2017 Colorado State University Combined Research and Extension Annual Report of Accomplishments and Results

Status: Accepted

Date Accepted: 05/11/2018

I. Report Overview

1. Executive Summary

The Agricultural Experiment Station (AES) and Extension at Colorado State University are committed to excellence in basic and applied research and translation of this research through Extension programs to crop (including ornamental) and animal (including equine) agriculture. Extension will continue to emphasize non-formal education and transfer of knowledge to audiences throughout the state, based on research information from the AES and in collaboration with the colleges of Agricultural Sciences, Health & Human Sciences, Engineering, Veterinary Medicine and Natural Resources. Programs will emphasize best management practices in addressing issues that affect Coloradans.

4-H Youth Development

Program Goals: 4-H Youth Development empowers youth to reach their full potential by working and learning in partnership with caring adults. 4-H affects positive change in life skills (including leadership, citizenship, decision making, and communication) and in STEM (including interest, knowledge, and application of science process skills) for youth ages 5 to 18.

Extension, AES, or Integrated: Extension

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

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

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

Community Development

Program Goals: Community Development outreach works with municipal, county, state, and federal agencies, nongovernmental organizations, and citizens to create dynamic processes that address local and regional needs/issues. Our efforts focus on facilitating community planning processes that engage all stakeholders affected by an issue in ways that lead to better-informed decisions and help communities understand and deal with change. It includes providing information and resource connections, which might include community impact analysis of economic activity or evaluation of the drivers of local economies. This work encourages collaboration to build regional economies and create entrepreneur/business friendly communities. Innovative and collaborative leadership activities/trainings are provided to engage new diverse leaders and strengthen community organizations.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Community Development, is highlighted by the Vice President for Engagement and Director of Extension.

Ongoing, Consistent, and/or Successful Programs: Colorado communities are changing rapidly as a result of many factors, including loss of agricultural water, influx of retirement populations, development of gas and oil industries, incidence of military deployment, and changes in cultural composition of residents.

Communities struggle to develop and maintain resources: human, financial, physical, social, environmental, and political. They also are challenged to provide the organizational capacity to assess, plan, and implement activities to address resource development and management. These issues

especially are acute in smaller rural communities. Colorado's rural communities are relatively unique in terms of sparse populations, a high natural amenity and public lands base, a transitory population, and

relatively low public service provision. Communities require knowledge to evaluate their resource base, their economic and social service alternatives, and their futures.

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

Crop Management Systems

Program Goals: It is the goal of this Planning & Reporting Unit (PRU) for the producers of Colorado crops to adopt and implement improved, productive, and sustainable agricultural systems that will lead to the success of farms. Furthermore, these producer actions will improve the ability of farm operations to persist and thrive through successive generations of operators. Individuals, families, and communities will all benefit by having a safe, secure and sufficient food supply. Colorado crop producers will accommodate to the growth of demand for local and world crop production without compromising the natural resources upon which agriculture depends.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Global Food Security and Hunger

Ongoing, Consistent, and/or Successful Programs: Molecular biology and genomics of crop plants and their pests; Integrated Pest Management.; Wheat breeding, bean breeding and potato breeding programs; Production systems in semi-arid environments with limited water availability. Communicate results through demonstration plots and field days;

Crosscutting or Cross-disciplinary Initiatives: This is a well-organized and highly functioning Extension unit that will maintain its structure and contribute to the NIFA priority goal of global food security.

Energy

Program Goals: (1) Empower Coloradans to make well-informed energy decisions; and (2) Promote a broad, unbiased understanding of energy issues. Promoting a broad, unbiased understanding of energy issues may result in well-informed energy decisions in the long-term. In the short-term, it may simply uplift the quality of energy dialogue in Colorado.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Clean Energy

Ongoing, Consistent, and/or Successful Programs: Energy Masters, Center for Agricultural Energy (CAE)

Crosscutting or Cross-disciplinary Initiatives: Home & Farm, K-12

Environmental Horticulture

Program Goals: The outreach efforts of the Environmental Horticulture Planning & Reporting Unit (PRU) will provide education and services to encourage the adoption of research-based best management practices (design, plant selection, establishment, and management practices) and diagnostic techniques/services by green industry professionals and the home gardener. Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes.

Extension, AES, or Integrated: Integrated

Ongoing, Consistent, and/or Successful Programs: The primary issues addressed by Environmental Horticulture Extension include: ornamental landscapes, diagnostic services, and volunteer engagement. Emerging issues for consideration include

- Sustainable landscaping
- "Green" gardening
- Organic/natural landscape management
- Composting/recycling
- Water-wise/water smart gardens
- Youth Gardening
- Wildlife gardening (birds, butterflies)
- Home greenhouses
- Spanish speaking audiences

Crosscutting or Cross-disciplinary Initiatives: Adult and youth audiences.

Family & Financial Stability

Program Goals: Financial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth, development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

Extension, AES, or Integrated: Extension

New Programs, and/or Addressing NIFA Priorities: Renewed engagement with CSU Department of Human Development and Family Studies provides opportunities for new programs engaging field and campus colleagues.

Ongoing, Consistent, and/or Successful Programs: Family and Financial Stability (FAFS) programs seek to provide applied research and Extension education in a coordinated set of programs related to family and financial economic stability. Financial stability of families has been the area of focus for non-nutrition FCS programming. Colorado families' financial instability includes increasing rates of bankruptcy, economic crises and loss of jobs. Family stability is important to the growth, development, and health of our society.

Crosscutting or Cross-disciplinary Initiatives: Consumer economics and human development and family studies are vehicles that can assist 4-H in reaching positive youth development and STEM targets.

Food Systems

Program Goals: Improved technical assistance for agricultural and food producers exploring new marketing channels and alternative business approaches. In addition, CSU will provide facilitation of community discussions around the interface between food and agricultural issues and broader social issues including public health, food safety, the environment and community development.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: This team was formed and issues were framed based on a couple of key assumptions that arose among team members as they saw the requests they received from community members change and evolve:

1. Current work teams do not address all the system-oriented issues that agriculture and food production play a role in.
2. There is a need for more marketing, policy and community development activities directed at food systems that vary from the conventional system used to handle high volume commodity foods.
3. Extension is being asked to play a more significant role in food system planning, including facilitating discussions between consumers, producers and organizations interested in ag and food issues.

Ongoing, Consistent, and/or Successful Programs: The Food Systems team has come together, drawing from a diverse set of personnel with backgrounds in agriculture, horticulture, food safety, nutrition, community development, and youth education. This team will work to increase literacy on food and ag

issues, facilitate community discussions and assessments on ag and food issues, provide technical assistance to an increasingly diverse set of food producers and support new market opportunities. Crosscutting or Cross-disciplinary Initiatives: To formalize and coordinate activities that require interdisciplinary approaches related to emerging issues, a new resource team on Food Systems seems warranted.

Livestock & Range

Program Goals: The Livestock and Range (L&R) Planning & Reporting Unit (PRU) strives for rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability using a broad array of methodologies that provides information, skills, and technology to producers and L&R Unit members. This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities; Global Food Security and Hunger

Ongoing, Consistent, and/or Successful Programs: 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. Producers will realize increased prices and lower cost of production. Consumers will benefit from higher human nutritional values of food. AES will lead research on animal production systems and reproductive efficiency.

Crosscutting or Cross-disciplinary Initiatives: Reorganization of Planned Programs pulls apart animal production systems and plant production systems. The work will integrate Extension education in disseminating research results. CSU Extension will:

- Deliver workshops and educational classes for producers;
- Provide individual counseling for producers and clientele on specific animal production problems.

Cross-cutting or Cross-disciplinary Initiatives: Research on animal production systems and reproductive efficiency.

Natural Resources

Program Goals: The Natural Resources Planning & Reporting Unit (PRU) members will work together to develop and implement high quality educational programs and tools to ensure a high quality of life for Colorado citizens.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: The Natural Resources PRU is focused on how best to manage our landscapes from the perspective of plants, animals, soils, water, and pests. Our goal is to protect these resources through our programming efforts, with special emphasis on native species.

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

- Educating agricultural and resource industry professionals;
- Researching technical and economic issues related to improved resource utilization;
- Enhancing international competitiveness.

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

Nutrition, Food Safety & Health

Program Goals: The goal of this PRU is to promote adoption of healthful eating and activity patterns and ensure an abundant and safe food supply for all. Adoption of healthful eating and activity patterns can enhance the overall health and wellbeing of children, youth, adults, and the growing senior population. Adoption of food safety knowledge and safe food handling practices will ultimately reduce the incidence of

foodborne disease in Colorado, especially among the most vulnerable populations (infants, young children and individuals who are immuno-compromised through aging, medical intervention, and illness). Through various programs, CSU Extension contributes to the statewide efforts to increase fruit and vegetable consumption, increase physical activity, and decrease overweight/obesity risk in Colorado.

Extension, AES, or Integrated: Integrated

New Programs, and/or Addressing NIFA Priorities: Planned Programs are reorganized to again combine Nutrition and Food Safety work in this category.

Ongoing, Consistent, and/or Successful Programs:

- Food safety training for food service managers and employees
- Food safety education for high-risk audiences, their caregivers, and health care professionals
- Food safety information for consumers including Farmers' Market vendors and their customers.
- Nutrition and Health Promotion programs provide research-based nutrition and health education to a variety of audiences across Colorado in an effort to promote healthful nutrition, activity and lifestyle behaviors.

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

Total Actual Amount of professional FTEs/SYs for this State

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	150.0	0.0	50.0	0.0
Actual	156.0	0.0	121.5	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

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

As of January 2014, Extension specialists and agents team together in ten Planning and Reporting Units (PRUs), jointly lead by a specialist and an agent. Each PRU has completed a Logic Model, including providing a situation statement, assumptions, identification of inputs, outputs and outcomes (including learning, action, and condition), and an evaluation plan. The Plans of Work (POW) were revised during fall, 2014, and submitted for entry into the online Colorado Planning and Reporting System (CPRS) early in 2015 for a two-year period. Last fall the PRUs met to confirm, update, or revise their POWs. 2018-2019

POWs are now available as resources for agents' individual Plans to Invest (PTIs).

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, 62 Extension county programs (in 54 county offices) had 112 advisory committees involving close to 2,000 individuals in the program review process. County programs are reviewed and evaluated by these county advisory groups. The primary criteria is meeting needs in the county

III. Stakeholder Input

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

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

Brief explanation.

The AES and Extension 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. Additionally, many AES research centers around the state have advisory committees that provide feedback on program direction. 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(A). A brief statement of the process that was used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

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

Brief explanation.

For CSU Extension, county needs determine programming direction. These include addressing the needs of under-served and under-represented populations. Extension participated in the first cohort of CSREES-funded Change Agents States. We have maintained the system changes implemented during the initiative, as well as the Diversity Catalyst Team (DCT). Goals for Extension diversity include increasing: diversity of employees; diversity of audiences served; and cultural competency of current Extension employees. DCT seeks to support "widening our circle" to include audiences currently under-served and/or under-represented.
The AES research program is modified based on input from stakeholders. Examples include an evaluation of oilseeds that was initiated to assess bioenergy potential based on stakeholder requests; multi-disciplinary and integrated activities are conducted on invasive plants; and the goals of wheat and potato breeding programs that reflect the needs of the wheat and potato industry. In essence, ongoing interaction with stakeholders through formal and informal means is used to insure program relevancy.

2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

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

Brief explanation.

The AES and Extension annually utilize multiple means of obtaining stakeholder input on programs conducted and solicit input on changes in program direction. The AES and Extension support programs in seven of the eight colleges on the Colorado State University campus as well as at nine off-campus research centers, 52 individual county offices and four area programs serving 62 of Colorado's 64 counties.

AES: Each year, the off-campus research centers hold a public meeting where research

results are presented and proposed programs are discussed. Public input is solicited on all proposed programs. It should be noted that many of the programs discussed involve faculty and staff located on the Fort Collins campus as well as at the off-campus research centers and Extension county or area offices.

CE: 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 Colorado Extension Advisory Committee (CEAC), representing program recipient groups and programmatic collaborators provides oversight and input at the state level. Extension administration pays travel expenses to two meetings each year, to encourage participation.

3. A statement of how the input will be considered

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

Brief explanation.

The AES and Extension annually utilize multiple means of obtaining stakeholder input on programs conducted and solicit input on changes in program direction. The AES and Extension support programs in seven of the eight colleges on the Colorado State University campus as well as at nine off-campus research centers, 52 individual county offices and four area programs serving 62 of Colorado's 64 counties.

AES: 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. Field days are also utilized to showcase research onsite. It should be noted that many of the programs discussed involve faculty and
staff located on the Fort Collins campus as well as at the off-campus research centers and Extension county or area offices.

CE: Yearly the county advisory committees review the county plans of work which are then incorporated into the statewide PRU plans of work. These plans, updated every two years to reflect local needs, are reviewed by the CEAC for additional input and acceptance. There is an open call for additional Planning & Reporting Units (PRUs) so that emerging priority areas may be identified and statewide focus provided, when appropriate. Diversity among stakeholders is expected, but as NIFA reviewers have noted, it is not documented.

