

V(A). Planned Program (Summary)**Program # 7****1. Name of the Planned Program**

Childhood Obesity

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources		50%		25%
502	New and Improved Food Products		50%		15%
701	Nutrient Composition of Food		0%		20%
702	Requirements and Function of Nutrients and Other Food Components		0%		32%
703	Nutrition Education and Behavior		0%		8%
	Total		100%		100%

V(C). Planned Program (Inputs)**1. Actual amount of professional FTE/SYs expended this Program**

Year: 2009	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.1	0.0	2.1
Actual	0.0	0.1	0.0	1.7

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	3927	0	297544
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	144080
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 goal of the project was to develop and test new varieties of bitter melon and hot pepper for use in nutritional intervention through the introduction of specialty herbs and vegetables for better health. Research was designed to compare selected bitter melon varieties used in a proven beef-stew recipe and also to select promising varieties of hot pepper for yield potential and quality characteristics. Beef-stews cooked with white or green bitter melon, served with an experimental gourd salad, were compared for taste and consumer acceptability. Beef-stews were served to 69 participants of the 2009 Field Day for taste-testing and demonstration. Most respondents liked the stew cooked with white bitter melon because of the better flavor and lower bitterness of the white type. It would be interesting to know if there were genetic associations between the color and Momordicin contents of bitter melon.

In the hot pepper field experiments, 12 uniform lines out of 44 advanced breeding lines were selected as promising future varieties. These promising lines consisting of quality characteristics such as yellow, orange, purple, and black pigmentations of

the peppers indicate special nutritional properties. Samples of these peppers have been preserved for phytochemical analyses. In a Habanera/Scotch-bonnet breeding experiment, 62 plants were selected from 19 selected progeny lines out of 70 segregating lines planted. Selection of hot pepper varieties for yield potential and special nutritional qualities will be the immediate next focus of this project. About 200 people consisting of research colleagues, students, home gardeners, and limited resource farmers visited the field experiments at in 2009.

Awareness of lactose intolerance at the campus of the University of Arkansas at Pine Bluff (UAPB) has been built through communication in classes of Nutrition and Wellness HUSC 1311 (20 students) and Elementary Nutrition HUSC 2311 (80 students) spring and fall 2009. This fall, the whole community of students on campus will be informed of the project during the campus Health Fair. A survey is being developed to interview students at the University of Arkansas at Pine Bluff about lactose intolerance. This questionnaire will be adapted from the "Questionnaire on lactose intolerance" developed by the Arthur Haulot Institute dietary-nutrition department in Brussels (<http://www.medisport.be/questionarya.html>). The questionnaire will be tested for validity and reliability before being administered to UAPB students by the end of spring semester 2010. Participants will be declared lactose intolerant based results of survey-questionnaire and on breath hydrogen test using Micro H₂ (Micro Medical Limited, Chatman, UK) instrument. Selected students (at least 30) will participate in a feeding study to find out the efficacy of yogurt containing probiotics to reduce lactose intolerance and weight gain. Microbiological testing to select yogurts containing effective probiotics to reduce lactose intolerance will be conducted this Summer 2010.

2. Brief description of the target audience

Targeted audiences have been leaders of the agricultural, academic, and social communities including small-scale farmers, home gardeners, and extension agents in the Lower Mississippi Delta. Food scientists, nutritionists, and health activists were also addressed.

UAPB students (18-30 years old) made up of 50% males and 50% females who have not reached their menopause. Participants will be recruited through advertisement on campus using bulletin boards, internet and announcements on UAPB radio and television.

V(E). Planned Program (Outputs)

1. Standard output measures

2009	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	0	0	0	0
Actual	100	0	0	0

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

Patent Applications Submitted

Year: 2009
Plan: 0
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2009	Extension	Research	Total
Plan	1	1	
Actual	0	1	1

