

**V(A). Planned Program (Summary)**

**Program #4**

**1. Name of the Planned Program**

Animal Production Systems

**2. Brief summary about Planned Program**

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

Extension has Work Teams in:

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

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

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

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

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

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	5%		10%	
302	Nutrient Utilization in Animals	5%		10%	
303	Genetic Improvement of Animals	0%		20%	
307	Animal Management Systems	50%		30%	
311	Animal Diseases	5%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
601	Economics of Agricultural Production and Farm Management	25%		10%	
	<b>Total</b>	100%		100%	

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

#### 1. Situation and priorities

Animal agriculture is a major economic sector in the United States and the leading agricultural activity in Colorado. In 2007, live meat animal sales in Colorado were valued at \$4.787 billion and the value of dairy production was \$516 million. Livestock and livestock products accounted for 72% of crop and livestock sales in Colorado. Remaining competitive requires that the industry produce with the most technically sophisticated systems available while considering environmental and animal welfare dimensions to maintain confidence of the consuming public. Ruminant agriculture on range is the only significant agricultural enterprise which is ubiquitous in Colorado. In addition to novel and economic production practices, today's livestock producers must be knowledgeable of alternative supply chains to select a lucrative market, be aware of animal identification and trace-back requirements, understand the effects of emerging animal public health conditions, and understand the international and domestic trade environment and trends and how to respond with risk management strategies.

#### 2. Scope of the Program

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

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

**1. Assumptions made for the Program**

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

**2. Ultimate goal(s) of this Program**

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

**V(E). Planned Program (Inputs)**

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	15.0	0.0	5.0	0.0
2011	15.0	0.0	5.0	0.0
2012	15.0	0.0	5.0	0.0
2013	15.0	0.0	5.0	0.0
2014	15.0	0.0	5.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

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

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

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

**3. Description of targeted audience**

Individual agricultural producers, commodity groups, agri-business partners

**V(G). Planned Program (Outputs)**

**1. Standard output measures**

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

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

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

**Expected Patent Applications**

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

**3. Expected Peer Review Publications**

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

**V(H). State Defined Outputs**

**1. Output Target**

- Number of attendees at workshops/trainings/field days

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

**V(I). State Defined Outcome**

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

**Outcome #1**

**1. Outcome Target**

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

**2. Outcome Type :** Change in Knowledge Outcome Measure

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

**3. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**4. Associated Knowledge Area(s)**

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

**Outcome #2**

**1. Outcome Target**

Percent of participants indicating change in behavior/ best practices adopted

**2. Outcome Type :** Change in Action Outcome Measure

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

**3. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**4. Associated Knowledge Area(s)**

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

**Outcome #3**

**1. Outcome Target**

Economic impact of the change in behavior reported

**2. Outcome Type :** Change in Condition Outcome Measure

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

**3. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**4. Associated Knowledge Area(s)**

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

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

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

**Description**

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

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

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

**1. Evaluation Studies Planned**

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

**Description**

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

**2. Data Collection Methods**

- Case Study
- Observation
- Sampling
- Tests

**Description**

Pre-post tests. Standard survey methods.