

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Food Safety and Biosecurity

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources			100%	
	Total			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	1.5	0.0
Actual	0.0	0.0	4.8	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	135523	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	520921	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	661127	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The main research objectives are to develop more efficient analytical methods to detect toxic chemicals in food and other consumer products, to determine if consumer products are safe, and to determine if pesticides are causing honey bee mortality. Good progress was made on the first two objectives. The activities, services, and events that reach people are designed to assist a broad, diverse

group of stakeholders by mainly disseminating scientific information to the public through the media, publications, and exhibits. People will have equality of service, ease of access to scientific results, and the ability to see laboratories and field plots. The state-generated outputs include numbers of food samples tested, scientific publications, and talks and interviews. The following activities are planned: (1) new analytical chemistry procedures will be developed, (2) staff members will disseminate new information on analytical test results to visitors at open house events and in scientific displays at agricultural fairs, (3) oral presentations will be given to civic groups, and (4) laboratories will be opened to allow adults and youth to meet staff members and see analytical equipment. Direct interactions with a broad base of stakeholders provide a mechanism for public input on the research program. Non-traditional stakeholders are reached at agricultural fairs when they visit Station displays. Two open houses are scheduled annually on Station properties to allow the public to hear oral presentations on research results and to offer comments. Results of these activities will lead to specific outcomes, such as removing tainted or adulterated food items from the markets and greater public awareness of research on food safety.

2. Brief description of the target audience

A diverse group of targeted audiences includes: state and federal public health officials and regulators, state and federal legislators and their staff members, food producers and importers, managers of supermarkets, educators, extension specialists, researchers in the food sciences, beekeepers, and the general public. Women, members of minority organizations, and children are examples of under-represented and under-served groups who are expected to receive benefits.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1000	15000	200	1500
Actual	205	7513	136	1569

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	0	1	
Actual	0	2	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Total research papers

Year	Target	Actual
2010	3	4

Output #2

Output Measure

- # of talks and interviews

Year	Target	Actual
2010	20	45

Output #3

Output Measure

- # of tests performed

Year	Target	Actual
2010	900	1056

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	# of stakeholders gaining knowledge of food safety
2	# state regulatory agencies applying decisions on testing results

Outcome #1

1. Outcome Measures

of stakeholders gaining knowledge of food safety

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	1500	1025

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

On April 20, 2010, an accident occurred in an off-shore, oil-drilling facility in the Gulf of Mexico. For at least 100 days, millions of gallons of oil leaked from the underwater well structure. The Deepwater Horizon oil spill covered vast areas of the Gulf, causing the closing of waters to fishing. With the eventual capping of the underwater wellhead, there were questions about when the waters would be re-opened for fishing and if the seafood was safe for human consumption. Seafood obtained from the Gulf area is shipped to many locations in the United States and elsewhere. Consumers, members of the fishing and oil industries, and state and federal government officials were concerned about the adverse economic and environmental effects of the oil spill. The US Food and Drug Administration (FDA) has regulatory authority for food safety and requested assistance from Experiment Station chemists.

What has been done

Conventional methods for detecting petroleum-related contaminants (polycyclic aromatic hydrocarbons) were not suitable for analyzing large numbers of seafood samples. Moreover, only a few state and federal laboratories have the required equipment to perform these tests. As part of the Food Emergency Response Network of the US FDA, chemists at The Connecticut Agricultural Experiment Station worked with scientists at the US FDA Forensic Chemistry Center in Cincinnati, Ohio and the Department of Agriculture in Minnesota, to develop highly sensitive and specific analytical methods (liquid chromatography with a fluorescence detection system) to test seafood samples for unwanted chemicals. In addition, seafood samples were tested for the dispersant chemicals used to control the oil-polluted areas.

Results

The newer, alternative analytical methods were developed and used to screen shrimp, oysters, crabs, and finfish samples for petroleum-related chemicals. Analyses of samples from areas off the coasts of Alabama, Louisiana, and Florida revealed that potentially harmful oil-residue

contaminants in shrimp, finfish, and other seafood samples were below that which would cause a human health concern. These findings had impact because certain areas off the coasts of Alabama, Louisiana, and Florida were re-opened to commercial fishing. Also, the new chemical methods are being used by scientists in other state and federal laboratories. The short-term benefits included re-opening of fishing areas and assurance that seafood entering domestic and international commerce is safe. A long-term benefit will be the continued use of more efficient analytical test procedures and the return of economically important fishing industries in the Gulf coast states.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

Outcome #2

1. Outcome Measures

state regulatory agencies applying decisions on testing results

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	4	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Foods and beverages are tested for unwanted chemicals and to determine if products are in compliance with labels. Consumers are concerned about potentially contaminated products. State and federal regulatory officials are mandated to enforce consumer protection laws.

What has been done

As a part of routine analyses of foods requested by the CT Department of Consumer Protection, wine sorbet ice cream was tested for alcohol content. The product label lists the item as "non-alcoholic", which must have an ethanol content of less than 0.5%.

Results

Analyses revealed an ethanol content of 1%, a clear label violation. Findings were reported to officials in the CT Department of Consumer Protection who then notified the manufacturer and

requested that changes be made to comply with the product label. Additional samples, collected one month after notification, revealed that the ethanol content was less than 0.5%. These outcomes had immediate impacts because manufacturers learned that a food and beverage monitoring system existed and that violations would be acted upon to correct problems and change conditions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Appropriations changes
- Competing Programmatic Challenges
- Other (Staff changes)

Brief Explanation

One scientist retired on August 1, 2008, and with the current hiring freeze in place for state-funded positions and continued budget cuts, this vacancy was not filled. This is a critical position because the discipline requires the testing of toxic heavy metals (e.g., lead, arsenic, cadmium, and mercury). In addition, the Chief Scientist took advantage of an early retirement program offered by the state. This management position was filled by promotion within the agency. Work continues in the Department of Analytical Chemistry and planned program objectives were met. Grant-funded positions can still be filled.

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

1. Evaluation Studies Planned

- During (during program)

Evaluation Results

Information on research and service results was obtained "during the program" evaluations at public meetings (1 Open House), civic groups' meetings, and at Station exhibits. Positive feedback was received from stakeholders. There was sufficient interest among media reporters, and at least 5 articles were written on the testing of seafood from the Gulf of Mexico. Observations made during interviews with stakeholders revealed positive stakeholder sentiment about program effectiveness and value.

Key Items of Evaluation

The key items of evaluation and data collection were as follows: Media reporters' responses upon learning about seafood testing and written responses from stakeholders who sent electronic messages to the newspaper website. The Citation Index indicated that articles

written in previous years by 3 scientists were recognized and cited by scientists in this field (total citations = 58 during the reporting period).