V(A). Planned Program (Summary)

Program # 8

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
125	Agroforestry	0%	0%	3%	
311	Animal Diseases	0%	0%	15%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	2%	
501	New and Improved Food Processing Technologies	0%	0%	11%	
502	New and Improved Food Products	0%	0%	7%	
503	Quality Maintenance in Storing and Marketing Food Products	10%	10%	0%	
504	Home and Commercial Food Service	10%	10%	0%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	10%	
703	Nutrition Education and Behavior	0%	0%	2%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	80%	0%	30%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	7%	
901	Program and Project Design, and Statistics	0%	0%	3%	
903	Communication, Education, and Information Delivery	0%	80%	10%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	27.0	0.0
Actual Paid	9.0	2.0	37.9	0.0

Actual Volunteer	3.0	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**
178437	58081	562060	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
761449	78081	2673668	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
140397	0	1225542	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

In the Safe Food for Tennessee initiative, UT and TSU Extension will teach lessons in homes, schools, community centers, churches, and other accessible locations to consumers. The lessons in "Cook's Corner" and "Safe Food for You" are designed to change attitudes, skills and behaviors in regards to safe food handling practices.

Youth participants will receive food safety education using Fight BAC and other curricula through their school classroom, community center, after-school program, or other locations to reach youth. Direct methods (group meetings, classes, demonstrations, and on-site visits) and indirect methods (newsletters, TV media programs, web sites, newspaper articles and radio programs) will emphasize safe food practices:

- using a thermometer to check the internal temperature of food.
- using a thermometer to check the internal temperature of the refrigerator.

We conduct applied and basic research in food-borne risks and nutrition to address high priority issues for consumers of food products. We disseminate information gained from these studies to food industries and consumers through outreach programs, including workshops and educational events at the county level, and through a variety of publications.

UT AgResearch studies are underway on how non-thermal processing (high pressure, ultrasound, solvents) affect the functional properties of proteins for food and non-food applications. Supercritical carbon dioxide will be used to produce biopolymers encapsulation systems for flavors and nutraceuticals and to modify functional properties of proteins.
UT AgResearch projects in food safety are multi-pronged in their objectives. A major thrust is characterization of the antimicrobial activity of novel natural (i.e., plant-, animal- or microbial-based) compounds and better targeting through controlled-delivery encapsulation systems and incorporation into nanofibers and packaging films. Encapsulation strategies include micelles, liposomes, chitosans, supercritical carbon dioxide, high pressure homogenization and ultrasound. Novel molecular biology strategies are used to identify stress mechanisms in bacteria that allow them to resist interventions.

2. Brief description of the target audience

- Consumers
- Employees of Child Care Centers
- SNAP and WIC clients

3. How was eXtension used?

This Food Safety planned prorgam was enhanced through the service of four Tennessee Extension personnel on the "Food Safety" CoP, including the leader who serves as a specialists in the UT Extension Department of Family and Consumer Sciences. Tennessee Extension personnel shared implementation strategies, outcome measurement, and evaluation protocols with their CoP colleagues.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	79739	3995815	0	0

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

Patent Applications Submitted

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	2	41	43

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of exhibits displayed to promote safe food handling practices.

Year **Actual**

2014	187

Output #2

Output Measure

- Number of research-based publications distributed by Extension to educate producers, processors, and consumers.

Year	Actual
2014	3689

Output #3

Output Measure

- A. acidoterrestris is a bacterium which has been found in pasteurized fruit juices. High pressure homogenization and dimethyl dicarbonate show promise for aiding in control of growth of vegetative cells of A. acidoterrestris. (Golden)
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Found that despite providing health benefits of kale, consumers still may not purchase the kale-enhanced food products (Hollis).

Year	Actual
2014	0

Output #5

Output Measure

- Demonstrated that immobilized lipases can be used to prepare sugar esters, important biobased surfactants having numerous applications in foods, cosmetics, and pharmaceuticals, at high yield in the complete absence of organic solvents (Hayes).

Year	Actual
2014	0

Output #6

Output Measure

- Related intestinal microbiota to performance related factors including weight gain and feed conversion. Based on our data, the sponsor is interested in developing protocols and assays to quantify specific gut bacteria that impact weight gain and feed conversion (Hanning).

Year	Actual
2014	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Safe Food Handling for Consumers: Number of consumers who more often washed their hands with soap and warm running water before preparing food.
2	Safe Food Handling for Consumers: Number of consumers who now separate raw, cooked, and ready-to-eat foods while storing and preparing.
3	Safe Food Handling for Consumers: Number of consumers who now use a thermometer to check the internal temperature of food.
4	Safe Food Handling for Consumers: Number of consumers who canned vegetables following a tested recipe.
5	If petroleum prices continue to increase, we may identify several applications for chitosan to replace cellulose in the pharmaceutical or plastics industries (Zivanovic).

Outcome #1

1. Outcome Measures

Safe Food Handling for Consumers: Number of consumers who more often washed their hands with soap and warm running water before preparing food.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1257

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Safe Food Handling for Consumers: Number of consumers who now separate raw, cooked, and ready-to-eat foods while storing and preparing.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Safe Food Handling for Consumers: Number of consumers who now use a thermometer to check the internal temperature of food.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3168

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done
3,168 direct contacts were made to teach safe food handing practices for consumers. 886,406 indirect contacts were also made using various forms of media and publications.

Results
60 out of 80 participants reported using a food thermometer to check the internal temperature of food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service

Outcome #4

1. Outcome Measures

Safe Food Handling for Consumers: Number of consumers who canned vegetables following a tested recipe.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	916

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #5

1. Outcome Measures

If petroleum prices continue to increase, we may identify several applications for chitosan to replace cellulose in the pharmaceutical or plastics industries (Zivanovic).

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

x

Key Items of Evaluation