

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

**Program # 5**

**1. Name of the Planned Program**

Food, Nutrition, and Health

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
702	Requirements and Function of Nutrients and Other Food Components	20%	5%	35%	100%
703	Nutrition Education and Behavior	40%	60%	35%	0%
724	Healthy Lifestyle	40%	35%	30%	0%
	<b>Total</b>	100%	100%	100%	100%

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	9.0	1.0	7.6	1.0
Actual Paid Professional	7.8	1.5	8.9	2.0
Actual Volunteer	814.0	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
161771	245722	161888	313723
1862 Matching	1890 Matching	1862 Matching	1890 Matching
228885	85020	364058	321883
1862 All Other	1890 All Other	1862 All Other	1890 All Other
679295	0	3437835	117196

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

**1. Brief description of the Activity**

Conduct educational classes, workshops, meetings, and trainings, develop products, curriculum, resources, facilitate coalitions and/or task forces, conduct assessments and community surveys, partner with community agencies and institutions to facilitate programs and community development, create/revise social systems and public policies, conduct research studies, disseminate program and research results through papers, reports, and media, develop and implement marketing strategies using various outlets to promote program participation, disseminate research-based information to consumers using a variety of media and technology resources, cooperate with media and other community agencies to seek effective means of reaching new and non-traditional audiences, and respond to consumer inquiries.

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

Young adults (ages 18 to 59), older adults (age 60 and older), caregivers of older adults, adults with type 2 diabetes, parents and caregivers of individuals with type 2 diabetes, senior center and meal site staff and volunteers, and Extension educators.

**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
<b>Actual</b>	20561	23393	10202	284

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	4	97	101

**V(F). State Defined Outputs**

## **Output Target**

### **Output #1**

#### **Output Measure**

- Number of adults participating in diabetes educational programs.

<b>Year</b>	<b>Actual</b>
2012	80

### **Output #2**

#### **Output Measure**

- Number of adults participating in at least one session on adult nutrition, fitness, worksite wellness, or health.

<b>Year</b>	<b>Actual</b>
2012	2573

### **Output #3**

#### **Output Measure**

- Number of research projects completed or in progress on adult obesity and related chronic disease.

<b>Year</b>	<b>Actual</b>
2012	17

### **Output #4**

#### **Output Measure**

- Number of research papers published on adult obesity and related chronic disease.

<b>Year</b>	<b>Actual</b>
2012	97

### **Output #5**

#### **Output Measure**

- Number of Master Food/Health volunteers trained to extend the work of an Extension educator.

<b>Year</b>	<b>Actual</b>
2012	89

### **Output #6**

#### **Output Measure**

- Number of individuals, including children, exposed to Extension-based social marketing

campaigns

<b>Year</b>	<b>Actual</b>
2012	22400000

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

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

O. No.	OUTCOME NAME
1	Increase in the number of individuals with diabetes who have improved their Hemoglobin A1c level, meal planning behaviors or physical activity behaviors, three months after participating in a Diabetes Education programs offered in collaboration with a local health care provider.
2	Increase in number of adults that make lifestyle changes which improve their dietary quality and/or physical activity level after participation in VCE programs.
3	Number of discoveries from completed obesity related research projects which focus on examining adult obesity from its root causes to its association with chronic disease.

## **Outcome #1**

### **1. Outcome Measures**

Increase in the number of individuals with diabetes who have improved their Hemoglobin A1c level, meal planning behaviors or physical activity behaviors, three months after participating in a Diabetes Education programs offered in collaboration with a local health care provider.

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

- 1862 Extension
- 1890 Extension
- 1862 Research

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	42

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

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

Nearly 500,000 Virginians have been diagnosed with diabetes and another 250,000 have diabetes and don't know it. Diabetes is the 6th leading cause of death in Virginia and adds to deaths from heart disease and stroke. Diabetes complications exert a high cost in money, loss of productivity, and quality of life. In Virginia diabetes leads to 11,700 hospitalizations each year adding nearly \$173 million to our health care bill. The burden of diabetes is disproportionate to African Americans, the elderly, the limited income, and the medically underserved.

