

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

**Program # 7**

**1. Name of the Planned Program**

Food Safety

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
502	New and Improved Food Products	40%			
504	Home and Commercial Food Service	60%			
	<b>Total</b>	100%			

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

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	0.0	0.0
Actual Paid Professional	21.0	0.0	0.0	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
468345	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1140305	0	0	0
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

In 2013, the Food Safety planned program at West Virginia University Extension worked toward reducing the incidence of food-borne illness by eliminating causes of microbial resistance to contaminants, educating consumers and food safety professionals, and developing safe food processing technologies.

#### Community Food Preparation

In 2013, there were 70 educational activities in the community food preparation program area. The major initiatives included food preservation and canning workshops, Germ City/Germ Bug demonstrations, and Venison 101.

#### Commercial Food Preparation

In 2013, there were 23 educational activities in the commercial food preparation program. The major initiatives include ServSafe® Manager Food Safety Training, a food business workshop, a food defense workshop, Venison 101, and HACCP training.

This year, Extension Specialist, Litha Sivanandan, conducted research is to identify and develop food products using the isoelectric processing, a WVU-patented technology, and to offer its application through research, outreach, and educational opportunities in business plan, risks and liabilities, process and product technology transfer, product and process development, product/process safety, and product marketing/commercialization. She offered workshops based on her research.

#### Beef Quality Assurance

In 2013, there were 12 educational activities in the commercial beef quality assurance program area. The major initiatives included beef quality assurance certification, levels I and II; beef quality assurance for WVU farm worker; WVU-ES winter education series; the WV cattlemen's short course for producers; the West Virginia quality assurance feeder calf sale hands on vaccination training; Morgantown calf pool; Wardensville bull sale; bull test and Heifer evaluation sales; and 4-H Beef Quality Assurance. The programs are a valuable tool to help producers keep up-to date on new technology to insure that proper training and techniques are utilized when administering vaccines or animal health products. The members of the WV feeder cattle marketing pools and consignors to the WV Bull evaluation programs are recertified every two years. Educational materials include the Bovine Emerging Response Plan and the Veterinarian Smartphone Apps.

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

The target audience for home and commercial food safety programs are WV citizens who can or preserve foods, commercial food processors, beef producers, WVU Extension agents. The target audience for the BQA program is adult and youth beef producers, 4-H and FFA youth livestock exhibitors, WVU and Potomac State students, Extension faculty and other livestock industry personnel in beef cattle production.

## **3. How was eXtension used?**

eXtension was not used in this program

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

### **1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1404	2025	3589	10767

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

**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
Actual	5	4	9

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

**Output Target**

**Output #1**

**Output Measure**

- Number of educational activities focused on increased safety of all inputs into the food chain

Year	Actual
2013	106

**Output #2**

**Output Measure**

- Number of educational materials created or updated focused on increased safety of all inputs into the food chain

Year	Actual
2013	6

**Output #3**

**Output Measure**

- Number of educational materials distributed focused on increased safety of all inputs into the food chain.

<b>Year</b>	<b>Actual</b>
2013	4993

**Output #4**

**Output Measure**

- Number of professional presentations on food safety

<b>Year</b>	<b>Actual</b>
2013	5

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

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

O. No.	OUTCOME NAME
1	Number of participants who increase or improve their skill in proper time and temperature controls in food preparation.
2	Number of participants who improve or increase skills in safe food handling practices.
3	Number of growers, producers, and food workers completing food safety certification.
4	Number of improved prevention, detection, control and intervention technologies adopted.
5	Number of projects characterizing social, economic, and/or cultural practices attributed to foodborne illness.
6	Number of economic improvements.

## **Outcome #1**

### **1. Outcome Measures**

Number of participants who increase or improve their skill in proper time and temperature controls in food preparation.

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

- 1862 Extension

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	1020

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

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

Un-harvested fruit, and unsold harvested fruit, pose major challenges in West Virginia, resulting in decreasing production and increasing agricultural waste. The prevalent practice of drying fruits and vegetables without any pretreatments and without the inclusion of additional ingredients (such as concentrated juices) are making the final products unsafe for storing it long time (one year).

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

Collaborative work of county faculty members produced the Canning Video series DVD. This series was presented live to the participants of the Food Preservation Workshop in June, and includes a freezing of fruits and vegetables demonstration and hands-on drying of fruits instruction. Other hand-on-food preservation classes were held at the county level.

#### **Results**

Extension agents and staff and citizens increased their knowledge of using current and research-based processes in food preservation and byproduct utilization. Participants gained knowledge and skill in freezing of fruits and vegetables, firming up of strawberries using enzyme, pectin methyl esterase, and calcium, pretreatment (in sugar syrup at various concentrations) of blueberries, and how to do the final drying in the dehydrator.

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

<b>KA Code</b>	<b>Knowledge Area</b>
504	Home and Commercial Food Service

**Outcome #2**

**1. Outcome Measures**

Number of participants who improve or increase skills in safe food handling practices.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	116

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

**Issue (Who cares and Why)**

Existing marketing pools should attempt to increase the number of producers participating in their programs. Currently there is a strong demand for preconditioned cattle, and the farmer/feeder is willing to pay a premium for cattle that are sorted uniformly, carry genetics that will allow optimum performance, have received a good vaccination program and are weaned.

**What has been done**

The Livestock Administrator database provides data analysis of cattle offered for sale in the traditional graded feeder cattle sales throughout the state. Sale results were collected from six livestock auction markets throughout West Virginia that offer special graded feeder cattle sales (Buckhannon, Moorefield, Terra Alta, Harrisville, Marlinton and Weston).

**Results**

One hundred sixteen producers participated in the pools reporting data and marketed an average of 38 calves.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
504	Home and Commercial Food Service

**Outcome #3**

**1. Outcome Measures**

Number of growers, producers, and food workers completing food safety certification.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	113

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

**Issue (Who cares and Why)**

Beef Quality Assurance (BQA) includes all of those practices that contribute to creating an environment conducive to reducing or minimizing stress in the production of beef, thereby improving animal care and welfare and food quality and safety.

**What has been done**

The WV Beef Quality Assurance Program offered recertification programs in five separate regions in 2013. Brian Sparks and Kitty Reed, Boehringer Ingelheim representative conducted a BQA level II chuteside training for the Nicholas Fayette county calf pool in September.

**Results**

Approximately 23 producers were recertified at the program.

In West Virginia more than 90 producers took advantage of the opportunity to take an online recertification course from Boehringer Ingelheim. All the farm workers at the WVU livestock farms completed the on line program.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
504	Home and Commercial Food Service

## **Outcome #4**

### **1. Outcome Measures**

Number of improved prevention, detection, control and intervention technologies adopted.

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

- 1862 Extension

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

Change in Action Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	1

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

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

West Virginia fruit industry is facing production and value-added adversity. Between 2009 and 2010, the yield/acre for apples decreased 3,600 pounds over 4,900 acres; this yield represents total production, including un-harvested production and harvested fruits unsold due to various constraints. While 15% US households were food insecure (2011), only 10% of edible surplus food is recovered.

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

Collaborative strategies were devised with faculty of Virginia Tech, WVU Davis College of Agriculture, Natural Resources and Design (WVU DCANRD), and WVU Extension Service (WVU ES) to promote development of value-added food products. Research was conducted to understand the fundamental quality changes in food materials using the different pretreatments & combinations, and its additive effect on food product drying.

#### **Results**

Research results have shown an increase in the food safety, product shelf life, and quality of product, reduced energy consumption, and increased byproduct utilization. The process can be applied to any other fruit/vegetable/agricultural product while the engineering equations in dehydration remain the same.

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

<b>KA Code</b>	<b>Knowledge Area</b>
{No Data}	null

## **Outcome #5**

### **1. Outcome Measures**

Number of projects characterizing social, economic, and/or cultural practices attributed to foodborne illness.

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	2

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

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

Beef producers have invested their Check Off dollars to educate and inform both the producer and consumer of their efforts to improve or enhance the quality of the product they produce or consume.

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

The Mid Atlantic BQA group held a regional meeting at the CaCapon State Park Dec 9-10. Representatives from WV, PA, VA, ME, VT, NY and MD were in attendance. The meeting focused on Youth Quality Assurance training. The Mid Atlantic group divided the responsibilities for revising the Mid Atlantic PowerPoint Level I training program for a youth audience. Training has been designed for three professional groups on topics such as handling for stressed cattle, trailer types and hazards/extrication/engineering, biosecurity/agroterrorism, and euthanasia.

#### **Results**

WV and VA will join MD this year in requiring Quality Assurance training for all 4-H and FFA animal projects.

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

<b>KA Code</b>	<b>Knowledge Area</b>
504	Home and Commercial Food Service

## **Outcome #6**

### **1. Outcome Measures**

Number of economic improvements.

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

- 1862 Extension

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2013	1

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

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

Many cattle offered in the graded sales are not weaned or vaccinated and there have been increases in the number of cattle exhibiting health problems. Some may not respond to treatment, resulting in death losses or a non-saleable animal.

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

During 2013, pooled cattle were offered for sale via statewide board sales (Buckhannon and Riverton) where consignments were limited to Quality Assurance Feeder Cattle. Some cattle were offered on board sales earlier in the season, as well as through sales offered in Virginia and Kentucky.

#### **Results**

The average weight of all cattle marketed in graded sales was four pounds heavier than in 2012. The greater pay weights are worth approximately \$100 and \$77 per head for steers and heifers. The total added value of these increased weights is estimated at \$328,673. The per head price this year is up however the total dollars show a decrease due to the fact that there were 470 fewer calves marketed in 2013.

One hundred sixteen producers participated in the pools reporting data and marketed an average of 38 calves. These calves returned an average of \$2,833 more per producer relative to graded sale prices.

The average added value for pooled calves in 2013 was \$74.33. Across the 2001 through 2013 marketing seasons, the per head price advantage of pool participation has ranged from \$39 to \$87, with an average of \$62.

## **4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
502            New and Improved Food Products

### **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**

##### **Barriers**

Personnel resources are limited to thoroughly analyze the existing data in the Feeder Cattle Marketing Program. Continued involvement not only provides a service and financial advantage for our clientele, but also can provide a dataset for future studies of the industry. The inclusion of new marketing methods has proven problematic for harvesting data from the program. As we move into more diverse marketing strategies we must consider the value of potential economic and performance data and include data harvesting methods into our planning process.

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

#### **Evaluation Results**

##### Beef Quality Assurance

The main goal of the beef marketing initiative is to increase the net income of beef producers relative to other marketing options. The most useful indicator of success in calf pool marketing efforts is to compare the dollars returned per head under the pool marketing program to corresponding values in traditional graded sales. The Livestock Administrator database provides data analysis of cattle offered for sale in the traditional graded feeder cattle sales throughout the state. Sale results were collected from six livestock auction markets throughout West Virginia that offer special graded feeder cattle sales (Buckhannon, Moorefield, Terra Alta, Harrisville, Marlinton and Weston). A total of nineteen sales were evaluated at these markets during the fall 2012 marketing season. As of December 14, 2013 this dataset contained records from 1,619 lots marketed at auction. These lots included 13,726 head of cattle with an average weight of 564 pounds. The average weight of all cattle marketed in graded sales was four pounds heavier than in 2012.

##### Fruits Drying Workshop:

- Understanding of the steps needed to manufacture a dehydrated food product : 95% responded as moderate to considerable post-workshop as opposed to the majority (75%) said non-existent or minimal before the workshop.

- Understanding of the steps needed to firm the fruit before dehydration: 95% responded as moderate to considerable post-workshop as opposed to the majority (96%) said non-existent or minimal before the workshop.
- Understanding of the value added products from fruit dehydration byproducts: 77% responded as moderate to considerable post-workshop as opposed to the majority (80%) said non-existent or minimal before the workshop.
- Understanding to increase the dried fruit yield: 96% responded as moderate to considerable post-workshop as opposed to the majority (90%) said non-existent or minimal before the workshop.
- Understanding in adding special ingredients to produce dried fruits for various applications i.e., cereals etc.: 81% responded as moderate to considerable post-workshop as opposed to the majority (100%) said non-existent or minimal before the workshop.
- Understanding in adding special ingredients as anti-sticking agents to dried fruit products for various applications: 86% responded as moderate to considerable post-workshop as opposed to the majority (100%) said non-existent or minimal before the workshop.
- Venison 101 Workshop: Results of evaluations of participants -
  - 100% responded their knowledge level increased (good or excellent) after listening to the presentations.
  - 100% responded the overall training (quality and usefulness) as excellent or very good
  - 91% rated the educational materials and contents as excellent or very good
  - 100% rated the instructors as excellent or very good
  - 91% responded that they will put to use what they learned in the workshop

#### Food Preservation Workshop

- Understanding of the steps needed to can a food product using boiling water bath: 83% responded as moderate to considerable post-workshop as opposed to 33% said non-existent or minimal before the workshop.
- Understanding of determining if the lids are sealed after canning a food product: 100% responded as moderate to considerable post-workshop as opposed to 22% said non-existent or minimal before the workshop.
- Understanding of using the approved recipes for canning a food product: 100% responded as moderate to considerable post-workshop as opposed to 22% said non-existent or minimal before the workshop.
- Understanding of steps needed to freeze a product: 83% responded as moderate to considerable post-workshop as opposed to 22% said non-existent or minimal before the workshop.
- Understanding of steps needed to manufacture a dehydrated food product: 83% responded as moderate to considerable post-workshop as opposed to 66% said non-existent or minimal before the workshop.

### **Key Items of Evaluation**