

V(A). Planned Program (Summary)

Program # 8

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
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%		10%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	90%		90%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	2.0	0.0
Actual Paid	3.0	0.0	1.4	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
47887	0	66684	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
47887	0	66684	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

University of Wyoming Extension collaborates with the Wyoming Department of Agriculture, Consumer Health Division and Wyoming Environmental Health Association, and local health agencies in partnership as the Wyoming Food Safety Coalition. Educational efforts include a series of workshops or classes targeting food industry personal. In addition, utilizing ServSafe, the certification course of the National Restaurant Association in depth classes which include end of session certification testing are conducted. Classes, workshops, displays, and demonstrations are used to reach a general consumer audience. Youth are reached through school programs on handwashing and avoidance of cross contamination. ServSafe and ServSafe Starter classes in Spanish are conducted in Western Wyoming, and in 2014 were conducted via distance education in other locations in the state.

Educational programs on food preservation including pressure and water-bath canning, freezing, and drying foods will be delivered using multiple methods to ensure safety of the end product.

Research will focus on more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately delineate genes that promote survival in the environment and result in disease contamination of food.

2. Brief description of the target audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Specific target audience groups for the CNP (EFNEP) program: Low-income adults, Youth in Title I schools. All other food safety efforts targeted audiences include: general public, both adults and youth and policy makers.

3. How was eXtension used?

eXtension is utilized as a resource for educators and clientele. The link to eXtension is prominently displayed on the UW Extension Web site home page. Additionally all extension employees are made aware of professional development opportunities available through eXtension. UW Extension participates in "Ask an Expert"; food safety questions submitted by clientele receive responses from Nutrition and Food Safety Educators or State Specialists.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3476	100000	2239	3000

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	10	10

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Research on the ability to detect, analyze, and prevent the presence of food-borne pathogens and harmful chemicals in food products. Target is the number of research publications, bulletins, reports, and presentations.

Year	Actual
2014	18

Output #2

Output Measure

- Number of food safety programs which promote safe handling practices in the public and food service industry.

Year	Actual
2014	107

Output #3

Output Measure

- Number of participants in educational programs offered by the Wyoming Food Safety Coalition.

Year	Actual
2014	2725

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improve personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is the number of participants reporting outcome.
2	Increased awareness and knowledge of food safety practices. Target is the number of participants reporting outcome.
3	Transfer of knowledge on research evaluating the ability to detect, analyze, and prevent the presence of food-borne pathogens and harmful chemicals in food products. Target is the number of projects reporting this outcome.
4	Food service industry personnel pass ServSafe certification test. Target is the number of participants who complete course and pass test of the National Restaurant Association.

Outcome #1

1. Outcome Measures

Improve personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is the number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Microbial contamination of food is a serious public health problem: Each year in the U.S., food-borne diseases cause approximately 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths. It is estimated that the average cost per foodborne illness is \$1,850. With approximately 60 percent of food-borne illness outbreaks nationwide attributable to food-service establishments, food-service personnel are key to reducing the risk of food-borne illness. Additionally, home food preparers and consumers are important groups to reach with food safety education because their behaviors greatly affect the safety of food that they serve to others and/or eat themselves.

What has been done

UW Extension collaborates with the Wyoming Department of Agriculture, Consumer Health Division and Wyoming Environmental Health Association, and local health agencies in partnership as the Wyoming Food Safety Coalition (WFSC). Educational efforts include a series of workshops or classes targeting food industry personal. In addition, utilizing ServSafe, the certification course of the National Restaurant Association in depth classes which include end of session certification testing are conducted. Classes, workshops, displays, and demonstrations are used to reach a general consumer audience. Youth are reached through school programs on hand washing and avoidance of cross contamination.

Results

Based on data from an evaluation project conducted by UW Extension for the WFSC, this year 97 percent of participants made at least one change related to cleanliness, for example, washed their hands more often. Eighty percent made at least one change related to cooling foods.

Another 78 percent made at least one change related to food preparation, for example, prevented cross-contamination by keeping raw meats, cooked foods, and fresh produce separated. Seventy-five percent made at least one change such as monitored critical control points more closely. Improved food handling behaviors increase the likelihood that food served in Wyoming is safe and, therefore, that lives have been saved, illnesses avoided, healthcare cost controlled, fewer work days missed, and local businesses and institutions made stronger.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2

1. Outcome Measures

Increased awareness and knowledge of food safety practices. Target is the number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	15250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Food-borne diseases cause approximately 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths. It is estimated that the average cost per foodborne illness is \$1,850. With approximately 60% of food-borne illness outbreaks nationwide attributable to food-service establishments, food-service personnel are key to reducing the risk of food-borne illness. Additionally, home food preparers and consumers are important groups to reach with food safety education because their behaviors greatly affect the safety of food that they serve to others and/or eat themselves.

What has been done

107 classes ranging from ServSafe certification courses, ServeSafe Starters, food safety classes for food service handlers, consumer food safety classes and school workshops on proper hand washing methods were conducted. Additionally classes on safe food preservation were taught

statewide. In 2014 numerous courses were also taught in Spanish in Western Wyoming, and via Web conferencing in other areas of the state. Consumer displays at Health Fairs and other community gatherings were used to increase awareness of food safety.

