

2010 North Dakota State University Combined Research and Extension Plan of Work

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I. Plan Overview

1. Brief Summary about Plan Of Work

The NDSU Extension Service and the North Dakota Agricultural Experiment Station are integral units of North Dakota State University. The main campus is located at Fargo, North Dakota. The extension service and experiment station serve the citizens of the state through the main campus as well as 53 extension offices located in 52 counties and one American Indian reservation, seven research extension centers located across the state, and three additional area extension offices.

The purpose of the NDSU Extension Service is to create learning partnerships that help adults and youth enhance their lives and communities. Extension programs address issues and opportunities in the areas of agriculture and natural resources; 4-H youth development; family and consumer sciences; and community, leadership and economic development. Emerging areas of concern are increased pressure on natural resources, natural disasters, bioterrorism and foreign animal diseases, rural community decline, population shifts, and local leadership.

The mission of the North Dakota Agricultural Experiment Station is to develop and disseminate technology important to the production and utilization of food, feed, fiber and fuel from crop and livestock enterprises. The research must provide for an enhancement of the quality of life, sustainability of production, and protection of the environment. Present goals are research and development of new technologies for the production and management of new and emerging crops; collaboration with four states to improve livestock nutrition; investigation of possible benefits of carbon sequestration; developing sustainable production strategies for western North Dakota; and developing strategies to control invasive species.

Agriculture is a critical component to the state's economy. Food/fiber production accounts for about \$5.4 billion annually. Crop production accounts for over 84 percent of the total with the remainder livestock, primarily beef cattle. North Dakota is first in the national in the production of twelve crops, plus the production of honey.

Future directions include developing new and more competitive crop products, and new uses for diverse crops and novel plant species, including how these crops and plants fit in the biofuels economy; developing new products and new uses for animals; reducing the risks of local and global climatic change on food, fiber and fuel production; providing the information and knowledge needed to further improve environmental stewardship; improving the economic return to agricultural producers; strengthening our communities and families; and ensuring improved food safety and health through agricultural and food systems.

Estimated Number of Professional FTEs/SYs total in the State.

Year	Extension		Research	
	1862	1890	1862	1890
2010	85.0	0.0	50.0	0.0
2011	85.0	0.0	50.0	0.0
2012	85.0	0.0	50.0	0.0
2013	85.0	0.0	50.0	0.0
2014	85.0	0.0	50.0	0.0

II. Merit Review Process

1. The Merit Review Process that will be Employed during the 5-Year POW Cycle

- Internal University Panel
- External University Panel
- Combined External and Internal University Panel
- Expert Peer Review

2. Brief Explanation

Extension program leaders from North Dakota, South Dakota, Nebraska and Kansas meet to develop joint program opportunities for these four states. They exchange ideas on plans of work in agriculture and natural resources, family and consumer science, 4-H youth development, and community resource development in an effort to increase the effectiveness of programs in their states; and programs impacting all four states have been developed as a result of these regular planning meetings. A more formal agreement between the four states will be pursued to exchange mutual merit reviews of Extension programs. In addition, program leaders from the entire North Central Region meet twice a year to exchange ideas on plans of work for the whole region.

Research programs are subject to four different types of scientific peer review. These reviews occur prior to, during and at the conclusion of each research project. First, research faculty who participate in multi-state research projects receive a critical review of their contributing project from fellow committee members, the administrative adviser and the North Central Multi-State Research Committee. Second, most faculty augment multi-state research funding with competitive grants. These grants are awarded on the basis of scientific merit and afford an opportunity for external peer review. Third, each research faculty member with the North Dakota Agricultural Experiment Station is required to have a station project that is reviewed for scientific merit by a Project Review Committee that is comprised of one faculty member from each discipline. Finally, all research is peer reviewed, either internally or externally, prior to publication.

III. Evaluation of Multis & Joint Activities

1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

The State Board of Agricultural Research and Education (SBARE), county advisory councils, focus groups and our own extension staff identified the issues addressed in most planned program activities. The targeted audiences for these programs were inclusive of all people with a vested interest in the issue. Many programs are on-going or multiple years in length. However, specific impacts were noted where applicable. Most of these activities resulted in time efficiencies for the extension educator, and they provided a complete educational experience for the end user.

2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?

