

V(A). Planned Program (Summary)

Program #4

1. Name of the Planned Program

Animal Production Systems

2. Brief summary about Planned Program

AES will focus on fundamental and applied research in breeding, nutrition, physiology, behavior, integrated resource management systems, economics, health, and range/forage management. CE 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.

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

● 301	10%	Reproductive Performance of Animals
● 302	10%	Nutrient Utilization in Animals
● 303	20%	Genetic Improvement of Animals
● 307	30%	Animal Management Systems
● 311	10%	Animal Diseases
● 315	10%	Animal Welfare/Well-Being and Protection
● 601	10%	Economics of Agricultural Production and Farm Management

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

1. Situation and priorities

Animal agriculture is a major economic sector in the United States and the leading agricultural activity in Colorado. In 2003, live meat animal sales in Colorado were valued at \$3.252 billion and the value of dairy production was \$264 million. Livestock and livestock products accounted for 60% of crop and livestock sales in Colorado. Remaining competitive requires that the industry produce with the most technically sophisticated systems available while considering environmental and animal welfare dimensions to maintain confidence of the consuming public. Ruminant agriculture on range is the only significant agricultural enterprise which is ubiquitous in Colorado. In addition to novel and economic production practices, today's livestock producers must be knowledgeable of alternative supply chains to select a lucrative market, be aware of animal identification and trace-back requirements, understand the effects of emerging animal public health conditions, and understand the international and domestic trade environment and trends and how to respond with risk management strategies.

2. Scope of the Program

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

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

1. Assumptions made for the Program

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

2. Ultimate goal(s) of this Program

- Develop improved animal production systems that are economical and environmentally sound including genetics and breeding, nutrition, and management components.
- Develop information and methods to improve reproductive efficiency including increasing pregnancy rate, decreasing embryonic mortality and decreasing prenatal mortality.
- Conduct extension and outreach programs to enhance animal agriculture in Colorado and the region.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2008	15.0	0.0	9.5	0.0
2009	15.0	0.0	9.5	0.0
2010	15.0	0.0	9.5	0.0
2011	15.0	0.0	9.5	0.0
2012	15.0	0.0	9.5	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

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

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

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

3. Description of targeted audience

Individual agricultural producers, commodity groups, agri-business partners

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2008	800	5000	2500	2500
2009	800	5000	2500	2500
2010	800	5000	2500	2500
2011	800	5000	2500	2500
2012	800	5000	2500	2500

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

Expected Patent Applications

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

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2008	0	0	0
2009	0	0	0
2010	0	0	0
2011	0	0	0
2012	0	0	0

V(H). State Defined Outputs

1. Output Target

- Number of attendees at workshops/trainings/field days

2008 :500 **2009 :500** **2010 :500** **2011 :500** **2012 :500**

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

2008 :30000 **2009 :30000** **2010 :30000** **2011 :30000** **2012 :30000**

- Number of technical and referred journal articles published

2008 :20 **2009 :20** **2010 :20** **2011 :20** **2012 :20**

V(I). State Defined Outcome

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

Outcome #1

1. Outcome Target

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

2. Outcome Type : Change in Knowledge Outcome Measure

2008 :60 2009 : 60 2010 : 60 2011 :60 2012 : 60

3. Associated Institute Type(s)

{No Data Entered}

4. Associated Knowledge Area(s)

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

Outcome #2

1. Outcome Target

Percent of participants indicating change in behavior/ best practices adopted

2. Outcome Type : Change in Action Outcome Measure

2008 :50 2009 : 50 2010 : 50 2011 :50 2012 : 50

3. Associated Institute Type(s)

{No Data Entered}

4. Associated Knowledge Area(s)

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

Outcome #3

1. Outcome Target

Economic impact of the change in behavior reported

2. Outcome Type : Change in Condition Outcome Measure

2008 :300000

2009 : 300000

2010 : 300000

2011 :300000

2012 : 300000

3. Associated Institute Type(s)

{No Data Entered}

4. Associated Knowledge Area(s)

- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

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

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

1. Evaluation Studies Planned

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

Description

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

2. Data Collection Methods

- Observation
- Sampling
- Tests
- Case Study

Description

Pre-post tests. Standard survey methods.

V(A). Planned Program (Summary)

Program #5

1. Name of the Planned Program

Plant Production Systems

2. Brief summary about Planned Program

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

- Pest Management, with a sub-team on Diagnostics and Pest Management
- Plant Introduction and Invasive Species

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

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

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

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

● 201	10%	Plant Genome, Genetics, and Genetic Mechanisms
● 203	10%	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
● 205	20%	Plant Management Systems
● 206	10%	Basic Plant Biology
● 211	10%	Insects, Mites, and Other Arthropods Affecting Plants
● 212	10%	Pathogens and Nematodes Affecting Plants
● 213	10%	Weeds Affecting Plants
● 215	10%	Biological Control of Pests Affecting Plants
● 216	10%	Integrated Pest Management Systems

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

1. Situation and priorities

Colorado State has a history of providing crop selection and testing in other agronomic crops and fruits and vegetables to support the development of these agricultural industries in Colorado. In 2004, wheat generated \$161 million in commodity sales, dry beans \$38 million, potatoes \$192 million, and other agronomic crops and vegetable and fruit crops generated \$776 million, in Colorado. The value of these industries to the Colorado economy through other related economic activity is at least double these combined