Human Nutrition, Food Safety, and Human Health and Well-Being

V(A). Planned Program (Summary)
1. Name of the Planned Program
Human Nutrition, Food Safety, and Human Health and Well-Being

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>702</td>
<td>Requirements and Function of Nutrients and Other</td>
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<tr>
<td></td>
<td>Food Components</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
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<td></td>
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<tr>
<td>722</td>
<td>Zoonotic Diseases and Parasites Affecting Humans</td>
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V(C). Planned Program (Inputs)
1. Actual amount of professional FTE/SYs expended this Program

<table>
<thead>
<tr>
<th>Year: 2007</th>
<th>Extension</th>
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<tr>
<td></td>
<td>1862</td>
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<tr>
<td>Plan</td>
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<tr>
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2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

<table>
<thead>
<tr>
<th></th>
<th>Extension</th>
<th>Research</th>
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<tbody>
<tr>
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<td>Hatch</td>
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<tr>
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<tr>
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V(D). Planned Program (Activity)
1. Brief description of the Activity
Human Nutrition, Food Safety, and Human Health and Well-Being

Meat science research will be conducted on short preparation times, products with healthy nutritional profiles, soy phytochemicals from the state point of how consumption of soy contributions to reduced health risks. Research will also be conducted on aspects of obesity prevention including changing eating behavior (targeting fruits and vegetables). Research will be both laboratory (bench science) and social science in nature.

Extension will conduct informational seminars, interactive learning opportunities, group classes and provide printed curriculum to youth audiences (4-H, schools, after school programs, head start and child care centers) and adult audiences (worksites, pre-formed groups, teachers, parents, senior citizens) as well as community based groups (licensed food service establishments, temporary food stands, mobile food units and community based organizations/ agencies/churches). Educational programs will include farm food safety on salmonella in varied beef production systems.

2. Brief description of the target audience
   • All consumers in the state or region. For some studies, a more targeted audience such as young adults.   • Small children and youth  • Adults and senior citizens  • Low income citizens  • Targeted business owners  • School personnel  • Extension field educators  • Health care professionals  • Educators and other professionals who work in nutrition education, foodservice, etc.  • Tribal colleges in S.D. and youth who attend reservation schools

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

<table>
<thead>
<tr>
<th>Year</th>
<th>Direct Contacts Adults</th>
<th>Indirect Contacts Adults</th>
<th>Direct Contacts Youth</th>
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2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

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<thead>
<tr>
<th>Year</th>
<th>Target</th>
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<tbody>
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<td>Plan:</td>
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<tr>
<td>2007:</td>
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</table>

Patents listed

3. Publications (Standard General Output Measure)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Peer Reviewed Publications</th>
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<tbody>
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<td>Plan 2007 Research</td>
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<td>Plan 2007 Total</td>
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</table>

V(F). State Defined Outputs

Output Target
Output #1

Output Measure
   ● Number of research projects

<table>
<thead>
<tr>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>2007</td>
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### V(G). State Defined Outcomes

<table>
<thead>
<tr>
<th>O No.</th>
<th>Outcome Name</th>
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<tbody>
<tr>
<td>1</td>
<td>Increase in soy foods production and consumption by South Dakota citizens, by percentage of the population.</td>
</tr>
<tr>
<td>2</td>
<td>Increase in fruit and vegetable consumption, by percentage of the population.</td>
</tr>
<tr>
<td>3</td>
<td>Decrease in obesity rates by percentage of the population.</td>
</tr>
<tr>
<td>4</td>
<td>Number of participants demonstrating ability to choose or prepare food with reduced fat and/or calories.</td>
</tr>
<tr>
<td>5</td>
<td>Number of participants increasing the number of minutes spent daily in physical activity.</td>
</tr>
<tr>
<td>6</td>
<td>Number of businesses engaged in a worksite wellness program.</td>
</tr>
<tr>
<td>7</td>
<td>Number of food service managers implementing a safe food handling training program for employees, thus increasing the retention rate of training participants in the food service industry (workforce).</td>
</tr>
<tr>
<td>8</td>
<td>Increased number of food safety programs for volunteers cooking for large groups and temporary food stands.</td>
</tr>
</tbody>
</table>
Outcome #1

1. Outcome Measures
   Increase in soy foods production and consumption by South Dakota citizens, by percentage of the population.