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

Family and Consumer Sciences agents partnered with the VT Center for Public Health Practice and Research, the VT Dept of Psychology, the Virginia Diabetes Council, and other health professionals to offer Balanced Living with Diabetes (BLD). BLD provides practical education to help people with type 2 diabetes and their families learn about self-care, food choices to control carbohydrate intake, and life style patterns that prevent or slow the complications of their disease. BLD includes 4 weekly classes and a reunion class 3 months and 6 months following for reassessment. Funding was received from the National Institutes of Health and the Svoboda Endowment. Programs target African Americans, and where possible, are offered in faith-based settings. A total of 15 programs were offered in 5 general locations: Chesterfield, Danville, Emporia, Richmond, and Petersburg. This program is on-going and about half of the locations have not completed their final assessments.

## **Results**

In 2012 293 Virginians participated in BLD; 93% were African American and 79% self-reported type 2 diabetes. Nearly 1/3 had incomes below \$10,000 and nearly 2/3 were below \$30,000.

BLD emphasizes a meal planning method to control carbohydrate intake. At baseline attendees reported on average using a meal planning method 2 to 3 days per week; this increased to 4 to 5 days per week on reassessment. Several participants who never used a meal planning method at the onset increased to 7 days a week.

Hemoglobin A1c indicates average blood sugar levels over the 3 months prior and evaluates diabetes management. The American Diabetes Association recommends an A1c of less than 7.0% in type 2 diabetes. At baseline 65 persons had A1c measures above 7.0%, and mean A1c fell by 1.5% by the 3-month reunion. Individual changes included a drop from 10.1% to 6.5% and 12.8% to 8.6%. A decrease in A1c of 1.0% lowers the risk of diabetes complications such as blindness or renal failure by 40%. Preventing one renal failure saves \$72,000 a year in dialysis costs. BLD provides practical meal time advice consistent with cultural and ethnic preferences that impacts the entire family.

#### 4. Associated Knowledge Areas

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

#### Outcome #2

##### 1. Outcome Measures

Increase in number of adults that make lifestyle changes which improve their dietary quality and/or physical activity level after participation in VCE programs.

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension
- 1862 Research

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	2316

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

**Issue (Who cares and Why)**

According to the Virginia Division of Chronic Disease and Control Indicators of 2010 report, two-thirds (62%) of Virginia adults are at an unhealthy weight (i.e., overweight or obese), 50% of Virginians do not get enough physical activity, and 74% of Virginians do not meet the daily requirements for eating five or more servings of fruits and vegetables. Thirty percent of children and adolescents are overweight and 64% of adults are overweight or obese in the US. Families of low-socioeconomic status suffer disproportionately from poor health. Overweight and obesity are major health and economic issues, costing Americans over \$147 billion each year. Likewise, an obese person has medical costs that are \$1429 more than his or her normal weight counterpart. Good nutrition and physical activity are central in preventing chronic diseases, such as obesity and diabetes, and saving healthcare costs.

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

Virginia Extension Educators offer education on a wide variety of food, nutrition, health, and chronic disease topics for individuals to reduce the number of visits to doctors and other healthcare providers, fewer costly laboratory tests, and lower numbers of hospital visits for uninsured individuals. Programs include Cooking Matters, a cooking-based program to increase whole grains, fruits and vegetables, and lean proteins, Fit Extension, a physical activity program, and farmers market promotion efforts, to engage low-income audiences with locally grown produce.

#### **Results**

In 2012, for Cooking Matters alone, 10 Extension units were awarded \$3000 to conduct 44 programs. Four hundred ninety five youth and adults participated in 2011-2012. Fifty-two percent of participants received at least one form of assistance such as SNAP, free/reduced school meals, food pantry, WIC. Average household size was 3.74 people. Average number of children was 1.71. Adults with children in the home were 78%. The average adult graduate reported an 85% change in how often he/she used the Nutrition Facts label to make food choices, 98% of children learned at least one new thing about cooking and eating healthy; 83% practiced preparing recipes at home with their parents, 92% reported that cooking skills were improved, 40% were eating more fruits and vegetables. Eighty percent of adult participants increased their understanding of how to create a household budget. The average cost of 2652 participant take-home grocery bags was \$25.00 per bag (an average of \$66,000 value). Eighty-four volunteers averaged teaching 1.25 courses each and 23% taught two or more courses. Additional collaboration with local agencies and program sustainability were established. One unit received \$5000 Shopping Matter Grant to teach 120 participants shopping and budget skills. To date, 149 graduated from that program.

