or clearer understanding—of 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
- Integrated Research and Extension
- Multistate Extension

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

1. Assumptions made for the Program

It is appropriate for CESIT to become an interdisciplinary strategic initiative team for a number of reasons. Renewable energy is an emerging field for Extension both in Colorado, and across the country. The field crosses many different CCA areas, including Economic development, 4-H youth development, Strong Families, Healthy Homes, and Competitive and Sustainable Agriculture systems. As an organization, we have almost no resources or agents in this field, and there is an urgent need for us to train agents and develop materials for the public.

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/ possibly Aaron Levy with CSU Climate Initiatives and Carbon Assets/Other administration) 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. With this SIT, we can fill the educational gap, and help to make CSU the Green University for even more people.

The seed budget is necessary for us to carry out the first-year goals of educating key agents to form the topic-specific subcommittees and to develop fact sheets for the public. We will look for additional funding from partners and agencies. Barack Obama has placed a high degree of importance on renewable energy, and this may provide future opportunities.

2. Ultimate goal(s) of this Program

Once trained, Extension 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 can 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—and more.

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
2010	2.0	0.0	0.0	0.0
2011	2.0	0.0	0.0	0.0
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

V(F). Planned Program (Activity)

1. Activity for the Program

Our first-year plan includes:

- Creating an oversight (steering) committee to lead CESIT. Completion date: 2-27-09
- To identify and enlist the support and commitment of field agents who will either lead the subcommittees or participate on them. Completion: 2-27-09
- To identify and enlist the support and commitment from on-campus faculty who will either lead the subcommittees or participate on them. 2-27-09.

•

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● One-on-One Intervention ● Workshop ● Demonstrations ● Group Discussion 	<ul style="list-style-type: none"> ● 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 methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	200	500	250	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

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

2010 :5 2011 :5 2012 :5 2013 :5 2014 :5

- Amount of grant dollars generated to support clean energy

2010 :10000 2011 :10000 2012 :10000 2013 :10000 2014 :10000

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

2010 :2 2011 :2 2012 :2 2013 :2 2014 :2

- Number of volunteers supporting clean energy

2010 :50 2011 :50 2012 :50 2013 :50 2014 :50

- Number of partnering agencies/organizations around clean energy

2010 :5 2011 :5 2012 :5 2013 :5 2014 :5

- Number of Extension Agents trained

2010 :15 2011 :15 2012 : 15 2013 :15 2014 :15

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

2010 :5 2011 :5 2012 : 5 2013 :5 2014 :5

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 intent to change/change in behavior in energy use
3	Percent of participants reporting a change in condition in their home, business, community, etc.

Outcome #1

1. Outcome Target

Percent of participants reporting increase in knowledge about clean energy

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. 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

Outcome #2

1. Outcome Target

Percent of participants reporting intent to change/change in behavior in energy use

2. Outcome Type : Change in Action Outcome Measure

2010 :50 2011 : 50 2012 : 50 2013 :50 2014 : 50

3. Associated Institute Type(s)

•1862 Extension

4. 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

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

2010 :25 2011 : 25 2012 : 25 2013 :25 2014 : 25

3. Associated Institute Type(s)

•1862 Extension

4. 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

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Economic conditions and changes in public policy could drive outcomes up or impede success, depending on the direction of the changes.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Retrospective (post program)
- Case Study
- After Only (post program)

Description

This new initiative may have primarily output assessments in year 1.Targets are made by conservative estimate.

2. Data Collection Methods

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

Description

While organizing the initiative, team members must consider how to evaluate their success