2. Associated Institution Types
   • 1862 Extension
   • 1862 Research

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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<tbody>
<tr>
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3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done
Lessons as part of programming with families at school educational programs, Healthy Foods programs with farm families

Results
Participating families are being exposed to new healthy food choices and as a result to the new foods the local grocery store has been asked to change what they sell and to include the healthier food choices.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
</tr>
</tbody>
</table>

Outcome #2

1. Outcome Measures
   Increase in fruit and vegetable consumption, by percentage of the population.

2. Associated Institution Types
   • 1862 Extension
   • 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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</thead>
<tbody>
<tr>
<td>2007</td>
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<td>3176</td>
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</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Healthy behaviors influence a healthy wellbeing. South Dakota’s prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans’ health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

Extension educational programs have been offered in the following areas: Child Care Providers Feeding Children - My Pyramid; Education on New-Trition - Basics of Nutrition; Education on Portion Sizes & Ways to Increase Fruit & Vegetables in the Diet; Fit From the Start Programs at Grocery Stores; Month Long Fruit & Vegetable Increase Consumption Community Campaigns; Healthy Snacking Programs for Youth/Teens & Day Care Providers; What’s For Dinner Programs for Families; Child Care Conferences - workshops for providers focusing on feeding children more fruits & Vegetables; Buddy’s Healthy Diet - TV spots on South Dakota Public Broadcasting focusing on eating more fruits & vegetables each day; Head Start Parents - Workshops on Feeding Healthy Children; Kid Quest Dining with Diabetes - conducted through local hospital; Adult and Youth Education; Senior Fruit and Vegetable Project - Congregate Meal Sites

Results

- 33% of Head Start Parents report that their children are eating more fruits & vegetables
- 25% of parents & children are selecting healthier food choices when eating on the run including fruits & vegetables
- Kid Quest participants - beginning survey 56.8% of participants reported that they consumed fruits & vegetables 3 or less times a day. An increase of their fruit & vegetable consumption by 20.4% resulted at the end of the program.
- Child Care Providers are serving more fruits & vegetables to children in their care.
- 30% of EFNEP Adult Participants are eating more Fruit and Vegetables
- 55% of EFNEP Youth participants now eat a variety of foods, including fruit and vegetables.
- 29% of seniors at congregate sites reported eating 1 serving of fruit and 10% reported eating 1 serving of vegetables before education; after education 39% reported eating 2 servings of fruit and 28% reported eating 2 servings of vegetable.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
</tr>
</tbody>
</table>

Outcome #3

1. Outcome Measures

Decrease in obesity rates by percentage of the population.

2. Associated Institution Types

• 1862 Extension
• 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>
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<td>340</td>
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3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota’s prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans’ health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)
What has been done

Community Health Challenge over 3 months; Health & Wellness Lessons 10 Week Series; CYFAR Programming at McLaughlin & Brookings

Results

- 35 teams participated in the community health challenge (210 individuals) walked 83,192.92 miles, equal to 3.3 times around the earth. Participating individuals have now incorporated new health habits into their lives for lifestyle & behavior change.
- Health & Wellness Series results
  80% of participants now exercising at least 3-5 times a week
  70% of participants are eating more fruits & vegetables
  50% of the participants families are eating more fruits, vegetables and including more fiber in their diets.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
</tr>
</tbody>
</table>

Outcome #4

1. Outcome Measures

   Number of participants demonstrating ability to choose or prepare food with reduced fat and/or calories.

2. Associated Institution Types

   • 1862 Extension
   • 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>
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<td>500</td>
<td>3785</td>
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</tbody>
</table>

3c. Qualitative Outcome or Impact Statement

   Issue (Who cares and Why)

   Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

   What has been done

   Programs focusing on eating healthy, selecting healthier food choices, snacking healthy, What's for Dinner, My Pyramid, Reducing Fat in Diet, Understanding Food Labels Portion Size. Also, workshops/Hands on Lessons to Senior Citizens, Youth, Habitat Home Buyers, Youth on Indian Reservations, Parents, Child Care Providers Head start Parents and others. Reading Roundup lessons for adults & parents. Kid Quest Food Fun Programs.Youth and Adult Education, and Senior Health Health Project

   Results
Youth participating in Reading Roundup Lessons learned about health and practiced what they learned by making better food choices. 60% of What's For Dinner participants incorporated use of low fat cooking methods as well as including healthier foods into their food selections. 35% of Parents of Kid Quest Participants reported that their children were eating healthier including less fat & sugar.