A major under-served and under-represented audience in North Dakota is Native Americans, and increased emphasis is being given to work more closely with this group, especially those living on the four American Indian reservations in the state. Our Fort Berthold office is staffed with two full-time extension agents (one in agriculture and one in 4-H youth development, and Expanded Food and Nutrition Education Program (EFNEP) staff. Our Sioux County office is staffed with a full-time agent in family and consumer sciences and shares an agricultural agent with an adjoining county. Sioux County also has an EFNEP agent. The other two reservations are served by the extension agents in the county in which the reservation lies. Both of these extension offices have specific programs directed towards Native American audiences. Extension programs include expanded educational efforts with Native American farmers both in crop and livestock production as well as targeted youth programming, and family and nutrition programming. Two reservations are involved with NDSU livestock specialists working with their cattle producers on range management. The NDSU Extension Service participates in annual meetings with the reservations to discuss how USDA services can better meet the needs of the American Indian audiences living on the reservations. Special emphasis has been placed on sustainability in the Native Nations for future programming efforts. Many nutrition programs focus on both Native American and low-income families. These programs provide education on selecting and preparing nutritious meals on a limited budget. Diabetes is a major problem with the state's Native Americans, so a planned program focuses on the reduction of the incidence of diabetes through diet and exercise.

A major youth program on one reservation focuses on community gardening to improve food resources, increase knowledge about food choices, and promote health eating by including more fruits and vegetables in the diet. This program is

supported by resources from other community agencies, including resources from the Three Affiliated Tribes at Fort Berthold and the National Gardening Association. Another program on the same reservation is helping youth in a 4-H lamb project.

3. How will the planned programs describe the expected outcomes and impacts?

The planned programs submitted have specific outcomes that will occur over a period of five years. In some programs, outcomes and impacts will occur in the first year but many impacts will occur throughout the five-year period and beyond. Under each planned program, specific progress toward the outcomes and impacts will be documented.

4. How will the planned programs result in improved program effectiveness and/or efficiency?

At North Dakota State University, research and extension programs have a historic and strong connection that increases the effectiveness of both entities. In most programs, the results of extension education and demonstration activities inform the research community on clientele needs. Specific examples of the effectiveness and/or efficiency of these programs are described in the Planned Programs section of this Plan of Work.

IV. Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation

- Survey of traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey specifically with non-traditional groups
- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups

Brief explanation.

Building linkages with the public enables us to discover information about community/county/district/state assets and needs. Various methods for stakeholder input are utilized on an on-going basis. Input from stakeholders, the general public and from targeted audiences is used to develop our five-year plan of work and to make adjustments to the plan based on crisis situations that may develop in the state, e.g. drought, flood, insect infestations, plant diseases, high-risk issues of youth, food borne illnesses, security issues. Using several methods to collect data ensure that high priority issues are identified, people that have a self-interest in the issue are brought to the planning meetings, and an educational design is developed to address the issue using a variety of delivery methods.

2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them

1. Method to identify individuals and groups

- Use Internal Focus Groups
- Use Advisory Committees
- Use Surveys
- Open Listening Sessions
- Needs Assessments
- Use External Focus Groups

Brief explanation.

The State Board for Agricultural Research and Education (SBARE) is charged with determining the causes of any adverse economic impacts on crops and livestock produced in this state; developing ongoing strategies for the provision of research solutions to negate adverse economic impacts on crops and livestock produced in this state; developing ongoing strategies for the dissemination of research information through the Extension Service; annually evaluating the results of research and extension activities and expenditures; and reporting the findings to the North Dakota Legislative Council and the State Board of Higher Education.

County commissioners actively participate in county extension program reviews. The county extension budgeting process also results in strong engagement from county government.

In 1992, the North Dakota Department of Human Services and NDSU Extension Service were legislated by the North Dakota state legislature to form a statewide Family Life Education Committee. The committee is composed of state legislators, an Extension specialist, an Extension Human Development Agent, citizens with a parenting self-interest, two administrators from the Child Division of the State Department of Human Services and the Extension Assistant Director, Nutrition, Youth and Family Science. As a result of this partnership, the state Department of Human Services provides funding opportunities to six state family life education centers through a request for proposal process. The availability of designated funds also directs the focus of the parenting education programs provided through the six family life education center coordinators. The six family life education coordinators provide evaluation feedback to the Family Life Education Committee of the state Department of Human Services on program impacts. These impacts are then shared with state legislators.