V(F). State Defined Outputs

Output Target

Output #1**Output Measure**

- # of research publications

Year	Target	Actual
2009	1	1

Output #2**Output Measure**

- # of promising crop line identified

Year	Target	Actual
2009	3	0

Output #3**Output Measure**

- # of successful food recipes

Year	Target	Actual
2009	1	1

Output #4**Output Measure**

- # of yogurts to be microbiologically tested against lactose intolerance

Year	Target	Actual
2009	{No Data Entered}	0

Output #5**Output Measure**

- # of participants recruited for the feeding study

Year	Target	Actual
2009	{No Data Entered}	0

Output #6**Output Measure**

- # of participants in the feeding study
Not reporting on this Output for this Annual Report

Output #7**Output Measure**

- # of participants in workshop on yogurts containing probiotics

Year	Target	Actual
2009	{No Data Entered}	0

Output #8**Output Measure**

- # of panelists for the acceptability study

Year	Target	Actual
2009	{No Data Entered}	0

Output #9**Output Measure**

- # of participants in workshops to increase consumption of nutrient-dense dairy products

Year	Target	Actual
2009	{No Data Entered}	0

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	# of people have knowledge about the new crop lines
2	# of people accept/like to the new crop lines
3	# of people adopted the new recipes in their daily diets
4	# of students at UAPB to become aware of the condition of lactose intolerance

Outcome #1**1. Outcome Measures**

of people have knowledge about the new crop lines

2. Associated Institution Types

- 1890 Extension
- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	10	10

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Targeted audience and clientele who have interests in new health-foods development, its special qualities, availability, and production potentials. The small farmers and home gardeners will benefit from producing, processing, and marketing the newly developed high value specialty crops.

What has been done

Experiments conducted in 2009 have resulted in successful identification of hot pepper varieties possessing higher yield potential and quality characteristics. The two hot pepper breeding experiments provided opportunities for the research colleagues, farmers, students, and community stakeholders the obvious progress made in the variety development. Further refinement of the recipes for the beef stew and gourd salad may offer a healthy dish for the consumers. During the 2009 summer Field Day, wide varieties of participants have had opportunities to see the research outcomes of this project.

Results

Seven bitter melon varieties developed and tested.

Two white and two green bitter melons have high yield potential.

Twelve varieties of hot pepper have been selected for yield trials and quality analyses.

Habanera/Scotch bonnet breeding lines exhibit extraordinary potential for new variety development.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
502	New and Improved Food Products
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

Outcome #2**1. Outcome Measures**

of people accept/like to the new crop lines

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
502	New and Improved Food Products
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

Outcome #3**1. Outcome Measures**

of people adopted the new recipes in their daily diets

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	0	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)****What has been done****Results****4. Associated Knowledge Areas**

KA Code	Knowledge Area
202	Plant Genetic Resources
502	New and Improved Food Products
701	Nutrient Composition of Food
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

Outcome #4**1. Outcome Measures**

of students at UAPB to become aware of the condition of lactose intolerance

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2009	{No Data Entered}	100

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

To change people behavior, intervention has to take place. Intervention will be applied to prevent nutritional consequences of lactose intolerance and to increase consumption of yogurt and dairy products containing effective probiotics containing effective probiotics. There are three levels in the intervention: 1/ build awareness of a health problem; 2/change lifestyles and 3/create supportive environment for a behavior change. Becoming aware of the definition, symptoms, and consequences of lactose intolerance can motivate one to find out if he/she is lactose intolerant and to look for ways to change his/her diet. As more students become aware of the condition of lactose intolerance, more students will volunteer to participate in the feeding study.

What has been done

Awareness of lactose intolerance at the campus of the University of Arkansas at Pine Bluff (UAPB) has been built through communication in classes of Nutrition and Wellness HUSC 1311 and Elementary Nutrition HUSC 2311 spring and fall 2009.

Results

At least one hundred (100) students have been informed of the condition of lactose intolerance through teaching of Nutrition and Wellness HUSC 1311 and Elementary Nutrition HUSC 2311.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Programmatic Challenges
- Other (Researchers for phytochemical analyses were relocated and unavailable.)

Brief Explanation

The plant materials were collected and prepared in 2009 for phytochemical and other types of laboratory experiments. We had a MOU with Tuskegee University for hot pepper analyses; this could not be accomplished because the faculty member assigned to this work left Tuskegee university, and no other person was available at UAPB or Tuskegee University to conduct the laboratory experiments.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)

Evaluation Results

Key Items of Evaluation