

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

AgriLife Extension

Texas has an estimated 1 million people employed by the food service industry. To meet the need for quality food safety education in Texas retail food establishments, the Food Protection Management program was developed. This program consists of two courses which are designed to increase food safety knowledge and behaviors among food service employees. One course is the Certified Food Manager (CFM) course. Using the curriculum, Food Safety: It's Our Business, the course is conducted at the county level by Extension agents over a one or two-day period. Educational lessons and activities of the program focus on the following areas: (1) Enhanced use of temperature control measures in food service, such as thermometer use, time and temperature control, safe internal cooking and holding temperatures, thawing procedures and general storage temperatures; (2) Increased adoption of proper hygiene and hand washing practices of food service employees and managers; (3) Increased adoption of practices to avoid cross-contamination such as proper storage, washing and sanitizing of utensils and equipment between use, and employee hygiene practices; and (4) Increased adoption of pest management practices to keep insects, rodents and other disease-causing pests under control. County Extension Agents, provide the program in more than 80 counties throughout the state. Upon completion of the course, participants take a national CFM exam for certification purposes.

The other course offered is a food handler's course. Designed for the employees who work in food service but not in a manager or trainer role, this 2-hour course features the basics of retail food safety including personal hygiene, time/temperature abuse and cross-contamination. The course is offered in person or on-line.

AgriLife Research

Research is conducted to develop new technology to both detect and prevent the contamination of food products by bacterial, viral, and parasitic pathogens.

The Food Safety program directly supports the AgriLife Research Strategic Plan imperative to improve public health and well-being and the AgriLife Extension Roadmap goal to improve the health, nutrition, safety, and economic security of Texas families. This program also indirectly supports the AgriLife Research Strategic Plan imperative to enhance competitiveness, prosperity, and sustainability of urban and rural agricultural industries.

Cooperative Extension Program

This program provides technical and educational information to limited resource families and individuals to help them understand the importance of food safety. Additionally, it heightens awareness of the relationship between basic sanitation practices when handling food reduces waste, conserve nutrients and prevent foodborne illness.

Cooperative Agricultural Research Center

The Food Systems Program (FSP) supports the land grant-mission and goals of USDA through addressing issues of regional and national importance of ensuring high-quality, affordable, and safe foods. Critical issues facing the underserved population locally, nationally and globally involving the

incidences of increases in outbreaks of foodborne illnesses resulting from contamination in the food chain. The goals of the FSP are: 1. To increase the body of knowledge in the understanding of how to ensure that food products are safe and ; 2. To increase the body of knowledge in the areas of quality and safety of meat, milk, and value-added products. To accomplish these goals research will be conducted to develop methods for enhancing the quality of food and food products, examine strategies for mitigating the transmission of natural food borne pathogens, examine methods for the reduction of natural and introduced toxicants in foods and feed, examine nutrient quality enhancement of food and food products, examine mechanisms involved in nutrient utilization and diseases, evaluate strategies for minimizing the transfer of microbial pathogens during food handling, evaluate strategies for translating nutrition knowledge into better food selection.

3. Program existence :

- New (One year or less)
- Intermediate (One to five years)
- Mature (More than five years)

4. Program duration :

- Short-Term(One year or less)
- Medium-Term (One to five years)
- Long-Term (More than five years)

5. Expending formula funds or state-matching funds :

- Yes
- No

6. Expending other than formula funds or state-matching funds :

- Yes
- No

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	0%	0%	0%	10%
502	New and Improved Food Products	0%	0%	0%	10%
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	0%	10%
701	Nutrient Composition of Food	0%	0%	0%	10%
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	0%	20%
703	Nutrition Education and Behavior	0%	100%	0%	10%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	0%	20%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	100%	0%	100%	10%
	Total	100%	100%	100%	100%

