

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

**Program # 5**

**1. Name of the Planned Program**

Food Safety

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies			34%	
504	Home and Commercial Food Service			4%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources			9%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins			44%	
723	Hazards to Human Health and Safety			9%	
	<b>Total</b>			100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	16.0	0.0
Actual	0.0	0.0	3.0	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	361557	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	361557	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	2968984	0



2010 90 12

**Output #2**

**Output Measure**

- Number of other peer reviewed publications (book chapters, proceedings, abstracts, etc.)

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	70	10

**Output #3**

**Output Measure**

- Number of invited papers and invited presentations

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	50	11

**Output #4**

**Output Measure**

- Number of graduate degrees awarded

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2010	20	2

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

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

O. No.	OUTCOME NAME
1	The research efforts will result in new knowledge that will improve our understanding of animal physiology, genetics, reproduction, nutrition, growth, and animal well being. This knowledge will be translated to better animal production practices. In addition, students will be trained for positions in animal production, industry, government, and research/teaching.
2	Development of technologies and methods to insure the safe production and delivery of high-quality food to consumers.

## **Outcome #1**

### **1. Outcome Measures**

The research efforts will result in new knowledge that will improve our understanding of animal physiology, genetics, reproduction, nutrition, growth, and animal well being. This knowledge will be translated to better animal production practices. In addition, students will be trained for positions in animal production, industry, government, and research/teaching.

Not Reporting on this Outcome Measure

## **Outcome #2**

### **1. Outcome Measures**

Development of technologies and methods to insure the safe production and delivery of high-quality food to consumers.

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

- 1862 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
2010	{No Data Entered}	0

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

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

Food safety was again a national headline in 2010, when over half a billion eggs were recalled due to a salmonella outbreak in August which resulted in approximately 2,000 people being sickened by infected eggs. The incident prompted a congressional panel investigation and the Food and Drug Administration imposed mandatory controls including random egg testing. Timely test results are critical to identifying and stopping a salmonella outbreak.

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

Food scientists at the University of Missouri have developed a faster and more accurate way to test poultry and eggs for live salmonella contamination. The process modifies a DNA identification system known as polymerase chain reaction (PCR) which amplifies a few pieces of DNA to several orders of magnitude, generating thousands to millions of copies. Large clumps of salmonella DNA are more easily detected and accurately measured. An MU scientist has greatly improved the existing PCR test by developing a process which ignores dead cells and only replicates live salmonella DNA for detection.

### Results

The new technique to test poultry for contamination can accurately measure any contamination in hours, rather than days. Poultry and egg producers wishing to adapt the new test will need to make an initial capital investment to buy a PCR machine and train personnel to use it. Once installed, however, the system requires less labor and time than conventional testing techniques, resulting in long-term savings. Most importantly, potential pathogens can be found earlier in the production process ? before the food leaves the processing facility.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

### V(H). Planned Program (External Factors)

#### External factors which affected outcomes

- Public Policy changes
- Government Regulations
- Competing Public priorities

#### Brief Explanation

### V(I). Planned Program (Evaluation Studies and Data Collection)

#### 1. Evaluation Studies Planned

- During (during program)

### Evaluation Results

Individual faculty were reviewed by their respective Division Directors. Faculty submitted their research goals and accomplishments. Besides evaluating individual progress, the Division Directors reviewed research progress and accomplishments in the context of the planned program. Results show continued progress in both basic and applied research.

Points of evaluation included the following:

Research focus: Was it relevant and consistent with the objectives of the planned program?

Successful scholarship: Were research results conveyed through peer reviewed publications?

Successful grantsmanship: Was the research quality high enough to successfully compete for external grant funds?

### Key Items of Evaluation