

V(A). Planned Program (Summary)

Program # 5

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
303	Genetic Improvement of Animals	0%		1%	
308	Improved Animal Products (Before Harvest)	5%		0%	
311	Animal Diseases	0%		15%	
312	External Parasites and Pests of Animals	0%		1%	
313	Internal Parasites in Animals	0%		3%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%		5%	
405	Drainage and Irrigation Systems and Facilities	0%		5%	
501	New and Improved Food Processing Technologies	10%		0%	
502	New and Improved Food Products	0%		2%	
503	Quality Maintenance in Storing and Marketing Food Products	18%		0%	
504	Home and Commercial Food Service	30%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%		20%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	15%		16%	
721	Insects and Other Pests Affecting Humans	2%		9%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%		12%	
723	Hazards to Human Health and Safety	10%		7%	
903	Communication, Education, and Information Delivery	0%		4%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	48.1	0.0	3.0	0.0
Actual Paid Professional	5.9	0.0	3.0	0.0
Actual Volunteer	30.0	0.0	0.0	0.0

2. Institution Name: Cornell University

Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
49238	0	591340	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
49238	0	708826	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

2. Institution Name: NY State Agricultural Experiment Station

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	37892	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	58079	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

This is a comprehensive program entailing a wide range of applied research activities and multiple education methods depending on context and need. Campus-based faculty and extension associates, regional specialists and county-based educators all are involved in designing, implementing, and evaluating tailored educational efforts depending on the focus and scope of their role. Examples of

activities are: conveying general knowledge and understanding of food safety science to New York State residents and beyond via varied communication strategies; providing educational programs in collaboration with regulatory agencies involved with assuring the safety and wholesomeness of food processed, prepared, sold and handled and consumed by the public in New York State; supporting transfer of new research-based information for appropriate applications in agricultural production via courses, presentations and materials, manufacturing, retailing and food service industries; communicating current food safety production, manufacturing and technical problems to researchers at Cornell; conducting specialized instruction in the effective application of laboratory methods to maintain and improve product safety and quality in the dairy and food industry.

2. Brief description of the target audience

Audiences reached include: processors, producers and consumers with targeted programs for moderate and low income families; 4-H youth; nutrition, health, and family professionals; front-line family workers; food service and food production staff and their managers and directors; and government and agency leaders at the local, state, and federal level.

3. How was eXtension used?

Cornell Cooperative Extension supports and promotes eXtension communities of practice, the eXtension public site and the professional development offered through eXtension.org. Staff across the state are encouraged to be involved in appropriate COPs, and the link to eXtension is promoted on the front page of the Cornell Cooperative Extension public staff site. Currently 347 staff are registered users of eXtension. Staff have cited the usefulness of COPs - particularly where there are identified national projects or COPs.

Examples of participation in COPs in this plan of work where staff are involved include:

- Food Safety

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	175917	1922615	61729	675514

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	0	7	7

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- (5.1a) # of consumers participating in programs on: reducing food safety and/or food borne risks and illnesses including recommended purchasing, handling, storage, and preparation practices.
Not reporting on this Output for this Annual Report

Output #2

Output Measure

- (5.2a) # of producers/ processors/food service providers participating in programs on: reducing food safety and/or food borne risks and illnesses including recommended production, processing, storage, handling, marketing, and preparation practices (no target).
Not reporting on this Output for this Annual Report

Output #3

Output Measure

- (5.3a) # food safety decision-makers, policy makers and other officials reached with science-based information to improve food safety practices and policies.
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	(5.1b) # of consumers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended purchasing, handling, storage, and preparation practices.
2	(5.1c) # of consumers documented to have implemented new and/or increased application of ongoing safe food purchasing, handling, storage, and preparation practices.
3	(5.1d) Reduced incidence of foodborne illness among program participants. (no target).
4	(5.2b) # of producers/ processors/food service providers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended production, processing, storage, handling, marketing, and preparation practices.
5	(5.2c) # of producers/ processors/food service providers documented to have implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing, and preparation practices.
6	(5.2d) Improved safety of foods available through wholesale and retail outlets and institutional foods.
7	(5.3b) # of food safety decision-makers, policy makers and other officials who demonstrate knowledge gains relative to improved food safety practices and policies.
8	(5.3c) # of communities/ firms/or organizations documented to have assessed practices or food safety policies as a result of participating in relevant educational programs.
9	(5.3d) # of communities/ firms/or organizations documented to have implemented improved practices or food safety policies as a result of participating in relevant educational programs.
10	Good Agricultural Practices

Outcome #1

1. Outcome Measures

(5.1b) # of consumers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended purchasing, handling, storage, and preparation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	19315

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
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
721	Insects and Other Pests Affecting Humans
723	Hazards to Human Health and Safety

Outcome #2

1. Outcome Measures

(5.1c) # of consumers documented to have implemented new and/or increased application of ongoing safe food purchasing, handling, storage, and preparation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	10706

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
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
721	Insects and Other Pests Affecting Humans
723	Hazards to Human Health and Safety

Outcome #3

1. Outcome Measures

(5.1d) Reduced incidence of foodborne illness among program participants. (no target).

