

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger - improving animal production for small producers

Reporting on this Program

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				20%
302	Nutrient Utilization in Animals				25%
303	Genetic Improvement of Animals				25%
307	Animal Management Systems				10%
601	Economics of Agricultural Production and Farm Management				10%
604	Marketing and Distribution Practices				10%
	Total				100%

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	13.2
Actual Paid Professional	0.0	0.0	0.0	10.1
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	513181
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	513181
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	427476

V(D). Planned Program (Activity)

1. Brief description of the Activity

Conduct seminars, conferences, hands-on clinics, provide written and hands-on training to producers, participate in industry events and develop industry-targeted publications based on research findings. Conduct research on the longitudinal survival and reproductive output of meat goat does. Conduct research on nutritional requirements for Guinea fowl. Perform genome mapping of important production qualities in Guinea fowl. Conduct literature review of available secondary information. Conduct focus group meetings to collect information from producers and consumers. Develop and administer surveys to selected producers and consumers. Collect and analyze several available marketing data. Identify selected meat goat consumers/ethnic groups/communities.

2. Brief description of the target audience

Dairy and meat goat producers
 National meat goat industry
 Institutions of meat goat research
 Ruminant livestock producers
 Students
 Public officials
 Guinea fowl and poultry industries
 Small farmers
 Scientific community
 Extension specialists

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	2123	3400	37	0

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

Patent Applications Submitted

Year: 2012
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	8	3	11

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Producer workshops to improve animal production in small farm and limited resource populations.

Year	Actual
2012	16

Output #2

Output Measure

- Dietary recommendations for improved Guinea fowl production.

Year	Actual
2012	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Percentage of direct contact meat goat producers with knowledge of altered doe selection techniques.
2	Percentage of direct contact meat goat producers practicing altered doe selection techniques.
3	Percentage of goat producer doe non-recorders with knowledge of the advantages of doe record keeping.
4	Percentage of goat producer doe non-recorders participating in doe record keeping.
5	Percentage of guinea fowl producers with knowledge of calcium and phosphorus recommendations for optimal nutrition.
6	Percentage of guinea fowl producers adopting calcium and phosphorus recommendations for optimal nutrition.
7	Percentage of guinea fowl producers adopting lysine recommendations for optimal nutrition.
8	Percentage of guinea fowl producers with knowledge of lysine recommendations for optimal nutrition.
9	Percentage of guinea fowl producers with increased profitability of production.
10	Number of producers with increased knowledge of meat goat marketing channels.
11	Number of researchers with increased understanding of the constraints and prospects of the meat goat industry.
12	Number of producers expanding their marketing to identified channels and markets.
13	Increase in number of consumers aware of the healthy benefits of meat goat consumption.
14	Number of producers aware of consumer preferences for meat goat products.
15	Number of producers and researchers with a better understanding of how maternal genetics can affect meat goat carcass yield.
16	Number of producers with increased income by marketing through new channels.

Outcome #1

1. Outcome Measures

Percentage of direct contact meat goat producers with knowledge of altered doe selection techniques.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Producers need to better assess the ability of breeds to contribute to an efficient production of market kids under limited inputs.

What has been done

A set of presentations and research updates were developed and distributed.

Results

A majority of producers gained a better understanding of how to evaluate breeds for use in commercial meat goat herds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #2

1. Outcome Measures

Percentage of direct contact meat goat producers practicing altered doe selection techniques.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Meat goat producers need to better assess the ability of breeds to contribute to an efficient production of market kids under limited inputs.

What has been done

A set of presentations and research updates were developed and distributed to various producer groups.

Results

An increasing number of experienced and new producers are altering their breed selection to establish or improve their meat goat breeding programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #3

1. Outcome Measures

Percentage of goat producer doe non-recorders with knowledge of the advantages of doe record keeping.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Meat goat managers raising seedstock recognize the need to properly select breeding females within breeding herds for enhanced fitness.

What has been done

A system of doe herd evaluation has been offered to record and select breeding stock based on objective performance measurements.

Results

Producers have begun to reconsider the need to record performance to improve the genetic and economic status of their meat goat breeding programs.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #4

1. Outcome Measures

Percentage of goat producer doe non-recorders participating in doe record keeping.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Meat goat managers raising seedstock recognize the need to properly select breeding females within breeding herds for enhanced fitness.

What has been done

A system of doe herd evaluation has been offered to record and select breeding stock based on objective performance measurements.

Results

Implementation of performance recording within purebred meat goat herds has occurred on a limited basis.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #5

1. Outcome Measures

Percentage of guinea fowl producers with knowledge of calcium and phosphorus recommendations for optimal nutrition.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

While the guinea fowl industry is growing in the United States, there are constraints in developing a thriving and sustainable industry due to the lack of established nutrient requirements to guide the formulation of least-cost rations. Information on the required dietary levels of calcium, phosphorus and lysine, a limiting amino acid that would ensure optimum performance of these birds, is limited.

