V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
<th>%1862 Extension</th>
<th>%1890 Extension</th>
<th>%1862 Research</th>
<th>%1890 Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>308</td>
<td>Improved Animal Products (Before Harvest)</td>
<td>5%</td>
<td>2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>501</td>
<td>New and Improved Food Processing Technologies</td>
<td>10%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>503</td>
<td>Quality Maintenance in Storing and Marketing Food Products</td>
<td>18%</td>
<td>18%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>504</td>
<td>Home and Commercial Food Service</td>
<td>30%</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>711</td>
<td>Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources</td>
<td>10%</td>
<td>5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
<td>15%</td>
<td>24%</td>
<td></td>
<td></td>
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<tr>
<td>721</td>
<td>Insects and Other Pests Affecting Humans</td>
<td>2%</td>
<td>16%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>723</td>
<td>Hazards to Human Health and Safety</td>
<td>10%</td>
<td>15%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100%</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

<table>
<thead>
<tr>
<th>Year: 2009</th>
<th>Extension</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1862</td>
<td>1890</td>
</tr>
<tr>
<td>Actual</td>
<td>110.0</td>
<td>0.0</td>
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</table>

2. Institution Name: Cornell University

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

<table>
<thead>
<tr>
<th>Extension</th>
<th>Research</th>
<th>Smith-Lever 3b &amp; 3c</th>
<th>Hatch</th>
<th>Evans-Allen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1862</td>
<td>Matching</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1862 All Other</td>
<td>1890 All Other</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

2. Institution Name: NY State Agricultural Experiment Station

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

Examples of activities are:

- Convey general knowledge and understanding of food safety science to New York State residents and beyond via varied communication strategies;
- Provide 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;
- Via courses, presentations and materials, support transfer of new research-based information for appropriate applications in the agricultural production, manufacturing, retailing and food service industries;
- Communicate current food safety production, manufacturing and technical problems to researchers at Cornell;
- Conduct 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

- Provide for the nutritional well-being and safety of New York State residents through helping to assure a continuous, reasonably priced supply of wholesome foods.
- Improve food safety and food-handling practices throughout the food system.
- Reduce incidence of food-borne illnesses.

V(E). Planned Program (Outputs)

1. Standard output measures

<table>
<thead>
<tr>
<th>Year</th>
<th>2009</th>
<th>Direct Contacts Adults</th>
<th>Indirect Contacts Adults</th>
<th>Direct Contacts Youth</th>
<th>Indirect Contacts Youth</th>
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</thead>
<tbody>
<tr>
<td>Plan</td>
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<td>{NO DATA ENTERED}</td>
<td>{NO DATA ENTERED}</td>
<td>{NO DATA ENTERED}</td>
<td></td>
</tr>
<tr>
<td>Actual</td>
<td>75835</td>
<td>568154</td>
<td>26233</td>
<td>78452</td>
<td></td>
</tr>
</tbody>
</table>

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

Patent Applications Submitted

Year: 2009
Plan: 
Actual: 7
3. Patents listed
Microfabrication of High Temperature Micro-Reactors
Method and System for Lactose-free or Lactose-reduced Milk and Associated Products, Production Thereof, and Associated Processes
Ripening Promoter
Multifunctional Nucleic Acid Nano-Structures
Photo-Crosslinked Nucleic Acid Hydrogels
Functionally Superior Whey Proteins

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

<table>
<thead>
<tr>
<th></th>
<th>Extension</th>
<th>Research</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Actual</td>
<td>15</td>
<td>130</td>
<td>145</td>
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</tbody>
</table>

V(F). State Defined Outputs

Output Target

Output #1

Output Measure
- (5e) # non-credit instructional activities directed to this program.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>{No Data Entered}</td>
<td>35472</td>
</tr>
</tbody>
</table>

Output #2

Output Measure
- (5f) # non-credit instructional activity contact hours directed to this program.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>{No Data Entered}</td>
<td>675428</td>
</tr>
</tbody>
</table>

Output #3

Output Measure
- (5.2a) # of participants in programs on: reducing food safety and/or food borne risks and illnesses including recommended food purchase, storage, handling, and preparation practices.
Not reporting on this Output for this Annual Report

Output #4

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

Output #5

Output Measure
- (5.1a) # of participants 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
### V. State Defined Outcomes Table of Content

