

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

**Program # 4**

**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
502	New and Improved Food Products	0%		12%	
504	Home and Commercial Food Service	60%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	40%		39%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%		43%	
723	Hazards to Human Health and Safety	0%		6%	
	<b>Total</b>	100%		100%	

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

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	3.1	0.0
Actual Paid Professional	1.7	0.0	6.9	0.0
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
42490	0	222630	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
42490	0	222630	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
63976	0	1547642	0

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

**1. Brief description of the Activity**

LSU AgCenter food safety efforts include group workshops, classes, and certification programs, as well as individual contacts with clients to answer specific questions and concerns regarding food safety. A variety of educational materials and resources are used to address food safety-related issues. Research focuses on identifying ways to minimize food safety threats related to Louisiana-produced food products.

With the retirement of one extension food safety specialist and the resignation of another, coordinated effort in this program has been somewhat lacking. The program is being re-staffed and realigned and it is anticipated that program efforts will be on track again soon. The statewide food safety program is scheduled for a full evaluation in the fall of 2014.

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

Consumers, commercial seafood processors, children and food handlers including restaurateurs and food vendors

**3. How was eXtension used?**

eXtension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	3250	319624	2798	0

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

**Patent Applications Submitted**

Year: 2013

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	2	13	15

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

**Output Target**

**Output #1**

**Output Measure**

- Number of individuals certified through food safety programs

<b>Year</b>	<b>Actual</b>
2013	100

**Output #2**

**Output Measure**

- Number of Web page views

<b>Year</b>	<b>Actual</b>
2013	15778

**Output #3**

**Output Measure**

- Number of Web page visits

<b>Year</b>	<b>Actual</b>
2013	14652

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

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

O. No.	OUTCOME NAME
1	Increase awareness, knowledge and/or skills regarding safe food handling and preparation by both commercial and non-commercial entities.
2	Identify ways to minimize food safety threats related to Louisiana-produced food products through research.

## **Outcome #1**

### **1. Outcome Measures**

Increase awareness, knowledge and/or skills regarding safe food handling and preparation by both commercial and non-commercial entities.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	0

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

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

Consumer food handling practices and changes in food production, processing and distribution have increased the scope of foodborne illness outbreaks resulting in national and multi-national occurrences. Food safety misinformation may result in illness or adverse financial consequences. Some commercial processors and food handlers, such as meat and poultry, seafood and canning are required to have certified food safety training. For commercial clients, failure to achieve food safety standards can result in the destruction of product or the shutdown of the facility, both of which are very costly.

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

Three hundred twenty-five extension activities including food safety information regarding thawing and storing foods correctly reached over 15,000 individuals through health fairs, Family Nutrition Nights, and Smart Choices classes.

Additionally, LSU AgCenter faculty conducted 5 nationally accredited HACCP courses (3 seafood, 2 meat and poultry) for processors and assisted FDA in conducting a seafood course for their inspectors. One hundred eighty-nine individuals participated in these food safety education efforts. Approximately 120 processors were assisted with HACCP plans and with regulatory problems. Faculty also fielded food related safety questions from individuals, some of whom were interested in starting a food business.

#### **Results**

In a statewide study of adult participants in the EFNEP program, 47% of 1348 participants showed improvement in or more of the targeted food safety practices (i.e. thawing and storing foods correctly). Sixteen percent of 1348 participants showed improvement in both targeted food safety practices. Among 2081 youth participating in a study, 52% improved in washing hands and 50% used safe food handling practices more often and gained knowledge about food safety.

In the case of 15 processors who were cited for failure to meet food safety standards, only 2 processors were required to destroy product and none had to shut down.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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

#### Outcome #2

##### 1. Outcome Measures

Identify ways to minimize food safety threats related to Louisiana-produced food products through research.

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2013	0

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

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

Hepatitis A virus (HAV) infection is the leading worldwide cause of acute viral hepatitis, and outbreaks caused by this virus often occur due to fecal polluted waters. Rapid concentration and detection of viral contamination in water environments can prevent large scale economic loss and can identify the source of contamination within a short time. However, conventional methods for virus concentration are often laborious, time consuming, and subject to blockage issues. Furthermore, most methods require a secondary concentration step to reduce the final volume of samples.