The ND Department of Health, under the direction of the Governor of North Dakota, formed an alliance of organizations in ND that provide significant support and leadership for health-related initiatives. NDSU Extension is represented on this coalition. Networking among these professionals is invaluable, in addition to the legislative work.

A number of government and non-governmental units have formed a coalition to address the financial needs of North Dakotans. Saving more and reducing credit card debt are two of the key issues being addressed. NDSU Extension is a part of the team, and indeed, has a significant contribution as our Family Financial Specialist, also co-chaired the eXtension effort on financial security for all.

2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them

1. Methods for collecting Stakeholder Input

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Survey of traditional Stakeholder individuals
- Meeting with traditional Stakeholder individuals

Brief explanation

3. A statement of how the input will be considered

- Redirect Extension Programs
- In the Budget Process
- In the Action Plans
- To Identify Emerging Issues
- Redirect Research Programs
- To Set Priorities

Brief explanation.

The State Board for Agricultural Research and Education (SBARE) is charged with developing ongoing strategies for the dissemination of research information through the extension service; annually evaluating the results of research and extension activities and expenditures; and reporting the findings to the North Dakota Legislative Council and the State Board of Higher Education. Their findings directly affect the budgeting process.

The staff from the seven research extension centers (RECs) uses the input from winter meetings with their advisory boards to set program direction for their center.

During county staff evaluations each year, programming input is gathered from commissioners who take part in the staff

evaluations. This arrangement helps assure that extension programs are grass roots driven and are focused on local issues and needs.

The statewide Family Life Education Committee, composed of state legislators, an Extension specialist, an Extension Human Development Agent, citizens with a parenting self-interest, two administrators from the Child Division of the State Department of Human Services and the Extension Assistant Director, Nutrition, Youth and Family Science determine the availability of designated funds which direct the focus of the parenting education programs provided through the six family life education center coordinators. The six family life education coordinators provide evaluation feedback to the Family Life Education Committee of the state Department of Human Services on program impacts. These impacts are then shared with state legislators which in turn affect budgeting.

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Economics of Crop Production
2	Energy in Crop Agriculture
3	Plant Breeding
4	Weed Science
5	Soil Science
6	Biofuels
7	Insect Management
8	Center for Nutrition and Pregnancy
9	Nutrition of Grazing Livestock
10	Food Safety
11	Healthy Patterns of Eating & Physical Activity
12	Livestock Waste Management
13	Citizenship and Leadership Development
14	Developing Leadership Systems
15	Financial Security for All
16	Noxious and Invasive Weed Management
17	Fusarium head blight of wheat
18	Family Meals
19	Parent Education - Parents Forever

V(A). Planned Program (Summary)

Program #1

1. Name of the Planned Program

Economics of Crop Production

2. Brief summary about Planned Program

Crop net returns are vital to producers and the North Dakota economy. Crop producers are attempting to improve profitability by examining management choices that work best with the government farm program. Considerable variability exists among producers in their level of knowledge.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management	25%		0%	
602	Business Management, Finance, and Taxation	25%		0%	
603	Market Economics	25%		0%	
604	Marketing and Distribution Practices	25%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Crop net returns are vital to producers and the North Dakota economy. Crop producers are attempting to improve profitability by examining management choices that work best with the government farm program. Considerable variability exists among producers in their level of knowledge. Priorities are enterprise alternatives; land and machinery economics; crop insurance; financial record keeping; income tax management; marketing tools and strategies; and marketing clubs.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Crop production is the major agricultural sector in North Dakota. Management choices that work best with the government farm program will be key to net returns of producers.

2. Ultimate goal(s) of this Program

- Producers are managing risks more effectively. •Producers are employing more effective management practices.
- Farms are becoming more profitable.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	9.0	0.0	0.0	0.0
2011	9.0	0.0	0.0	0.0
2012	9.0	0.0	0.0	0.0
2013	9.0	0.0	0.0	0.0
2014	9.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Identify emerging issue. •Provide enterprise budgets, resource use alternatives, crop insurance options, marketing strategies and other resource material reflecting best management practices. •Evaluate effectiveness of alternative management practices. •Develop presentation materials. •Offer in-service education, presentations and workshops.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Group Discussion ● Education Class 	<ul style="list-style-type: none"> ● Web sites ● Newsletters