<table>
<thead>
<tr>
<th>O. No.</th>
<th>OUTCOME NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(5.1c) # of household and food handler participants documented to have increased application of safe food preparation practices (storage, preparation, and serving, i.e., HACCP standards.</td>
</tr>
<tr>
<td>2</td>
<td>(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.</td>
</tr>
<tr>
<td>3</td>
<td>(5.1b) # of program participants 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.</td>
</tr>
<tr>
<td>4</td>
<td>(5.2b) # of program participants 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.</td>
</tr>
<tr>
<td>5</td>
<td>(5.3b) # of food safety decision-makers, policy makers and other officials who demonstrate knowledge gains relative to improved food safety practices and policies.</td>
</tr>
<tr>
<td>6</td>
<td>(5.1d) Reduced incidence of foodborne illness among program participants.</td>
</tr>
<tr>
<td>7</td>
<td>(5.2c) # of participants documented to have implemented new and/or increased application of ongoing safe food production, processing, storage, handling, marketing and preparation practices.</td>
</tr>
<tr>
<td>8</td>
<td>(5.2d) Improved safety of foods available through wholesale and retail outlets and institutional foods.</td>
</tr>
<tr>
<td>9</td>
<td>(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.</td>
</tr>
<tr>
<td>10</td>
<td>Improvement of Thermal and Alternative Processes for Foods</td>
</tr>
<tr>
<td>11</td>
<td>Lead Loss from Blood and Milk and the Level of Contamination of Muscle, Liver, Kidney and Bone in Lead-exposed Cattle</td>
</tr>
<tr>
<td>12</td>
<td>Diagnostic Methods for Coccidian Infections: Neospora and Toxoplasma</td>
</tr>
<tr>
<td>13</td>
<td>Mastitis Resistance to Enhance Dairy Food Safety</td>
</tr>
<tr>
<td>14</td>
<td>Kids Can Cook Safely</td>
</tr>
<tr>
<td>15</td>
<td>From Farm to Table</td>
</tr>
</tbody>
</table>
Outcome #1

1. Outcome Measures

   (5.1c) # of household and food handler participants documented to have increased application of safe food preparation practices (storage, preparation, and serving, i.e., HACCP standards.

2. Associated Institution Types

   ● 1862 Extension
   ● 1862 Research

3a. Outcome Type:

   Change in Action Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
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</thead>
<tbody>
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</tr>
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</table>

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

Outcome #2

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>(No Data Entered)</td>
<td>730</td>
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</tbody>
</table>
3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>Home and Commercial Food Service</td>
</tr>
<tr>
<td>711</td>
<td>Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources</td>
</tr>
<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
</tr>
</tbody>
</table>

Outcome #3

1. Outcome Measures

(5.1b) # of program participants 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.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

(5.2b) # of program participants 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

(5.3b) # 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 #6

1. Outcome Measures

(5.1d) Reduced incidence of foodborne illness among program participants.

Not Reporting on this Outcome Measure
Outcome #7

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #8

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 #9

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.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Improvement of Thermal and Alternative Processes for Foods

2. Associated Institution Types

● 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>(No Data Entered)</td>
<td>0</td>
</tr>
</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Today, food safety is largely qualitative and it is a national priority to apply science-based quantitative approaches. Food safety can effectively piggyback on the revolution in engineering simulation and other computer technology to produce user-friendly science-based predictive tools. This project will develop a software package that would allow prediction of safety and risk associated with a particular method of food processing, distribution and storage. This should help in reducing food-borne illness.

What has been done

We measured and modeled process dependent kinetic parameters which affect food quality and safety attributes. We identified and characterized transport mechanisms occurring in food processes and develop mathematical models for analysis, design, and improvement of food processes.
Results
We have completed a version of the food safety prediction software that can be used to evaluate processing/storage/transportation conditions on safety. The tool has been presented at several workshops. We are continuing the process of getting industry feedback to further enhance the capabilities of the software. We are also discussing with academia to have them use the tool in classroom situations to enhance safety education.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>501</td>
<td>New and Improved Food Processing Technologies</td>
</tr>
<tr>
<td>503</td>
<td>Quality Maintenance in Storing and Marketing Food Products</td>
</tr>
<tr>
<td>711</td>
<td>Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources</td>
</tr>
<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
</tr>
</tbody>
</table>

Outcome #11

1. Outcome Measures

Lead Loss from Blood and Milk and the Level of Contamination of Muscle, Liver, Kidney and Bone in Lead-exposed Cattle

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>(No Data Entered)</td>
<td>0</td>
</tr>
</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Lead poisoning in cattle is a common problem and could cause to lead contamination in milk or meat entering the human food chain. This study will determine the rate of lead loss from exposed cattle and the best way to manage exposed cattle to prevent contamination of cow milk and beef intended for human consumption.