Brief Explanation of what you learned from your Stakeholders

Local demand drives programming in Colorado. Extension no longer operates under an "expert" 'model, where specialists tell county educators what to do. Resources of the University are available to county offices according to local demand. Ten Planning and Reporting Units (PRUs) organize and coordinate program needs according to local demand. These groups meet f2f and by phone or Zoom to assure programming is targeted to meet local needs.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{No Data Entered}	{No Data Entered}	{No Data Entered}	{No Data Entered}

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	3314636	0	3634837	0
Actual Matching	3314636	0	3634837	0
Actual All Other	10465010	0	34020065	0
Total Actual Expended	17094282	0	41289739	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	2875941	0	840883	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

4-H Youth Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	50.0	0.0	0.0	0.0
Actual Paid	68.9	0.0	0.0	0.0
Actual Volunteer	988.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
1175243	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
1175243	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
3710494	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Support traditional club programs by recruiting and establishing new clubs;

• Conduct after school and school enrichment programs that provide curriculum in Science, Technology, Engineering and Math (STEM), leadership, citizenship and life skills development;
• Develop new curriculum in response to new audience needs;
• Strengthen the volunteer management system needed to implement the 4-H Youth Development program by: conducting agent trainings to develop volunteer management skills; developing tools to support volunteer management system; delivering volunteer leader training;
• Develop new funding support through individual and group solicitation, grant applications and fee-for-service programs.

2. Brief description of the target audience

Youth - 5-19
Adult Volunteers 19+

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	14283	77923	48750	10896

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	5	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	13459

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	26395

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	3013

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	152

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	81

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development,

non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	6540

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	222979

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	4H 1.1: Volunteers apply skills developed through Extension-provided training, supervision, and support to increase their effectiveness in influencing positive youth development for the audience(s) with which they work.
2	4H 2.1: 4-H Youth Development volunteers develop capacity and have a positive influence on the well-being of their communities. Indicators include:4H 2.1: Volunteers increase leadership capacity in their communities. 4H 2.2: Volunteers foster life skill development in the youth in their communities. ? Indicator: 4H 2.3: Volunteers increase effectiveness of Extension programs. 4H 2.4: Volunteers contribute to increased public service in their communities.4H 2.5: Volunteers generate a sense of goodwill and social well-being in their communities.4H 2.6: Volunteers increase the social, emotional, and learning skills in diverse audiences with which they work.
3	4H 3.0: Youth become caring and contributing members of society through life skill development attained in the 4-H program. Indicators include: 4H 3.1: Youth contribute to community improvement; 4H 3.2: Youth develop goal-setting skills; 4H 3.3: Youth develop decision-making skills; 4H 3.4: Youth develop record keeping skills; 4H 3.5: Youth develop public speaking skills; 4H 3.6: Youth develop leadership skills; 4H 3.7: Youth develop responsibility.
4	4H 4.1: Colorado youth apply STEM knowledge and skills in club, community and academic projects and programs.
5	4H 5.1: Colorado K-12 youth apply content knowledge from 4-H in academic and community settings.
6	4H 6.0: 4-H Youth will become more aware and engaging in their community and community issues through the appreciation of cultural diversity and understanding in the democratic process. Indicators include: 4H 6.1: Youth will read or view news regularly and identify important issues. (8th grade only) 4H 6.2: Youth will engage in discussion with others and be critical consumers of information (8th graders only).4H 6.3: Youth will demonstrate value and respect for other cultures. 4H 6.4: Youth will engage in civic involvement. 4H 6.5: Youth participate in community service and volunteer.4H 6.6: Youth will demonstrate leadership efficacy. 4H 6.7: Youth will maintain future intentions for civic engagement. 4H 6.8: Youth demonstrate their ability to work effectively in teams. 4H 6.9: Youth will improve their knowledge of parliamentary procedure. 4H 6.10: Youth will increase their interactions with local, state, and national government. 4H 6.11: Youth will intend to vote.

Outcome #1

1. Outcome Measures

4H 1.1: Volunteers apply skills developed through Extension-provided training, supervision, and support to increase their effectiveness in influencing positive youth development for the audience(s) with which they work.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2435

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Trained volunteers are imperative in increasing capacity to deliver effective youth development programming across the state.

What has been done
Colorado's online planning and reporting system shows 1,581,587 hours contributed by volunteers toward 4-H Youth Development. At 8 hours/day and 200 days/FTE, this number represents 988 FTEs. The Independent Sector estimates a volunteer serves an average of 127 hours, and the hourly value of volunteer time in Colorado (2016) was estimated at $25.97. These formulas show 4-H volunteers each contributed $3298. Agents reportd 12,455 volunteers. The total value exceeds $41 billion.

Results
2435 volunteers reported they apply skills developed through Extension-provided training, supervision, and support to increase their effectiveness in influencing positive youth development for the audience(s) with which they work.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

4H 2.1: 4-H Youth Development volunteers develop capacity and have a positive influence on the well-being of their communities. Indicators include:4H 2.1: Volunteers increase leadership capacity in their communities. 4H 2.2: Volunteers foster life skill development in the youth in their communities. ? Indicator: 4H 2.3: Volunteers increase effectiveness of Extension programs. 4H 2.4: Volunteers contribute to increased public service in their communities.4H 2.5: Volunteers generate a sense of goodwill and social well-being in their communities.4H 2.6: Volunteers increase the social, emotional, and learning skills in diverse audiences with which they work.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	8849

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Trained volunteers are imperative in increasing capacity to deliver effective youth development programming across the state.

What has been done
Agents and other volunteers report they delivered 13,355 group educational events; 26,382 individual educational engagements; convened or facilitated 3,011 meetings; loaned 152 kits or similar resources; and had 222,979 web page hits in their work to insure volunteers develop capacity and have a positive influence on the well-being of their communities.

Results
2032 - 4H 2.1a:Volunteers increase leadership capacity in their communities.
1270 - 4H 2.1b: Volunteers foster life skill development in the youth in their communities.
2138 - 4H 2.1c: Volunteers increase effectiveness of Extension programs.
1052 - 4H 2.1d: Volunteers contribute to increased public service in their communities.
1066 - 4H 2.1e: Volunteers generate a sense of goodwill and social well-being in their communities.
1291 - 4H 2.1f: Volunteers increase the social, emotional, and learning skills in the audience with which they work

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

4H 3.0: Youth become caring and contributing members of society through life skill development attained in the 4-H program. Indicators include: 4H 3.1: Youth contribute to community improvement; 4H 3.2: Youth develop goal-setting skills; 4H 3.3: Youth develop decision-making skills; 4H 3.4: Youth develop record keeping skills; 4H 3.5: Youth develop public speaking skills; 4H 3.6: Youth develop leadership skills; 4H 3.7: Youth develop responsibility.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	51994

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Identified life skills will support youth in reaching their full potential and in becoming contributing members of society.

What has been done
Multiple projects appeal to youths' interests, and serve as tools they can use in attaining and demonstrating life skills.

Results
9509 - 4H 3.1b: Youth develop goal-setting skills
9070 - 4H 3.1c: Youth develop decision-making skills
8794 - 4H 3.1d: Youth develop record keeping skills
7729 - 4H 3.1e: Youth develop public speaking skills
8382 - 4H 3.1f: Youth develop leadership skills
8460 - 4H 3.1g: Youth develop responsibility

4. Associated Knowledge Areas

KA Code	Knowledge Area

806 Youth Development

Outcome #4

1. Outcome Measures

4H 4.1: Colorado youth apply STEM knowledge and skills in club, community and academic projects and programs.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	4754

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
To enhance the STEM talent pool to benefit our country and to enhance their marketability as they enter the work force, Colorado youth will need an increased understanding and interest in Science, Technology, Engineering, and Math skills

What has been done
CSUE 4-H STEM AmeriCorps Members are supported by 4-H Youth Development agents, and supervised by the local 4-H STEM Program Associate or Agent. AmeriCorps requires each youth to complete six hours of STEM programming before they can be counted as completing the program. One example: 94 kids in Logan County completed six or more (some as many as 20 or more) hours of STEM programming.

Results
Logan County results, as an example: All youth who started were given surveys to monitor their interest and knowledge in STEM, school, and future education. All youth who completed 6 or more hours were given exit surveys to monitor changes in attitude in STEM and school areas. There was a positive increase in all areas including liking school, STEM, wanting to graduate from high school, and understanding the importance of STEM for future success.
Other benefits from AmeriCorps programming included increased 4-H membership, increased diversity in 4-H programs, and increased requests for Extension programming in the school system.

4. Associated Knowledge Areas

KA Code	Knowledge Area

806 Youth Development

Outcome #5

1. Outcome Measures

4H 5.1: Colorado K-12 youth apply content knowledge from 4-H in academic and community settings.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	3257

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
While 4-H Youth Development projects are tools for developing life skills, youth participants also acquire content knowledge.

What has been done
Across the state, 4-H participants are able to choose among 75 - 100 projects through which they learn life skills, and acquire content knowledge.

Results
1357 Youth reported they apply content knowledge from 4-H to new situations. One reported, "In the last four years, I have learned much from my opportunities in First Team [Robotics], including new programming languages, electrical theory, and even developing a business model. Being a part of Team 4386 has changed my life, allowing me to expand my knowledge for a future career and meet close friends that share my interests."

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #6

1. Outcome Measures

4H 6.0: 4-H Youth will become more aware and engaging in their community and community issues through the appreciation of cultural diversity and understanding in the democratic process. Indicators include: 4H 6.1: Youth will read or view news regularly and identify important issues. (8th grade only) 4H 6.2: Youth will engage in discussion with others and be critical consumers of information (8th graders only).4H 6.3: Youth will demonstrate value and respect for other cultures. 4H 6.4: Youth will engage in civic involvement. 4H 6.5: Youth participate in community service and volunteer.4H 6.6: Youth will demonstrate leadership efficacy. 4H 6.7: Youth will maintain future intentions for civic engagement. 4H 6.8: Youth demonstrate their ability to work effectively in teams. 4H 6.9: Youth will improve their knowledge of parliamentary procedure. 4H 6.10: Youth will increase their interactions with local, state, and national government. 4H 6.11: Youth will intend to vote.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	13265

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Through the appreciation of cultural diversity and understanding in the democratic process, youth become more aware and engaged in their community and community issues.

What has been done
One example: It is really important that we promote ?youth voice? in our members. Our community needs to hear from the younger population. Youth can provide critical input on many issues facing our society. Including youth voice in decision making is essential. It also prepares these young adults with civil discourse skills for working with a diversity of people throughout life. The County Council will be contributing their voice this year to such topics like: diversity and inclusion, mental health and suicide prevention awareness, substance abuse prevention, workforce development and health and human wellness. Our youth members will connect with adult role models to foster positive connections for impactful change. The 4-H program is proud to be able to establish these youth-adult partnerships. We feel these working relationships allow our members to thrive.

Results

19 - 4H 6.1a: Youth will read or view news regularly and identify important issues. (8th grade only)
20 - 4H 6.1b: Youth will engage in discussion with others and be critical consumers of information (8th graders only).
655 - 4H 6.1c: Youth will demonstrate value and respect for other cultures.
540 - 4H 6.1d: Youth will engage in civic involvement.
2917 - 4H 6.1e: Youth participate in community service and volunteer.
3865 - 4H 6.1f: Youth will demonstrate leadership efficacy.
363 - 4H 6.1g: Youth will maintain future intentions for civic engagement.
3804 - 4H 6.1h: Youth demonstrate their ability to work effectively in teams.
580 - 4H 6.1i: Youth will improve their knowledge of parliamentary procedure.
232 - 4H 6.1j: Youth will increase their interactions with local, state, and national government.
270 - 4H 6.1k: Youth will intend to vote.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Competing family priorities continue to limit enrollment in some communities.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In the 4-H Americorps funded STEM work, for the Program Year 2016-2017:
3,393 youth participated in 1-hour of programming
1,072 youth completed 6, or more, hours of programming

Key Items of Evaluation

510 youth demonstrated improved academic engagement
In addition, 24 members completed their service and earned nearly $60,000 in Education Awards.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Family and Financial Security

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	65%		0%	
802	Human Development and Family Well-Being	35%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	0.0	0.0
Actual Paid	2.7	0.0	0.0	0.0
Actual Volunteer	0.8	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
45075	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
45075	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
246961	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Educational activities include adoption of curriculum, training for agents and other service providers, educational programs on financial and family management for individuals and families.

2. Brief description of the target audience

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

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	690	793	160	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	1	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	257

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	47

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	39

Output #4

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	2090

Output #5

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	1382

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

FAFS 1.1: Participants across the lifecycle will apply financial best practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	537

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Financial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth, development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

What has been done
1) Financial education in Larimer County took several leaps forward in 2017 when three new partner agencies requested classes from Larimer County Extension. These agencies are the Alternative Sentencing program, Neighbor to Neighbor Rental program, and the District Probation Department. Each agency requested series of classes for their clientele. Representatives from each agency has clientele that has faced problems of some sort, and some of those problems are fueled by lack of financial literacy.
Classes were provided for Alternative Sentencing and Neighbor to Neighbor, using the All My Money curriculum plus other resources. The classes for the Probation Department had to be rescheduled to early 2018 due to their program scheduling needs. Participants in the classes were very diverse in ethnicity, backgrounds, ages, and gender. At the end of the series, the participants in the Alternative Sentencing programs reported they had all learned at least one new concept and were planning to utilize the education in their personal finances. The Alternative Sentencing unit is planning to request this education again in 2018, with the participants and the program manager wanting more sessions in the series.