3. Description of targeted audience

- Owners, managers and employees of farm operations •Marketing club members and facilitators •Agribusiness and government agency personnel

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	5000	250000	0	0
2011	5000	250000	0	0
2012	5000	250000	0	0
2013	5000	250000	0	0
2014	5000	250000	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	10	11
2011	1	10	11
2012	1	10	11
2013	1	10	11
2014	2	10	12

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of producers and others attending workshops, marketing clubs and other events.
2	Number of participants demonstrating an increase in subject knowledge and skills.
3	Evidence of producers employing enterprise budgets, using computerized decision-making tools, writing marketing plans and adopting recommended management tools.
4	Number of marketing clubs in the state.
5	Evidence of producers having a more productive working relationship with agriculture service personnel.
6	Evidence of producers implementing activities indicated by the management tools.
7	Evidence of benefits from marketing club participation and best management practice implementation.
8	Estimated value of adopted best management practices to the individual and to the state.

Outcome #1

1. Outcome Target

Number of producers and others attending workshops, marketing clubs and other events.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 5000 **2011** : 5000 **2012** : 5000 **2013** 5000 **2014** :5000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #2

1. Outcome Target

Number of participants demonstrating an increase in subject knowledge and skills.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 2500 **2011** : 2500 **2012** : 2500 **2013** 2500 **2014** :2500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #3

1. Outcome Target

Evidence of producers employing enterprise budgets, using computerized decision-making tools, writing marketing plans and adopting recommended management tools.

2. Outcome Type : Change in Action Outcome Measure

2010 :15000 **2011** : 15000 **2012** : 15000 **2013** :15000 **2014** :15000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #4

1. Outcome Target

Number of marketing clubs in the state.

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011** : 50 **2012** : 50 **2013** :50 **2014** :50

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 603 - Market Economics

Outcome #5

1. Outcome Target

Evidence of producers having a more productive working relationship with agriculture service personnel.

2. Outcome Type : Change in Action Outcome Measure

2010 :10000 **2011** : 10000 **2012** : 10000 **2013** :10000 **2014** :10000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #6

1. Outcome Target

Evidence of producers implementing activities indicated by the management tools.

2. Outcome Type : Change in Condition Outcome Measure

2010 :7500 **2011** : 7500 **2012** : 7500 **2013** :7500 **2014** :7500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #7

1. Outcome Target

Evidence of benefits from marketing club participation and best management practice implementation.

2. Outcome Type : Change in Condition Outcome Measure

2010 90000000 **2011** : 90000000 **2012** : 90000000 **2013** 90000000 **2014** :90000000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

Outcome #8

1. Outcome Target

Estimated value of adopted best management practices to the individual and to the state.

2. Outcome Type : Change in Condition Outcome Measure

2010 90000000 **2011** : 90000000 **2012** : 90000000 **2013** 90000000 **2014** :90000000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 601 - Economics of Agricultural Production and Farm Management
- 602 - Business Management, Finance, and Taxation
- 603 - Market Economics
- 604 - Marketing and Distribution Practices

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Programmatic Challenges
- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Other (Farmer attitudes)

Description

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

1. Evaluation Studies Planned

- During (during program)

Description

2. Data Collection Methods

- On-Site
- Mail

Description

V(A). Planned Program (Summary)

Program #2

1. Name of the Planned Program

Energy in Crop Agriculture

2. Brief summary about Planned Program

Agriculture is a large user and potential producer of energy. Since the 1970s, agriculture has made progress in reducing energy use and supporting industries that have the potential to produce energy from agricultural products, but more progress is needed.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
205	Plant Management Systems	50%		0%	
402	Engineering Systems and Equipment	35%		0%	
404	Instrumentation and Control Systems	15%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Agriculture is a large user and potential producer of energy. Since the 1970's, agriculture has made progress in reducing energy use and supporting industries that have the potential to produce energy from agricultural products, but more progress is needed. Technologies to reduce fertilizer nitrogen use and fuel consumption increase the viability of developing bioenergy from grains, oilseeds, root crops and forage crops. Basic assumptions regarding the need to apply fertilizers and the rates to apply have been called into question with increasing energy costs, and with the possible change in the components of certain crops that might be removed from fields.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

- Cost of N and pesticides will continue to remain at historic highs or increase.
- Fossil fuel prices will continue to remain at historic highs or increase.
- Present crops will be grown, but some oilseeds and corn will be converted to alternative fuels.
- Some crops not currently grown will be explored for their value as fuel.
- Crops normally grown for grain will be examined for their whole-plant suitability for fuel stock.

