

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Food Safety - Food Processing, Product Storage, and Food and Product 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
216	Integrated Pest Management Systems	4%		5%	
401	Structures, Facilities, and General Purpose Farm Supplies	15%		5%	
403	Waste Disposal, Recycling, and Reuse	8%		5%	
501	New and Improved Food Processing Technologies	20%		10%	
502	New and Improved Food Products	8%		10%	
503	Quality Maintenance in Storing and Marketing Food Products	8%		10%	
701	Nutrient Composition of Food	4%		10%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	11%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	12%		25%	
723	Hazards to Human Health and Safety	10%		10%	
	Total	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	1.3	0.0	5.0	0.0
Actual Paid Professional	3.0	0.0	3.8	0.0
Actual Volunteer	0.1	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
50000	0	169725	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
50000	0	169725	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
830000	0	965450	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Food Safety:

- Conduct research on preventing contamination of foods with pathogenic microorganism during production, processing, storage, distribution, and/or consumer use.
- Conduct research on eliminating or reducing the numbers of potential pathogenic microorganisms in foods during production, processing, storage, distribution, and/or consumer use.
- Conduct research on detecting contamination of foods with pathogenic microorganisms.
- Conduct research on detecting microbial toxins in foods.
- Conduct research on detecting undeclared allergens in foods.
- Provide technical information and assistance to food industry and/or consumers to determine safe food production, food processing, and/or food handling procedures.
- Conduct food safety workshops designed to provide certification in recognized food safety systems such as Hazard Analysis Critical Control Points (HACCP).
- Disseminate food safety recommendations to industry and consumers via popular press, fact sheets, eXtension publications, web-based outreach, workshops, and/or peer-reviewed journal articles.

Food Processing:

- Conduct research on improving or maintaining the quality of processed foods.
- Conduct research on developing profitable new food products and food processing technology.
- Conduct research on maximizing the efficiency and sustainability of food processing operations.
- Conduct research on improving the healthfulness and nutritional value of processed food products.
- Conduct research on evaluating the economic feasibility of food processing activities.
- Provide technical information and assistance related to processing, analyzing the chemical and physical properties, and improving or maintaining the quality of processed food products.
- Provide technical information and assistance related to food product formulation and new food product development.
- Provide technical information and assistance related to selection and evaluation of processing technology
- Provide technical information and assistance related to food process evaluation.
- Provide technical information and assistance related to processed-food business economic planning and product marketing.

- Serve as a resource to help commercial food processors recognize and comply with applicable food product processing and labeling regulations.
 - Disseminate recommendations for food processing industry best practices via popular press, fact sheets, eXtension publications, web-based outreach, workshops, and/or peer-reviewed journal articles.
- Product Storage

•Conduct research that evaluates agricultural product storage and handling technologies with the aim of improving quality, safety, and costs. Provide technical applications, demonstrations and education for grain and food storage providers and handlers.

2. Brief description of the target audience

food processors; handlers, manufacturers, and marketers of grain, feed and food; food safety regulators;

3. How was eXtension used?

The Food Safety and Small Meat Processors Resource Areas were monitored for information regarding emerging issues of concern.

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	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

2013	Extension	Research	Total
Actual	9	32	41

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of conferences and other extension outreach presentations

Year	Actual
2013	95

Output #2

Output Measure

- External funding obtained

Year	Actual
2013	1526500

Output #3

Output Measure

- Workshops, symposia, short courses, and round tables conducted

Year	Actual
2013	23

Output #4

Output Measure

- Technical assistance projects completed

Year	Actual
2013	91

Output #5

Output Measure

- Manuscripts submitted for publication in peer-reviewed journals

Year	Actual
2013	32

Output #6

Output Measure

- Extension publications completed

Year	Actual
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2013 24

Output #7

Output Measure

- Number of air quality monitors tested

Year	Actual
2013	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Grain storage, food or pest control entities adopting new process or product
2	Number of food industry personnel newly certified as HACCP trained
3	Number of food industry personnel newly certified as having attended food safety and processing workshops
4	Number of food industry jobs created
5	Number of new food businesses started
6	New or improved food processing, food safety and/or product storage adopted by industry
7	Number of emergency response teams available in Oklahoma

Outcome #1

1. Outcome Measures

Grain storage, food or pest control entities adopting new process or product

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Fumigation applicators are fumigating without adequately monitoring the air in the bin and around the bin during and after application of a very toxic product.

