V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Extension has an active work team for Food Safety Education. Programs include:

• Food safety training for food service managers and employees
• Food safety education for high risk audiences, their caregivers, and health care professionals
• Food safety information for consumers including Farmers’ Market vendors and their customers.

Food safety research emphasizes pre-harvest management of livestock to prevent transmission of human pathogens in livestock production and handling and post-harvest detection and management systems to prevent contamination of meat and plant products with human pathogens.

3. Program existence:

☐ New (One year or less)
☐ Intermediate (One to five years)
☒ Mature (More than five years)

4. Program duration:

☐ Short-Term (One year or less)
☐ Medium-Term (One to five years)
☒ Long-Term (More than five years)

5. Expending formula funds or state-matching funds:

☒ Yes
☐ No

6. Expending other than formula funds or state-matching funds:

☐ Yes
☐ No
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>701</td>
<td>Nutrient Composition of Food</td>
<td>0%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
<td>25%</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>704</td>
<td>Nutrition and Hunger in the Population</td>
<td>1%</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>20%</td>
<td>10%</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>20%</td>
<td>20%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>724</td>
<td>Healthy Lifestyle</td>
<td>25%</td>
<td>0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>805</td>
<td>Community Institutions, Health, and Social Services</td>
<td>9%</td>
<td>10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

V(C). Planned Program (Situation and Scope)

1. Situation and priorities

   • Food-borne illness in the US is a major economic burden and cause of human suffering and death. Economic and social consequences of food-borne illness are estimated to be over $3 billion each year, with lost productivity estimated at $30-40 billion. It is estimated that food-borne contaminants cause approximately 76 billion illnesses, 325,000 hospitalizations, and 5,000 deaths in the US each year. The risk of food-borne illness is especially important when hazardous food is served in group settings (eating establishments, child and assisted care facilities) and/or to high risk individuals (seniors, young children, pregnant women, immune-compromised individuals).

2. Scope of the Program

   ☑ In-State Extension
   ☑ In-State Research
   ☑ Multistate Research
   ☑ Multistate Extension
   ☑ Integrated Research and Extension
   ☑ Multistate Integrated Research and Extension

V(D). Planned Program (Assumptions and Goals)

1. Assumptions made for the Program
Given accurate knowledge and support, individuals at risk for food-borne illness and major diseases will increase their understanding, change attitudes and behaviors, and ultimately be less at risk, less hungry and healthier.

2. Ultimate goal(s) of this Program

Food Safety Education

• Increase the proportion of consumers who follow key food safety practices.
• Improve food employee behaviors and food preparation practices that relate directly to food-borne illnesses in retail food establishments.
• Increase the proportion of high risk consumers and their caregivers who follow key food safety practices.

Food Safety Research

• Pre-harvest management of livestock to prevent acquisition of human pathogens in livestock production and handling.
• Post-harvest detection and management systems to prevent contamination of meat products with human pathogens.
• Assessment of production systems and regulatory protocols for effective food safety.

V(E). Planned Program (Inputs)

1. Estimated Number of professional FTE/SYs to be budgeted for this Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Extension</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1862</td>
<td>1890</td>
</tr>
<tr>
<td>2012</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2013</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2014</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2015</td>
<td>16.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2016</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

V(F). Planned Program (Activity)

1. Activity for the Program

Food Safety Education

• Food Safety training for consumers, high risk audiences and their caregivers. (Eat Well for Less, La Cocina Saludable, Work site Wellness, Safe Home Food Preparation and Preservation, Promotion at Farmers Markets.)
• Food Safety Training for Food Service Managers and Workers (Food Safety Works, ServSafe, Food Safety for Food Bank Workers). Some of these programs are fee-based.
Promoting Food Security

- Multi-lesson series programs—Eat Well for Less, La Cocina Saludable]
- Single event programs targeting limited resource families
- Newsletters—Senior Nutrition News

Research

- Technical and extension publications
- Development of new technologies for improving food safety
- Development of recommendations on diet, exercise or other health related topics