Participants of the Family Meal Programming reported that by increasing the number of family meals they eat at home they were able to control the amount of fat their families consumed. Head Start Parents reported that 30% of kids are eating healthier snacks & 25% of parents reported that children select healthier low fat foods when eating on the run. 25% of EFNEP adult participants reported that they are selecting low-fat food choices. 54% of EFNEP Youth Participants increased the ability to select low-cost, nutritious foods. FNP Heart Health Series showed increase in the intent to change. Prior to education, 55% sometimes ate low fat dairy and 64% sometimes ate lean meat. Following education, 85% reported intent to use low fat dairy and 88% reported intent to eat lean meat.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
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</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
</tr>
</tbody>
</table>

Outcome #5

1. Outcome Measures
   Number of participants increasing the number of minutes spent daily in physical activity.

2. Associated Institution Types
   • 1862 Extension
   • 1862 Research

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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</thead>
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</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans' health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done

- Child Care Providers Training
- Head Start Parents Creating Family Fitness Plans
- Community Senior Citizens Health Club Started
- Elementary School Family Fun Night Focusing on Family Fun & Activity
- CYFAR Programs in McLaughlin & Brookings
- Health & Wellness 10 Week Program
- Nutrition Expedition Program
- Walking Program for Youth
- Pyramid Between Pages Programs with youth
- Youth and Adult Education Programs
- SD Seniors Heart Health Series

Results
Human Nutrition, Food Safety, and Human Health and Well-Being

- Increase Children’s Physical Activity while in Day Care Facilities
- 80% Health & Wellness participants are doing physical activity 3-5 times a week following the programming.
- Parents are involving children in walks and other forms of exercise to increase fitness and provide children with a positive role model experience.
- Walk step challenges were held
- Families learned new ways to get out and be active as a family.
- 13 Senior Citizens have formed a health club and are increasing their physical activity as a result
- 60% of seniors reported exercising 30 minutes a day prior of the series, and 74% reported exercising 30 minutes a day after the heart health series.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
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</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
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Outcome #6

1. Outcome Measures
   Number of businesses engaged in a worksite wellness program.

2. Associated Institution Types
   • 1862 Extension
   • 1862 Research

3a. Outcome Type:
   Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
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3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Healthy behaviors influence a healthy wellbeing. South Dakota's prevalence of obesity increased from 10-14% of the population in 1987 to 20-24% in 2006. These increasing rates raise concern because of their implications for Americans’ health. Being overweight or obese increases the risk of many diseases and health conditions, including the following: Hypertension (high blood pressure), Osteoarthritis, Dyslipidemia, Type 2 diabetes, Coronary heart disease, Stroke, Gallbladder disease, Sleep apnea and respiratory problems, and some cancers (endometrial, breast, and colon)

What has been done
- Educators worked with over 30 businesses to establish worksite wellness programs
- Many additional businesses were approached to participate - over 90 in one district alone.
- Five $2,000 mini-grants were awarded to businesses in rural communities that are working with CES Worksite Wellness consultants
- A total of 17 CES trained consultants.

Results
- One business eliminated the candy jar and saved 300.00 per month as well as decreasing the sugar consumption of employees and customers.
- A Dr. stated that employee health screenings have shown an increase in health improvements with in the first 6 months of a Worksite Wellness program
- Walking step programs have helped employees get into walking routines and helped make them aware of exercising regularly
- Fruit is now eaten at breaks when it is made available
- Bank set up wellness committee and sponsored wellness walk.
- Schools are offering employee’s wellness education and implementing health & wellness challenges - winners are rewarded for success and negotiations are being made for a day off with pay as incentive for successful completion of the challenge.
- Challenges were implemented for Weight-loss, walking & healthy eating
- Increased health screenings for employees
- Office candy jar removed and but Juice & Water in refrigerator in break room added.
- Wellness & Cholesterol programs offered.
- Pre & Post test results in one program show that physical activity is increasing and the company has reported a significant savings in health care claims since starting their work site wellness program.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
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</table>

Outcome #7

1. Outcome Measures
   Number of food service managers implementing a safe food handling training program for employees, thus increasing the retention rate of training participants in the food service industry (workforce).