What has been done
This study identified the degree to which lead poisoning is a problem in animal herds and whether and how it is transmitted to the human food supply through milk and meat. Among other things, we determined when lead exposed cattle can be safely returned to food production.

Results
Analysis continues on the data collected but several impacts have already been experienced as we analyzed findings from several farms and changes in state regulations resulted. Findings on cattle were reported to veterinarians in the state in which the farms are located. Based on these findings, milk concentrations of lead greater than 10 ppb are not acceptable for human food in the state of Maryland (based on individual cows, not bulk-tank samples). Cows with blood lead concentrations greater than 5 micrograms/dL are not acceptable for slaughter for human consumption in the state of New York. Lead poisoning in food animals is now reportable to the Department of Agriculture and Markets in the state of New York. These changes are intended to protect the human food supply. There was one farm where lead poisoning was diagnosed in the cattle and later diagnosed in other animals on the farm and the farm owner. The source of lead was paint in the barn and the farmhouse. This is the first known case where cattle acted as sentinels for lead poisoning in a human.
4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>503</td>
<td>Quality Maintenance in Storing and Marketing Food Products</td>
</tr>
<tr>
<td>711</td>
<td>Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources</td>
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</tbody>
</table>

Outcome #12

1. Outcome Measures

Diagnostic Methods for Coccidian Infections: Neospora and Toxoplasma

2. Associated Institution Types

● 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>{No Data Entered}</td>
<td>0</td>
</tr>
</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The protozoa Neospora caninum and Toxoplasma gondii can cause reproductive problems, such as abortion, in many agricultural species. Toxoplasma is also of public health concern. Current diagnostic testing and management strategies are inadequate to fully address these problems. The focus of this study will be on more definitive diagnosis of infection by these protozoa in agricultural animals and development of management strategies to reduce or prevent these infections.

What has been done
The long-term objective of this project is to meet the needs of the agricultural industry in New York State by providing comprehensive diagnosis of parasitic infections so that cost-effective strategies can be adopted to eliminate the associated risk and help improve productivity and management decisions. To achieve this objective, accurate and cost-effective tests will be incorporated into the routine services.

Results
The validation of the new modified ELISA method allows rapid and accurate evaluation of a large number of serum samples for T. gondii exposure. This method is more rapid and allows the processing of much larger groups of samples than some other commonly used methods, e.g. agglutination and immunofluorescence assays. The inclusion of general conjugate avoids the need for species specific conjugate for each species being tested, thus allowing the testing of multiple different species on the same test without modification.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
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<tbody>
<tr>
<td>503</td>
<td>Quality Maintenance in Storing and Marketing Food Products</td>
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<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
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</tbody>
</table>
Outcome #13

1. **Outcome Measures**
   
   Mastitis Resistance to Enhance Dairy Food Safety

2. **Associated Institution Types**
   
   ● 1862 Research

3a. **Outcome Type:**
   
   Change in Knowledge Outcome Measure

3b. **Quantitative Outcome**

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
<th>Actual</th>
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<tbody>
<tr>
<td>2009</td>
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<td>0</td>
</tr>
</tbody>
</table>

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

   **Issue (Who cares and Why)**
   
   Campylobacter in raw milk may pose a human health hazard. The purpose of this study is to develop detection methods for Campylobacter in raw milk, and educational materials on health hazards associated with Campylobacter.

   **What has been done**
   
   This project has been essential for the further development of a bulk milk monitoring system that is currently being implemented in NY state. Among other things we have; 1.) Characterization of host mechanisms associated with mastitis susceptibility and resistance. 2.) Characterization and manipulation of virulence factors of mastitis pathogens for enhancing host defenses. 3.) Assessment and application of new technologies that advance mastitis control, milk quality, and dairy food safety.

   **Results**
   
   This project provided the scientific input and test development for a food safety monitoring system using the bulk milk from dairy farms. The results of this project have enhanced our knowledge on mastitis in the dry period. Further studies in this area will be needed, but we are starting to understand the key issues of dry period immunity in dairy cows. The results of this project have resulted in the development of new and improved vaccination programs on dairy farms.

4. **Associated Knowledge Areas**

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>503</td>
<td>Quality Maintenance in Storing and Marketing Food Products</td>
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</tbody>
</table>

Outcome #14

1. **Outcome Measures**

   Kids Can Cook Safely

2. **Associated Institution Types**

   ● 1862 Extension
3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantitative Target</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
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</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In the last decade, family meals have undergone dramatic changes that have affected the quality of children's diets. Caregivers want to provide healthy meals, but are often pressed for time, and rely on the assistance of children who are at home during out of school hours. Knowledge alone is not adequate for youth to be able to achieve competence and mastery in food preparation. Hands on cooking instruction combined with quick, easy, and healthy recipes are more motivating and will achieve better results.