2. Type(s) of methods to be used to reach direct and indirect contacts

| Extension |
|-----------------|-----------------|
| **Direct Methods** | **Indirect Methods** |
| ☑ Education Class | ☑ Public Service Announcement |
| ☑ Workshop | ☐ Billboards |
| ☑ Group Discussion | ☑ Newsletters |
| ☐ One-on-One Intervention | ☐ TV Media Programs |
| ☑ Demonstrations | ☑ Web sites |
| ☐ Other 1 | ☑ Other 1 (Multimedia kiosks) |
| ☐ Other 2 | ☐ Other 2 |

3. Description of targeted audience

Food Safety Education

- Consumers, High Risk Audiences (pregnant, immune-compromised, elderly).
- Food handlers and their managers at retail food establishments.
- Producers and processors of plant and animal agricultural products.

V(G). Planned Program (Outputs)

1. Standard output measures

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Contact Adults</th>
<th>Indirect Contacts Adults</th>
<th>Direct Contacts Youth</th>
<th>Indirect Contacts Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Target</td>
<td>Target</td>
<td>Target</td>
</tr>
</tbody>
</table>

Report Date 06/23/2011
### Direct Contacts Youth
- **2012**: Target 25,000, Actual 0
- **2013**: Target 25,000, Actual 0
- **2014**: Target 25,000, Actual 0
- **2015**: Target 25,000, Actual 0
- **2016**: Target 0, Actual 0

### Direct Contact Adults
- **2012**: Target 150,000, Actual 2,500
- **2013**: Target 150,000, Actual 2,500
- **2014**: Target 150,000, Actual 2,500
- **2015**: Target 150,000, Actual 2,500
- **2016**: Target 0, Actual 0

### Indirect Contacts Adults
- **2012**: Target 2,500
- **2013**: Target 2,500
- **2014**: Target 2,500
- **2015**: Target 2,500
- **2016**: Target 0

### Indirect Contacts Youth
- **2012**: Actual 0
- **2013**: Actual 0
- **2014**: Actual 0
- **2015**: Actual 0
- **2016**: Actual 0

### 2. (Standard Research Target) Number of Patent Applications Submitted
- **2012**: 0
- **2013**: 0
- **2014**: 0
- **2015**: 0
- **2016**: 0

### 3. Expected Peer Review Publications
<table>
<thead>
<tr>
<th>Year</th>
<th>Research Target</th>
<th>Extension Target</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
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<td>20</td>
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<tr>
<td>2015</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>2016</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
V(H). State Defined Outputs

1. Output Target

- Number of trainings in food safety held.
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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<tbody>
<tr>
<td></td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>1000</td>
<td>0</td>
</tr>
</tbody>
</table>

- Grant dollars (external) received to support Food Safety
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500000</td>
<td>500000</td>
<td>500000</td>
<td>500000</td>
<td>0</td>
</tr>
</tbody>
</table>

- Number of individuals reached by newsletters distributed on food safety.
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
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<td>500000</td>
<td>500000</td>
<td>500000</td>
<td>500000</td>
<td>0</td>
</tr>
</tbody>
</table>

- Number of individuals trained via workshops in food safety
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>10000</td>
<td>0</td>
</tr>
</tbody>
</table>

- Number of partnering agencies in Colorado who collaborated in food safety efforts.
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>0</td>
</tr>
</tbody>
</table>

- Number of volunteers supporting food safety
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>0</td>
</tr>
</tbody>
</table>

- Number of curricula developed or reviewed that support food safety
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>

- User Fees Generated through Food Safety work.
  