2) During April, Financial Literacy Month, the five FCS Extension Agents in northeast Colorado conducted educational programs encouraging children to save money using piggy banks; and

teaching and encouraging parents or grandparents to teach their children to save and other money skills.

Results
537 participants across the life cycle will apply financial best practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

FAFS 1.1.1 Participants will plan to apply financial best practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	703

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Financial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth, development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

What has been done
one example: This program is now 3 yrs old - every month I meet with a group of first time felons who are going through the county diversion program. The participants are all adults but the age range has been 18 - 70; all are in different stages of life, work, and family. Some have lots of personal finance knowledge & some have little to none. With this in mind, I take a lot of materials with me every month. The focus of the class is basic budgeting, credit, collections, consumer education.

One participant in particular wanted help in managing money. He was working in the restaurant/bar industry & received mainly tips. He said his problem was when co-workers wanted to go out after shift and he would spend too much money as it was cash.
So, I pulled out our publication on living on an irregular income - and we talked about how he could manage his daily cash so he wouldn't over spend when he went out, but was still able to go out. We started with his monthly expenses, added in periodic expenses, and savings to build an emergency fund. Then divided it into how many days a month he averaged working to come up with a daily amount he had to make to cover his expenses. We under estimated working days to allow for times when he wasn't working so often.
So with this figure he is able to take his tips and immediately know that first so much needed to go towards expenses and the amount over that could 1) get him ahead 2) boost saving 3) allow for some entertainment.
Just being able to know what he had to make to cover expenses and how he can take control of where his money goes seemed to be a great relief.

Results
Across the state, 703 participants reported they plan to apply financial best practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

FAFS 1.2: Participants will implement best practices of healthy development and relationships across the life cycle.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	205

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Financial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth,

development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

What has been done
One example: In 2017, I taught 20 classes to 218 people among different audiences including seniors at the Senior Center and Aspen Club, County employees, AmeriCorps members, health practitioners, and CSU students. These classes focused on health and wellness, behavior change, self-care, and mindfulness. They included:
?Positive Brain Change
?Tame your Stress
?Make it Stick (Behavior Change)
?Mindful Self-care
?Self-care Planning Workshop
In rolling out the Senior Access Points project, I made 5 presentations to 89 people about Senior Access Points and community engagement. These groups included Senior Peer Counselors, the Vida Sana coalition, Seniors Networking Group, and Human Development and Family Studies students.

Results
205 Participants reported they will implement best practices of healthy development.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

FAFS 1.2.1 Participants will plan to implement best practices of healthy development and relationships across the life cycle.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	31

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
inancial, mental, physical, emotional and relational health are key components of well-being. Stable and successful individuals, families, and communities are important to the growth, development and health of our society. When people are in a state of financial and relational wellness, they are in control, confident and focused. They have greater balance and stability so they can concentrate on the most important tasks at hand such a weathering difficulties and making progress toward their goals. Family and financial stability education creates strong communities.

What has been done
One Example: This year, we rolled out the Powerful Tools for Caregivers (PTC) program for grandparents raising their grandchildren. We piloted three classes with 23 people total. We also developed a 6-week curriculum for the children who are being raised by their grandparents. We will launch the new curriculum in Larimer County in the Spring 2018.

Results
31 participants reported they will plan to implement best practices of healthy development and relationships across the life cycle.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Family and Consumer Sciences experiences decreasing resources across the USA.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

The Live Smart Colorado Blog debuted in 2017 as a strategy to deliver science-based, practical information that encourages lifelong physical, financial and emotional health and well-being to Coloradans. A blog format was chosen to deliver this information to a wide spectrum of clients from all areas in Colorado. As opposed to a website, where individuals search and find information, a blog pushes out information that is timely and relevant to subscribers and then is shared by readers on a variety of social media sites such as

Facebook and Linked-in. The Live Smart Colorado Blog currently has 58 active subscribers. This blog had 5,693 page views in 2017. 82 % of users are female from a wide age range, with the largest percentage or users being (25%) 25-34yrs and (26%) 55-64yrs.
Whether clients are looking for unbiased money management strategies, wondering where to find research-based information about food safety and healthy eating, are concerned about how to keep their home free from radon gas or molds or thinking about renting an apartment, the Live Smart Colorado Blog delivers weekly information and resources to their in-box.
With the goal of improving the quality of life for individuals, families and communities, 17 Colorado State University Family & Consumer Science (FCS) Extension Agents and Specialists authored and published a total of 46 original Live Smart Colorado blog articles in 2017.

Key Items of Evaluation

The Live Smart Colorado Blog currently has 58 active subscribers. This blog had 5,693 page views in 2017. 82 % of users are female from a wide age range, with the largest percentage or users being (25%) 25-34yrs and (26%) 55-64yrs.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Nutrition, Food Safety & Health

☑ Reporting on this Program

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%		10%	
702	Requirements and Function of Nutrients and Other Food Components	0%		25%	
703	Nutrition Education and Behavior	30%		25%	
704	Nutrition and Hunger in the Population	5%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	5%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	30%		20%	
723	Hazards to Human Health and Safety	0%		20%	
724	Healthy Lifestyle	30%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	45.0	0.0	2.0	0.0
Actual Paid	11.6	0.0	4.0	0.0
Actual Volunteer	1.1	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
208948	0	337129	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
208948	0	337129	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
659692	0	3155339	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct basic and applied research on nutrition and wellness.

HEALTH PROMOTION & DISEASE PREVENTION (NH) programs include:
- Strong Women, Strong Bones
- Heart Disease Awareness & Prevention
- Diabetes Awareness, Prevention and Management
- Nutrition Education for Low-income Audiences
- Nutrition and Wellness
- Multi-lesson series: Dining with Diabetes, Small Changes Make a Big Difference, Strong Women-Strong Bones, Moving Toward a Healthier You, Healthy Heart, Smart-START for a Healthy Heart
- Self-paced program - Self-Care for a Healthy Heart
- Single lessons - Workable Wellness (work site wellness).
- Youth programs: Food Friends-Making New Foods Fun for Kids, Eating Right Is Basic, Chef Combo's Fantastic Adventures in Tasting and Nutrition, Professor Popcorn

FOOD SAFETY (FSAFE) Education

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

Promoting Food Security

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

Research

- Development of new technologies for improving food safety
- Determine important relationships between diet, food composition, and health

2. Brief description of the target audience

Targeted audiences include preschool children, youth preK-12, adults of all ages, limited resource families, pregnant women, seniors and caretakers responsible for the health and well-being of these specific audiences. Additional specific audiences include small food producers, food handlers, Colorado cottage food entrepreneurs and farmers' market managers and food vendors.

For Research: - Producers and processors of plant and animal agricultural products.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	9083	5995	16047	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	20	16	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	7824

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	3456

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	384

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	21

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal. NH 9) Newsletters - This is number of newsletters, not number mailed or number of Coloradans who received them, such as Family Matters & others.

Year	Actual
2017	30

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	416326

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	393718

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	NFSH A1.1a Action Outcome (Intent to Change): NFSH A1.1a The number of Coloradans that reported an intention to eat more of healthy foods.
2	NFSH A1.1b Action Outcome (Behavior Change): NFSH A1.1b The number of Coloradans that reported eating more of healthy foods.
3	NFSH A1.2a The number of Coloradans that reported an intention to eat less of foods/food components which are commonly eaten in excess.
4	NFSH A1.2b The number of Coloradans that reported eating less of foods/food components which are commonly eaten in excess.
5	NFSH A2.1a The number of Coloradans that reported an intention to increase their physical activity and/or reducing sedentary time.
6	NFSH A2.1b The number of Coloradans that reported increasing their physical activity, reducing sedentary time, or meeting the recommended amount of physical activity.
7	NFSH A3.1a. Participants who report intent to adopt recommended food safety practices related to safe food production, processing, transport, preparation, preservation, consumption and/or food storage.
8	NFSH A3.2. Participants will adopt skills necessary to teach others about food safety practices that reduce risk of foodborne illness.
9	NFSH A3.1b. Action Outcome (Behavior Change): Participants who report adopting a learned food safety practice related to safe food production, processing, transport, preparation, preservation, consumption and/or food storage.
10	NFSH L4.1a. Learning Outcome (Knowledge Gained): Participants who gain knowledge necessary to apply food safety principles in a work-related setting and to teach these principles to others.

Outcome #1

1. Outcome Measures

NFSH A1.1a Action Outcome (Intent to Change): NFSH A1.1a The number of Coloradans that reported an intention to eat more of healthy foods.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	814

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
One example: Nutrition cards accompanied Community Alliance donations of kale, chard, and collards. Cards for apples, peaches,zucchini, butternut squash, sweet potatoes, pinto beans,and potatoes are available.
Increasing access to healthy food is one component of promoting community wellness. The nutrition program extends this goal further by providing educational information on healthy foods and supporting community-based physician wellness programs.

Results
814 participants reported they intend to eat more of healthy foods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2

1. Outcome Measures

NFSH A1.1b Action Outcome (Behavior Change): NFSH A1.1b The number of Coloradans that reported eating more of healthy foods.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	582

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
Please see reported outputs in previous section.

Results
582 participants reported they are eating more of healthy foods.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

NFSH A1.2a The number of Coloradans that reported an intention to eat less of foods/food components which are commonly eaten in excess.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2365

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
Please refer to previous section to review outputs.

Results
2365 participants reported an intention to eat less of foods/food components which are commonly eaten in excess.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

NFSH A1.2b The number of Coloradans that reported eating less of foods/food components which are commonly eaten in excess.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2308

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
Please see outputs reported in previous section.

Results
2308 participants reported they are eating less of foods/food components which are commonly eaten in excess.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #5

1. Outcome Measures

NFSH A2.1a The number of Coloradans that reported an intention to increase their physical activity and/or reducing sedentary time.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	2325

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
One example: The Northeast Diabetes Coalition offered five webinars at 11 different host sites in northeast Colorado. The webinars were "I Know What I Am Supposed To Do, So Why Can't I Do It?" by Dr. William Polonsky, "Kidney Care & Diabetes" by Dr. Michael Shomaker, "Grocery Shop with Success" by Judy Weimer, "Genetic Links of Diabetes" and "Living with Type 1 Diabetes" both by Cara Draegert.

Evaluations were given for each webinar. Participants ranked whether they strongly agreed, agreed, disagreed, and strongly disagreed that as a result of participating in the webinar they gained knowledge related to the three main objectives of the presentation. Cummulative results showed 33% of participants strongly agreed, 61.4% agreed and 0.8% disagreed. There was also a choice of "already knew" that 4.5% of participants checked.

When asked what they would do as a result of participating in the webinar, the main responses included read labels, meal plan, choose healthier foods, exercise more, take medication, check and monitor glucose levels more closely, take advantage of health fair screenings, get regular check-ups and follow up with doctor.

Results
2325 participants webinar (above) and in other output engagements reported they intend to increase their physical activity and/or reduce sedentary time.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #6

1. Outcome Measures

NFSH A2.1b The number of Coloradans that reported increasing their physical activity, reducing sedentary time, or meeting the recommended amount of physical activity.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	341

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension programming plays a vital role through direct programming or community development/engagement in addressing these conditions of chronic disease (including diabetes and cardiovascular disease), obesity and overweight, fruit and vegetable consumption, healthy lifestyles and physical activity.

What has been done
Please see outputs in previous section.

Results
341 participants reported they increased their physical activity, reduced sedentary time, or met recommended amount of physical activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #7

1. Outcome Measures

NFSH A3.1a. Participants who report intent to adopt recommended food safety practices related to safe food production, processing, transport, preparation, preservation, consumption and/or food storage.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1930

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adoption of food safety knowledge and safe food handling practices will ultimately reduce the incidence of food-borne disease in Colorado, especially among the most vulnerable populations (infants, young children and individuals who are immuno-compromised through aging, medical intervention, and illness).

What has been done
CSU Extension contributes to statewide efforts in decreasing incidence of food-borne illness through direct and indirect education of consumers, food managers and workers, food growers, farmers? market managers, cottage food entrepreneurs, health professionals, caretakers and others. ServSafe, Food Safety Works, and Food Safety for Cottage Foods are three programs that were delivered.

Results
1930 participants reported they intend to adopt recommended food safety practices related to safe food production, processing, transport, preparation, preservation, consumption, and/or food storage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #8

1. Outcome Measures

NFSH A3.2. Participants will adopt skills necessary to teach others about food safety practices that reduce risk of foodborne illness.

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

NFSH A3.1b. Action Outcome (Behavior Change): Participants who report adopting a learned food safety practice related to safe food production, processing, transport, preparation, preservation, consumption and/or food storage.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1795

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adoption of food safety knowledge and safe food handling practices will ultimately reduce the incidence of food-borne disease in Colorado, especially among the most vulnerable populations (infants, young children and individuals who are immuno-compromised through aging, medical intervention, and illness).

What has been done
SU Extension contributes to statewide efforts in decreasing incidence of food-borne illness through direct and indirect education of consumers, food managers and workers, food growers, farmers? market managers, cottage food entrepreneurs, health professionals, caretakers and others. ServSafe, Food Safety Works, and Food Safety for Cottage Foods are three programs that were delivered.

