V(A). Planned Program (Summary)

Program # 1
1. Name of the Planned Program
Animal Production
☑ Reporting on this Program

V(B). Program Knowledge Area(s)
1. Program Knowledge Areas and Percentage

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
<th>%1862 Extension</th>
<th>%1890 Extension</th>
<th>%1862 Research</th>
<th>%1890 Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>Watershed Protection and Management</td>
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<td>0%</td>
<td>5%</td>
<td>0%</td>
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<tr>
<td>131</td>
<td>Alternative Uses of Land</td>
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<td>0%</td>
<td>5%</td>
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<tr>
<td>133</td>
<td>Pollution Prevention and Mitigation</td>
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<td>216</td>
<td>Integrated Pest Management Systems</td>
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<td>10%</td>
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<tr>
<td>301</td>
<td>Reproductive Performance of Animals</td>
<td>20%</td>
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<td>25%</td>
<td>20%</td>
</tr>
<tr>
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<td>0%</td>
<td>15%</td>
<td>20%</td>
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<tr>
<td>307</td>
<td>Animal Management Systems</td>
<td>20%</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>311</td>
<td>Animal Diseases</td>
<td>20%</td>
<td>35%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>601</td>
<td>Economics of Agricultural Production and Farm Management</td>
<td>20%</td>
<td>30%</td>
<td>5%</td>
<td>20%</td>
</tr>
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<td><strong>Total</strong></td>
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<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
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</table>

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

<table>
<thead>
<tr>
<th>Year: 2016</th>
<th>Extension</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1862</td>
<td>1890</td>
</tr>
<tr>
<td>Plan</td>
<td>12.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Actual Paid</td>
<td>14.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Actual Volunteer</td>
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</tr>
</tbody>
</table>

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

1. Brief description of the Activity

Research was conducted. County, regional, state, and multistate meetings, trainings, and workshops were held. Field days, on-site visits, tours, and hands-on sessions took place. Diagnostic services were provided.

Research findings were shared via bulletins, newsletters, eXtension, articles for the layperson, industry publications, peer-reviewed journals, scientific proceedings, state and national conferences, broadcast media, websites, and expos.

Aquaculture
The aquaculture specialist offered workshops, consulting, and business plan evaluation for commercial fish hatcheries and pond owners.

Cattle
Bull testing and heifer evaluation programs were conducted. Calf evaluation for feedlot performance and carcass evaluation in commercial feedlots occurred through the Georgia Beef Challenge.

The Master Cattlemen's Program involved in-depth educational seminars.

Research was conducted to develop genetic models to analyze livestock data, resulting in software to conduct genetic evaluations.

A trial was conducted to evaluate a cooling system that adjusts output based on temperature and humidity conditions.

Poultry
A webinar was conducted on avian influenza. Cooperative efforts succeeded in getting the message to the farmers. No commercial cases of avian influenza were reported in Georgia. There was a noticeable reduction in the number of other diseases.

Meat and Poultry
The meat and poultry Hazard Analysis Critical Control Point (HACCP) course was offered. The Poultry
School en Español drew 37 attendees from Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Guatemala, Honduras, Mexico, Nicaragua, Peru and the U.S., reducing the risk of foodborne illness in imported meats.

**Equine**
Talks were given on equine nutrition and multiple emails and phone calls regarding horse nutrition were answered, including consultations with veterinarians.

**Swine**
Studies were conducted to examine swine intake regulation. Studies examining the efficiency of nitrogen and phosphorous utilization that have the potential to reduce the environmental impact of animal agriculture will be conducted concurrently.

**Small Ruminant**
Faculty offered several integrated small-ruminant internal parasite management and other group workshops. Three videos were developed for the Journeyman Farmer Certificate Program (JFCP). Specialist edited several other JFCP videos and associated presentations covering nutrition, meats, marketing, parasite control, predator control, forages/pastures. USB drives with small-ruminant information were provided to staff to use with clientele.

At FVSU, the research we are currently conducting concerns evaluation of the nutritional and anti-parasitic bioactivity of different forms of sericea lespedeza (SL; Lespedeza cuneata), a high-tannin, warm-season perennial legume well adapted to Georgia's warm, moist environmental conditions.

**Pests**
Specialists worked with the College of Agricultural and Environmental Sciences' Georgia FACES media newswire to prepare three timely press releases for the general public on seasonal pests. Researchers updated 11 sections of the Georgia Pest Management Handbook.

Field studies of fly control methodologies were conducted.

