V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Childhood Obesity, Human 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
501	New and Improved Food Processing Technologies			15%	
502	New and Improved Food Products			15%	
702	Requirements and Function of Nutrients and Other Food Components			20%	
703	Nutrition Education and Behavior			30%	
724	Healthy Lifestyle			20%	
	Total			100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	3.0	0.0
Actual Paid	0.0	0.0	2.9	0.0
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	385112	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	603266	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	285369	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

West Virginia citizens have the highest level of obesity in the Nation (35.1%, Center for Disease Control, 2013, in a tie with Mississippi). West Virginia is also above the national averages for incidence of diabetes, high blood pressure, and cardiovascular disease, as well as for osteopenia and osteoporosis. Station research in human nutrition and health is focused on determining the current and potential impacts of diet, nutritional education and dietary intervention on obesity and obesity related conditions (diabetes, elevated cholesterol and plasma lipids, heart attack, stroke and some cancers). The program also is testing the efficacy and safety of bioactive compounds in foods, including krill protein, and is developing omega-3 DHA enhanced diets and educational programs to support their adoption.
A number of projects continued to look at the effects of omega-3 DHA enhanced diets on various aspects of human health, either directly or through animal models. The general population is encouraged to increase omega-3 polyunsaturated fatty acid (n-3 PUFA) intake in order to optimize health for preventative health care. Consumers are typically unaware that different amounts, types, and structural forms of n-3 PUFA have different efficacy. Therefore, the objectives of one research project were to characterize different sources of n-3 PUFAs and to determine whether consumption of these oils influences renal fatty acid composition and renal health. Lipid classes and fatty acid profile of corn (CO), flaxseed (FO), menhaden (MO), salmon (SO), tuna (TO) or krill (KO) oils were determined by thin-layer and gas chromatography. The study results indicated that consumption of n-3 PUFAs influences renal health and the effects varied depending on the n-3 PUFA source consumed. The next phase of the study will look at the effects of diet on polycystic kidney disease progression.
While health benefits of consuming omega-3 DHA enhanced foods is generally accepted by the scientific community as is the need for increasing fiber in diets, one common source of Omega 3, surimi, a form of processed fish protein, is very low in fiber. Another research project is looking at fortifying surimi from Alaskan Pollock with dietary fiber. Research is currently underway studying how to best produce fiber-enhanced surimi products in ways that will be accepted by consumers.
Finally, several projects have continued to look at various interventions with families and children to try and increase awareness of the importance of nutrition and exercise in combatting childhood obesity.

2. Brief description of the target audience

The target audience for this program area includes dieticians, nutritionists, policy makers, researchers, extension specialists, 4-H and other youth program developers, community leaders and State citizens.

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	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: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	12	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Presentations on research at scientific meetings

Year	Actual
2014	10

Output #2

Output Measure

- Popular press articles on research

Year	Actual
2014	5

Output #3

Output Measure

- Completed graduate degree programs

Year	Actual
2014	5

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Annual reduction in state incidence of obesity -% reduction
2	Participants in nutition workshops will increase their knowledge of the relation between nutrition and health (% of participants reporting a gain in knowledge).
3	Participants in nutrition workshops will gain an understanding of how to make healthy food choices (% reporting a gain in understanding).

Outcome #1

1. Outcome Measures

Annual reduction in state incidence of obesity -% reduction

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
West Virginia citizens have the highest level of obesity in the Nation (tied with Mississippi) (35.1 %, Center for Disease Control, 2013, an increase over last year's 33.8 %). West Virginia is also above the national averages for incidence of diabetes, high blood pressure, and cardiovascular disease, as well as for osteopenia and osteoporosis.

What has been done
Several projects have continued to look at various interventions with families and children to try and increase awareness of the importance of nutrition and exercise in combatting childhood obesity.

Results
Unfortunately, the results have been negative so far, with the rate of obesity in the State continuing to increase annually. Our focus in our integrated programs is on childhood obesity, so hopefully, as those children become adults, the rate of obesity in the State will start to decrease.

4. Associated Knowledge Areas

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

Outcome #2

1. **Outcome Measures**

Participants in nutition workshops will increase their knowledge of the relation between nutrition and health (% of participants reporting a gain in knowledge).

Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

Participants in nutrition workshops will gain an understanding of how to make healthy food choices (% reporting a gain in understanding).

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Public priorities

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Experiment Station research program evaluation will take place at two levels and on two different time cycles. All programs will using these general criteria plus additional criteria tailored to each program as detailed in the Plan of Work under Outputs and State Defined Outputs and Outcomes.

Annual evaluation will continue as before, looking at productivity in terms of immediate impact:

- Referee journal articles and books
- Professional presentations
- General audience papers and news reports
- M.S. and PhD graduates
- Trends in terms of competitive funding

And in terms of longer-term impact:

- Citations in scientific journals
- Patents
- Successful technology transfer or start-ups based on research programs
- Awards based on continuing impact and research excellence

In addition, every five years we will have a full portfolio review of our research programs in terms of:

- Long term productivity
- Relevance to our constituent groups and the State and Region
- The allocation of research inputs among the programs
- Consideration of eliminating some research programs that are not productive or have diminished relevance given NIFA and State priorities
- Consideration of adding additional program areas given NIFA and State priorities

Our standard annual evaluation results are detailed in the state defined outputs and state defined outcomes sections of this report. The majority of the faculty in our health and nutrition area are new. In addition, the University is completing a cluster hire in the health disparities area. We will gain two more faculty members due to that cluster hire. So far the program has been very successful at attracting competitive AFRI and NIH funding and pilot outreach programs have been implemented in conjunction with WVU Extension. This program is scheduled for full review about three years from now.

Key Items of Evaluation

The majority of the faculty in our health and nutrition area are new. In addition, the University is completing a cluster hire in the health disparities area. We will gain two more faculty members due to that cluster hire. So far the program has been very successful at attracting competitive AFRI and NIH funding and pilot outreach programs have been implemented in conjunction with WVU Extension. This program is scheduled for full review about three years from now.