

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

### **Program # 4**

#### **1. Name of the Planned Program**

Global Food Security and Hunger

#### **2. Brief summary about Planned Program**

Extension outreach will span the breadth of the topics of research to assure that industry participants have practical knowledge in modern plant, 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.

Reporting under Global Food Security and Hunger are three Extension Work Teams:

1. Small Farms & Specialty Crops
2. Agriculture and Business Management (ABM)
3. Livestock & Range

Associated content areas reporting under the Planned Program Area, Plant Production Systems, are Wheat-based and Other Cropping Systems. Reporting under the Planned Program Area, Natural Resources, are Pest Management, Small Acreage Management, and Water.

**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
121	Management of Range Resources	10%		0%	
301	Reproductive Performance of Animals	10%		0%	
302	Nutrient Utilization in Animals	8%		0%	
303	Genetic Improvement of Animals	7%		0%	
307	Animal Management Systems	8%		0%	
311	Animal Diseases	7%		0%	
315	Animal Welfare/Well-Being and Protection	8%		0%	
601	Economics of Agricultural Production and Farm Management	7%		0%	
602	Business Management, Finance, and Taxation	7%		0%	
603	Market Economics	7%		0%	
610	Domestic Policy Analysis	7%		0%	
723	Hazards to Human Health and Safety	7%		0%	
806	Youth Development	7%		0%	
	<b>Total</b>	100%		0%	

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

## 1. Situation and priorities

**Livestock and Range** - Colorado ranks 5<sup>th</sup> 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. There were 2.6 million cattle and calves in Colorado (livestock and dairy) on January 1, 2009. The contribution from livestock cattle is greater than 3 times that of grains, oilseeds, dry beans and dry peas (\$1.0 billion). According to the 2007 Census of Agriculture, the number of farms in Colorado with livestock cows decreased 6.4% from 1997 to 2007 and the number of farms with all cattle and calves decreased 28.1% during the same 10-year period.

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% is federally owned, of which a large percentage is leased for agricultural production (Source: <http://csfs.colostate.edu/pages/land-use-ownership.html>).

## **Agriculture and Business Management (ABM)**

There are currently three primary circumstances for farmers and ranchers in Colorado that will drive the ABM Team's focus over the next year. First, Colorado has experienced dramatic demographic and economic transformations during the past decade. The makeup of farm operators has changed significantly, and enterprises increasingly face greater production, financial, marketing, human, and institutional risks.

There are 37,054 farms in Colorado (NASS 2007) which is an 18 percent increase over the number of Colorado farms in 2002. Colorado continues to have most of its farms and ranches considered as small with 29,673 (80.08%) having annual sales of less than \$50,000. Wheat, forage, and corn are the major crops grown in Colorado, while the sale of cattle and calves dominates "value of sales" for all commodities produced in the state.

A survey conducted by Extension specialists and researchers at Colorado State University and the Universities of Arizona and Wyoming attempted to gain a better understanding of the changing role of farm operators and the behavioral and institutional factors that promote or impede agricultural growth in the West (Tranel, 2007). The results of the study can be found at [www.ruralfamilyventures.org](http://www.ruralfamilyventures.org). A second study by the same researchers was conducted with those agricultural operators having annual farm and ranch sales of \$50,000 or more. The results are not yet available, but they will become available at the same web address.

The second issue is that Colorado producers are facing a time of great financial uncertainty and volatility. Prices for many commodities are at all-time highs, but can vary significantly within very short periods of time. Prices for inputs, especially petro-based inputs, are extremely volatile. Higher interest rates and inflation could cause further pressures on profitability in agriculture. The current general national economy is causing investors to look more closely at agriculture lands for investment. These factors are forcing farm and ranch managers to be increasingly more vigilant about their finances and to consider new management and investment strategies.