Results
1795 participants reported adopting a learned food safety practice related to safe food production, processing, transport, preparation, preservation, consumption and/or food storage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #10

1. Outcome Measures

NFSH L4.1a. Learning Outcome (Knowledge Gained): Participants who gain knowledge necessary to apply food safety principles in a work-related setting and to teach these principles to others.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	958

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Adoption of food safety knowledge and safe food handling practices will ultimately reduce the incidence of food-borne disease in Colorado, especially among the most vulnerable populations (infants, young children and individuals who are immuno-compromised through aging, medical intervention, and illness).

What has been done
CSU Extension contributes to statewide efforts in decreasing incidence of food-borne illness through direct and indirect education of consumers, food managers and workers, food growers, farmers? market managers, cottage food entrepreneurs, health professionals, caretakers and others. ServSafe, Food Safety Works, and Food Safety for Cottage Foods are three programs that were delivered.

Results
958 participants reported they gained knowledge necessary to apply food safety principles in a work-related setting and to teach these principles to others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Natural Disasters:

• Wild fires, power outages brought on by weather extremes (flooding, storms, tornados,) or other reasons creates the need for timely and effective food safety education during both the crisis and recovery period involving collaboration with public health and government agencies, the media, emergency response networks and others depending on the situation.
• An emergency may also result from loss of employment, therefore decreasing financial resources available to purchase foods. Whatever the situation, knowledge of food safety and storage is important.
Economy:

• Can affect food safety, nutrition and health, such as affordability and accessibility to safe and wholesome foods. Families with limited resources can benefit from information such as how to stretch food dollars to provide healthful and safe foods. Individuals seeking jobs need support with entrepreneurial efforts such as starting a Cottage Foods business.
Public policy changes:

• Can affect food safety, nutrition and health, such as affordability and accessibility to safe and wholesome foods. Examples may include changes to school wellness policies; training opportunities for school personnel and food service staff, increases in funding for childhood obesity in the state and communities.
Government regulations:

• Changes in FDA food code effect food safety training opportunities for retail food and school food service staff. Legislation changes regarding the cottage food industry may require focused effort by this PRU to develop and deliver targeted food safety education. Funding for SNAP-ED and EFNEP is provided through federal sources. Changes in funding or program guidelines are plausible. Additionally, legislation regarding the School Nutrition program and the Farm bill may influence Extension programming.
Competing Public priorities

- In today's economic climate, Extension staff and partner agencies are being asked to do more with less. Nutrition, food safety and health promotion programming may be a lower priority in some areas due to competing public priorities at both the local and state levels.

Population Changes:

- Increased numbers of Spanish speaking audiences requires greater accessibility to educational materials translated into Spanish.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Our Nutrition, Food Safety, and Health PRU engages strongly in mobile learning and social media forums, currently hosting 20 unique online accounts including four websites, Facebook, YouTube, Pinterest, and Instagram. This allows us to connect with a very large number of internet users who are actively seeking information related to food and health but poses evaluation challenges compared to sharing information in person.

- For outreach materials developed on campus and disseminated via mobile-learning platforms, user trends and demographic analytics are carefully examined and used to better target messages to specific populations. For example, in contrast to other social media and website platforms, our top-performing YouTube nutrition content is predominately viewed by males and the age group seeking nutrition information on LiveEatPlay tends to be younger than those visiting our Farm-to-Table website. These results help guide the development of new materials and decisions regarding methods of dissemination.
- Following posting of new information, we can determine differences in engagement across Colorado at a county level and use that information to vary our approach.

Key Items of Evaluation

This is an exciting but challenging time in outreach education. With a very large percentage of our population turning to the Internet for information, it is critical that Extension be present as a credible resource. However, finding reliable ways of gathering feedback from this dynamic audience is difficult. Few online users willingly complete surveys and limited research has been published examining this issue. Data analysis is emerging in a variety of settings as a means of understanding a population and being used to help increase the chance of success in academic and professional pathways. Mobile learning has become one of the top sources of food and health information but tools for measuring impact are still being developed.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Livestock & Range

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
121	Management of Range Resources	50%		15%	
301	Reproductive Performance of Animals	0%		20%	
302	Nutrient Utilization in Animals	0%		20%	
303	Genetic Improvement of Animals	0%		10%	
307	Animal Management Systems	50%		10%	
315	Animal Welfare/Well-Being and Protection	0%		10%	
601	Economics of Agricultural Production and Farm Management	0%		15%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	13.0	0.0	6.0	0.0
Actual Paid	5.5	0.0	8.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
207855	0	557235	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
207855	0	557235	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
656242	0	5215413	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Workshops and educational classes for producers
- Demonstration field days to showcase the results
- Individual counseling on producers' specific problems
- Conduct basic and applied research on livestock, primarily beef, dairy, sheep, and horses
- Conduct basic and applied research on ecological restoration of rangeland after surface disturbances
- Conduct research on integrated and innovative approaches to reduce the risk of larkspur (Delphinium spp.) poisoning in livestock on Colorado Foothills Rangeland

2. Brief description of the target audience

Youth and adult livestock producers as well rangeland managers and ranchers.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3007	1317	50	0

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	7	23	30

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	2645

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	8112

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	140

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	4

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	20

Output #6

Output Measure

- 7. Number of media releases: indirect contacts through educational media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	27

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	17303

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	LR Action Outcome 1.1: Livestock and range land managers apply newly gained information, technology, or skills to improve animal health and/or animal production.
2	LR Action Outcome 1.2: Livestock and range land managers apply newly gained information, technology, or skills to improve range land health.
3	LR Action Outcome 1.3: Livestock and rangeland managers apply newly gained information, technology, or skills to improve economic sustainability.
4	LR Action Outcome 1.4: Livestock and rangeland managers develop/write a management plan (i.e. grazing plan, feeding plan, drought plan, business plan, etc.)
5	LR Action Outcome 1.5: Number of animals where health/production was affected/improved.
6	LR Action Outcome 1.6: Number of acres on which rangeland health was affected/improved.
7	LR Action Outcome 2.1: Livestock and range land managers apply newly gained information in their decision making process for following or developing new industry policies and regulations.
8	Evaluation of Genetic Beef Cattle

Outcome #1

1. Outcome Measures

LR Action Outcome 1.1: Livestock and range land managers apply newly gained information, technology, or skills to improve animal health and/or animal production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1510

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There are over 30,000 farms and ranches in Colorado consisting of over 30,000,000 acres of agricultural land (land in farms and ranches), 46% of the state?s total land area of 66.3 million acres. Colorado?s agricultural industry has lost nearly 2 million acres of agricultural land over the last ten years. Agricultural land in Colorado is being converted in three primary ways: urban and built up lands, low density non-agricultural rural land, and public open lands. As we continue to lose acres of agricultural land, we also continue to have fewer days spent working on the farm or ranch. 38.5% of operators worked 200 days or more off the farm or ranch. Agriculture land represents more than 85% of the private, undeveloped land in Colorado. Another 35%, approximately, is federally owned, of which a large percentage is leased for agricultural production.

What has been done
One example: Extension agents are often sought out to assist producers in becoming more financially solvent. We assist them in sound decisions that are both economically and environmentally sustainable. I was recently contacted by a producer seeking to become a Certified Grass Fed producer. To become certified a producer must go through an audit by a certified third party auditor and he was seeking that person. After some research I found that there were no auditors in our area to help him. With that I applied to become an auditor for the Gassfed Association in order to help those I serve if they desire.
By doing this I have not only helped this one producer find a way to add value to his animals, I am also now prepared to assist others as the need arises.

Results

1510 participants report they applied newly gained information, technology, or skills to improve animal health and/or animal production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
307	Animal Management Systems

Outcome #2

1. Outcome Measures

LR Action Outcome 1.2: Livestock and range land managers apply newly gained information, technology, or skills to improve range land health.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	470

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There are over 30,000 farms and ranches in Colorado consisting of over 30,000,000 acres of agricultural land (land in farms and ranches), 46% of the state?s total land area of 66.3 million acres. Colorado?s agricultural industry has lost nearly 2 million acres of agricultural land over the last ten years. Agricultural land in Colorado is being converted in three primary ways: urban and built up lands, low density non-agricultural rural land, and public open lands. As we continue to lose acres of agricultural land, we also continue to have fewer days spent working on the farm or ranch. 38.5% of operators worked 200 days or more off the farm or ranch. Agriculture land represents more than 85% of the private, undeveloped land in Colorado. Another 35%, approximately, is federally owned, of which a large percentage is leased for agricultural production.

What has been done
One example: a small acreage workshop was conducted for individuals living in Park and Teller counties. The event ran from 10-2pm and included a lunch (paid for by the conservation district) made with locally sourced produce and meat. During the workshop we covered topics including: Pasture and livestock care, soils, water, wildlife, and weeds. An evaluation was conducted and showed knowledge growth from participants in all areas discussed. As well as some qualitative data including: In response to: Please list any actions you plan on taking on your property as a

result of what you learned.
"Better noxious weed mitigation, water test"
"Revitalize the soil and grasses"
"Continue to rehab property"

Results
470 participants reported the applied newly gained information, technology, oro skills ti improve range land health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

Outcome #3

1. Outcome Measures

LR Action Outcome 1.3: Livestock and rangeland managers apply newly gained information, technology, or skills to improve economic sustainability.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1098

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In 2007, the National Ag Census ranked Colorado as 5th in the nation for value of cattle and calves ($3.2 billion) which is over half of the total market value of agricultural products sold in Colorado. During the same period, Colorado ranked 2nd in the nation for sheep and goat sales ($85 million). As of January 2012, there were 2.75 million cattle and calves in the state. This is an increase of 150,000 head since January of 2009. However, due primarily to drought in the state, cattle and calve numbers have dropped back to 2.6 million head, as of January of 2013. The economic contribution from cattle is greater than 3 times that of grains, oilseeds, dry beans and dry peas ($1.0 billion). Milk cows in the state, during 2013, were estimated at 135,000 head and average milk production per cow per year is 23,430 pounds. Total milk produced for the state is estimated at 3.16 billion pounds per year. The number of sheep estimated in the state in January of 2012 was 460,000. As of December of 2011, the total estimated number of horses and pigs in the state was 720,000. Overall, rangeland and livestock are among the most

important agricultural resources in the state.

What has been done
This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

Results
1098 participants reported they applied newly gained information, technology, or skills to improve economic sustainability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
307	Animal Management Systems

Outcome #4

1. Outcome Measures

LR Action Outcome 1.4: Livestock and rangeland managers develop/write a management plan (i.e. grazing plan, feeding plan, drought plan, business plan, etc.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

What has been done
Members of the Livestock and Range PRU have demonstrated expertise and recognition in areas of livestock and range research and educational efforts. This expertise spans several

departments, colleges and disciplines. For example, within the Animal Science Department production expertise in cattle nutrition, reproduction, genetics and meat science are all represented. In addition, members of the work team represent veterinary medicine, rangeland science as well as agricultural economics. The team also has broad representation from both on-campus and off-campus faculty.
Many of the team members have worked together in various efforts in the past and have demonstrated their ability to be effective.

Results
55 participants reported they developed/wrote a management plan (grazing, feeding, drought, business, etc.)

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
307	Animal Management Systems

Outcome #5

1. Outcome Measures

LR Action Outcome 1.5: Number of animals where health/production was affected/improved.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	11051

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

What has been done
The Livestock and Range (L&R) Reporting Unit strives for rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability

using a broad array of methodologies that provides information, skills, and technology to producers and L&R Unit members.

Results
Health/production of 11051 animals was affected/improved.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

Outcome #6

1. Outcome Measures

LR Action Outcome 1.6: Number of acres on which rangeland health was affected/improved.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	50410

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

What has been done
The Livestock and Range (L&R) Reporting Unit strives for rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability using a broad array of methodologies that provides information, skills, and technology to producers and L&R Unit members.

Results
50412 acres were reported to have rangeland health affected/improved.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

Outcome #7

1. Outcome Measures

LR Action Outcome 2.1: Livestock and range land managers apply newly gained information in their decision making process for following or developing new industry policies and regulations.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	572

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Livestock and Range (L&R) Reporting Unit strives for rangeland health, improved animal health and production, industry policy and regulation awareness, and economic sustainability using a broad array of methodologies that provides information, skills, and technology to producers and L&R Unit members.

What has been done
This PRU is designed for Extension Programming for livestock producers, ranchers, and rangeland managers who have, or are striving for, a significant portion of their personal income coming from the farm/ranch. These may be small farms/ranches or larger scale operations. Livestock producers may also integrate cropping production systems into their operation.