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

The Food Safety program supports the land grant-mission and goals of USDA through addressing issues of ensuring high-quality, affordable, and safe food. Critical issues facing the underserved populations locally, nationally and globally involve the incidences of increases in illnesses and diseases resulting from contamination in the food chain. These issues have been defined with input from discussion groups at the University including researchers, extension program specialists, staff, students and from reviews of current and related literature, including the strategic plans of USDA agencies (eg. ARS, NIFA, the National Institute of Health (NIH), the Centers for Disease Control (CDC) and the Texas Department of Health and Human Services. Estimates from the Centers for Disease Control (CDC) predict that approximately 48 million Americans become ill, 128,000 hospitalized, and 3,000 die of foodborne illnesses annually. Economic costs of foodborne illness exceed \$77 billion annually, excluding costs to the food industry and public health agencies. The outbreaks of food borne illnesses varies in method of spreading but a significant number of incidents are widespread affecting individuals in various places with the onset of symptoms occurring over a several week time span. Based upon CDC reports and unpublished data here at the Center, in addition to technological advances in detection and control of pathogens, education of food handlers and the utilization of food safety practices may be the most effective manner to reduce the risk of increasing the pathogen population. Projects within the FSP address issues of high national importance regarding the high incidence of food borne illnesses through research activities focusing on mechanisms and biomarkers of nutritionally and foodborne illnesses and disease, improving the organoleptic and functional qualities and safety of food. Furthermore the translation of research knowledge into effective programs for reducing these problems is not fully understood. Increasing the nutritional value of foods (whole, enriched, fortified or enhanced) through value added efforts and

improving the organoleptic characteristics of foods have a major role in consumer acceptance and food choices to reduce the illnesses associated with poor diet and inadequate nutrient intake.

2. Scope of the Program

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program

AgriLife Extension

It is assumed that many families and adults lack basic knowledge regarding the importance of food safety. It is assumed that the Family & Consumer Sciences staff will network with local agencies and organizations, faith-based communities, schools, and other groups to engage the target audience in meaningful, informal learning activities and experiences. It is assumed that the Outcome and Output plans and logic model concept will produce results for youth and adults engaged.

In addition, for AgriLife Extension programs, it is assumed that:

- 1.County Extension agents will continue to become instructors for the program.
- 2.Program participants are able to practice the knowledge and skills learned during the program in their place of work (the food service establishment).
- 3.Evaluation of the Certified Food Manager course is based, in part, on the pass rate for the CFM exam.
- 4.Evaluation of the new Food Handler's course will be evaluated by assessing change in knowledge (post vs. pre).

Cooperative Agricultural Research Center

The FSP recognizes that safe and affordable food are at the very heart of our existence and without it life would end. The quality of life and well-being of our society is impacted by a variety of factors including unsafe and/or contaminated food. The exposure to food borne pathogens is an issue that must be addressed to reduce the incidence of illnesses and diseases in the population. Research that will examine the quality and the functional properties of meats, milk and value-added products is significant in food manufacturing and processing technologies. Additionally, research activities will investigate the relationship between and the mechanisms of food/food component and nutritionally related diseases; and identify evaluation tools, methods and instrumentation for measuring the relationship between foods and/or food components nutritionally related diseases and illnesses. These activities will help to reduce the incidence of these types of illnesses and diseases. The acceptance of any food or food product is not only determined by its nutritional and organoleptic qualities but also by its safety. Food quality and safety are the most important factors for consumer's acceptance and consumption and are issues that are federally regulated. The movement of pesticides, herbicides and antibiotic residues throughout the food chain is of foremost importance. Research that will examine the presence of these hazards along the food chain from the farm to the table will provide knowledge for the withdrawal process, processing methods and alternatives to traditional methods for the preservation and increase in production of meat and milk products.

2. Ultimate goal(s) of this Program

AgriLife Extension

The ultimate goals of this program are: (1) to train food service employees, managers, and owners the knowledge and skills needed to improve food safety practices that are critical to reducing the risk of a foodborne disease outbreak; (2) to motivate program participants to return to their place of work and train additional workers in the food service establishment so that others will adopt the food safety behaviors featured in the program; (3) conduct food safety research that reduces foodborne diseases linked to bacterial, viral, and parasitic pathogens.

Cooperative Extension Program

The goals of this program are to: provide limited resource families with relevant information to develop prevent foodborne illnesses. Families will know how to keep food safe when shopping, use proper kitchen safety procedures to prevent cross contamination which can contribute to illness. Also, families will practice personal cleanliness when handling food.