The third issue is the increasing average age of farmers and ranchers and the concerns related to succession. Farmers and ranchers in Colorado are growing older. The average age of Colorado producers was 54.5 in 2002 and 57.0 in 2007, according to the Census of Agriculture. Furthermore, those farm operators aged 55 and older own 44 percent of the land in Colorado. Given the advancing age of producers in Colorado and the amount of land and value of machinery and equipment they own, intergenerational transfer issues are becoming ever more important.

As recommended by NIFA reviewers, this Planned Program assumes the previously-named Animal Production Systems Knowledge Areas (KAs) and also many of those of the now differently focused Planned Program, Plant Production Systems. Ag/Business Management Work Team also reports in this Planned Program. Together, these efforts by AES and Extension will address the Global Food Security NIFA priority.

## **2. Scope of the Program**

- In-State Extension
- Multistate Extension

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

**1. Assumptions made for the Program**

**Livestock and Range**

Members of the work team 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.

**Agriculture and Business Management (ABM)**

- Average age of agricultural producers is increasing.
- Farm sizes are either increasing or getting smaller (mid-sized farms are decreasing in number).
- Commodity and input prices are more volatile than in the past.
- The number of "women" operators is increasing.
- Consumers are demanding specific characteristics of agricultural products.
- Legal and human risks are becoming more problematic in agriculture.

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

Adoption of improved productive and sustainable agriculture systems will assure communities, families, and individuals have enough food to eat, and that hunger is not a factor in their well-being.

- ABM 1. More Colorado farms and ranches will be passed onto future generations keeping land in agriculture for future food production in Colorado.
- ABM 2. Agricultural producers having all sized businesses are increasing their opportunities for sustained profits.
- LR 1: Science based information and research contributes to the optimum production and economic sustainability of livestock enterprises, rangeland health, and policy regulations.

**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
2013	23.1	0.0	0.0	0.0
2014	25.0	0.0	0.0	0.0
2015	25.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2017	0.0	0.0	0.0	0.0

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

**1. Activity for the Program**

- Conduct extension and outreach programs to enhance animal agriculture in Colorado and the West.
- Extension will include applied research and education relevant to emerging issues of Colorado's agricultural industries, including bio-security, safe and effective pesticide use, and implementation of effective pest management strategies that do not rely on pesticides.
  - Evaluate new crop, range, and livestock systems in semi-arid environments including disciplinary and interdisciplinary work in crop and soil sciences, animal sciences, pest sciences, range science, wildlife biology and ecology, forest science, water sciences, economics, and landscape design and policy applicable to the state and region.
  - Disseminate findings through extension educational programs aimed at changing practices to control pests.
- Proper diagnosis of plant problems, entomology related to plants and structures, weed control and recommendations of integrated pest management strategies.

- Workshops and educational classes for producers
- Demonstration plots and field days to showcase the results
- Individual counseling on producers specific problems

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

**Extension**

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

**3. Description of targeted audience**

Individual agricultural producers, commodity groups, agri-business partners

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

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
    - Direct Adult Contacts
    - Indirect Adult Contacts
    - Direct Youth Contacts
    - Indirect Youth Contact
  - Number of patents submitted
  - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## V(H). State Defined Outputs

### 1. Output Measure

- ABM 1) Peer Reviewed Publications, including Fact Sheets & Curricula
- ABM2) Trainings/Classes/Workshops, Field Days, Activity Days
- ABM3) Trainings for Extension Staff
- ABM 4) Community Meetings Facilitated [examples: Focus Group, Citizen Forum, Round Table Dialogue, Strategic Planning Process]
- ABM 5) Community Coalitions, Collaborations, Alliances Formed to Address a Specific Issue [list specific groups/issue]
- ABM 6) Direct Communication/Education by telephone and/or e-mail
- ABM 7) Newsletters (This is number of newsletters, not number mailed or number of Coloradans who received them.)
- ABM 8) Websites (number of Websites, not number of hits)
- ABM 9) Websites hits (number of hits, not number of sites)
- ABM 10) Press/News Release or Column (number submitted)
- ABM 11) External Grant Dollars
- LR 1) Trainings/Classes/Workshops, Field Days, Activity Days
- LR 3) Trainings for Extension Staff
- LR 4) Community Meetings Facilitated [examples: Focus Group, Citizen Forum, Round Table Dialogue, Strategic Planning Process]
- LR 5) Direct Communication/Education by telephone and/or e-mail
- LR 6) Newsletters (This is number of newsletters, not number mailed or number of Coloradans who received them.)
- LR 7) Websites (number of Websites, not number of hits)
- LR 8) Websites hits (number of hits, not number of sites)
- LR 9) Press/News Release or Column (number submitted)
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