Results
572 participants reported they applied newly gained information in their decision making processes for following or developing new industry policies and regulations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
307	Animal Management Systems

Outcome #8

1. Outcome Measures

Evaluation of Genetic Beef Cattle

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Livestock and range outcomes are dependent on public policies/regulations, climate, disease outbreaks for forages and livestock, and episodic natural disasters such as drought, flooding, blizzards, and wildfire. Additionally, changes in the stock market as well as

increasing input costs (e.g. fuel costs) will affect livestock and range outcomes. These external factors will be addressed when possible in education and research efforts, but their influence on outcomes is likely to continue into the future.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Cropping Systems

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	58%		18%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%		8%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		10%	
205	Plant Management Systems	0%		15%	
206	Basic Plant Biology	0%		3%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		10%	
212	Pathogens and Nematodes Affecting Plants	0%		7%	
213	Weeds Affecting Plants	0%		9%	
215	Biological Control of Pests Affecting Plants	0%		6%	
216	Integrated Pest Management Systems	35%		4%	
601	Economics of Agricultural Production and Farm Management	7%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	26.0	0.0
Actual Paid	8.8	0.0	26.0	0.0
Actual Volunteer	2.8	0.0	26.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
353071	0	1235930	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
353071	0	1235930	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1114719	0	11567623	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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. Brief description of the target audience

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

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2385	3356	10	0

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	53	113	166

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	209

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	3025

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	38

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	0

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	94

Output #6

Output Measure

- 7. Number of media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	88

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	9

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	CS Outcome 1.1: Participants apply research-based techniques for improving soil quality and productivity, protecting and making the best uses of water resources, managing crop nutrients, and/or enhancing plant yields and quality in their farm fields.
2	CS Outcome 1.2: Participants use research-based knowledge of integrated pest management systems for the crops and cropping systems in their farmed fields and/or their adjacent landscapes within their property and right-of-ways.
3	CS Outcome 1.4: Participants write estate & farm transition plans with the intent to transfer farm management & eventual ownership to subsequent generations inside or outside families.
4	Improvement of Quality and Performance of Colorado wheat
5	Colorado Potato Breeding Program

Outcome #1

1. Outcome Measures

CS Outcome 1.1: Participants apply research-based techniques for improving soil quality and productivity, protecting and making the best uses of water resources, managing crop nutrients, and/or enhancing plant yields and quality in their farm fields.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	177

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Colorado crop producers generate over $1.16 billion annually from the production of wheat, corn, and hay, according to the Colorado Department of Agriculture. Of crop production across the United States, Colorado ranks 6th in winter wheat (8th for all wheat), 15th in corn for grain, and 10th in alfalfa. Additionally, Colorado ranks 1st among all states in the production of proso millet and 7th in grain sorghum production. Colorado had just over 37,000 farms in 2007 accounting for 31,604,911 acres, 5.89 million acres of harvested cropland, and 2.9 million acres of irrigated land, according to the 2007 Census of Agriculture.

What has been done
It is the goal of this PRU for the producers of Colorado crops to adopt and implement improved, productive, and sustainable agricultural systems that will lead to the success of farms. Furthermore, these producer actions will improve the ability of farm operations to persist and thrive through successive generations of operators. Individuals, families, and communities will all benefit by having a safe, secure and sufficient food supply. Colorado crop producers will accommodate to the growth of demand for local and world crop production without compromising the natural resources upon which agriculture depends.

Results
177 participants reported they applied research-based techniques for improving soil quality and productivity, protecting and making the best uses of water resources, managing crop nutrients, and/or enhancing plant yields and quality in their farm fields.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #2

1. Outcome Measures

CS Outcome 1.2: Participants use research-based knowledge of integrated pest management systems for the crops and cropping systems in their farmed fields and/or their adjacent landscapes within their property and right-of-ways.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	144

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Diagnostics and management of endemic and invasive weeds, insect pests and plant pathogens, as well as abiotic stress effects, are some of the most costly inputs that clientele in agriculture must finance every year in Colorado. It is important for growers, to acquire skills to identify pests and implement new and proven pest management technologies into an integrated approach.

What has been done
Members of the work team have demonstrated expertise and recognition in areas of crop production, pest management, irrigation management, research, beginning farmer development, and educational programming. Please see previous section for outputs.

Results
144 participants reported they use research-based knowledge of integrated pest management systems for the crops and cropping systems in their farmed fields and/or their adjacent landscapes within their property and right-of-ways.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

CS Outcome 1.4: Participants write estate & farm transition plans with the intent to transfer farm management & eventual ownership to subsequent generations inside or outside families.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	238

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Estate planning and business succession are two related topics critical to the future of agriculture in Colorado and around the world. There are few people in Colorado qualified to conduct group educational programs, facilitate family business meetings, and provide coaching to farm/ranch families on these two topics.

What has been done
Tranel and Dalsted conducted several group workshops, met with numerous farm/ranch families, and facilitated several family business meetings.
The group and individual sessions resulted in families and individuals encouraged to develop pertinent plans and with the skills to do so. It is anticipated that the plans will further result in today's farms and ranches continuing to be operated by the next generation.
Tranel collaborated with other members of the ABM Team, attorneys, and lenders to deliver the educational and coaching events, author six fact sheets, and make information available on the ABM web site (www.wr.colostate.edu/ABM/).

Results
238 participants reported that they wrote estate & farm transition plans with the intent to transfer farm management & eventual ownership to subsequent generations inside or outside families.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
601	Economics of Agricultural Production and Farm Management

Outcome #4

1. Outcome Measures

Improvement of Quality and Performance of Colorado wheat

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
201	Plant Genome, Genetics, and Genetic Mechanisms
206	Basic Plant Biology

Outcome #5

1. Outcome Measures

Colorado Potato Breeding Program

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
205	Plant Management Systems
206	Basic Plant Biology
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The external factors marked above would cause changes in programming and the time Extension Agents and Specialists could devote to a specific program or topic. A natural disaster, such as drought, would cause additional programming to provide the education and information producers would need for their businesses to survive. Decreases in appropriated budgets - county and/or state - would likely force agents to alter their work on cropping issues. Members of the Crops Team would change the topics presented in a workshop, change educational programming, and/or develop new or different technologies and strategies for crop producers if there were changes in government regulations.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Program evaluations are performed during the year from participants with most educational programs offered. Crop production clinics are held during the season with evaluation results reported below from a recent program held in Ft. Morgan, Co. This site offered CCA and CEU credits for those Certified Crop Advisors and production professionals needing them. Electronic "clickers" were used to capture answers. Highlights from this particular Crops Clinic include:
58% said educational content completely met expectations
25% of participants will make a change in their operation as a result of the information
56% will share information with 1-3 people, 41% will share with more than 3 people
Acres represented at this event: 462,000 acres
Average benefit per acre based on respondent's answers : approx. $10/acre (up from $6 last year)
Total economic impact from this event: $4,620,000
Another program included into the Cropping Systems PRU is the Collaborative On Farm Test (COFT). We have estimated the value of a variety choice decision on Colorado farms. As a result of on-farm "ground truth" testing, following are impacts of variety choice within eastern Colorado. Assumptions include choosing the best variety based on yield test results and the economic advantage of employing best yielding varieties versus ignoring yield advances from newer choices.
Wheat - $6,003,760
Corn - $12,828,200
Dry beans - $453,000
Sorghum - $2,000,000
Sunflower - $346,000

Proso millet - potentially $460,000
Total potential value of variety decision annually based on Colorado Acreage = $22,090,960
PestSweep! Is a program that collects unwanted pesticides and disposes them in an environmentally safe manner. To date, PestSweep! has collected nearly 5,000 pounds of hazardous waste chemistry from households and farms. County Commissioners like the fact that amount did not end up in local landfills.

Key Items of Evaluation

The Cropping Systems PRU is continuing to offer educational programming that answers questions regarding: which variety (corn, wheat, sunflower, and others) provides best economic agronomic opportunities, which pesticides work for my local conditions even when pesticide resistance is present, is cover cropping an alternative strategy for managing economics, soils, weeds, and diseases. Major emphasis is being tested that introduces livestock into a cover cropping system. Most of the Cropping Systems PRU on-farm testing involves private industry partners that assist with program funding, further leveraging available operating funds. Average economic impacts from Cropping Systems PRU educational activities currently stands at $10/acre, with total economic impact to attendees at the CSU Crops Clinic valued at $4,620,000.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Natural Resources

☑ Reporting on this Program

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%		25%	
102	Soil, Plant, Water, Nutrient Relationships	20%		50%	
111	Conservation and Efficient Use of Water	20%		15%	
132	Weather and Climate	0%		10%	
205	Plant Management Systems	25%		0%	
216	Integrated Pest Management Systems	15%		0%	
307	Animal Management Systems	20%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	12.0	0.0	11.0	0.0
Actual Paid	11.8	0.0	12.8	0.0
Actual Volunteer	2.3	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
350406	0	563149	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
350406	0	563149	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1106308	0	5270763	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Conduct basic and applied research on environmental and natural resources issues.
- Colorado Master Gardener training and use of trained volunteers to increase capacity
- Colorado Native Plant Masters training and use of trained volunteers to increase capacity

2. Brief description of the target audience

Landowners, including small acreage (1-100 acres) and ranchers/farmers in Colorado will be our primary audience. A secondary audience will focus on training volunteers, realtors, and other professionals who in turn will take this information and educate their clientele on Extension's behalf.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	11812	3731	2540	25

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

Patent Applications Submitted

Year: 2017

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	2	6	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	712

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	5436

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	261

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	377

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal. Release or Column (number submitted)

Year	Actual
2017	26

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	159

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	290299

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	NR 1.1) Participants report implementation or intent to implement actions relating to water quality and quantity issues (such as well and septic system management, CO Water Law and regulations, water rights, best irrigation practices, stream quality issues, and/or drought tolerant landscaping.)
2	NR 1.2) Participants report implementation or intent to implement animal/wildlife-related conservation practices (such as improved manure management, livestock emergency preparedness, attracting pollinators, enhancing wildlife habitat, and/or deterring unwanted wildlife).
3	NR 1.3) Participants report implementation or intent to implement soil-related conservation practices (such as soil health, soil fertility, soil testing, erosion control, cover crops, composting, or soil compaction).
4	NR 1.4) Participants report implementation or intent to implement plant-related conservation practices (such as active weed management, pasture management techniques, grass stand establishment, planting windbreaks, planting native plants, and/or active forest management).
5	NR 1.5): Participants improve or intend to improve their practices, decisions and skills in action through timely access to pest management resources and/or pest identification and IPM implementation.
6	NR 1.6) The number of acres reported that are impacted (by weed management, planting natives, fire mitigation, pasture grasses, etc.
7	NR 1.7) Dollars saved by best management practices.
8	NR 1.8) Grant dollars awarded towards work in natural resources.
9	NR 1.9) User fees from programming.
10	Optimizing Colorado Agriculture's Water Footprint

Outcome #1

1. Outcome Measures

NR 1.1) Participants report implementation or intent to implement actions relating to water quality and quantity issues (such as well and septic system management, CO Water Law and regulations, water rights, best irrigation practices, stream quality issues, and/or drought tolerant landscaping.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	513

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Landowners/managers who own/manage one to 100 acres embrace the rural lifestyle but do not necessarily intend to derive income from the property. According to the USDA ERS (Economic Research Service) 2007 census data, 48.5% of Colorado farms are 1-99 acres in size. The number of small farms (1-99 acres in size) has increased by 7.7% since 1997.
The 2007 US Census of Agriculture classifies 36.4% of small farms (1-100 acres) as Residential/Lifestyle properties in which operators report major non-farming occupations. Placing rural agricultural land into the hands of many diverse owners has created a new educational challenge for Extension.
According to the American Farmland Trust, population growth in Colorado is transforming traditional agricultural landscapes into low-density residential development.

What has been done
One Example: As you may know, in 2016, using rain barrels to capture and store precipitation for beneficial use became legal in the great state of Colorado. With this new law, came many questions from Coloradans into County Extension offices on how they could legally use a rain barrel. In response to this influx of inquiries, in August of 2016, CSU Extension-Pueblo County Horticulture Coordinator, Sherie Caffey, and CSU Extension Regional Water Resources Specialist, Blake Osborn, held a class to teach the public about the new law, and about water quality and safety concerns that come along with a rain barrel. The class filled immediately, but it was not enough. Once residents knew the law, they wanted to know about actually using the rain water in their landscapes.

To meet the demand, in June of 2017, Blake and Sherie teamed up with the local Swire Coca Cola distribution center to give out rain barrels and teach people about how to use the

precipitation they collect in them.

25 Pueblo County residents took part in the workshop. Coca Cola donated 20 barrels (some participants shared barrels), and 20 kits that had all of the materials needed to turn a syrup barrel into a functional rain barrel. During the first part of the workshop, participants learned about the law and about what to do with their rain barrel once they got it home. They also went over other barrel designs, and passive rain water harvesting. CSU Extension believes that just having the barrel is not enough to make a community truly water wise, people must learn about using harvested rain water to be efficient.

The feedback from those who attended the workshop was outstanding. They were very excited to take home their new barrels and 100% of them indicated they learned something new about harvesting rain water. CSU Extension in Pueblo County hopes to do more workshops in which barrels will be distributed so that our county can continue on the track of being smart about our most precious resource, water.

Results
513 participants reported implementation or intent to implement actions relating to water quality and quantity issues (such as well and septic system management, CO Water Law and regulations, water rights, best irrigation practices, stream quality issues, and/or drought tolerant landscaping.)