Cooperative Agricultural Research Center

The Food System Program goals are: 1) To increase the body of knowledge in the understanding of nutrients and mechanisms implicated in illnesses and diseases; and 2) To increase the body of knowledge in the area of quality and safety of meat, milk, and value-added products.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2015	5.0	4.0	3.0	9.0
2016	5.0	4.0	3.0	10.0
2017	5.0	4.0	3.0	10.0
2018	5.0	4.0	3.0	10.0
2019	5.0	4.0	3.0	10.0

V(F). Planned Program (Activity)

1. Activity for the Program

AgriLife Extension

County Extension Agents will be trained to become instructors for the Food Protection Management Program. Additional training will be provided/identified so that instructors can maintain their instructor qualification status per Agency guidelines. The program will be implemented in counties across the state that have a County Extension Agent who is able to teach the program. Program materials will be available in both English and Spanish.

The Certified Food Manager (CFM) course will be evaluated by assessing the pass rate on the CFM exam. The food handler's course also will be offered by qualified instructors (CEA-FCS) in both English

and Spanish and via the use of distance education (on-line). Pre and post knowledge surveys (to assess change in knowledge) will be used to evaluate the course.

Cooperative Extension Program

- Provide one-on-one consultations
- Conduct on-site food demonstrations
- Provide train-the-trainer opportunities
- Conduct educational programs and classes
- Teach a series of food safety classes to special interest groups
- Exhibit educational displays at various sites
- Use E-Bus to conduct education programs in counties

Cooperative Agricultural Research Center

- Conduct research activities centered around:
- Developing methods for enhancing the quality of food and food products.
 - Developing technologies and techniques for producing value-added caprine products
 - Examining strategies for mitigating the transmission of natural food borne pathogens.
 - Examining methods for the reduction of natural and introduced toxicants (eg. antibiotics in milk and Salmonella) in foods and feed.
 - Examining nutrient quality enhancement of food and food products.
 - Examining mechanisms involved in nutrient utilization and diseases.
 - Evaluating strategies for minimizing the transfer of microbial pathogens during food handling.
 - Evaluating strategies for translating nutrition knowledge into better food selection.

2. Type(s) of methods to be used to reach direct and indirect contacts

Extension

Direct Methods	Indirect Methods
<input checked="" type="checkbox"/> Education Class <input checked="" type="checkbox"/> Workshop <input checked="" type="checkbox"/> Group Discussion <input type="checkbox"/> One-on-One Intervention <input checked="" type="checkbox"/> Demonstrations <input checked="" type="checkbox"/> Other 1 (on-line course delivery) <input type="checkbox"/> Other 2	<input type="checkbox"/> Public Service Announcement <input type="checkbox"/> Billboards <input checked="" type="checkbox"/> Newsletters <input type="checkbox"/> TV Media Programs <input type="checkbox"/> eXtension web sites <input checked="" type="checkbox"/> Web sites other than eXtension <input checked="" type="checkbox"/> Other 1 (Reports/Information Briefs) <input checked="" type="checkbox"/> Other 2 (Publications)

3. Description of targeted audience

AgriLife Extension

Individuals who are employed in the retail food service industry. This includes cooks, managers, and owners who are affiliated with foodservice establishments including restaurants, school food service, bed and breakfasts, prisons, and other establishments that prepare and serve food to individuals.

Cooperative Extension Program

- Minority families and individuals
- Senior adults

Single parents
Persons coping with and at risk for chronic illnesses
Youth

Cooperative Agricultural Research Center

The primarily targeted audience is the underserved population living in the surrounding counties and the Northwest Houston Corridor. This population is dominated by Hispanics and African - Americans. Also, this area has been designated by the State of Texas as Prairie View A&M University's service area.