2. Associated Institution Types
   • 1862 Extension
   • 1862 Research

3a. Outcome Type:
   Change in Knowledge Outcome Measure

3b. Quantitative Outcome

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

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Gaining knowledge is critical to identifying and implementing safe food handling practices that reduce the risk of foodborne illness from foodservice settings. In SD over 200,000 people suffer from foodborne illness. SD also ranks above the national average per 100,000 population in foodborne illnesses incidences. Reducing the risk, reduces the incidence.

What has been done

- ServSafe was taught to High School students in the Mitchell and Brookings. Over 20 youth became ServSafe certificed. This allows them to enter this industry in their community with the tools needed to maintain safety of the food.
- Over 150 School Lunch Program personal participated in ServSafe Certification training taught by Cooperative Extension Staff.
- 230 Foodservice staff and managers were certified through ServSafe or maintained their SD Foodservice License through a recertification course. These courses are taught in rural areas of South Dakota to underserved audiences.
- Spanish ServSafe course was taught to 25 foodservice workers, managers, owners that have English as a second language.

Results
- When foodservice manager certification classes are taught to all levels of food preparers, over 80% pass the exam with a score of 75% or higher.
- 100% of participants identify at least one safe food handling practice they intend to change.
- From follow-up evaluations, 75% implemented a safe food handling practice identified from the training course. Examples of safe food handling practices adopted:
  * Implementation of a program to train staff.
  * Using recommended cooking, cooling, holding, reheating temperatures.
  * More vigilant with hand washing.
  * Using sanitizers effectively
  * Develop a cleaning schedule.
  * Implement techniques that cool and reheat foods quicker.
  * Calibrate and use a thermometer correctly.
- Youth that obtained ServSafe certification enter the workforce with the demonstrative knowledge and credentials that are needed to fulfill the duties required in a foodservice operation.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
</tr>
</tbody>
</table>

Outcome #8

1. Outcome Measures
   Increased number of food safety programs for volunteers cooking for large groups and temporary food stands.

2. Associated Institution Types
   - 1862 Extension
   - 1862 Research

3a. Outcome Type:
   Change in Knowledge Outcome Measure

3b. Quantitative Outcome

<table>
<thead>
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</table>

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

- Preparing and serving food to large groups requires safe food handling practices that are different from what is often used when preparing for a family. Gaining knowledge critical to safe food handling reduces the risk of foodborne illness.

What has been done

- Food Safety Training for youth working in summer 4-H Concession Stands
- Food Safety Training for Community Volunteers working at local Rodeo Concession Stands
- Training for Youth & Adults working at community festivals - state inspectors said they were pleased with the food safety improvements and would not need to be present as long as Extension is providing this training to the volunteers.
- General Food Safety Updates for Health Care Facility Temporary Staff
- Serving Food Safely in SD programs to persons who volunteer to prepare and serve food at various functions
- Importance of Hand Washing and Food Safety for Rural Community Volunteers

Results

More participants feel confident they know how to use and calibrate a meat thermometer
Participants have a better understanding of the department of health regulations
Changes in how crock pots are used - now used for hot holding only in many stands.
Increase in use of sanitizing solutions
Food is stored, prepared, held and cooled safer.
Participants have better understanding of cooking temperatures for meats and reheating foods.
Thermometers are now used for cooking and cooling of foods
Volunteer hands are being washed more often and correctly
Food Safety posers are used in the locations where the volunteers are working as a reminder to serve safe food.
4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
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</tbody>
</table>

V(H). Planned Program (External Factors)

External factors which affected outcomes
- Appropriations changes
- Public Policy changes
- Competing Public priorities

Brief Explanation
Price of food.

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

1. Evaluation Studies Planned
- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

Evaluation Results
{No Data Entered}

Key Items of Evaluation
{No Data Entered}