2. Ultimate goal(s) of this Program

- Fuel use minimized (including energy background of inputs), and reduced at least 25%.
- Alternative fuel use increases.
- Production of alternative fuels increases and energy-producing crops increase in production state-wide.

V(E). Planned Program (Inputs)**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	10.0	0.0	0.0	0.0
2011	10.0	0.0	0.0	0.0
2012	10.0	0.0	0.0	0.0
2013	10.0	0.0	0.0	0.0
2014	8.0	0.0	0.0	0.0

V(F). Planned Program (Activity)**1. Activity for the Program**

- Develop presentation materials and develop resource materials
- Develop and plan workshops, demonstrations and meetings
- Transcribe scientific research into useable resources
- Continuing education demonstrations - fuel use, tillage and N use
- Cooperate with NDSU Research Extension Centers - conduct rate N calibrations and tillage fuel use studies

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Demonstrations ● Workshop ● Education Class 	<ul style="list-style-type: none"> ● TV Media Programs ● Web sites ● Newsletters

3. Description of targeted audience

- Extension staff
- Crop consultants
- Agricultural industry personnel
- Agricultural finance people
- Government workers
- Growers

V(G). Planned Program (Outputs)**1. Standard output measures**

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	3000	8000	0	0
2011	3000	10000	0	0
2012	3000	10000	0	0
2013	3000	10000	0	0
2014	3000	10000	0	0

2. (Standard Research Target) Number of Patent Applications Submitted**Expected Patent Applications**

2010 :0

2011 :0

2012 :0

2013 :0

2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	1
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of farmers gaining knowledge on new tillage options
2	Number of farmers gaining knowledge of energy alternatives
3	Number of farmers gaining knowledge of energy potential and availability of different crops
4	Number of farmers that changed their tillage habits to no-till
5	Number of farmers that make greater use of soil testing for fertilizer needs
6	Number of acres under reduced tillage
7	Number of farmers using reduced energy technologies

Outcome #1

1. Outcome Target

Number of farmers gaining knowledge on new tillage options

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :500 **2011** : 1000 **2012** : 1000 **2013** :1000 **2014** :1000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment
- 404 - Instrumentation and Control Systems

Outcome #2

1. Outcome Target

Number of farmers gaining knowledge of energy alternatives

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :750 **2011** : 750 **2012** : 750 **2013** :750 **2014** :750

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment

Outcome #3

1. Outcome Target

Number of farmers gaining knowledge of energy potential and availability of different crops

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :500 **2011** : 500 **2012** : 500 **2013** :500 **2014** :1000

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems

Outcome #4

1. Outcome Target

Number of farmers that changed their tillage habits to no-till

2. Outcome Type : Change in Action Outcome Measure

2010 :30 **2011** : 30 **2012** : 30 **2013** :30 **2014** :30

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment
- 404 - Instrumentation and Control Systems

Outcome #5

1. Outcome Target

Number of farmers that make greater use of soil testing for fertilizer needs

2. Outcome Type : Change in Action Outcome Measure

2010 200 **2011** : 200 **2012** : 200 **2013** 200 **2014** :200

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems

Outcome #6

1. Outcome Target

Number of acres under reduced tillage

2. Outcome Type : Change in Action Outcome Measure

2010 200000 **2011** : 200000 **2012** : 200000 **2013** 200000 **2014** :200000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment
- 404 - Instrumentation and Control Systems

Outcome #7

1. Outcome Target

Number of farmers using reduced energy technologies

2. Outcome Type : Change in Action Outcome Measure

2010 500 **2011** : 500 **2012** : 500 **2013** 500 **2014** :500

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment
- 404 - Instrumentation and Control Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Public Policy changes
- Economy
- Natural Disasters (drought,weather extremes,etc.)
- Appropriations changes

Description

- Drought/excessive water may limit biofuel feedstock production.
- Poor economy may limit public's willingness to pay extra for some biofuels or invest in biofuel production.
- World oil supplies may increase or decrease.
- Alternative energy sources such as ethanol and biodiesel must be available in good supply.
- Government programs to assist in economic promotion of alternative energy sources.

