

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

**Program # 12**

**1. Name of the Planned Program**

Nutrition and Childhood Obesity/Food Safety - Research - Food Systems

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

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	16.5
Actual Paid Professional	0.0	0.0	0.0	16.5
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
0	0	0	1891850
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	885896
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

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

#### 1. Brief description of the Activity

The ultimate goals include increasing the body of knowledge in the understanding of nutrients and mechanisms implicated in illnesses and diseases. These goals also include investigating factors affecting the quality and safety of caprine products.

The group continued work on, inter alia, developing processing technologies for adding value to caprine products. Sensory evaluation including rheological characterization of caprine products was performed. Sausage including various blends of caprine and other fillers was developed. The effect of Salmonella in foods and feed and other food-borne pathogens was investigated.

Work also continued on investigating nutrient quality enhancement of food and food products as they impact health and overall well-being of our targeted clientele, including aging and problems associated with aging. In this endeavor a patent was obtained in "Anti-Aging Therapy" (**Mora-Gutierrez, Adela**. Compositions for Targeted Anti-Aging Therapy. **TAMUS 3500**. Filed to United States Patent Trademark Office on **August 7, 2012** by The Office of Technology Commercialization (OTC), College Station, TX).

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

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.

#### 3. How was eXtension used?

eXtension was not used in this program

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

#### 1. Standard output measures

2012	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: 2012

Actual: 1

### Patents listed

Mora-Gutierrez, Adela. Compositions for Targeted Anti-Aging Therapy. TAMUS 3500. Filed to United States Patent Trademark

Office on August 7, 2012 by The Office of Technology Commercialization (OTC), College Station, TX.

## 3. Publications (Standard General Output Measure)

### Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	0	1	1

### V(F). State Defined Outputs

#### Output Target

#### Output #1

##### Output Measure

- -Peer review publications. -External funding. -Workshops. -Presentations. -Graduate and undergraduate matriculation.

Not reporting on this Output for this Annual Report

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

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

O. No.	OUTCOME NAME
1	Commercialization of 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. Increase in the dissemination and use of research based information into newsletters and incorporation into extension and other programs leading to a reduction in nutrition related and food borne diseases and illnesses resulting from contaminated or unsafe food.

## **Outcome #1**

### **1. Outcome Measures**

Commercialization of 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. Increase in the dissemination and use of research based information into newsletters and incorporation into extension and other programs leading to a reduction in nutrition related and food borne diseases and illnesses resulting from contaminated or unsafe food.

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

- 1890 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	0

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

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

This outcome was directed towards the underserved community, students from low income background. Adding value to primary food products accomplishes the dual purpose of introducing new products and also improving shelf-life for intermediate to long-term storage of foods. The consumption of caprine products has been low in the US possibly due to a lack of education, visibility and availability of salable forms of consistent quality and quantity.

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

Have developed some value-added caprine products.

1. Heated vegetable oils containing mono-unsaturated fatty acids and poly-unsaturated fatty acids incorporated into food and consumed during pregnancy were found to reduce the level of the body's natural antioxidant compound, glutathione, in offspring from birth to adulthood. This knowledge is significant in the health and disease potential of the general population.

2. Food fortification has been found to be a practical approach for increasing the intake of the essential fatty acids docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), which are naturally present in algae and fish oils. The difficulties encountered when fortifying foods with DHA/EPA are primarily due to the lack of oxidative stability of these essential fatty acids. To improve the oxidative stability of algae and fish oils, antioxidants are usually added. The most effective antioxidants are synthetic antioxidants, but they are restricted by the FDA because of food safety concerns. Therefore, the need for natural antioxidants. Research conducted at the CARC lab in PVAMU has shown that bovine and caprine caseins isolated from cow and goat milks used in combination with the carotenoids contributed to the oxidative stability of algae oil-in-water emulsions.

3. Goat milk has reputation of having different and off-flavor from cow milk. The consumption of goat milk products is on the rise. Thus PVAMU scientists are working on focusing attention on goat milk products: physical and chemical characteristics.

### **Results**

Goat milk jack cheeses were manufactured at PV using different levels of proteolytic peptidases. The aroma compounds that are potentially important in contributing the typical flavor of goat milk were identified and quantified. As a result, the concentration of free short-chain fatty acids increased significantly during the aging process. These short-chain fatty acids contribute to a more desirable end product. The impact of this research is a more diverse food supply.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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
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### **V(H). Planned Program (External Factors)**

#### **External factors which affected outcomes**

- Appropriations changes
- Populations changes (immigration, new cultural groupings, etc.)
- Other (CARC staff changes)

#### **Brief Explanation**

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

#### **Evaluation Results**

Internal taste panel sensory evaluation of the end product.

#### **Key Items of Evaluation**

Student experiential learning. Number of matriculating students.