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

Outcome #2

1. Outcome Measures

NR 1.2) Participants report implementation or intent to implement animal/wildlife-related conservation practices (such as improved manure management, livestock emergency preparedness, attracting pollinators, enhancing wildlife habitat, and/or deterring unwanted wildlife).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	518

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The most common areas in which participants felt they needed educational assistance were weeds, non-chemical weed management, wind energy, solar energy, pesticide/herbicide management, wildlife, beneficial insects, native plants, understanding water rights, composting/mulching/vermiculture, soils, and pasture establishment & maintenance.

What has been done

One example:

I coordinated the third annual fall Pasture Plot Demonstration Project Open House at the Delta County Fairgrounds in Hotchkiss, CO. This project is truly a partnership at its finest. Coordinating with 6 major entities on this project, we hosted over 60 individuals. The format of this workshop is a bit different than what we normally do. We had 10 individual stations that were staffed with experts from various agencies and organizations to include; irrigation, range, livestock, noxious weeds, soil fertility, pasture and grazing economics, and wildlife management. Participants are able to gain hands-on exposure to some of the principles and key talking points at each station. They can talk to the local experts to answer their specific questions related to their property. We spend time learning about their land and issues that are of concern. We can then talk to them about some recommended solutions and show them aspects of the irrigated and dryland plants that may help them be better stewards of their land. This annual event has been a great success. During the growing season, we monitor the behavior and response of the forage plants to different management treatments. Soil and forage samples are collected and analyzed to demonstrate the benefits of recommended prescriptions. Everything done on the plot is something that a normal farmer, rancher, or landowner could do on their land. Additionally, there is a self-guided tour that can be taken during the summer. We have handouts on site and signage located to direct individuals to the various plots within the project area. We continue to see increases in attendance at the plot and are offering even more learning opportunities to the public and our partners.

Results

518 participants reported implementation or intent to implement animal/wildlife-related conservation practices (such as improved manure management, livestock emergency preparedness, attracting pollinators, enhancing wildlife habitat, and/or deterring unwanted wildlife).

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
307	Animal Management Systems

Outcome #3

1. Outcome Measures

NR 1.3) Participants report implementation or intent to implement soil-related conservation practices (such as soil health, soil fertility, soil testing, erosion control, cover crops, composting, or soil compaction).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	402

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The most common areas in which participants felt they needed educational assistance were weeds, non-chemical weed management, wind energy, solar energy, pesticide/herbicide management, wildlife, beneficial insects, native plants, understanding water rights, composting/mulching/vermiculture, soils, and pasture establishment & maintenance.

What has been done
Educational programs such as workshops are often self-generated through fees charged for programs and/or site visits. These programs often require support from colleagues and partnering agencies and require time for planning and educational resources such as computers, projectors, handouts, etc. Special educational tools such as printing booklets or DVDs require advanced funding for development, productions, and marketing. Please see previous section for outputs.

Results
402 participants reported implementation or intent to implement soil-related conservation practices (such as soil health, soil fertility, soil testing, erosion control, cover crops, composting, or soil compaction).

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships

Outcome #4

1. Outcome Measures

NR 1.4) Participants report implementation or intent to implement plant-related conservation practices (such as active weed management, pasture management techniques, grass stand establishment, planting windbreaks, planting native plants, and/or active forest management).

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1861

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
According to the Colorado Climate Center, statewide average annual precipitation is only 17 inches, with many areas receiving much less. Sustainable landscapes using site-appropriate native plants can reduce the need for water and maintenance. A 2002 study in Colorado Springs compared water use between a traditional landscape and two landscapes developed using sustainable Xeriscape principles. The study found water savings ranging from 22% to 63% after implementing the rules and regulations set forth in the 1998 Colorado Springs Landscape Code and Design Manual. Enhancing sustainability of natural and built landscapes using native plant materials and mitigating threats to native ecosystems from alien invasive species have been identified as critical issues of national importance in the West and beyond.

What has been done
One example: We held the second annual Landscaping with Colorado Native Plants Conference at the Larimer Ranch on February 11th. This conference addresses the public's growing demand for more information on using native plants in the landscape, and a wonderful group of partners helps to organize it: High Plains Environmental Center, Denver Botanic Garden, The Butterfly Pavilion, and Front Range Wild Ones, as well as author Susan Tweit.

We sold out again this year, with a lengthy waiting list. 84% of attendees were satisfied or very satisfied with the conference. Attendees said: " lots of great information and really well done logistics. Congratulations! " " Thank you!!!! I enjoyed, appreciated, learned, and was entertained by the event. Keep heading in the right direction" "I go to many Native Plant conferences and always walk away with some extra knowledge, but this time I walked away with much more knowledge!" " I really appreciated Irene's session on how plants can be integrated in fire mitigation plans. Since I garden in Nederland, fire mitigation is a real concern." " Overall, the conference was top notch.. this was a fantastic day. Great speakers and great information. Thank

you!" The group of collaborators also completed five regional native plant planting guides, complete with plant lists and garden designs, which we gave out to attendees. They are also published on the Extension website (http://extension.colostate.edu/topic-areas/yard-garden/#native)

Results
1861 participants reported implementation or intent to implement plant-related conservation practices (such as active weed management, pasture management techniques, grass stand establishment, planting windbreaks, planting native plants, and/or active forest management).

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #5

1. Outcome Measures

NR 1.5): Participants improve or intend to improve their practices, decisions and skills in action through timely access to pest management resources and/or pest identification and IPM implementation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	249

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
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. A conservative loss estimate of 5 to 10% production loss due to plant pests could cost Colorado producers in urban and rural settings 50 to 100 million dollars annually. Endemic and invasive pest activity and severity, as well as abiotic stresses, are dynamic and thus demand for pest diagnostics, management education and a systems approach will be ongoing. There is no other agency or organization that can assume the core applied research and outreach IPM program of Bioagricultural Sciences and Pest Management and IPM-disciplinary based extension and research personnel throughout the Colorado State University system.

What has been done

See previous section for list of outputs.

Results
249 participants reported they improved or intended to improve their practices, decisions and skills in action through timely access to pest management resources and/or pest identification and IPM implementation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

NR 1.6) The number of acres reported that are impacted (by weed management, planting natives, fire mitigation, pasture grasses, etc.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	59489

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Weed Control is a vitally important role for Gilpin Extension.

What has been done
One example: I spend a lot of time working with individuals on weed control. I identify hundreds of plants per year that are brought into the office, and help people develop a strategy to control their weeds. 290 people came into the office with questions on weeds. If people are not interested in using herbicides, I give them the most effective methods and timing for mechanical control (or biological, if available). Many are interested in using herbicides, especially for large infestations, or weeds that are difficult to control mechanically, such as leafy spurge or Canada thistle. Because herbicides are often expensive and difficult to find, I make it easier for people through our weed spray check out program. This year, 39 people used the program, and treated 339 acres, and affecting 5759 acres!

I also hold a weed booth at the County Fair each year (166 people stopped by to learn to identify weeds and how to control them). The booth is staffed by Master Gardeners and Native Plant Masters. I also have a Weed ID and Control class; 100% of participants said they improved their ID skills and knowledge in how to control weeds.
I also helped a group of land owners who collectively own an large homestead acreage treat a newly-discovered infestation of oxeye daisy by securing a State and Private Forestry grant from the Department of Agriculture. We received $5,100, and the land owners contributed another $2093. As they say, "it qualifies for a corporate expense to help keep up the pastures and eliminate noxious weeds from the ranch overall", all of which helps them maintain their ag tax status.
I also helped two other HOAs develop a plan for weed control on their lands. I helped the volunteers organize, taught them to ID the weeds, and supplied herbicides to one group and encouragement to the other group who wanted to hand-pull.
I prioritized the County Rights-of-way for treatment, and contracted with a vegetation manager to treat them. After the Department of Transportation underwent a series of turnovers, I contacted the new people who will be treating the highways, and went out with them to show them priority areas. Because of the relationship that we developed, they did an excellent, timely job on weed control in Gilpin. I heard that other Counties were not as well served.
We worked with the Department of Agriculture to treat a isolated incidence of spotted knapweed, to keep it from spreading onto other lands.

Results
59489 = number of acres reported that are impacted (by weed management, planting natives, fire mitigation, pasture grasses, etc.)

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #7

1. Outcome Measures

NR 1.7) Dollars saved by best management practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	50873

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
n/a

What has been done
n/a

Results
$50,873 = Dollars reported saved by best management practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems

Outcome #8

1. Outcome Measures

NR 1.8) Grant dollars awarded towards work in natural resources.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	40600

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
n/a

What has been done
n/a

Results
$40,600 = Grant dollars reported awarded towards work in natural resources.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems

Outcome #9

1. Outcome Measures

NR 1.9) User fees from programming.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	17874

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
n/a

What has been done
n/a

Results

$17,874 = User fees reported from programming.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
205	Plant Management Systems
216	Integrated Pest Management Systems
307	Animal Management Systems

Outcome #10

1. Outcome Measures

Optimizing Colorado Agriculture's Water Footprint

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area

102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
132	Weather and Climate
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Natural Resource PRU outcomes are dependent on the needs and engagement levels of all landowners. Their needs and level of interest in change can be affected by weather, public policy, economy, and population changes. Also, what benefits one segment may impact another segment. Weather conditions such as drought, flooding, hail, fires, moisture/temperature trends influencing pathogen and pest life cycles, in addition to abiotic stress effects, which will require short/medium/long term redirection of effort to accommodate program needs for pest diagnostics and management strategies

V(I). Planned Program (Evaluation Studies)

Evaluation Results

2017 Colorado Native Plant Master Program Results:

- 1,881 class participants
- 3,092 hours were contributed by 187 volunteers for a donated value of $74,641
- 15,751 educational contacts made by volunteers and CSU Extension staff

Key Items of Evaluation

2017 Colorado Native Plant Master Program Results:

- $33,873 in savings reported by participants due to reduced landscaping inputs and increased land productivity
- 33,507 acres were impacted by sustainable landscaping or alien invasive weed control completed by program participants
- 95,478 web page views on the Colorado Plant Database that contains research-based information on 1,200 plants that occur in the state.

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Community Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	3.0	0.0
Actual Paid	11.0	0.0	0.0	0.0
Actual Volunteer	0.8	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
169500	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
169500	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
535146	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Training for Extension personnel in community mobilization, facilitation, economic development.

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

2. Brief description of the target audience

•Community members, general public, consumers, students, youth
•Communities and their formal and informal leaders in the public and private sector, businesses, entrepreneurs
•Community organizations, government agencies, other agencies, potential and existing non-profits, staff, board members, and others affiliated with the organization
•Emerging and existing adult and/or youth leaders reflecting community demographics and sectors, and underserved residents
•Community steering committee, workshop participants, project team members, community volunteers

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	6307	9678	40	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	7	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events..

Year	Actual
2017	1182

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	1896

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	579

Output #4

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	327

Output #5

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	726

Output #6

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	840994

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	CD Outcome 1.1: Community members engage in community and economic development planning and action.
2	CD Outcome 1.2: Community plans are developed.
3	CD Outcome 1.3: Community plans are implemented.
4	CD Outcome 1.4: Entrepreneurs initiate new ventures (small business, invention, societal initiatives, community event/activity, etc.)
5	CD Outcome 1.5: Businesses, non-profits, agencies, community members increase links to resources and community assets.
6	CD Outcome: 1.6: Community members increase engagement in community and/or organization through new leadership opportunities.

Outcome #1

1. Outcome Measures

CD Outcome 1.1: Community members engage in community and economic development planning and action.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	527

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Communities are increasingly confronted with complex, controversial issues. Issues such as economic development, taxes and public finance, land use, environmental issues, county health plans, local educational issues, to name just a few, are complex issues because there are no simple solutions. Many individuals, groups and organizations have a ?stake? in the decision and, because the stakes are high, the issues can quickly become controversial. Conflicts emerge as stakeholders place different values on what is important and what the solution should be.

What has been done
One example: The Colorado Health Foundation generously funds FLTI in Eagle County. They contracted with ORS Impact to conduct focus groups with past FLTI Alumni. As a result, ORS Impact published a Community Profile for Eagle County. They found health equity is a huge concern with the Latino population struggling with poverty, stable housing, steady employment, and health issues. Stress seems to be a big factor for many community members. Furthermore, they generally found that many residents work multiple jobs and parents often work long hours. ORS Impact also found examples of success through the FLTI program particular in engaging several Spanish-speaking participants to act as liaisons to the Latino community. Through participating in the FLTI program, they were able to provide information, resources, and guidance.As we continue on this civic engagement journey in Eagle County, FLTI will continue to be recognized for developing leaders that have public influence that can creatively address important community issues and share community resources with family, friends, and neighbors.

Results
527 community members reported they engage in community and economic development planning and action.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #2

1. Outcome Measures

CD Outcome 1.2: Community plans are developed.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1071

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Disasters often require relocating animals. Communities with a plan are more successful.

