V(A). Planned Program (Summary)

Program # 7
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 Food Components</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>703</td>
<td>Nutrition Education and Behavior</td>
<td>34%</td>
<td>34%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>722</td>
<td>Zoonotic Diseases and Parasites Affecting Humans</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Total 100% 100%

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>Plan</td>
<td>18.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Actual</td>
<td>24.9</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Extension</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith-Lever 3b &amp; 3c</td>
<td>Hatch</td>
</tr>
<tr>
<td>589354</td>
<td>222260</td>
</tr>
<tr>
<td>1862 Matching</td>
<td>1862 Matching</td>
</tr>
<tr>
<td>589354</td>
<td>192865</td>
</tr>
<tr>
<td>1862 All Other</td>
<td>1890 All Other</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

<table>
<thead>
<tr>
<th></th>
<th>2009 Direct Contacts Adults</th>
<th>2009 Indirect Contacts Adults</th>
<th>2009 Direct Contacts Youth</th>
<th>2009 Indirect Contacts Youth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>4050</td>
<td>8000</td>
<td>4050</td>
<td>9000</td>
</tr>
<tr>
<td>Actual</td>
<td>23000</td>
<td>20000</td>
<td>7000</td>
<td>10000</td>
</tr>
</tbody>
</table>

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

   Patent Applications Submitted

Year: 2009
Plan: 0
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

<table>
<thead>
<tr>
<th></th>
<th>2009 Extension</th>
<th>2009 Research</th>
<th>2009 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
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</tr>
<tr>
<td>Actual</td>
<td>7</td>
<td>8</td>
<td>15</td>
</tr>
</tbody>
</table>

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

• Number of research projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>
## 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>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 Action 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>2</td>
<td>1</td>
</tr>
</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 nearly 25% in this reporting period. 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>702</td>
<td>Requirements and Function of Nutrients and Other Food Components</td>
</tr>
<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
3a. Outcome Type:
Change in Action 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>2</td>
<td>1</td>
</tr>
</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 nearly 25% in this reporting period. 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 including: Child Care Providers Feeding Children, 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.

**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. 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.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>702</td>
<td>Requirements and Function of Nutrients and Other Food Components</td>
</tr>
<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>
</tr>
</thead>
</table>
3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The increase of obesity across the lifespan has encouraged families to explore options to maintain and promote a healthy lifestyle. Worksites and schools also provide information to ensure employees and/or their families achieve success for a longer and healthy life. According to the Centers for Disease Control, 20-24% of South Dakota’s citizens are obese, and 56.5% are overweight. The low level of physical activity among South Dakota citizens is also of concern, with over 70% of the population exercising only 1 day a month. Daily fruit and vegetable consumption is also low, with only 17.2% of South Dakotans meeting the recommendation for vegetables and only 27% meeting the recommendation for fruits.

What has been done
*Families Eating Smart & Moving More Presentations:
oEating Smart at Home
oMoving More, Everyday, Everywhere
oEating Smart on the Run
oMoving More, Watching Less
*Displays:
oImportance of Family Mealtime
oHealthy Aging
oImportance of Incorporating Fiber in Daily Diet
*Newsletters and News Columns with Family Friendly Recipe Ideas:
oChild & Family Nutrition
oImportance of Family Nutrition
oPhysical Activity
oFamily Mealtime
oLifestyle Choices
*Nutrition Presentations:
oHealthy Grilling
oFrom the Garden to the Table Healthy Vegetable Dishes
oEating Healthy Using My Pyramid
oCreative Ways to Get Whole Grains
oObesity in a Bottle
oEating Right When Money's Tight
oSupermarket Food Cents
oTruth About Fad Diets
oStarting a Vegetable Garden
oStrong Women
*Policy Teams:
oCoordinated school health school district policy teams
oWellness policy committees for various school districts
oCounty wellness teams

Results
*During the Families Eating Smart & Moving More presentations, of the 50 males and 243 females that attended the sessions, 89% learned new knowledge or skills that will help them and their family, 86% are planning to make changes based on what they learned, 36% plan to increase physical activity in a month, 31% plan to try meal planning, 28% plan to order small portion sizes or share meals.
*At least 275 participants were reached through unique nutrition displays. For instance, participants sampling a blueberry muffin made with kidney beans for extra fiber found the muffin to be very acceptable in taste and texture and indicated that they could not taste the kidney beans. Participants walked away with the recipe and new knowledge on how to increase fiber in their diets.
*Newsletters and news columns had a potential impact on over 75,000 readers. These newsletters and columns continue to be used by cooperating agencies across South Dakota. For instance, the Watertown Boys and Girls Club asked to feature the one of the newsletters on their website after a staff member received the newsletter from her child’s classroom. The healthy recipes always receive positive feedback from readers.
*Numerous nutrition presentations on a variety of topics were made throughout this past year and reached over 450 participants. Three months after the presentation titled "Eating Healthy When Using MyPyramid" was given to
Annie’s Project participants, 40% had improved their eating habits, 55% were eating more vegetables, 60% were using less sugar, and 62% were trying to eat and exercise in proportion.

*The wide variety of nutrition presentations allowed participants to learn ideas such as the importance of reading ingredient labels on beverage containers to serving more vegetables in their daily diet.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>702</td>
<td>Requirements and Function of Nutrients and Other Food Components</td>
</tr>
<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 Action 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>
<td>1200</td>
<td>3000</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 nearly 25% in this reporting year. 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, My Pyramid, Reducing Fat in Diet, Understanding Food Labels Portion Size. Workshops/Hands on Lessons to Senior Citizens, Youth, Habitat Home Buyers, Youth on Indian Reservations, Parents, Child Care Providers Head start Parents and others.

Results
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.

4. Associated Knowledge Areas

<table>
<thead>
<tr>
<th>KA Code</th>
<th>Knowledge Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>702</td>
<td>Requirements and Function of Nutrients and Other Food Components</td>
</tr>
</tbody>
</table>
Outcome #5

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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 Action 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>150</td>
<td>0</td>
</tr>
</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 nearly 25% in this reporting year. 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)

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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 #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 Action 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>125</td>
<td>400</td>
</tr>
</tbody>
</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**
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.

**Results**
From follow-up evaluations, 75% of ServeSafe participants implemented a safe food handling practice. Examples of safe food handling practices adopted: * Implementation of a staff training program to train staff, Using recommended cooking, cooling, holding, reheating temperatures; and , more vigilance with hand washing.

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
3a. Outcome Type:
Change in Action 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>100</td>
<td>400</td>
</tr>
</tbody>
</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 Community Volunteers working at local Concession Stands

**Results**
Participants reported a better understanding of the department of health regulations; changes in how crock pots are used; increased use of sanitizing solutions; and greater attention to cooking temperatures.

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>
<tr>
<td>722</td>
<td>Zoonotic Diseases and Parasites Affecting Humans</td>
</tr>
</tbody>
</table>

V(H). Planned Program (External Factors)

**External factors which affected outcomes**
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities

**Brief Explanation**

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

Key Items of Evaluation