2. Brief description of the target audience

The target audience consists of sheep, goat, beef, and pork producers; dairymen; aquaculture producers; county agents; veterinarians; industry professionals; environmental professionals; pet owners; scientific peers; government officials and policymakers; land owners; limited-resource farmers; and those living around animal agriculture environments.

3. How was eXtension used?

Although a detailed breakdown is unavailable at this time, overall, 142 Georgia experts answered 792 questions in eXtension.

V(E). Planned Program (Outputs)

1. Standard output measures
2. Number of Patent Applications Submitted (Standard Research Output)
   Patent Applications Submitted
   Year: 2016
   Actual: 0

   Patents listed

3. Publications (Standard General Output Measure)
   Number of Peer Reviewed Publications

<table>
<thead>
<tr>
<th>2016</th>
<th>Extension</th>
<th>Research</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>0</td>
<td>31</td>
<td>31</td>
</tr>
</tbody>
</table>

V(F). State Defined Outputs

Output Target

Output #1
   Output Measure
   ● Number of significant publications including articles, bulletins and extension publications.
   (excluding peer reviewed articles)
   Year | Actual
   2016 | 78

Output #2
   Output Measure
   ● Number of invited presentations by faculty directly resulting from the success of this planned program.
   Year | Actual
   2016 | 36
### V(G). State Defined Outcomes

#### V. State Defined Outcomes Table of Content

<table>
<thead>
<tr>
<th>O. No.</th>
<th>OUTCOME NAME</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Number of Master Cattlemen certifications granted through this planned program.</td>
</tr>
<tr>
<td>2</td>
<td>Increase in the farm gate value of livestock production in Georgia. Reported in millions of dollars.</td>
</tr>
<tr>
<td>3</td>
<td>Farm gate value of poultry production in Georgia. Value reported annually in millions of dollars.</td>
</tr>
</tbody>
</table>
**Outcome #1**

1. **Outcome Measures**

   Number of Master Cattlemen certifications granted through this planned program.

2. **Associated Institution Types**

   - 1862 Extension
   - 1862 Research

3a. **Outcome Type:**

   Change in Knowledge Outcome Measure

3b. **Quantitative Outcome**

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>110</td>
</tr>
</tbody>
</table>

3c. **Qualitative Outcome or Impact Statement**

   **Issue (Who cares and Why)**
   To be competitive in the beef market, producers must understand existing beef management practices as well as become informed of new technologies as they are developed.

   **What has been done**
   The University of Georgia Beef Team currently offers the Master Cattlemen's Program. This program involves detailed, in-depth educational seminars related to beef cattle.

   **Results**
   There were 110 participants in the Master Cattlemen program in 2016.

4. **Associated Knowledge Areas**

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
<td>Reproductive Performance of Animals</td>
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<tr>
<td>303</td>
<td>Genetic Improvement of Animals</td>
</tr>
<tr>
<td>307</td>
<td>Animal Management Systems</td>
</tr>
<tr>
<td>311</td>
<td>Animal Diseases</td>
</tr>
<tr>
<td>601</td>
<td>Economics of Agricultural Production and Farm Management</td>
</tr>
</tbody>
</table>
Outcome #2

1. Outcome Measures

Increase in the farm gate value of livestock production in Georgia. Reported in millions of dollars.

2. Associated Institution Types

● 1862 Extension
● 1890 Extension
● 1862 Research
● 1890 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>390</td>
</tr>
</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Livestock production counts for the largest portion of agriculture in Georgia.

What has been done
Specialists and agents delivered crucial, research-based information to farmers and producers.

Results
Livestock and aquaculture value decreased by $390,096,829, a reduction of about 17 percent.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
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<th>Knowledge Area</th>
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</thead>
<tbody>
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<td>304</td>
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<td>307</td>
<td>Animal Management Systems</td>
</tr>
<tr>
<td>311</td>
<td>Animal Diseases</td>
</tr>
</tbody>
</table>
Outcome #3

1. Outcome Measures

Farm gate value of poultry production in Georgia. Value reported annually in millions of dollars.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
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</thead>
<tbody>
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<td>5558</td>
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</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Poultry production is Georgia’s largest agricultural industry, and agriculture is Georgia's largest industry.

**What has been done**
A survey of Georgia’s Cooperative Extension county agents and commodity specialists was conducted for the purpose of providing annual, county-level information for the value of poultry production.

**Results**
The farm gate value for poultry was $5,558,773,858, an increase of 0.63 percent.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>301</td>
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<tr>
<td>307</td>
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</tr>
<tr>
<td>311</td>
<td>Animal Diseases</td>
</tr>
</tbody>
</table>
601 Economics of Agricultural Production and Farm Management

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

Some external factors included the environment, temperature, and farm management.