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

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

### **Outcome #3**

#### **1. Outcome Measures**

Number of discoveries from completed obesity related research projects which focus on examining adult obesity from its root causes to its association with chronic disease.

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

- 1862 Research
- 1890 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	97

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

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

Recent data indicate 17% of children and adolescents are obese and more than 30% of adults. Excess body fat increases the risk of hypertension, cardiovascular disease, and diabetes, major contributors to health care costs, loss of productivity, early mortality, and diminished quality of life. Obesity-related illnesses place a significant burden on the economy and obesity is believed to account for as much as 9 percent of total health care expenditures and a minimum of \$26.8 billion in medical spending.

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

The etiology of obesity extends beyond energy imbalance to include genomic, molecular, cellular, and organ components that interact with individual preferences, family and community, work life, economics, and public policy. Virginia Tech scientists are striving to examine obesity from bench to behavior through inter-disciplinary and translational science and applications that will result in positive public health impacts.

##### **Results**

In 2012, 97 peer-reviewed articles (in childhood obesity and food, nutrition, and health) were published or in press. Current research studies aim to explore a multitude of factors and interventions related to obesity, health, and well-being, including: a surveillance assessment of health status and the built environment in a health disparate region; hypothalamic control of body chamber to set food prices; the effect of resistance training as an approach to prevent diabetes from developing among older, overweight individuals with pre-diabetes; the identification and characterization of phytochemicals from food sources or medicinal herbs that provide beneficial effects on cardio-vascular disease, diabetes, and cancer; the effect of DHA supplements on

muscle damage and inflammation; the impact of lifestyle and pharmacological therapies, both alone and in combination, to alter the course of the cardiovascular and metabolic consequences that occur with aging and obesity; gene therapy; and the initiation of a community-based participatory research framework for a health disparate region.

A group of scientists also collaboratively developed proposals to establish the Fralin Translational Obesity Research Center and a Translational Obesity Research Interdisciplinary Graduate Education Program that would provide resources and direction for researchers and training opportunities for students interested in translational obesity research.

#### 4. Associated Knowledge Areas

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

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

##### Brief Explanation

The economy (i.e. employment opportunities, etc.) can directly influence food purchases and food security of adults and families and furthermore weightstatus. Public policy changes, such as the Affordable Healthcare Act, may impact a multitude of factors related to food, nutrition, health, and healthcare access in 2011 and beyond. Several populations, particularly Hispanic and African American individuals, have higher rates of obesity. With population shifts within Virginia, it is possible to see changes in obesity prevalence rates.

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

##### Evaluation Results

Numerous research studies are being conducted to identify contributors and strategies to address obesity, cardiovascular disease, cancer, and overall health, from bench to behavior and across the socio-ecological framework. Several innovative studies were completed during 2012. For example, one study investigated resistance training as a strategy to reduce risk of diabetes among older, overweight, prediabetic adults. To date, 150 individuals have been enrolled in a 15-month intervention trial. The expected research

results will have significant impact on the field of "exercise as medicine." Another study tested combinations of incentive packages that vary incentive magnitude, form, timing, contingency conditions and program locations to encourage participation in weight loss programs, using choice modeling.

Within the extension system in Virginia, ongoing evaluation studies are conducted to demonstrate the effectiveness of two of the hallmark USDA nutrition education programs, EFNEP and SNAP-Ed. Participants completing the EFNEP and SNAP-Ed series of six lessons improved nutrition and food behavior. As a result of well trained staff, the following impacts were documented:

- 83% of adult EFNEP participants who completed a series of at least 6 lessons showed improvement in nutrition practices.

- 86% of adult SNAP-Ed participants who completed a series of at least 6 lessons showed improvement

- 86% of adult EFNEP participants who completed a series of at least 6 lessons demonstrated acceptable food safety practices.

### **Key Items of Evaluation**