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

1. Evaluation Studies Planned

- During (during program)
- Retrospective (post program)

Description

- Changed practices in tillage and N fertility management on farms and ranches in North Dakota.
- By conducting a survey of changed acres to reduced- and zero-till farm lands, and the changes in cropping systems and rotations in North Dakota over the next five years.

2. Data Collection Methods

- On-Site

Description

During meeting testing
Evaluations
Request for testimony of changes made through past programming
Tracking state and federal survey of tillage practices

V(A). Planned Program (Summary)**Program #3****1. Name of the Planned Program**

Plant Breeding

2. Brief summary about Planned Program

The combination of environmental factors such as soil type, weather, pests and cultural practices are unique to North Dakota and requires the organization of breeding programs to deal with production problems while improving crop quality. Crop production is hampered each year by pathogens and insect pests. Genetic resistance in the host plant is the most cost-effective and environmentally safe means of reducing losses.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
202	Plant Genetic Resources and Biodiversity	0%		25%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		25%	
204	Plant Product Quality and Utility (Preharvest)	0%		5%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		5%	
212	Pathogens and Nematodes Affecting Plants	0%		40%	
	Total	0%		100%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

The combination of environmental factors such as soil type, weather, pests and cultural practices are unique to North Dakota and requires the organization of breeding programs to deal with production problems while improving crop quality. Crop production is hampered each year by pathogens and insect pests. Genetic resistance in the host plant is the most cost-effective and environmentally safe means of reducing losses. The priorities are to develop and release improved cultivars, germplasm lines and inbreds acceptable to producers in North Dakota and processors. Basic and applied research is conducted to provide information that will facilitate achievement of our breeding goals, improve cultural practices and enhance our understanding of the crops we breed.

2. Scope of the Program

- In-State Research

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

1. Assumptions made for the Program

Funding will remain available to do this research. Crops will continued to be attacked each year by pathogens and insect pests.

2. Ultimate goal(s) of this Program

- Adding value to our crops through our breeding efforts
- Enhanced public awareness of our germplasm lines, cultivars and inbreds

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	0.0	0.0	13.0	0.0
2011	0.0	0.0	13.0	0.0
2012	0.0	0.0	13.0	0.0
2013	0.0	0.0	13.0	0.0
2014	0.0	0.0	13.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Develop improved cultivars and inbreds
- Evaluate elite lines from other breeding programs
- Develop resource material
- Identify emerging issues
- Evaluate effectiveness of activities

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites

3. Description of targeted audience

- Producers
- Processors that utilize the grain
- Crop consultants
- Local and regional commodity groups
- Personnel in agribusiness/agrifinance
- Personnel working for government agencies

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	25	0	25
2011	25	0	25
2012	25	0	25
2013	25	0	25
2014	25	0	25

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Estimated dollar value new cultivars bring to North Dakota
2	Percent of acreage that our cultivar releases occupy for each of the crops we breed
3	Changes in breeding priorities that match needs
4	Addition of new breeding programs or addition of responsibilities to existing programs
5	Number of teams working together to develop genetic solutions
6	Number of individuals growing improved cultivars
7	Number of other breeding programs using NDSU developed germplasm

Outcome #1

1. Outcome Target

Estimated dollar value new cultivars bring to North Dakota

2. Outcome Type : Change in Condition Outcome Measure

2010 35000000 **2011** : 35000000 **2012** : 35000000 **2013** 35000000 **2014** :35000000

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Target

Percent of acreage that our cultivar releases occupy for each of the crops we breed

2. Outcome Type : Change in Condition Outcome Measure

2010 45 **2011** : 50 **2012** : 50 **2013** 50 **2014** :50

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Target

Changes in breeding priorities that match needs

2. Outcome Type : Change in Knowledge Outcome Measure

2010 0 **2011** : 0 **2012** : 0 **2013** 2 **2014** :2

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

Outcome #4

1. Outcome Target

Addition of new breeding programs or addition of responsibilities to existing programs

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 0 **2011 :** 0 **2012 :** 0 **2013 :** 0 **2014 :** 1

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 212 - Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Target

Number of teams working together to develop genetic solutions

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 7 **2011 :** 7 **2012 :** 7 **2013 :** 7 **2014 :** 7