The health of poultry is critical to the ongoing profitability of the poultry industry in Georgia. In 2015, avian influenza caused over $1 billion in losses for the poultry industry in the U.S. That and other diseases created product and economic losses in the poultry industry. The priority in 2016 was to collaborate with the Georgia Poultry Laboratory Network, the Georgia Poultry Federation, and poultry companies in the state to increase the implementation of biosecurity practices on farms throughout the state to prevent avian influenza and reduce the incidence of other diseases as compared to previous years.

As anticipated, agriculture-urban intersections have produced unique challenges, and expanding metro areas continue to strain those situations. Novice cattlemen are attending the Master Cattlemen training, getting good starts on their operations and making connections with their county agents and experienced cattlemen. The loss of registered insecticides further limits control options available to producers.

New Food Safety Modernization Act (FSMA) regulations for Food and Drug Administration (FDA)-covered commodities have limited Hazard Analysis Critical Control Point (HACCP)-based training in favor of new FDA-approved curricula. Meat and poultry HACCP will continue to be updated as new regulations are issued.

Due to heat and humidity typical of the southeastern U.S., which negatively affects milk yield and milk quality, there was a high demand for educational programs on how to properly manage heat stress in dairy cattle to improve milk production, control mastitis, and lower somatic cell counts in milk.

Drought and other climate factors have placed demands on pond managers who seek technology assistance and diagnostic services. Aquaculture farms have faced high feed costs and competition from imported commodities, so they are looking for local feed and markets in order to sustain or expand their operations.
The market price for cattle was volatile during 2016. This forced beef cattle producers to pay close attention to all aspects of management to maintain economic viability.

Due to historic drought, most producers in Georgia depended on supplemental forage and feed to maintain their economic livelihood. Development of nutritional plans to maintain animal performance became a priority.

Horse owners have limited knowledge on who to contact for information regarding nutrition and pasture management. Speaking to small groups at the county level has improved communication between UGA and the general horse industry over the past few years, leading to a greater demand for information. The horse industry fluctuates greatly with the economy.

Drought prevented some demonstration and incorporation of forage programming. Funding and time resources competing with public and programmatic priorities delayed some programming and impacted resources for farmers (i.e., cost-share programs with the U.S. Department of Agriculture (USDA)). The demand for small-ruminant products continues to increase, which helps to support farm profitability.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

No cases of avian influenza were noted in Georgia. In addition, the number of cases related to other diseases, such as laryngotracheitis (LT), Mycoplasma gallisepticum (MG), and Mycoplasma synoviae (MS), were lower than in previous years.

Citizens continue to submit arthropods for identification through mail, through the Distance Diagnostics through Digital Imaging (DDDI) system, and through photographs via email.

Post-workshop evaluations are either given to the participants (HACCP) or completed online.

Multibreed models have been successfully developed and implemented, and are being applied in more than 10 U.S. breed associations.

Contacts rose following a case study of the Sunbelt Exposition Fish Pond Area after upgrades in 2015 and 2016. Over 500 cases, covering the topics of aquatic weed control, algae toxin management, fish disease control, hydrology, pond construction and maintenance, and fish population management, were served at the Tifton location. The value of aquatic diagnostics and control recommendations exceeded $3 million in 2016.

Evaluations from the Georgia HERD and Master Cattlemen's programs indicated that over 95 percent of participants were satisfied. Additionally, all indicated that these programs helped them make improvements in the genetics and overall management of their herds.

In the AWARE program, following the annual certified operator/planner class, a test was given and all participants passed with a score of 70 percent or higher.
Companies and breed associations in the beef cattle, dairy cattle, poultry, sheep, and swine industries have used the developed methodologies, which combine genomic and phenotypic information for the purpose of genetic evaluation. Also, the fish industry is currently working with scientists to develop procedures for use in this industry.

In the pilot for the Journeyman Farmer Certificate Program small-ruminant section, there were 22 first-session participants. Of the 19 responding to paper surveys, all indicated that they increased their knowledge after the training. An average of 81 percent agreed that the learning experience overall was adequate, 83 percent agreed communication was satisfactory, and 84 percent were satisfied with structure and organization.

**Key Items of Evaluation**

The number of cases related to poultry diseases such as laryngotracheitis (LT), Mycoplasma gallisepticum (MG), and Mycoplasma synoviae (MS) was lower than in previous years.

Multibreed models have been successfully developed and implemented, and are being applied in more than 10 U.S. breed associations.

Evaluations indicated that over 95 percent of the participants were satisfied with the programs they attended.

Collaborative efforts with industry organizations yielded positive results.