

**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                      | 10%             |                 | 10%            |                |
| 302     | Nutrient Utilization in Animals                          | 10%             |                 | 10%            |                |
| 303     | Genetic Improvement of Animals                           | 20%             |                 | 20%            |                |
| 307     | Animal Management Systems                                | 30%             |                 | 30%            |                |
| 311     | Animal Diseases  | 10%             |                 | 10%            |                |
| 315     | Animal Welfare/Well-Being and Protection                 | 10%             |                 | 10%            |                |
| 601     | Economics of Agricultural Production and Farm Management | 10%             |                 | 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 2006, live meat animal sales in Colorado were valued at \$4.062 billion and the value of dairy production was \$327 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**

- Integrated Research and Extension
- Multistate Extension
- In-State Research
- Multistate Integrated Research and Extension
- In-State Extension
- Multistate 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 |
| 2009 | 15.0      | 0.0  | 5.0      | 0.0  |
| 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  |

**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"> <li>● Other 1 (Field Days)</li> <li>● One-on-One Intervention</li> <li>● Education Class</li> <li>● Group Discussion</li> <li>● Demonstrations</li> <li>● Workshop</li> </ul> | <ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Web sites</li> <li>● Newsletters</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                  |
| 2009 | 25000                  | 5000                     | 10000                 | 15000                   |
| 2010 | 25000                  | 5000                     | 10000                 | 15000                   |
| 2011 | 25000                  | 5000                     | 10000                 | 15000                   |
| 2012 | 25000                  | 5000                     | 10000                 | 15000                   |
| 2013 | 25000                  | 5000                     | 10000                 | 15000                   |

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

**Expected Patent Applications**

**2009 :0                      2010 :0                      2011 :0                      2012 :0                      2013 :0**

**3. Expected Peer Review Publications**

| Year | Research Target | Extension Target | Total |
|------|-----------------|------------------|-------|
| 2009 | 20              | 2                | 0     |
| 2010 | 20              | 2                | 0     |
| 2011 | 20              | 2                | 0     |
| 2012 | 20              | 2                | 0     |
| 2013 | 20              | 2                | 0     |

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

**1. Output Target**

- Number of attendees at workshops/trainings/field days

**2009 :2000                      2010 :2000                      2011 :2000                      2012 :2000                      2013 :2000**

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

**2009 :30000                      2010 :30000                      2011 :30000                      2012 :30000                      2013 :30000**

- Number of technical and refereed journal articles published

**2009 :20                      2010 :20                      2011 :20                      2012 :20                      2013 :20**

- Number of workshops presented.

**2009 :50                      2010 :50                      2011 :50                      2012 :50                      2013 :50**

**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

2009 :60

2010 : 60

2011 : 60

2012 :60

2013 : 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

2009 :50

2010 : 50

2011 : 50

2012 :50

2013 : 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

**2009 :**100000

**2010 :** 100000

**2011 :** 100000

**2012 :**100000

**2013 :** 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**

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

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

**1. Evaluation Studies Planned**

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

**Description**

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

**2. Data Collection Methods**

- Sampling
- Tests
- Observation
- Case Study

**Description**

Pre-post tests. Standard survey methods.