What has been done

We provided workshops on gas monitoring equipment and the calibration and maintenance of this equipment.

Results

Fifteen facilities have purchased new gas monitors and given the employees instructions on how to use these monitors.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
503	Quality Maintenance in Storing and Marketing Food Products
723	Hazards to Human Health and Safety

Outcome #2

1. Outcome Measures

Number of food industry personnel newly certified as HAACP trained

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	39

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
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

Number of food industry personnel newly certified as having attended food safety and processing workshops

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
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 #4

1. Outcome Measures

Number of food industry jobs created

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	79

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

Outcome #5

1. Outcome Measures

Number of new food businesses started

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	23

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

NuCare Nutrition (NN, nucare.com) is an established vitamin/supplement company located in Kingfisher. NN has historically provided clients with private-label, custom-blended nutritional supplements like protein powder, glutamine tablets, and weight-loss powders. NN got their start in the business by using contract packers to make product for their clients. As time progressed, they

realized that they could increase their profits and improve product quality if they made the products themselves. NN contacted the FAPC for assistance in starting their own processing facility.

What has been done

Tim Bowser, Jason Young, Darren Scott, Erin Johnson, Jake Nelson and Guadalupe El Rassi visited with the client at the FAPC to discuss potential needs. Some of the team also visited the NN facility to review plans and make recommendations. Assistance has been through team and individual response from the FAPC over a period of six months and included: product safety plans, quality plans, equipment and process recommendations, cleaning recommendations, formulation suggestions, label reviews, dust control, and more.

Results

The new facility is up and running in Kingfisher and has resulted in approximately four new jobs, with more business and additional jobs likely in the near future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #6

1. Outcome Measures

New or improved food processing, food safety and/or product storage adopted by industry

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Backwoods Foods (BF) is an established food company located near Tahlequah that the FAPC has been working with since 1998. BF is a ?co-packer? that specializes in manufacturing high-

acid or acidified foods (e.g. salsa, barbecue sauce, pickles) for about 45 clients around the U.S. Recently BF has outgrown their existing 8,400 sq. ft. facility and a new 24,000 sq. ft. building and equipment is proposed.

What has been done

Tim Bowser has helped to identify and size equipment for the new facility including a steam boiler, steam kettles, piping, and lighting.

Results

The new facility (24,000 sq. ft.) is slated for construction in the Tahlequah Industrial Park and is expected to generate 40 new jobs. Construction will start in 2014.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
403	Waste Disposal, Recycling, and Reuse
501	New and Improved Food Processing Technologies
502	New and Improved Food Products
503	Quality Maintenance in Storing and Marketing Food Products
701	Nutrient Composition of Food
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 #7

1. Outcome Measures

Number of emergency response teams available in Oklahoma

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Grain storage is a very dangerous work environment. Yearly as many as 30 deaths are caused in the US involving workers of the grain storage industry.

What has been done

Training, training opportunities and training programs have been developed to reach first responder groups. Regional first responder technicians have been established and trained for grain industry accidents.

Results

Four teams are available in Oklahoma now, one in each quadrant of the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Weather extremes cause more grain to go out of condition and a more dangerous work environment results due to poor quality grain in storage. Limited formula funding has hindered our ability to conduct applied research and technical assistance projects. In addition, financial and in-kind support from industry partners has been flat.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Extension and outreach programs were evaluated based on before and after assessment of student knowledge

Key Items of Evaluation

Key definitions of major program concepts, e.g. principles of food safety programs such as HACCP.