What has been done
One example supporting plans: A 2012 Smith lever funded project on Community Disaster Animal Plans produced a toolkit that guides communities on how to develop their personalized animal disaster plan. The AVMA mentioned this article and our toolkit in its December first news Bulletin: "These are findings of the first nationwide assessment of emergency response capabilities for animals, conducted by the American Society for the Prevention of Cruelty to Animals and published online Sept. 9 in the Journal of Homeland Security and Emergency Management in an article titled "The National Capabilities for Animal Response in Emergencies (NCARE) Study: An Assessment of US States and Counties" (http://jav.ma/Em_Study).
The survey of officials who oversee emergency preparedness in U.S. states and counties, led by ASPCA consultant Dr. Vic Spain, investigated which American communities are prepared to deal with the animal victims of an emergency and how and where emergency response planning can be improved.
The results of the study were mixed; while much progress has been made, much still remains to be done. While most states and nearly half of high-population cities and counties have the infrastructure to manage animals in a disaster, most reported additional needs for emergency preparedness, such as training, expertise, and equipment.
A little more than half of U.S. counties reported having plans for emergency shelters in which pets and people could be housed together, known as "collocated" or "cohabitational" shelters.
"From previous studies, we know that people with pets are more likely than people without pets to

refuse to evacuate in an emergency situation?putting their lives, as well as the lives of first responders sent to rescue them, in danger," Dr. Spain said.
"It is, therefore, important to remove barriers to evacuation, and when that happened, during Hurricane Sandy, for example, residents were more likely to comply with evacuation orders where pet-friendly emergency shelters were available, their presence was known to local residents, and pet-friendly transportation to the shelters was offered."
Veterinary professionals or humane organizations interested in emergency preparedness can take any number of actions to address the gaps identified in the study, according to Dr. Spain. As a reference for establishing a county animal response team or similar organization, he recommends the "Community Animal Disaster Planning Toolkit" posted on the Colorado State University Extension website (http://jav.ma/CSU_Ex)."

Results
1071 participants reported that community plans are developed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

CD Outcome 1.3: Community plans are implemented.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	276

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
During a disaster, animals may need to be relocated. Communities implementing plans have more success.

What has been done
In 2012 and 2014 CSU Extension received two Smith Lever NIFA grants to develop Community

Animal Disaster Plans. The deliverables for these projects were a toolkit for development of these plans and a video to promote the importance of them. In 2017, I wrote an article based on this work in The Conversation. https://theconversation.com/in-cities-and-on-ranches-planning-is-key-to-protect-animals-during-disasters-83202
Kris Browning-Blas, interim Communications editor at CVMBS, explains how the impact of publishing in The Conversation:
The Conversation was looking for experts to weigh in on various aspects of coping with the Hurricane Harvey, so Kate Jeracki asked Ragan to consider writing a piece.
Mary Guiden pitched Ragan?s idea to the editors at The Conversation, and then Ragan worked directly with the editor to shape the story: In cities and on ranches, planning is key to protect animals during disasters.
It posted on Sept. 4 and has been picked up by more than 80 media outlets around the world, making it the fourth most-read story coming out of CSU last week, with a total readership of 35 million. (The rest were all about Hurricane Irma, quoting CSU?s climate expert, Phil Klotzbach.) The Associated Press tweeted it to its 11.5 million followers.

Results
276 participants reported that community plans are implemented.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #4

1. Outcome Measures

CD Outcome 1.4: Entrepreneurs initiate new ventures (small business, invention, societal initiatives, community event/activity, etc.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	76

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Communities must find ways to thrive in a diverse and rapidly changing economic environment.

What has been done
One example: We also hosted a Think-up Stage at the Pueblo Mini Maker Faire where we hosted a series of talks on the Maker Movement, we had local makers and entrepreneurs present their work and how they brought their products to market, we had speakers talking about their Maker Programs at CSU Pueblo and Pueblo School of Arts and Sciences, there were sustainable technology talks and a presentation on making zines and DIY publishing, we hosted 8 talks total with a wide range of subjects.

Results
76 entrepreneurs report initiating new ventures.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #5

1. Outcome Measures

CD Outcome 1.5: Businesses, non-profits, agencies, community members increase links to resources and community assets.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1426

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Communities and urban neighborhoods 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. Knowledge to evaluate resource base of a community, their economic and social service alternatives, and their futures is also critical to Colorado communities.

What has been done

Please see previous section to review outputs.

Results
1,426 participants reported they increased links to resources and community assets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #6

1. Outcome Measures

CD Outcome: 1.6: Community members increase engagement in community and/or organization through new leadership opportunities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	941

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Communities have been known to made decisions for families, not necessarily with them. Including the family voice results in stronger civic engagement throughout the community. Family leaders can be trained to be effective.

What has been done
The Family Leadership Training Institute (FLTI) is a free 20-week leadership class for adults and youth that focuses on leadership skills and civic engagement in the community. The program is research-based and has shown to promote self-efficacy, communication skills, supportive family relationships, and develops the skills in adults and youth to assess and address community needs.

Results
941 participants reported they increased engagement and/or organization through new leadership opportunities. Civic benefits showed statistically significant increases in 1) Civic literacy and empowerment, 2) Civic knowledge, 3) Civic activities, and 4) Skills and abilities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

With new emerging opportunities in communities, programs may shift in response to community need.Extension role in community development is emerging and it may take three to five years to establish strong programs with measurable outcomes.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Research demonstrates that FLTI leaders increase their civic knowledge when comparing pre- and post-survey results at the completion of class. Some evaluation results include:
• 86% of participants reported knowing how state budgets were made, compared to only 11% before receiving FLTI training;
• 92% reported knowing how state laws were made, compared to 33% before the training;
• 82% reported knowing who their elected state representative was, compared to 29% before the training;
• 86% reported knowing who their local representative for city government was, compared to 29% before the training.

Key Items of Evaluation

FLTI is a first-of-its-kind family civics program. Program graduates spend more than 120 hours over twenty weeks to develop skills needed to become effective leaders in their communities. "The curriculum integrates personal and child development, leadership skills, civic literacy, and civic engagement", said Kyle Christensen, FLTI Project Coordinator. "Diversity is a primary objective of the training and participants grow individually and collectively through interactive experiences designed to address the most essential issues affecting our communities today." FLTI is supported by many local, state, and national partners which allows the course to be offered free of charge.

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Energy

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	2.5	0.0	0.0	0.0
Actual Paid	1.6	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
113214	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
113214	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
252790	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The PRU carries out assessments, outreach, and research to accomplish our goals.

2. Brief description of the target audience

Target audiences include homeowners, the general public, teachers, ag producers, rural Colorado communities, and, in some circumstances, policymakers.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1743	495	0	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	1	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual

2017	52

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	78

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	49

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	32

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	523

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	106

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	32818

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Energy Outcome 1.1: Apply or intend to apply increased understanding of energy in personal and/or professional life (e.g. decide whether to move forward with an energy project, change behavior, have more informed discussions, etc.)
2	Energy Outcome 1.1a: Increased understanding of energy use, conservation, efficiency, and/or renewable energy in the home, school, business or community.
3	Energy Outcome 1.1b: Increased understanding of local, state, national, and/or global energy issues.

Outcome #1

1. Outcome Measures

Energy Outcome 1.1: Apply or intend to apply increased understanding of energy in personal and/or professional life (e.g. decide whether to move forward with an energy project, change behavior, have more informed discussions, etc.)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	34

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The situation for individual energy consumers relevant to Extension includes stable and low energy prices, the growth of energy bill information, incentives for electric vehicles, tax credits for renewable energy, high interest in solar PV, and market confusion about LEDs and smart thermostats. According to a recent survey, there is a moderate to high need for energy information and information is requested for homes, general knowledge, and professional use. Home energy efficiency, solar, and wind are the most requested topics, followed by transportation and the energy system.

What has been done
One example: For Earth Day this year we did a series of classes over to help with sustainability in the mountains.
In a workshop called Living Lightly,Cary Weiner, our Energy Specialist, came up to deliver a class on Solar and Home Energy Options to Shrink Your Carbon Footprint while saving money. We partnered with a local presenter who has taken Al Gore's Climate Change training; she updated the audience on climate change. The audience was interested and engaged, asking a lot of questions. We had good attendance, with 21 people coming.

Results
34 participants reported they have applied or intent to apply their increased understanding of energy in personal and/or professional life.

4. Associated Knowledge Areas

KA Code	Knowledge Area

803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #2

1. Outcome Measures

Energy Outcome 1.1a: Increased understanding of energy use, conservation, efficiency, and/or renewable energy in the home, school, business or community.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	119

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The situation for individual energy consumers relevant to Extension includes stable and low energy prices, the growth of energy bill information, incentives for electric vehicles, tax credits for renewable energy, high interest in solar PV, and market confusion about LEDs and smart thermostats. According to a recent survey, there is a moderate to high need for energy information and information is requested for homes, general knowledge, and professional use. Home energy efficiency, solar, and wind are the most requested topics, followed by transportation and the energy system.

What has been done
One example: For Earth Day this year we did a series of classes over to help with sustainability in the mountains.
In a workshop called Living Lightly,Cary Weiner, our Energy Specialist, came up to deliver a class on Solar and Home Energy Options to Shrink Your Carbon Footprint while saving money. We partnered with a local presenter who has taken Al Gore's Climate Change training; she updated the audience on climate change. The audience was interested and engaged, asking a lot of questions. We had good attendance, with 21 people coming.
We also had Curtis Utley come up and give a class on Chickens in the Mountain Backyar, which drew a surprising crowd of 25. Local partners gave tips on predator-proofing (a critical piece for the mountains).
At the School, we had an Earth Day Assembly for the entire school. The K-5th graders learned about Living with Wildlife, a topic that they had requested. In a supplemental class, I taught the 3rd graders about Ecosystems and food chains in Gilpin County, and the Art program had all the students do paintings on local wildlife.
For the 6th-12th grader, the assembly was on the Green School Initiative. I had facilitated a free

School Energy Audit through the Colorado Energy Office and Cary Weiner. Three students participated in the energy audit, and gave recommendations to the school board in September on which of the options they felt were the most cost-effective. They recommended computer power management, water fixture upgrades, refrigerated beverage machine occupancy sensors, de-stratification fans, and occupancy sensors. This was one of the first times students had been involved in an energy audit, and the Brendle Group, the company which conducted the audit, felt this could be a model. At the assembly, students presented the results of a survey that they had completed with fellow students about how green the school was. I helped them create the survey in collaboration with a teacher, Curt Halsted, and the Interact Club. They found some positives (steps to reduce energy waste, a refillable water fountain, a recylcing program, lowered copier use, the purchasing of recycled paper supplies, Some areas for improvement that the students recommended included developing a green purchasing policy, a "turn it off" campaign, the installation of renewable energy, the development of a school composting system, and the creation of a "green team."

Results

119 participants reported an increased understanding of energy use, conservation, efficiency, and/or renewable energy in the home, school, business or community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

Outcome #3

1. Outcome Measures

Energy Outcome 1.1b: Increased understanding of local, state, national, and/or global energy issues.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The situation for individual energy consumers relevant to Extension includes stable and low energy prices, the growth of energy bill information, incentives for electric vehicles, tax credits for renewable energy, high interest in solar PV, and market confusion about LEDs and smart thermostats. According to a recent survey, there is a moderate to high need for energy information and information is requested for homes, general knowledge, and professional use. Home energy efficiency, solar, and wind are the most requested topics, followed by transportation and the energy system.

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Weather extremes may focus public attention on energy and climate change, the economy affects energy prices as well as people's desire to spend and save money through energy measures, appropriations can lead to changes in energy programming capacity, public policy and government regulation can increase scrutiny of energy issues, competing priorities and programs may serve to decrease interest in energy issues, population changes can affect the level of interest in energy programming.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Our numbers do indicate some level of success in achieving our overall goal to facilitate sustainable energy decisions, but they do not come close to telling the full story. For example, we held 52 group educational events that reached 1,674 individuals directly. 523 solar assessments were conducted that help Coloradans make more informed financial decisions about solar. We refreshed our website and saw a 10% increase in page views to 32,818 for the year. 30 counties in the state now have energy kits they will loan to households and educators in order to build capacity around energy education in rural Colorado. In addition, a few of our efforts stood out for qualitative impact. Our partnership

with Xcel Energy on the Partners in Energy program for the cities of Littleton and Englewood resulted in helping those cities achieve goals they set for energy conservation and efficiency. A farmer we served through our Solar and Wind Assessments for Pivots program used our assessment and decided to install a solar array to offset electricity used for irrigation water pumping, one of the first applications of its kind in the state. And our Know Before You Go Solar workshop series resulted in record workshop attendance, including 150 people and 70 people at two separate events and capacity crowds at a number of others.
It is often difficult to evaluate the impact of our work, as even when we present at a workshop it is not always appropriate to evaluate participants. One reason is because we conduct immediate post-event evaluations and we are often one of many presenters at an event. We don't tend to do non-immediate follow-up surveys with participants but will consider this for the future. Measuring impacts are also complicated by the fact that our main objective is to facilitate sustainable energy decisions and NOT to save energy or increase clean energy implementation per se. Because this is the case, our output data can sometimes be as important as our outcome indicator data (meaning that the number of solar assessments conducted is an "outcome indicator" in and of itself in that it helps people make decisions whether or not they actually decide to install solar).

Key Items of Evaluation

Because our main objective is to facilitate sustainable energy decisions and NOT to save energy or increase clean energy implementation per se, our output data is often as valuable as our outcome indicator data. The facts that 523 solar assessments were completed, 1,674 individuals were educated at 52 group educational events, and close to 100% of surveyed participants indicated increased understanding/intentions to apply what was learned give us confidence that the people we serve are making more informed energy decisions as a result of our work.