Results

100 percent of participants reported through both formal and informal evaluations increased awareness and knowledge of food safety practices.

97% made at least one change in regard to cleanliness.

80% made at least one change in regard to cooling food.

78% made at least one change related to food preparation.

75% made at least one change such as monitored critical control points more closely.

70% made at least one change related to cooking food.

Improved food handling behaviors such as those listed above increase the likelihood that food served in Wyoming is safe, and therefore, that lives have been saved, illnesses avoided, health care costs controlled, fewer work days missed, and local businesses and institutions made stronger.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

Transfer of knowledge on research evaluating the ability to detect, analyze, and prevent the presence of food-borne pathogens and harmful chemicals in food products. Target is the number of projects reporting this outcome.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In the United States, more than two million people experience antibiotic-resistant infections every year, with at least 23,000 of those cases leading to death. Food animals can play an important role in transmission of antibiotic resistance bacteria. The dissemination of antimicrobial resistant (AMR) bacteria by wildlife to animal feeding operations (AFOs), can jeopardize food safety, and consequently, adversely impact production.

What has been done

Bacterial strains isolated via culture methods from cattle feces, water and feed from AFOs, and AFO-associated wildlife included cephalosporin and fluoroquinolone resistant E. coli, macrolide resistant Enterococcus spp., and methicillin resistant Staphylococcus spp. isolates collected from 40 cattle facilities. Approximately 1177 AMR isolates have already been analyzed via MALDI-TOF MS, with spectra being obtained for all but 27 isolates, and with successful identification being achieved in 849 of those isolates (72%).

Results

The completed work has already proved the utility of the method for identification of AMR bacteria from agricultural environments. Ongoing efforts will generate improved and robust methods for rapid identification and subtyping of AMR E. coli, Enterococcus spp., and Staphylococcus spp. from cattle feeding operations and associated wildlife reservoirs, by applying novel sample preparation strategies to enrich for discriminatory analytes for typing applications. We anticipate that the optimized methods will allow for high throughput analysis of these isolates, permitting the generation of large and diverse spectral databases.

4. Associated Knowledge Areas

KA Code	Knowledge Area
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #4

1. Outcome Measures

Food service industry personnel pass ServSafe certification test. Target is the number of participants who complete course and pass test of the National Restaurant Association.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
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2014

432

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Microbial contamination of food is a serious public health problem: Each year in the U.S., food-borne diseases cause approximately 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths. With approximately 60 percent of food-borne illness outbreaks nationwide attributable to food-service establishments, food-service personnel are key to reducing the risk of food-borne illness.

What has been done

UW Extension collaborates with the Wyoming Department of Agriculture, Consumer Health Division and Wyoming Environmental Health Association, and local health agencies in partnership as the Wyoming Food Safety Coalition (WFSC). Educational efforts include a series of workshops or classes targeting food industry personal. In addition, utilizing ServSafe, the certification course of the National Restaurant Association in depth classes which include end of session certification testing are conducted. Classes are also being taught in Spanish in Western Wyoming, and via Web conferencing in other locations in the state.

Results

Of the 432 participant's in WFSC's ServeSafe and ServSafe Starters workshops : 94% passed the certification exam.

97% (419) made at least one change in regard to cleanliness.

80% (345) made at least one change in regard to cooling food.

78% (337) made at least one change related to food preparation.

75% (324) made at least one change such as monitored critical control points more closely.

70% (302) made at least one change related to cooking food.

Improved food handling behaviors such as those listed above increase the likelihood that food served in Wyoming is safe, and therefore, that lives have been saved, illnesses avoided, health care costs controlled, fewer work days missed, and local businesses and institutions made stronger.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

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
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Turnover of personnel offers challenges in Wyoming; Food Preservation as part of food safety also requires specialized training to provide competency in that subject area.

Populations changes (immigration, new cultural groupings, etc.)
Economy
Appropriation changes
Government Regulations

Competing Programmatic Challenges
Public Policy changes

V(I). Planned Program (Evaluation Studies)

Evaluation Results

End of session questionnaires, follow up surveys were used to document outcomes.

100 percent of participants reported through both formal and informal evaluations increased awareness and knowledge of food safety practices.

97% made at least one change in regard to cleanliness.

80% made at least one change in regard to cooling food.

78% made at least one change related to food preparation.

75% made at least one change such as monitored critical control points more closely.

70% made at least one change related to cooking food.

Improved food handling behaviors such as those listed above increase the likelihood that food served in Wyoming is safe, and therefore, that lives have been saved, illnesses avoided, health care costs controlled, fewer work days missed, and local businesses and institutions made stronger.

Key Items of Evaluation

UW Extension is a key leader with the Wyoming Food Safety Coalition (WFSC) started in 1995. WFSC is a multi-agency, multi-disciplinary partnership that has become the primary source of food-safety education throughout the state. The heart of WFSC is a core of local trained teams, most of which include area UW Extension Nutrition and Food Safety.