V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
 - Direct Adult Contacts
 - Indirect Adult Contacts
 - Direct Youth Contacts
 - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(H). State Defined Outputs

1. Output Measure

- Number of group educational sessions conducted.
- Number of research-related projects.
- Number of on site demonstrations for adults and youth.
- Number of research workshops/presentations.
- Number of graduate/undergraduate students involved in research projects.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

V(I). State Defined Outcome

O. No	Outcome Name
1	Percentage increase in knowledge as a result of completing the food handler's course.
2	Number of commercialization methods/technologies for improving the quality, safety and use of food and food products that will ensure the reduction of food borne illnesses and other nutritionally related diseases.
3	FPM Pass/Fail Rate - percentage of participants who pass the DSHS Certified Food Manager exam on the first attempt. (National Indicator Outcome 3.2)
4	Number of new and different value-added caprine products added to the food base and accepted by the target audience.
5	Number of limited resource clientele who adopts safer food handling practices.

Outcome # 1

1. Outcome Target

Percentage increase in knowledge as a result of completing the food handler's course.

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research
- 1890 Extension
- 1890 Research

Outcome # 2

1. Outcome Target

Number of commercialization methods/technologies for improving the quality, safety and use of food and food products that will ensure the reduction of food borne illnesses and other nutritionally related diseases.

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research
- 1890 Extension
- 1890 Research

Outcome # 3

1. Outcome Target

FPM Pass/Fail Rate - percentage of participants who pass the DSHS Certified Food Manager exam on the first attempt. (National Indicator Outcome 3,2)

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

- 1890 Extension
- 1890 Research

Outcome # 4

1. Outcome Target

Number of new and different value-added caprine products added to the food base and accepted by the target audience.

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research
- 1890 Extension
- 1890 Research

Outcome # 5

1. Outcome Target

Number of limited resource clientele who adopts safer food handling practices.

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

3. Associated Knowledge Area(s)

- 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
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research
- 1890 Extension
- 1890 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect 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.)
- Other

Description

AgriLife Extension

Individuals who are employed in the retail food service industry. This includes cooks, managers, and owners who are affiliated with foodservice establishments including restaurants, school food service, bed and breakfasts, prisons, and other establishments that prepare and serve food to individuals.

In addition, population and staff changes could also affect the outcome of the program, along with lack of available transportation, the economy, extreme weather conditions, and changes in population.

Cooperative Agricultural Research Center

External factors that may affect the outcomes of the defined programs include, but may not be limited to competing programmatic challenges, economic challenges, and/or program redirection. Partnerships and/or collaborations with the following agencies, organizations and industries are crucial in accomplishment of the program's activities and goals:

- Cooperative Extension Program at the University.
- Department of Agriculture, Nutrition and Human Ecology at the University.
- Other 1862 and 1890s Land Grant Institutions.
- Texas A&M University and with other Institutions within the System.
- Linkages with Texas Medical Center (Houston, TX), Nanofluence Health Corporation (Northfield, IL), Hibiscus Plantation (Waller, TX), and Alltech Biotechnology Corporation (Lexington, KY).

As new challenges arise and are of immediate urgency, as a part of the food system program commitment to enhancing the quality of life of the underserved populations, the food systems program will address these issues. The defined program will not change unless effective programs have been implemented to alter the need as addressed.

V(K). Planned Program - Planned Evaluation Studies

Description of Planned Evaluation Studies

AgriLife Extension

Surveys, interviews, and monthly reports will generally be used to collect data on the program.

For the Certified Food Manager (CFM) program, we will examine the extent to which participants pass the CFM exam. For those who complete our food handler's course, we will assess knowledge pre and post and calculate change in knowledge as a result of what participants learn in the program.

Cooperative Agricultural Research Center

The food system program activities will be evaluated during and after program initiation. The progress of each activity will be evaluated annually as a part of the CARC fiscal year annual accomplishment and plan of work. The scientist leading each activity will report specifically on the progress that has been made on that activity. The progress report of the activity will include finished tasks, undone tasks and address problems and solutions with associated activity and a recommendation for continual support of activity. The overall program will be evaluated based upon the stated outputs and outcomes. The use and input of extension personnel, industrial and other partners will help to effectively evaluate and accomplish the activities and goals of the program. The evaluation process will review whether the facilities and other resources presently at the university are adequate to accomplish the goals.