

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

**Program # 3**

**1. Name of the Planned Program**

Food Safety

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
304	Animal Genome			10%	10%
307	Animal Management Systems			10%	15%
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals			10%	0%
501	New and Improved Food Processing Technologies			20%	20%
503	Quality Maintenance in Storing and Marketing Food Products			10%	10%
504	Home and Commercial Food Service			5%	5%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources			10%	15%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins			20%	20%
723	Hazards to Human Health and Safety			5%	5%
	<b>Total</b>			100%	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	13.0	8.0
Actual Paid Professional	0.0	0.0	14.0	8.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Institution Name: Auburn University

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	784000	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	784000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**2. Institution Name:** Alabama A&M University

**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	209485
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	343241
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**2. Institution Name:** Tuskegee University

**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	280776
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	269153
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

**1. Brief description of the Activity**

Specific areas of research include, but are not limited to: reduce the incidence of food-borne illness and provide a safer food supply; eliminating causes of microbial contamination and antimicrobial resistance; educating consumer and food safety professionals; developing food processing technologies to improve food safety; development of technologies for tracing the sources of food production; development of technologies for rapid analysis and identification of food including seafood; development of technologies for rapid detection of biological and chemical contamination such as antibiotics, pesticides, and other contaminants. This priority is aligned with the USDA research priority area of Food Safety and with the needs of Alabama to ensure the safety and wellbeing of its citizens, and with the economic interest of Alabama in the global economy. Alabama A&M University is undertaking studies on the survival and transmission of foodborne pathogen in some plant models.

In 2012, AU Food Safety Initiative became the officially recognized institute, AU Food Systems Institute. This institute has been extremely active in integrating all research, education, and outreach activities in food safety and food systems. Here is a few highlights:

AUFSI works with the university's world-renowned aquaculture program, the National Center for Asphalt Technology, the Detection and Food Safety Center, and even the Auburn University hotel and restaurant program to address food system concerns. Communicating researchers' food-related findings through proper training and outreach are also part of AUFSI's plan. AUFSI strives to maximize Auburn's existing internal strengths in the food systems arena as well as facilitate external collaborations with industry and government agencies.

The Auburn University Food System Institute organized the core faculty who are a part of working groups consisting of researchers from different disciplines. These core faculty members share common interests pertinent to food systems and communicate their respective research to one another. In 2012, AUFSI added eight new core faculty members from varied disciplines such as geology, agricultural economics, supply chain management, public relations, and biosystems engineering. Some of highlights of AU Food Systems Institute include:

- Established Virtual Food Systems Training Consortium (VFSTC) Advisory Board;
  - Established IACET (International Association for Continuing Education and Training) committee to complete accreditation process for AUFSI to become IACET provider;
  - Established partnerships with three universities through collaborative grant efforts;
  - Expanded core faculty membership, who attended and/or presented at 13 conferences (ranging from regional to international) and established HAACP, AFDO, and AF-DOSS connections;
  - Established social networking avenues: web page, Twitter, Facebook;
  - Developed training needs assessment and administered assessment to state inspectors in four states;
  - Became partner in FDA-approved lab and entrepreneur food-testing lab;
- Studies at Tuskegee University are being conducted to identify weak strains of Salmonella that can be used as possible vaccine candidates against salmonella infections.

## **2. Brief description of the target audience**

Researchers, educators, producers, food processors, super markets, consumers, and the general public.

## **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
<b>Actual</b>	30000	150000	50000	200000

**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
<b>Actual</b>	5	110	115

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

**Output Target**

**Output #1**

**Output Measure**

- Publications

Year	Actual
2012	115

**V(G). State Defined Outcomes**

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

O. No.	OUTCOME NAME
1	Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence.
2	New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)
3	New professionals in workforce with training in food safety and security. (Long-term)

### **Outcome #1**

#### **1. Outcome Measures**

Decreased incidence of cases of food poisoning (AL state stats, % deaths from Salmonella and other intestinal infections in 2004 = 1.6%). Program success will be indicated by a decline or no change in this incidence.

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

New technology(-ies) developed to monitor microbial contaminants. (Medium term outcome)

#### **2. Associated Institution Types**

- 1862 Research
- 1890 Research

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	1

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

##### **Issue (Who cares and Why)**

New technologies for food safety is needed to ensure that our food is safe;

Effective education need to be conducted with the genral public and citizens of the state to allow them to understand food safety related issues and procedures to reduce food poisoning and food-related illness.

Technologies need to be transferred to increase the level of food safety and detection of food related sources of infection or incidents.

##### **What has been done**

Auburn University has established an Institute of Food Systems. This institute was established on the basis of the AU Food Safety Initiative.

Food Systems faculty was established to conduct more effective education, research, and outreach.

Molecular studies to detect genes in weaker salmonella strains.

### **Results**

AU has designed a series of food safety programs aiming at educating and training of FDA food inspectors, food processors, and managers of the food industries.

A study was conducted to determine if bacteriophages that prey on the bacterial pathogen Salmonella could be used to control salmonellosis in cattle, a significant problem in both dairy and beef herds. This work is important because bovine products such as milk and beef become contaminated with Salmonella, and people who consume these products can become ill. In addition, many strains of Salmonella are resistant to multiple antibiotics, which causes treatment failure in sick animals and humans. When bacteriophages were used to treat infected dairy calves, their disease signs disappeared, and they shed much fewer of the Salmonella into the environment. These findings indicate that bacteriophages might be used in place of antibiotics to treat cattle with salmonellosis, and thus decrease the incidence of salmonellosis in humans.

Yghc gene detected in weaker strains of salmonella that could be used as possible candidates for vaccine development.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
304	Animal Genome
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

#### Outcome #3

##### 1. Outcome Measures

New professionals in workforce with training in food safety and security. (Long-term)

##### 2. Associated Institution Types

- 1862 Research
- 1890 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	20

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

**Issue (Who cares and Why)**

Workforce need to be trained in the area of food processing, food safety, and food security

**What has been done**

The food science program was added now in the Department of Poultry Science. Students are coming in and they are in degree programs.

**Results**

Students are trained, and they are ready to get into the food industries.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
304	Animal Genome
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723	Hazards to Human Health and Safety

**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**

The major issue in research is the lack of research funding.

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

Food safety is a priority program at Auburn University. Starting with AU Food Safety Initiative three years ago, Auburn has developed this initiative into a broader initiative of AU Food Systems Initiative. Under this initiative, researchers are working on research, training, and extension. Good results have been achieved in the initial phase of this program. Dr. Pat Curtis was appointed as the first Director for the AU Food Systems Initiative, with the intention to further develop this program with the goal for the establishment of a Food Systems Institute at Auburn. This last year, this initiative was formally recognized as an Institute, the Food Systems Institute.

At Tuskegee University, food safety is central and very critical as we develop and build the new Food processing facility for limited resource producers

### **Key Items of Evaluation**

Auburn University Food Systems Institute was established in 2012 with the focus of food safety research, training, technology development and outreach. This Institute has made major progress with its obtaining of \$6.5 million grant from FDA. Very recently, NIFA made an Award of \$4.8 million to a group of scientists including TU led by Dr. Christy Bratcher.

Various virtual training modules are being developed with the goal of becoming a training hub in southern US for food safety.