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

O. No	Outcome Name
1	Economic impact of the change in behavior reported, reported in dollars
2	Number of new technologies adopted to increase food production
3	ABM 1.1. Participants have a greater confidence in talking with young people about becoming farmers and ranchers.
4	ABM 1.2. Participants intend to develop formal business plans regarding the succession of their farms and ranches.
5	ABM 1.3. Participants intend to develop formal marketing plans regarding the succession of their farms and ranches.
6	ABM 1.4. Participants intend to develop formal retirement plans regarding the succession of their farms and ranches.
7	ABM 1.5. Participants intend to develop formal estate plans regarding the succession of their farms and ranches.
8	ABM 1.6. Participants intend to develop ?legacy? plans.
9	ABM 1.7. Participants have improved intra-family communications.
10	ABM 2.1. Participants intend to investigate adding a new enterprise to their farms/ranches
11	ABM 2.2. Participants intend to discontinue an existing enterprise on their farms/ranches.
12	ABM 2.3. Participants intend to not pursue alternative enterprises
13	ABM 2.4. Participants intend to further investigate strategies for increasing the profitability of their enterprises. (Action)
14	ABM 2.5. Participants intend to implement management strategies for making more informed decisions to sustain profitability and/or reduce risk.
15	ABM 2.6. Participants intend to investigate agri-tourism and other alternative enterprises for their farm/ranch businesses.
16	ABM 2.7. Participants will have sustained profits due to increased revenues and/or decreased costs.
17	LR 1.1: The number of producers who document range land monitoring activities.
18	LR 1.2: Adult and youth livestock producers will gain proficiency in producing profitable animal products.
19	LR 1.3: Livestock producers, adult and youth will report an increased adoption of best management practices for optimum production and economic sustainability.



**Outcome # 1**

**1. Outcome Target**

Economic impact of the change in behavior reported, reported in dollars

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

**3. 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

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of new technologies adopted to increase food production

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

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

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

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

- 1862 Extension

### **Outcome # 3**

#### **1. Outcome Target**

ABM 1.1. Participants have a greater confidence in talking with young people about becoming farmers and ranchers.

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

#### **3. Associated Knowledge Area(s)**

- 806 - Youth Development

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 4**

#### **1. Outcome Target**

ABM 1.2. Participants intend to develop formal business plans regarding the succession of their farms and ranches.

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

#### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

### **Outcome # 5**

#### **1. Outcome Target**

ABM 1.3. Participants intend to develop formal marketing plans regarding the succession of their farms and ranches.

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

#### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 6**

##### **1. Outcome Target**

ABM 1.4. Participants intend to develop formal retirement plans regarding the succession of their farms and ranches.

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

##### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 7**

##### **1. Outcome Target**

ABM 1.5. Participants intend to develop formal estate plans regarding the succession of their farms and ranches.

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

##### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 8**

##### **1. Outcome Target**

ABM 1.6. Participants intend to develop ?legacy? plans.

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 9**

**1. Outcome Target**

ABM 1.7. Participants have improved intra-family communications.

