V(A). Planned Program (Summary)

Program # 13

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
603	Market Economics	0%	0%	17%	
701	Nutrient Composition of Food	5%	5%	0%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	33%	
703	Nutrition Education and Behavior	95%	95%	33%	
724	Healthy Lifestyle	0%	0%	17%	
	Total	100%	100%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	94.0	9.0	3.4	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
1802561	720883	106295	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
7524640	720883	329940	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
3361152	0	62071	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Obesity has reached epidemic proportions in Tennessee with two of three adults and four of ten school age children overweight or obese. In 2010, this program worked to reduce obesity rates in the state and helped Tennesseans live healthier lives.

Our microbiological food safety research program seeks to improve detection of, and develop physical and chemical intervention methods for, bacterial and fungal foodborne pathogens.In addition, we want to develop education and monitoring programs for at-risk populations or those who serve food to at-risk populations. Improving food safety is a collaborative effort between scientists in the microbiological food safety and food biopolymer chemistry research groups. Proteins and polysaccharides will be studied for their potential to serve as carriers to help improve the availability of bioactive food antimicrobials and other components in food matrices or in the human gastrointestinal tract, or for their direct antimicrobial effects in packaging, on surfaces or in foods.

We are also active in nutrition-related cancer research. A common mechanism of modifying tumor growth and cancer risk may lie in the ability to alter intracellular calcium levels, and by doing so, we may be able to develop nutritional therapies to combat cancers.

2. Brief description of the target audience

Target audiences were health care professionals, educators, the general public, and affected children.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	{NO DATA	{NO DATA	{NO DATA	{NO DATA
Actual	67787	8787184	43338	0

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

Patent Applications Submitted

Year: 2010

Plan:

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	8	16	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Published research demonstrating the role of diet (omega 3 fatty acids and energy restriction) in preventing and /or reversing obesity and associated metabolic complications. (Moustaid-Moussa)

Year	Target	Actual
2010	{No Data Entered}	1

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	educate the audience (nutritionists, biologists and other health professionals) about available resources to use comprehensive systems genetics. (Moustaid-Moussa)
2	Tennessee Shapes Up: Number of participants who ate more whole grains
3	Tennessee Shapes Up: Number of participants who decreased consumption of high-sugar foods.
4	Tennessee Shapes Up: Number of participants who eat at least six meals together as a family each week.
5	Tennessee Shapes Up: Number of participants who lost weight.
6	Tennessee Shapes Up: Number of participants who engaged in physical activity for at least 30 minutes five or more days during most weeks.
7	Healthy Steps: Tennessee's Obesity Prevention Program for Pre-Schoolers
8	Power U: Extension's Obesity Prevention Program for Tennessee's 4th Grade Children

Outcome #1

1. Outcome Measures

educate the audience (nutritionists, biologists and other health professionals) about available resources to use comprehensive systems genetics. (Moustaid-Moussa)

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The objective of this conference is to educate the audience (nutritionists, biologists and other health professionals) about available resources to use comprehensive systems genetics as a tool for linking genetic variation to nutrient metabolism and energy balance and the overlying effects on health and disease.

What has been done
We held this systems genetics symposium during the Experimental Biology (EB) meeting, April 24-28, 2010 at Anaheim, California. This symposium was sponsored by the American Society for Nutrition's Nutrient-Gene Research Interest Section.

Results
Our primary objectives were to educate the audience about the use of systems genetics as a tool for linking genetic variation to nutrient metabolism and energy balance and the overlying effects on health. Invited speakers were experts across nutrition, obesity and genetics fields. The systems genetics approach is extensible to any nutrition area or any organism of interest ranging from invertebrates to humans, thus as we expected, the venue for this meeting (EB) and the broad impact of such subject attracted a significant and cross-disciplinary audience; we had over 200 participants. The is due in part to the high quality and organization of the conference and the outstanding expert speakers. It also reflects the fact that very few conferences address effects of genetic/individual variation on biological responses to nutrients or the available novel animal models and cutting edge resources for nutritional genetics and genomics research.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

Tennessee Shapes Up: Number of participants who ate more whole grains

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4379

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

Tennessee Shapes Up: Number of participants who decreased consumption of high-sugar foods.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4018

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #4

1. Outcome Measures

Tennessee Shapes Up: Number of participants who eat at least six meals together as a family each week.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2395

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #5

1. Outcome Measures

Tennessee Shapes Up: Number of participants who lost weight.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	1692

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Tennessee Shapes Up: Number of participants who engaged in physical activity for at least 30 minutes five or more days during most weeks.

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4080

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #7

1. Outcome Measures

Healthy Steps: Tennessee's Obesity Prevention Program for Pre-Schoolers

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Too many young children are gaining unhealthy amounts of weight leading to chronic disease at increasingly younger ages.

What has been done
Healthy Steps, a nutrition and physical activity curriculum was implemented in 22 Tennessee counties in 2010. 7,135 direct contacts were made in Voluntary Pre-K, Head Start and center-based classrooms; 43,742 indirect contacts were made through exhibits, newspaper articles, publications and television. Approximately 958 contact hours were recorded by teachers and volunteers working with Healthy Steps.

Results
459 teachers completed surveys at the end of the program to document outcomes:
434 of 459 (94%) of teachers surveyed reported preschool children in their classes were more actively engaged in physical activity.
478 of 492 (97%) of teachers reported preschool children in their classes were more willing to taste fruit.
461 of 492 (94%) of teachers reported preschool children in their classes were more willing to taste vegetables.
431 of 442 (98%) of teachers reported preschool children in their classes were more willing to taste whole-grain foods.
307 of 373 (82%) of teachers reported using physical activities from Healthy Steps at least three times per week.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #8

1. Outcome Measures

Power U: Extension's Obesity Prevention Program for Tennessee's 4th Grade Children

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Tennessee youth are among the most obese in the nation. This has serious health consequences and may impact their ability to be productive members of society.

What has been done
The Power U program was implemented in 37 Tennessee Counties. This included 443 classrooms implementing Power U. There were a total of 723 group meetings with 15,304 educational contacts. There were an additional 88,912 educational contacts through exhibits, newspaper articles, TV and radio programs, and other promotional items. A total of 673 volunteers hours reported to support Power U. Power U is an interactive curriculum that makes learning fun for both the student and teacher. Fourth graders learn how to make healthy choices and fun act ivies for increasing physical activity. Through tasting parties, students are exposed to a variety of new fruits and vegetables. The foods are presented in ways that are pleasing to 4th graders.

Results
Impact data was collected using a behavior checklist survey and through teacher and parent comments.
65 percent (n= 7281)decreased their intake of high-sugar foods including beverages.
82 percent (7,207) increased the time they spent in physical activity.
72 percent (n=7377) increased intake of dairy foods.

Increasing intake of dairy foods and decreasing intake of high-sugar foods increases their likelihood of the food?s adoption and is important for healthy prevention of obesity. Increasing physical activity and decreasing intake of sugar helps maintain caloric balance essential for

healthy weight.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation