

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
501	New and Improved Food Processing Technologies	20%			
502	New and Improved Food Products	40%			
504	Home and Commercial Food Service	40%			
	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	7.0	0.0	0.0	0.0
Actual Paid	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
509270	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1144799	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 2014, 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. In 2014, there were 103 educational activities in the community food preparation program area and 4901 direct contacts.

Community Food Preparation

The major initiatives included food preservation and canning workshops/demonstrations, and Venison 101.

Commercial Food Preparation

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 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

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.

2. Brief description of the target audience

WV citizens who can or preserve foods, commercial food processors, beef producers, WVU Extension agents

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	2722	45325	2179	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	1	2	3

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
2014	103

Output #2

Output Measure

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

Year	Actual
2014	1

Output #3

Output Measure

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

Year	Actual
2014	45325

Output #4

Output Measure

- Number of professional presentations on food safety

Year	Actual
2014	29

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 new or improved materials for teaching proper time and temperature controls in food preparation
7	Number of projects to enhance knowledge of Beef Quality Assurance practices

Outcome #1

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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

Year	Actual
2014	22

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nationally, demand for local foods has because of consumers' concerns about safety of imported products, their trust that "neighbors" will adopt food safety standards, and their awareness that traditional foods often leave a heavy carbon footprint. There are increased opportunities for farmers and other non-farmer entrepreneurs to introduce and sell new foods in their communities. However, manufacturing and selling products that customers ingest opens the seller to unique business liability. It is therefore important that food entrepreneurs receive education and support from Extension to effectively establish and manage their ventures.

What has been done

West Virginia University Extension Service partnered with Penn State Extension to bring the "Food for Profit" program (one-day face-to-face workshop, a self-paced Internet training, and a series of Extension Fact Sheets) to West Virginia, providing needed education to potential food entrepreneurs, empowering them to successfully conduct a feasibility study and launch viable businesses. Participants of the workshop also learned about 6 key business risk management strategies. Food for Profit? (FFP) workshops were held in Kanawha and Barbour counties; a total of 22 people attended.

Results

The results of the evaluation with 18 participants indicated that: 44% (n=8) intended to become GAP/GHP certified or require such certification from their suppliers; 50% (n=9) wanted to develop a proactive recall plan; 39% (n=7) intended to procure adequate, appropriate insurance coverage, and/or notify consumers of potential or actual food allergens in their products; 33% (n=6) intended to determine and adopt good management practices; and 22% (n=4) intended to adopt HACCP practices or require it from co-packers who would manufacture and package their product. When asked what "next steps" they planned to take as result of attending the workshop, participants responded with following: have a good business plan, clean everything with disinfectant after washing with soap, send info/product for testing, work to obtain interstate certification for a product, work with supplier to see about product shipment & costing, have labels approved, check pricing/cost analysis of various products, do market research to increase sales, adhere to proper labeling, and read over insurance to add more liability coverage.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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 Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	63

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In many counties the health department requires that there is a person certified in ServSafe in charge at every food venue whenever it is open for business.

What has been done

Food safety classes were taught by Extension agents and retired county sanitarians. Those seeking re-certification took an online class or did a self-study by studying the text book, however

the agents proctored the exams. The ServSafe Food Handler Program provides food safety training to food handlers. The program covers five key areas: basic food safety, personal hygiene, cross-contamination & allergens, time & temperature, cleaning & sanitation.

Results

57 people gained national food safety certification as a direct result of teaching by WVUES Extension agents. In addition 6 people gained re-certification.

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

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The beef industry in West Virginia is characterized by small farms where one or more members of the household work off the farm. Often off-farm employment may be seasonal or part-time, so farm income is a critical for many West Virginians. Because small-scale beef producers lack the critical mass to participate in commodity marketing strategies, farm revenue is not maximized and is frequently insufficient to justify full time employment. Cooperative marketing pools offer producers an opportunity to maximize returns 1) for above average management, health, and genetics; and 2) by marketing in commodity sized groups.

What has been done

To meet the demands of feeder cattle buyers and enhance the reputation of West Virginia feeder cattle, a system of cooperative marketing groups, known as pools, requiring improved management and genetics was implemented. To increase the number of cattle offered and

attract a greater number of buyers, sales in 2014 utilized an online viewing tool created by WVU Extension. Extension personnel provided technical assistance and advice, delivered educational programming and extended organizational support to marketing pools.