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

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

- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 10**

**1. Outcome Target**

ABM 2.1. Participants intend to investigate adding a new enterprise to their farms/ranches

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 11**

**1. Outcome Target**

ABM 2.2. Participants intend to discontinue an existing enterprise on their farms/ranches.

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 12**

**1. Outcome Target**

ABM 2.3. Participants intend to not pursue alternative enterprises

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 13**

**1. Outcome Target**

ABM 2.4. Participants intend to further investigate strategies for increasing the profitability of their enterprises. (Action)

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 14**

##### **1. Outcome Target**

ABM 2.5. Participants intend to implement management strategies for making more informed decisions to sustain profitability and/or reduce risk.

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

##### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 15**

##### **1. Outcome Target**

ABM 2.6. Participants intend to investigate agri-tourism and other alternative enterprises for their farm/ranch businesses.

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

##### **3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

#### **4. Associated Institute Type(s)**

- 1862 Extension

#### **Outcome # 16**

##### **1. Outcome Target**

ABM 2.7. Participants will have sustained profits due to increased revenues and/or decreased costs.

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

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

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation

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

- 1862 Extension

**Outcome # 17**

**1. Outcome Target**

LR 1.1: The number of producers who document range land monitoring activities.

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

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

- 121 - Management of Range Resources

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

- 1862 Extension

**Outcome # 18**

**1. Outcome Target**

LR 1.2: Adult and youth livestock producers will gain proficiency in producing profitable animal products.

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

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

- 307 - Animal Management Systems
- 603 - Market Economics
- 806 - Youth Development

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

- 1862 Extension

### **Outcome # 19**

#### **1. Outcome Target**

LR 1.3: Livestock producers, adult and youth will report an increased adoption of best management practices for optimum production and economic sustainability.

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

#### **3. Associated Knowledge Area(s)**

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 603 - Market Economics
- 806 - Youth Development

#### **4. Associated Institute Type(s)**

- 1862 Extension

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

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

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

#### **Description**

Livestock and range outcomes are dependent on government regulation, public policy, weather, volatility in the market and increasing input costs. These external factors will be addressed in education and research efforts but will still influence participation

ABM programming attempts to meet the needs of farmers, ranchers, and other clientele as they face the risks associated with drought and other natural disasters, changes in market prices, the economy, and agriculturally related policies/legislation. Changes in federal and state financial appropriations and availabilities of grant funds will also affect the ability of the ABM Team to deliver successful educational programs and the outcomes of that education.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**



### **Livestock and Range**

A state wide survey has been developed for all Livestock Team members to use. This survey is divided to represent the 4 quarters of the state, NE, SE, SW, NW allowing an overall summary and area-specific summary for all livestock programming needs. This survey also allows participants to list specific programming needs and delivery method. This survey will also allow team leaders to develop an entire state wide programming effort when needed.

Evaluations will occur immediately following the educational programs (short term).

Evaluations will occur 6-12 months following the program to determine if changes were incorporated (medium term).

Evaluations will be conducted 2-5 years following the program to determine the sustainability of the change and the economic return gained as a result of the change (long term).

### **ABM**

The ABM actively and continuously solicits input from agents, ag lenders, researchers, legislators and policy makers, colleagues, funders, and other stakeholder to determine future educational and informational needs of clientele. Personal response systems (clickers) and various other methodologies are used to test knowledge and understanding levels and to solicit feedback, knowledge gained, and intended actions by participants before, during, and after educational programs. Responses to inter-program questions are often used to change presentations 'on the fly' in order to meet the educational needs of participants. Further, research conducted with colleagues at other universities and anecdotal evidence is used to plan and deliver needed and/or demanded education and information.

**ABM-** Examples of such research include the 3-state studies of demographic and educational needs of small and large farm/ranch owners and operators in Arizona, Colorado, and Wyoming. The results of these two studies (available at [www.ruralfamilyventures.org](http://www.ruralfamilyventures.org)) have and will continue to help ABM Economists plan and deliver educational programs.