<table>
<thead>
<tr>
<th>Year</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
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<td>30000</td>
<td>30000</td>
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<td>0</td>
</tr>
</tbody>
</table>
## V(I). State Defined Outcome

<table>
<thead>
<tr>
<th>O. No</th>
<th>Outcome Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Percent of participants at trainings in Food Safety indicating an increase in knowledge gained</td>
</tr>
<tr>
<td>2</td>
<td>Percent of participants reporting a change in attitude regarding Food Safety.</td>
</tr>
<tr>
<td>3</td>
<td>Percent of participants indicating a change in behavior as a result of Food Safety training</td>
</tr>
<tr>
<td>4</td>
<td>Number of new technologies in pre-harvest livestock management adopted to reduce and/or avoid contamination of meat and/or plant products with human pathogens.</td>
</tr>
<tr>
<td>5</td>
<td>Number of new technologies in handling and/or post-harvest detection and management systems adopted to prevent contamination of meat and plant products with human pathogens.</td>
</tr>
</tbody>
</table>
**Outcome # 1**

1. **Outcome Target**

Percent of participants at trainings in Food Safety indicating an increase in knowledge gained

2. **Outcome Type :**

   - Change in Knowledge Outcome Measure
   - Change in Action Outcome Measure
   - Change in Condition Outcome Measure

<table>
<thead>
<tr>
<th>2012:70</th>
<th>2013:70</th>
<th>2014:70</th>
<th>2015:0</th>
<th>2016:0</th>
</tr>
</thead>
</table>

3. **Associated Knowledge Area(s)**

   - 701 - Nutrient Composition of Food
   - 703 - Nutrition Education and Behavior
   - 704 - Nutrition and Hunger in the Population
   - 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Naturally
   - 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
   - 724 - Healthy Lifestyle
   - 805 - Community Institutions, Health, and Social Services

4. **Associated Institute Type(s)**

   - 1862 Extension
   - 1862 Research

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**Outcome # 2**

1. **Outcome Target**

Percent of participants reporting a change in attitude regarding Food Safety.

2. **Outcome Type :**

   - Change in Knowledge Outcome Measure
   - Change in Action Outcome Measure
   - Change in Condition Outcome Measure

<table>
<thead>
<tr>
<th>2012:70</th>
<th>2013:70</th>
<th>2014:70</th>
<th>2015:0</th>
<th>2016:0</th>
</tr>
</thead>
</table>

3. **Associated Knowledge Area(s)**

   - 701 - Nutrient Composition of Food
   - 703 - Nutrition Education and Behavior
4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3
1. Outcome Target
Percent of participants indicating a change in behavior as a result of Food Safety training

2. Outcome Type:
- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

<table>
<thead>
<tr>
<th>Year</th>
<th>2012:70</th>
<th>2013:70</th>
<th>2014:70</th>
<th>2015:0</th>
<th>2016:0</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>70</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
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</tr>
<tr>
<td>2015</td>
<td>0</td>
<td>0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 4
1. Outcome Target
Number of new technologies in pre-harvest livestock management adopted to reduce and/or avoid contamination of meat and/or plant products with human pathogens.
2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

2012:5 2013:5 2014:5 2015:5 2016:0

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 5

1. Outcome Target

Number of new technologies in handling and/or post-harvest detection and management systems adopted to prevent contamination of meat and plant products with human pathogens.

2. Outcome Type :

- Change in Knowledge Outcome Measure
- Change in Action Outcome Measure
- Change in Condition Outcome Measure

2012:5 2013:5 2014:5 2015:5 2016:0

3. Associated Knowledge Area(s)

- 701 - Nutrient Composition of Food
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally
- 724 - Healthy Lifestyle
4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

Other

Description

To better align with NIFA priorities, the Planned Program Area previously reported as Nutrition and Food Safety has been separated into two program areas. Targets are estimated by dividing the previously reported numbers between the two program areas. Research programs are dependent on funding from external agencies.

V(K). 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)
- Time series (multiple points before and after program)

Description
Regular pre-post evaluations are used. Formative evaluations are often used during a program to adjust focus and direction. Case studies are used to clearly demonstrate impact.

2. Data Collection Methods

- Sampling
- Whole population

Survey (Mail, Telephone, On-Site).
- Mail
- Telephone
- On-Site

Interview
- Structured
- Unstructured
- Case Study
- Observation
- Portfolio Reviews
- Tests
- Journals
- Other

Description

Pre-post tests. Standard survey methods.