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

LSU AgCenter researchers developed a concentration/elution method in combination with real-time PCR (qPCR) for detection of HAV from seawater using zeolite.

###### **Results**

In the method, seawater was spiked with HAV and the viruses were extracted by zeolite. The viruses were then eluted with sodium dodecyl sulfate and detected via qPCR. Zeolite was able to extract virus particles from seawater with ~99% efficiency in less than 5 min and remained efficient in large volumes of seawater (10 L). The entire concentration/elution method was done in approximately 2 hours and was at least 50 times more sensitive than direct detection of virus in seawater.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
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

#### 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 Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

##### Brief Explanation

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

##### Evaluation Results

##### **Food Safety Practices of EFNEP adult participants improved as indicated by the following:**

28% (380 of 1348) more often followed the recommended practices of not allowing meat and dairy foods to sit out for more than two hours. Furthermore 23% (307 of 1348) ALWAYS followed the recommended practice.

34% (460 of 1348) more often followed the recommended practices of not thawing foods at room temperature. Furthermore 6% (82 of 1348) ALWAYS followed the recommended practice.

37% (496 of 1348) at ENTRY demonstrated acceptable food safety practices (i.e. thawing and storing foods properly). 55% (747 of 1348) at EXIT demonstrated acceptable food safety practices (i.e. thawing and storing foods properly).

4% (54 of 1348) at ENTRY demonstrated acceptable scores in all three categories listed above: food resource management, nutrition practices, and food safety. 14% (185 of 1348) at EXIT demonstrated acceptable scores in all three categories listed above: food resource management, nutrition practices, and food safety.

When asked about washing hands after handling raw meat, 73% washed their hands almost always at entry; however 87% reported washing their hands almost always at exit.

47% (627 of 1348) of participants showed improvement in **one or more** food safety practice (i.e. thawing and storing foods correctly).

16% (213 of 1348) of participants showed improvement in **both** food safety practices (i.e. thawing and storing foods correctly).

**Youth:**

**K- 2<sup>nd</sup> grade:** 53% improved in washing their hands. 52% of (1082 of 2081) children improved knowledge or skill related to handling food safely

**3-5<sup>th</sup> grade:** 21% improved in washing hands before food preparation. 18% improved in putting leftovers in the refrigerator within a 2 hour limit.

39% of (1605 of 4068) children and youth improved 1 or more knowledge, skill(s), or behavior(s) related to handling food safely

14% of (570 of 4068) children and youth improved 2 or more knowledge, skill(s), or behavior(s) related to handling food safely

6% of (224 of 4068) children and youth improved 3 or more knowledge, skill(s), or behavior(s) related to handling food safely

**6-8<sup>th</sup> grade:** 31% improved in washing hands before meals and 52% improved in putting food back in the refrigerator within a 2 hour limit.

67% of (994 of 1478) youth adopted and practiced 1 or more behavior(s) necessary to handle food safely

41% of (609 of 1478) youth adopted and practiced 2 or more behavior(s) necessary to handle food safely

15% of (222 of 1478) youth adopted and practiced 3 or more behavior(s) necessary to handle food safely

**9-12<sup>th</sup> grade:** 40% improved in washing hands before meals and 47% improved in putting food back in the refrigerator within a 2 hour limit.

74% of (357 of 482) youth adopted and practiced 1 or more behavior(s) necessary to handle food safely

45% of (219 of 482) youth adopted and practiced 2 or more behavior(s) necessary to handle food safely

27% of (130 of 482) youth adopted and practiced 3 or more behavior(s) necessary to handle food safely

15% of (71 of 482) youth adopted and practiced 4 or more behavior(s) necessary to handle food safely

Overall, 52% of (1082 of 2081) improved in washing hands. 50% of (4038 of 8109) children and youth used safe food handling practices more often or gained knowledge.

**Key Items of Evaluation**