What has been done
The Kids Can Cook Safely program offered by CCE Schoharie County targeted youth from single parent or working parent families. Many of these families have youth who are enrolled in Schoharie County's 4-H AfterSchool Program, but many more families are leaving their early teen and pre-teen children home without adult supervision during afterschool hours. Hands on instruction in the culinary arts allows youth to develop important skills that will improve the quality of life within their families.

Results
40 youth between the ages of 8 and 13 participated in nearly 40 hours of hands on learning over 6 months. 10 Youth successfully prepared 6 healthy main dishes that can be shared with their families during a Safe Cooking Skills program in January. Youth successfully mastered baking skills using healthy ingredients and demonstrated mastery through participation in the Cabin Fever Cooking Challenge in February and March. Youth successfully mastered safe food preservation by preparing freezer and cooked jam during a 3 day Mini Camp in June.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>Home and Commercial Food Service</td>
</tr>
<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
</tr>
</tbody>
</table>

Outcome #15

1. Outcome Measures
From Farm to Table

2. Associated Institution Types
- 1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
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<th>Year</th>
<th>Quantitative Target</th>
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</thead>
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<td>2009</td>
<td>{No Data Entered}</td>
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</tr>
</tbody>
</table>
3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
With consumers continuing to be concerned about food safety, personal health issues like diabetes, obesity and heart disease, and consuming local foods, an educational television program with a strong on-line and community outreach component enables viewers to better understand how locally grown food directly affects their well-being and that of their community.

What has been done
From Farm to Table is a 13-episode cooking series, co-produced by Cornell Cooperative Extensions in the Greater Capital District and WMHT Public Television, located in Troy, NY. The series promotes locally grown foods, features nutritious and healthy recipes that families can prepare, and supports area agricultural producers, thereby enabling viewers to discover the region's bounty from the fields to their plate. Building upon the success of Season 1, which saw the series being broadcast by PBS stations in Binghamton, Long Island, Rochester, Syracuse and Watertown, NY, as well as on Think Bright/Create, WMHT's Subchannel 17.2, the research and development writing team started crafting 13 new episodes this past spring.

Results
Despite challenging economic conditions that have blanketed the state and stymied many worthy projects, season 2 of "From Farm to Table" became a reality, thanks to the ongoing commitment and support of CCE and WMHT staff previously and newly involved with the program, committed underwriters, an appreciative public viewing audience, and supportive agricultural producers. DVDs of season 1 are in use with ESNY (SNAP-Ed) clients and small groups. The DVDs have also been used in educational exhibits at county fairs and other venues to promote the concept of eating locally grown healthy foods.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>Home and Commercial Food Service</td>
</tr>
<tr>
<td>712</td>
<td>Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins</td>
</tr>
</tbody>
</table>

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation
Large food illness outbreaks are attributed to a number of factors such as the complexity of evolving microbes and changing food consumption patterns which influences the conduct of research and development of educational programs.

Unknown agents account for approximately 81% of foodborne illnesses and hospitalizations and 64% of deaths, according to the Center for Disease Control, constraining the design of programs.

The lack of an integrated system for federal agencies and the food industry to coordinate food contamination information hampers research and education.

Changing and sometimes complex governmental policies and regulations affect implementation of food safety measures.

Food from countries beyond the US may further complicate control and implementation of effective food safety measures.

V(I). Planned Program (Evaluation Studies and Data Collection)
1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention

Evaluation Results

The evaluation approach for this and all other logic models included in our plan is more accurately 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. In addition, specialized data needs of funding partners must be addressed, sometimes using methods and/or accountability structures required by the funders. In support of each of the logic models, we provide educators with recommended evaluation strategies and, where available, recommended standard instruments for their use.

Key Items of Evaluation

Basic program documentation and monitoring activities include simple logging of program outputs and participation, including required equal program opportunity data. Program outcome data is collected through direct observation, participant feedback before, during, and after programs, systematic collection of anecdotal information, and delayed follow-up surveys. Each local site uses a different mix of these methods appropriate to their level of investment in the program. (The mix of Cornell Cooperative Extension programs in local extension units largely is determined by that unit.) Each local extension unit annually provides via a web-based reporting system program participation data, reports against an output/outcome template derived from the approved Federal plan of work, and selected "success stories."