What has been done

Dietary calcium (Ca) and phosphorus requirement for optimum growth performance of the Pearl Grey guinea fowl replacement pullets and laying hens were evaluated.

Results

Pearl Grey guinea fowl replacement seems to utilize more efficiently diets containing 0.8% Ca and 0.32-0.48% available phosphorus. Pearl Grey Guinea Fowl laying hens utilized more efficiently diets containing 3.25 to 3.75% calcium and 0.35 to 0.40% available phosphorus.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #6

1. Outcome Measures

Percentage of guinea fowl producers adopting calcium and phosphorus recommendations for optimal nutrition.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The costs associated with the production of guinea fowl need to be minimized for producers to realize maximum profit as this species becomes more accepted in American diets.

What has been done

Data on calcium and phosphorus requirements of the pearl grey guinea fowl replacement pullets and laying hens were shared with the scientific community at the International Poultry Scientific Forum and also the annual Poultry Association Conference, and the guinea fowl industry.

Results

Assessment of number of number of producers who have adopted the recommendations has not been completed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #7

1. Outcome Measures

Percentage of guinea fowl producers adopting lysine recommendations for optimal nutrition.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Lysine is an essential amino acid in poultry and lack thereof in diets of the guinea fowl will compromise optimum growth and production performance. Currently the lysine requirements of the guinea fowl are not known.

What has been done

Assessment of the lysine requirement of the guinea fowl is ongoing.

Results

No results to report.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #8

1. Outcome Measures

Percentage of guinea fowl producers with knowledge of lysine recommendations for optimal nutrition.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The costs associated with the production of Guinea fowl need to be minimized for producers to realize maximum profit as this species becomes more accepted in American diets.

What has been done

Research to determine the optimum levels of lysine is still in progress.

Results

Optimum levels have not been communicated to producers, thus no opportunity for producer knowledge/adoption of optimized levels yet.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #9

1. Outcome Measures

Percentage of guinea fowl producers with increased profitability of production.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Expenditures for feed account for more than 65% of the total cost of poultry production. Minimizing this cost by establishing the lysine requirement will minimize this cost and encourage participation in guinea fowl production.

What has been done

Research to determine the optimum levels of lysine is still in progress.

Results

No results to report as yet.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #10

1. Outcome Measures

Number of producers with increased knowledge of meat goat marketing channels.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	227

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Due to the growing population of immigrants in the United States, consumption of goat meat has increased. Regrettably, supply has not kept up with market demand for goat meat. As a result, imports have increased to cover this gap. Making market connections between buyers and sellers has become a challenge. Researchers and extension personnel seek opportunities to educate producers and consumers in meeting the market demand for goats.

What has been done

Team members made 8 presentations to producers and stakeholders at various regional events, reaching approximately 500 producers. Marketing surveys were conducted of 225 producers to determine extent of marketing knowledge

and marketing channels.

Results

Preliminary results of this research indicate the following factors were important in influencing consumer goat meat purchase: 80% physical attributes, 50% availability of supply, 40% socio-economic forces, 35% location, and only 17% other reasons. These findings provide useful information for producer training in marketing goat meat.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
604	Marketing and Distribution Practices

Outcome #11

1. Outcome Measures

Number of researchers with increased understanding of the constraints and prospects of the meat goat industry.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	396

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Researchers want to provide information that helps producers reduce the flow of goat meat imports to Tennessee and the U.S. It is important to address this growing need using Tennessee local goats, goat meats and products, and to utilize current research data to assist producers in finding alternative income opportunities within the state. Therefore, an opportunity exists for researchers to help small farmers to increase their income potential by evaluating the addition of a meat goat enterprise to their operation.

What has been done

Project team developed and administered survey instruments and other educational resources. Ten presentations on the topic were made at national and regional conferences. Three publications were produced.

Results

As result of participation in project activities, 227 researchers, students, and stakeholders enhanced their knowledge and understood some of the major limitations producers faced in expanding their goat business. Responding producers mentioned capital (46%), land (44%), market demand (26%), information (11%), competition (9%), demand/organizational structure (7%), and 17% other related constraints. Likewise, 74% of the farmers stated they faced problems associated with the lack of reliable marketing outlets and processing facilities, while 28% said their problems were with market uncertainty, suppliers and 24% listed had other issues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
604	Marketing and Distribution Practices

Outcome #12

1. Outcome Measures

Number of producers expanding their marketing to identified channels and markets.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	181

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The United States has witnessed an influx of diverse ethnic populations, many who consume goat meat. Goat meat is not readily available to consumers in American grocery stores and supermarkets due to existing limitations in market infrastructure. Therefore, an opportunity exists for small farmers to consider meat goat production as an alternative enterprise.