Results

The total value of the 4,755 cattle (2,936 steers and 1,819 heifers) marketed through the 2014 WV Feeder Cattle Marketing Program was \$7,208,109 for an average (steers and heifers) of \$1,516/head. In contrast, these same calves would have only been worth \$1,425/head or a total of \$6,772,838 if marketed through the traditional graded sales. Cooperating producers returned an additional \$91.54/head marketed or a total of \$435,270 relative to equivalent weight class graded sale prices. The average producer was able to return an additional \$3,662 to their operation. While the costs of preconditioning calves can vary dramatically, producers marketing calves in the pools can expect to add value to their product regardless of their chosen program. When these increases in value are combined on a per head basis, along with an estimated savings in marketing charges, the total value added is \$271/head.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

Outcome #5

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Number of new or improved materials for teaching 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

Year	Actual
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2014 1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Just like other forms of home food preservation, food drying is often conducted in homes without research based knowledge. People often use methods handed down through friends and family, or just guesswork. Providing instructional workshops based in scientifically tested processes offers a public service which can reduce food safety hazards, improve taste and texture of dried foods, increase cost savings, and encourage good nutrition.

What has been done

WVUES faculty developed a research based interactive workshop to teach home food drying as a safe and reliable form of food preservation. They tested methods of food drying. This included drying fruits, fruit leather, herbs and meat jerky in both a food dehydrator and a home oven. Based upon the information gathered, course materials were developed including a course objectives, course outline, and participant take home resources. A pre-post evaluation tool was developed. A pilot workshop was held. Revisions were implemented.

Results

The materials developed for this course have been submitted to an Extension food preservation specialist for review. Upon receiving this feedback materials will be edited as needed and workshops will be conducted using the new curriculum.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

Outcome #7

1. Outcome Measures

Number of projects to enhance knowledge of Beef Quality Assurance practices

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

A team of researchers from the University of Missouri, University of Illinois, University of Nebraska, Iowa State University, University of Minnesota, Kansas State University, Texas A&M University, and Washington State University as well as researchers from USDA-Beltsville and the USDA Meat Animal Research Center are working to improve feed efficiency.

What has been done

In 2014, the WBEP became a collaborating partner with the National Program for Genetic Improvement of Feed Efficiency in Beef Cattle (<http://www.beefeconomy.org>) supplying DNA samples along with individual intake, performance, and pedigree data 159 spring born and 100 fall born bulls.

Results

In part, because of WVUES participation in the National Program for Genetic Improvement of Feed Efficiency in Beef Cattle research project, team has made progress on its research objectives relative to feed efficiency including:

1. Gene expression analysis of various tissues in animals with differences in feed efficiency
2. Determine microbial population variation associated differences in feed efficiency
3. Evaluate mitochondrial (cell power houses) differences in animals with differences in feed efficiency
4. Conduct digestibility trials using animals with differences in feed efficiency.
5. Evaluate forage vs. concentrate level impacts on observed feed efficiency during different production phases (back-grounding and finishing)
6. Determine consistency of genetic marker tests across diets

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

- Appropriations changes
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

A new half-time Extension specialist has recently been hired who will work on food safety programs.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Fruits Drying Workshop: Participants self-evaluation of improvement in knowledge level (documents attached- comparison of pre- and post-workshop survey results):

1. Understanding of the steps needed to manufacture a dehydrated food product : 95% responded as moderate to considerable post-workshop as opposed to the majority (95%) said non-existent or minimal before the workshop.
2. Understanding of the steps needed to firm the fruit before dehydration: 79% responded as moderate to considerable post-workshop as opposed to the majority (95%) said non-existent or minimal before the workshop.
3. Understanding of the value added products from fruit dehydration byproducts: 69% responded as moderate to considerable post-workshop as opposed to the majority (89%) said non-existent or minimal before the workshop.
4. Understanding to increase the dried fruit yield: 58% responded as moderate to considerable post-workshop as opposed to the majority (100%) said non-existent or minimal before the workshop.
5. Understanding in adding special ingredients to produce dried fruits for various applications i.e., cereals etc.: 58% responded as moderate to considerable post-workshop as opposed to the majority (95%) said non-existent or minimal before the workshop.
6. Understanding in adding special ingredients as anti-sticking agents to dried fruit products for various applications: 63% responded as moderate to considerable post-workshop as opposed to the majority (100%) said non-existent or minimal before the workshop.

Food Preservation Workshop: Results of evaluations of participants -

1. Understanding of the steps needed to pressure can a food product: 80% responded that their knowledge was moderate to considerable after workshop compared to 50% saying non-existent to minimal before workshop.
2. Understanding of the steps needed to can a food product using boiling water bath: 100% responded that their knowledge was moderate to considerable after the workshop compared to 50% saying non-existent or minimal before the workshop.
3. Understanding of determining if the lids are sealed after canning a food product: 100% responded that their knowledge was moderate to considerable after the workshop compared to 30% saying non-existent or minimal before the workshop.
4. Understanding of using the approved recipes for canning a food product: 100% responded that their knowledge was moderate to considerable after the workshop compared to 50% saying non-existent or minimal before the workshop.
5. Understanding of the steps needed to freeze a product: 90% responded that their knowledge was moderate to considerable after the workshop compared to 30% saying non-existent or minimal before the workshop.

Key Items of Evaluation