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Environmental Horticulture

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	30%		25%	
111	Conservation and Efficient Use of Water	35%		50%	
206	Basic Plant Biology	0%		25%	
216	Integrated Pest Management Systems	35%		0%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	23.0	0.0	0.0	0.0
Actual Paid	16.7	0.0	4.4	0.0
Actual Volunteer	38.3	0.0	4.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
428572	0	605141	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
428572	0	605141	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
1353093	0	5663781	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Provide up-to-date, research based information for delivery horticultural programming for both rural and urban audiences.
Conduct applied and basic research on turf and ornamental plant biology.
Conduct applied research on plant species selection that are well suited to the Rocky Mountain region.

2. Brief description of the target audience

Home gardeners and professional green industry professionals (ages 19+) and youth gardeners (ages 5-18).

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	13993	5196	753	300

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	14	9	23

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	1762

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	24311

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	506

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual
2017	399

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	43

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	1608

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	419440

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	ENVHORT: Participants report using or intention to use new technologies and/or intention to adopt or adoption of best management practices and/or policies promoting best management practices in their landscapes, businesses and/or communities.
2	ENVHORT: Participants report intention to change or they have changed pest management strategies, intent to utilize or utilizing new technologies to assist with pest diagnosis and management, intent to adopt or adopting integrated pest management strategies and/or intention to adopt or adopting of policy promoting or utilizing integrated pest management strategies.
3	ENVHORT: As a result of Colorado Master Gardener (CMG) training and on-going support, CMGs report increased competence (confidence and proficiency/accuracy) in educating the public.

Outcome #1

1. Outcome Measures

ENVHORT: Participants report using or intention to use new technologies and/or intention to adopt or adoption of best management practices and/or policies promoting best management practices in their landscapes, businesses and/or communities.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1917

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Professional landscape management and homeowner gardening activities contribute significantly to the economy of Colorado. The quality of a landscape design and maintenance is a major factor in the home and property values. The average household in Colorado spends over $1,000 annually on landscape care and gardening supplies.

What has been done
The outreach efforts of the Environmental Horticulture PRU will provide education and services to encourage the adoption of research-based best management practices (design, plant selection, establishment, and management practices) and diagnostic techniques/services by green industry professionals and the home gardener. Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes.

Results
1917 participants reported using or intention to use new technologies and/or intention to adopt or adoption of best management practices and/or policies promoting best management practices in their landscapes, businesses and/or communities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

ENVHORT: Participants report intention to change or they have changed pest management strategies, intent to utilize or utilizing new technologies to assist with pest diagnosis and management, intent to adopt or adopting integrated pest management strategies and/or intention to adopt or adopting of policy promoting or utilizing integrated pest management strategies.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	1143

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
New pest outbreaks affecting horticultural plants have been occurring in Colorado with increasing frequency in recent years.

What has been done
Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes.

Results
1143 participants reported intention to change or they have changed pest management strategies, intent to utilize or utilizing new technologies to assist with pest diagnosis and management, intent to adopt or adopting integrated pest management strategies and/or intention to adopt or adopting of policy promoting or utilizing integrated pest management strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

ENVHORT: As a result of Colorado Master Gardener (CMG) training and on-going support, CMGs report increased competence (confidence and proficiency/accuracy) in educating the public.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	352

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The outreach efforts of the Environmental Horticulture PRU will provide education and services to encourage the adoption of research-based best management practices (design, plant selection, establishment, and management practices) and diagnostic techniques/services by green industry professionals and the home gardener. Our goal is that professional and lay practitioners will use reasonable inputs of labor, water, fertilizers and pesticides to produce attractive, functional, cost-effective and sustainable ornamental landscapes.

What has been done
Most counties have a gardening help desk whereby the public can get gardening questions (including diagnosis of disease, insect and weed problems) answered by agents, specialists, and volunteers. In 2012, agents and Colorado Master Gardeners answered over 200,000 public gardening questions via phone, email, websites, newsletters, and other contact methods.

Results
352 participants reported that as a result of Colorado Master Gardener (CMG) training and on-going support, they have increased competence (confidence and proficiency/accuracy) in educating the public.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Natural Disasters including invasive pest introduction, drought, flooding, hail, moisture/temperature trends can influence pest life cycles which will require redirection of effort to accommodate current needs.
Economic problems may lead more individuals to acquire/redirect their IPM strategies according to resource limitations or opportunity; more individuals may grow their own food crops, requiring redirection of programming efforts; individuals may spend less on landscape and turf, requiring redirection of programming efforts. Colorado Master Gardener volunteer numbers may be less due to increased costs associated with the program and personal economic situation.
Government regulations may alter pesticide, water and plant availability and use, redirecting efforts to alternative materials and methods.
Population changes may increase the demand on volunteer and staff time or may increase demands in specific areas such as food production. Increases in underserved populations may alter programming delivery methods.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

LED Research Summit (sponsored by CSU Extension and Phillips Lighting) This event occurred in February 2017. As a result of the summit:

- 80% of respondents said the CSU LED research summit met their expectations for attendance
- 75% said that the research information provided was relevant to their work or studies
- 55% said they would agree or strongly agree that the research presented would change how they conduct LED research
- 90% said they found the research presented to be useful to the green industry
- 100% of attendees said they would be likely to recommend the CSU LED research summit to a colleague, co-worker or student

Growing Succulents Workshop (sponsored by CSU Extension in Pueblo County) This event occurred in September 2017. As a result of the workshop:

- 93% of respondents said the class provided new information
- Prior to the training, 60% of respondents reported knowing "little to no" information about succulents
- After the training, 60% reported "Good to Excellent" knowledge about the subject matter
- 60% of respondents plan to include succulents in their landscape
- 47% said they would grow succulents as houseplants

- 60% said they would care for succulent plants in a different approach

Key Items of Evaluation

LED Research Summit: The diverse group of industry leaders provided a humbling experience that was both encouraging and amazing. There was a lot of great discussion and I enjoyed the presentations from both companies and CSU faculty. Networking with people was especially helpful and interesting. I appreciated having growers in attendance to bring it back to a field-level.
Growing Succulents: This was an awesome class and I really enjoyed it! I knew some basics, but enjoyed the expansion of my knowledge. The instructor was friendly, knowledgeable and passionate about the topic.

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Food Systems

☑ Reporting on this Program

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%		25%	
604	Marketing and Distribution Practices	0%		25%	
608	Community Resource Planning and Development	50%		25%	
703	Nutrition Education and Behavior	0%		15%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	50%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2017	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.0	0.0
Actual Paid	6.5	0.0	4.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
262752	0	336253	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
262752	0	336253	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
829565	0	3147146	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Improved technical assistance for agricultural and food producers exploring new marketing channels and alternative business approaches. Also, CSU will provide facilitation of community discussions around the interface between food and agricultural issues and broader social issues including public health, food safety, the environment and community development.

The Colorado Blueprint of Food and Agriculture project. The Blueprint documents key assets, emerging issues and priorities for future investments in food and agriculture around the state based in part on 12 regional town hall listening sessions and meetings with key industry groups.The reports, including data on our industry, public attitudes shared with us by our citizens and synthesis of community townhalls are the building blocks for better understanding Colorado's ag and food system needs, and priorities for the work of the partners who have engaged in this effort.

2. Brief description of the target audience

Youth and Adults who want to better understand the linkages between their food system and other community issues. Adults involved in specialty crop, vegetable, & fruit or integrated livestock production whose personal income is derived in large part from their farming activities.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2017	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	604	171	10	0

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

Patent Applications Submitted

Year:	2017
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2017	Extension	Research	Total
Actual	3	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- 1. Number of group educational events: classes, trainings, workshops, demonstrations, field days, providing content expertise, fairs, shows, booths, and/or other group events.

Year	Actual
2017	106

Output #2

Output Measure

- 2. Individual Education: one-on-one direct client contacts by site visit, office drop-in, e-mail, telephone, Ask an eXpert, etc.

Year	Actual
2017	631

Output #3

Output Measure

- 3. Number of meetings convened and/or facilitated; includes strategic participation that contributes to program development.

Year	Actual
2017	152

Output #4

Output Measure

- 4. Number of kits or similar resources loaned or provided.

Year	Actual

2017	3

Output #5

Output Measure

- 5. Number of Extension-related research and assessment projects. External funding proposals, including local, state, federal.

Year	Actual
2017	41

Output #6

Output Measure

- 7. Number of educational media releases: indirect contacts through media releases, appearances, newsletters, blog posts, other non-peer reviewed publications, kit development, non-peer reviewed curriculum, PowerPoints or videos.

Year	Actual
2017	21

Output #7

Output Measure

- 8. Number of online posts: Web posts, hits.

Year	Actual
2017	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Food Sys Outcome 1.1: Colorado communities and stakeholders become knowledgeable about and engage in civil public discourse on food and ag issues.
2	Food Sys Outcome 1.2: Colorado communities and stakeholders develop and conduct food and agricultural assessments, initiatives and planning efforts.
3	Food Sys Outcome 1.3: Food producers gain access to new market opportunities that foster food access, community development, environmental stewardship, and public health.
4	FStms 2.1: Agricultural producers and food businesses access and effectively use appropriate financing, land, water, business development and marketing resources to increase their production and product sales. (Action)
5	FStms 3.2: Community food system participants initiate projects that address healthy and safe food purchases, consumption and waste stream management in households, schools and other institutions. (Action)
6	FStms 4.1: Communities evaluate different types of assets and capital (natural, human, cultural, built) in community processes to develop goals and strategies related to agriculture and food. (Action)

Outcome #1

1. Outcome Measures

Food Sys Outcome 1.1: Colorado communities and stakeholders become knowledgeable about and engage in civil public discourse on food and ag issues.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Food Sys Outcome 1.2: Colorado communities and stakeholders develop and conduct food and agricultural assessments, initiatives and planning efforts.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Food Sys Outcome 1.3: Food producers gain access to new market opportunities that foster food access, community development, environmental stewardship, and public health.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

FStms 2.1: Agricultural producers and food businesses access and effectively use appropriate financing, land, water, business development and marketing resources to increase their production and product sales. (Action)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	84

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The agriculture and food issues, clientele and level of community engagement that Extension personnel are being asked to provide knowledge and assistance on, or facilitate discussions around, are changing. For example, a Northern Colorado Food Assessment showed that over 70% of those defined as farmers were not operating at a commercial level that could use conventional production, budgeting and marketing models Extension has readily available.

What has been done
see outputs report in previous section

Results
84 participants reported they have accessed financing and other resources, and used them to develop their business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

FStms 3.2: Community food system participants initiate projects that address healthy and safe food purchases, consumption and waste stream management in households, schools and other institutions. (Action)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
A 2012 Colorado Food Systems Advisory Council issue brief also noted the increasing demand for Extension and technical assistance by those engaging in direct markets.

What has been done
Please see outputs in previous section.

Results
50 participants signed up to become part of Double Up Food Bucks project.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #6

1. Outcome Measures

FStms 4.1: Communities evaluate different types of assets and capital (natural, human, cultural, built) in community processes to develop goals and strategies related to agriculture and food. (Action)

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2017	14

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
2014 Agriculture Value Chain Study by CSU and ongoing work by the Food Systems team have highlighted the need to develop a more deliberate state-level planning process based on community conversations, and additional research.

What has been done
In 2017 the FS team will begin building a Blueprint for Colorado Food and Agriculture. Included in this study and discussion will be CSU?s Agricultural Experiment Stations (AES), in an effort to reconnect campus and field-based research, and CSU Extension?s Food Systems team is well positioned to host these events and play an integral role in the new mission and priorities of AES.

Results
14 Colorado communities engaged in the Colorado Blueprint process.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

USDA food security priorities also address natural resources and the long-term management of agricultural lands. Long term land conservation requires some new models of land transitions, since the average age of farmers is in the high 50s and increasing and this team addresses new models of agriculture which may lower barriers to entry into agricultural production and successful business development. Climate change and land use patterns may threaten the supply of agricultural water, and change the types of uncertainty food producers face.
It is unclear why no outcomes were reported against original indicators for this PRU. Several narratives were entered, but no numbers. For indicators with numbers, no narratives were submitted.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

For traditional program curricula and toolkits developed on campus but delivered in person by county agents, evaluation questionnaires are designed to be used in classes, workshops, and community presentations. Feedback from participants and demand for classes consistently indicates value to local communities and a need for more widespread presence of Extension.

• Our Cottage Food Training curriculum has received state and national recognition and serves as an example of a successful program, judging both by participant feedback and demand for more trainings.

• Webinar presentations have evolved now to include methods of engagement and evaluation from the viewers. One response from a recent webinar indicated 100% of viewers learned something useful from the presentation; considering these were farmers taking time out of their days to participate, this is the proof of process we always aim to achieve.

• Often, unsolicited feedback can be one of the best indicators of impact. At a produce growers meeting last year, a farmer shared that she had been to many food safety trainings through the years, but the full day training by our team was the best she had experienced. Agents often hear similar comments after preservation workshops, nutrition classes, and food safety trainings.

Key Items of Evaluation

For residents seeking specific classes or presentations, traditional evaluation forms or surveys are used to guage usefulness of information and to improve content and delivery techniques.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
0	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
0	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.