What has been done

Presentations were made and information distributed at a number of local and state-wide events. The objective was to reach current producers and potential producers and educating them on marketing channels.

Results

81% of producers identified numerous marketing outlets for their meat goats and goat meat. Selected channels and strategies include: sale of breeding and live goats directly on farms, auctions facilities, through cooperatives and other channels. Notably 65% had customers in distant places, more than 50 miles from their farms. About 53% were members of goat producer association or cooperatives, an important marketing channel. Nearly one-half of the producers bred and sold goats to specific customers. Additionally, data from this study indicate that 67% of the producers now possess strategies for responding to market competition.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #13

1. Outcome Measures

Increase in number of consumers aware of the healthy benefits of meat goat consumption.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	663

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Health conscious Americans are making informed decisions to consume lower amounts of saturated fat and cholesterol in their diets. Goat meat has fewer calories and less total fat, saturated fat, and cholesterol than other conventional meats. Goat meat also contains high levels of iron and potassium than is found in other types of meats. As the health benefits of goat become more widely known among the general population, the demand for alternative low-fat red meat should also continue to increase.

What has been done

Data were collected from consumers as part of a pilot study to test a survey instrument for the meat goat marketing project in the Nashville metropolitan area. Face-to-face interviews of participants were used in collecting data. Targeted areas had stores and restaurants carried ethnic food items.

Results

Results indicate almost 60% of the surveyed respondents said if preparation information was available to them, they would purchase more goat meat. Further, they stated that taste (84%), packaging (75%) and nutrition information (58%) were equally important in their buying decisions. Although some of the respondents never eaten goat meat before, they were willing to try some. Tennessee goat meat producers and marketers have a great potential to satisfy growing demand with fresh local goat meat supply to the metropolitan area markets.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

Outcome #14

1. Outcome Measures

Number of producers aware of consumer preferences for meat goat products.

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

Number of producers and researchers with a better understanding of how maternal genetics can affect meat goat carcass yield.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The meat goat industry has been directed towards the production of market kids over the last 10-15 years under the assumption that Boer germplasm is superior for carcass yield among goat breeds.

What has been done

Industry participants were provided with research data that provided new insight on relative breed evaluations for meat goat carcass traits.

Results

A reassessment of long-held beliefs regarding breed selection for carcass traits is occurring among researchers and producers engaged in meat goat production.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
307	Animal Management Systems

Outcome #16

1. Outcome Measures

Number of producers with increased income by marketing through new channels.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2012	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Researchers, educators, and students work to assist producers and consumers better meet the growing demand for meat goats and goat meat products for Tennessee. Consumers want to be able to buy goat meat when they need it and pay a fair price. Consumers want to make sure the products they paid for are safe. Producers need to make money and stay in business to continue to supply high quality, healthy, safe food and fiber.

What has been done

In addition to student training in research, data collection and analysis, team was engaged in developing abstracts, presentations, publications and collaboration with extension, research scientists and others for the benefit of meat goat producers. Four pre and post activity evaluations

were conducted to examine changes in knowledge and awareness at Dean's Seminar Series, TSU University Wide Research Symposium, ASBS Conference and producer outreach conference.

Results

An examination of industry outlook based on the share of producer income from the last 5 years, the research found that 54.5% of the producers surveyed expect a moderate increase in total income from meat goat enterprises. Also, 93.2% of the farmers confirmed that about 24% of their total household income comes from meat goat enterprises as well. This means that the enterprise has the potential to generate additional income for small farmers and a positive return on capital, thus, poses various advantages.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Notable results of this program:

- 80% commercial producers gained a better understanding of how to evaluate breeds for use in commercial meat goat herds
- The number of experienced and new producers altering their breed selection to establish or improve their meat goat breeding programs is increasing
- 80% of direct contact meat goat producers have knowledge of altered doe selection techniques; of those, 30% of direct contact meat goat producers are practicing altered doe selection techniques
- 20% of guinea fowl producers have knowledge of calcium and phosphorus recommendations for optimal nutrition
- 20% of goat producer doe non-recorders are participating in doe record keeping
- 80% of producers and researchers have a better understanding of how maternal genetics can affect meat goat carcass yield.

However, although producers have begun to reconsider the need to record

performance to improve the genetic and economic status of their meat goat breeding programs, the percentage of goat producer doe non-recorders with knowledge of the advantages of doe record keeping remains low, thus an increased effort will be made in communicating the need for record keeping of performance-based. Similarly, although 15% of goat producer doe non-recorders are now participating in doe record keeping, this is less than optimal; and additional measure will be taken to communicate the advantages of keeping up-to-date performance records.

The target percentage of guinea fowl producers adopting calcium and phosphorus recommendations for optimal nutrition has not been met because the assessment of the number of producers who have adopted the recommendations has not been completed. This target will be measured when the assessment is completed.

Key Items of Evaluation