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

(5.2b) # of producers/ processors/food service providers who demonstrate knowledge or skill gains related to reducing food safety and/or foodborne risks and illnesses including recommended production, processing, storage, handling, marketing, and preparation practices.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

(5.2c) # of producers/ processors/food service providers documented to have implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing, and preparation practices.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products
504	Home and Commercial Food Service
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
721	Insects and Other Pests Affecting Humans
723	Hazards to Human Health and Safety

Outcome #6

1. Outcome Measures

(5.2d) Improved safety of foods available through wholesale and retail outlets and institutional foods.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

(5.3b) # of food safety decision-makers, policy makers and other officials who demonstrate knowledge gains relative to improved food safety practices and policies.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

(5.3c) # of communities/ firms/or organizations documented to have assessed practices or food safety policies as a result of participating in relevant educational programs.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	43

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
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
721	Insects and Other Pests Affecting Humans
723	Hazards to Human Health and Safety

Outcome #9

1. Outcome Measures

(5.3d) # of communities/ firms/or organizations documented to have implemented improved practices or food safety policies as a result of participating in relevant educational programs.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	22

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
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
721	Insects and Other Pests Affecting Humans
723	Hazards to Human Health and Safety

Outcome #10

1. Outcome Measures

Good Agricultural Practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Foodborne illnesses are estimated to cost the U.S. economy \$77.7 billion a year, and several significant recent outbreaks have been traced to fresh produce as varied as spinach, cantaloupe, and cilantro. In response to these produce-associated foodborne illness outbreaks, many fresh produce buyers require farms to have third-party audits to verify food safety practices such as Good Agricultural Practices (GAPs) are in place. In addition, the FDA's Food Safety Modernization Act has proposed the first ever federal regulatory requirement for practices to minimize the risks of fresh produce contamination in the field, during harvest and during transport.

Keeping pace with industry demand and complying with these new rules can be a challenge for farmers to navigate.

What has been done

A multi-disciplinary team including Cornell Cooperative Extension, Produce Safety Alliance, National Good Agricultural Practices Program, and the New York State Department of Agriculture and Markets collaborated to develop and deliver workshops to extension educators and growers about Good Agricultural Practices (GAPs). Since 2009 this partnership has hosted 24 multi-day workshops throughout New York State, training over 600 people from at least 300 farms. Workshops, that incorporate science-based GAPs recommendations taken from peer-reviewed research conducted at Cornell, provide key produce safety knowledge to growers and one-on-one assistance in development of a farm food safety plans. In addition, there is an option to participate in a mock audit to prepare for passing a third party audit.

Results

This multi-day, nationally recognized GAPs training program prepares New York's fresh produce growers to implement practices to reduce food safety risks and meet the marketplace's increased demand for food safety practices. As a result of participation, growers have been able to complete farm food safety plans necessary for passing a third party audit. The audits allow growers to maintain and enter markets that require audits. Growers have identified this potential as being worth \$85,000 to \$1.5 million in business. Even when their buyers are not demanding it, such as consumers at farmers markets, growers have found that having GAPs training is economically valuable to their farm. The program's success comes from providing science-based information grounded in research, practical practices that reduce risks, and an effective extension opportunity for each participant to develop a plan unique to their farm so that effective risk assessment and risk reduction practices can be implemented. One hundred percent of all participants who completed the evaluation said they would recommend the training to others, indicating "this was a great idea and helped get the plan underway" and it was "very valuable to ask questions actually pertaining to my farm's situation to auditors".

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
903	Communication, Education, and Information Delivery

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

Media attention to food-borne illnesses and FDA's Food Safety Modernization Act have elevated the interest in food safety programs and projects. Slow recovery from the recession, pockets of high unemployment in the state, and a renewed interest in locally grown and home gardening have also increased the interest in home canning and interests in doing so safely with food preservation programming.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

In general, the evaluation approach included in our plan can more accurately be described as an evaluation "system" rather than as bounded "studies" or investigations. Because each of the plans addresses a broad combination of applied research and extension initiatives spanning multiple audiences, methods, and intended outcomes, a combination of routine program monitoring and documentation, near-term outcome assessment, and targeted follow-up activities is required to provide comprehensive assessment. Program documentation results are aggregated in a statewide accountability system which includes both qualitative and quantitative data for reporting and helping us to better understand our impacts.

Cornell Cooperative Extension works with the Cornell Office of Research and Evaluation (CORE) to strengthen evaluation practice and build evaluation capacity in CCE. CORE has developed a Protocol for evaluation that takes a systems approach, recognizing that individual programs and their evaluations are part of larger program portfolios and are shaped by needs and context at multiple levels of the Extension system. CORE has tested and refined this Protocol in partnership with CCE programs since 2006. A key step in the Protocol is to develop program models, in both familiar columnar form as logic models and in a visual form called pathway models. These models form the basis for focusing evaluation efforts in Extension programs.

Beginning in 2013, CORE and CCE partnered to initiate program modeling and evaluation planning at the level of the statewide Plans of Work. This effort, which is ongoing, will contribute to a framework for programming and evaluation at multiple levels. The Protocol is also being integrated into professional development in CCE, in collaboration with CCE leadership, to promote consistent approaches to evaluation of county-based, regional, and state-wide programs. CCE organizational development efforts are also being devoted to organizing common high-quality measures that can be used by a wide range of programs where applicable.

Key Items of Evaluation

See cross-cutting outcomes in state defined outcomes.