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

Outcome #6

1. Outcome Target

Number of individuals growing improved cultivars

2. Outcome Type : Change in Action Outcome Measure

2010 : 15000 **2011 :** 15000 **2012 :** 15000 **2013 :** 15000 **2014 :** 15000

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #7

1. Outcome Target

Number of other breeding programs using NDSU developed germplasm

2. Outcome Type : Change in Action Outcome Measure

2010 :50 **2011** : 50 **2012** : 50 **2013** : 50 **2014** :50

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 202 - Plant Genetic Resources and Biodiversity
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 204 - Plant Product Quality and Utility (Preharvest)
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Economy

Description

Decreased funding, changing priorities, farmer/processor attitudes, natural disasters, economic conditions, crop diseases, and coordination and cooperation with government entities

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Retrospective (post program)
- Time series (multiple points before and after program)

Description

2. Data Collection Methods

- Observation
- Telephone
- On-Site
- Mail
- Sampling

Description

V(A). Planned Program (Summary)

Program #4

1. Name of the Planned Program

Weed Science

2. Brief summary about Planned Program

Weeds reduce the economic return from crop and rangeland production, reduce aesthetics of infested areas, and cause detrimental effects on human and animal health. Herbicides have been and will continue to be a widely used tool for weed control; however, weed resistance to herbicides, pressure to minimize input costs of weed control, and questions about proper stewardship of herbicide-resistant crop technology illustrate the need for further research with weed control systems.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
213	Weeds Affecting Plants	0%		50%	
215	Biological Control of Pests Affecting Plants	0%		20%	
216	Integrated Pest Management Systems	0%		30%	
Total		0%		100%	

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

1. Situation and priorities

Weeds reduce the economic return from crop and rangeland production, reduce aesthetics of infested areas, and cause detrimental effects on human and animal health. Herbicides have been and will continue to be a widely used tool for weed control; however, weed resistance to herbicides, pressure to minimize input costs of weed control, and questions about proper stewardship of herbicide-resistant crop technology illustrate the need for further research with weed control systems. The priority is to conduct research on control of annual and perennial weeds. Research deals primarily with chemical weed-control programs, including herbicide evaluation, antagonism investigation, application technology, adjuvant science, and herbicide-resistant weeds. Research on invasive perennial weeds relies on integration of biological, chemical and cultural methods. Research on weed biology improves the understanding of weed ecology and enhances weed-management strategies.

2. Scope of the Program

- In-State Research

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

1. Assumptions made for the Program

Funding will remain available to do this research. Weeds will continue to reduce economic return from crop and rangeland production, and reduce aesthetics of infested areas, and cause detrimental effects on human and animal health.

2. Ultimate goal(s) of this Program

- Adding value to our crops through our research efforts
- Enhanced public awareness of our research and recommendations

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	0.0	0.0	4.0	0.0
2011	0.0	0.0	4.0	0.0
2012	0.0	0.0	4.0	0.0
2013	0.0	0.0	4.0	0.0
2014	0.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

1. Evaluate new herbicides, herbicide formulations, and new adjuvants
2. Determine antagonisms between herbicides
3. Determine better methods for applying herbicides
4. Determine the prevalence of herbicide resistant weeds

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Demonstrations 	<ul style="list-style-type: none"> ● Web sites ● Newsletters

3. Description of targeted audience

1. Producers
2. Crop consultants
3. Extension state specialists and county educators
4. Commodity groups

5. Personnel in agribusiness and agrifinance

6. Personnel working for government agencies

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	5	2	7
2011	5	2	7
2012	5	2	7
2013	5	2	7
2014	5	2	7

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Changes in weed science research priorities that match needs
2	Yearly updating of Weed Control Guide to reflect new herbicides and knowledge gained through research
3	Number of teams working together to develop solutions
4	Development of enhanced weed-management strategies that incorporate knowledge gained on the biology of weeds
5	Improved control of invasive perennial weeds using integrated methods
6	Delayed evolution of herbicide-resistant weeds
7	Estimated dollar value weed-control brings to North Dakota
8	Percent of producers that utilize our recommendations

Outcome #1**1. Outcome Target**

Changes in weed science research priorities that match needs

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 0	2011 : 0	2012 : 0	2013 : 1	2014 : 1
-----------------	-----------------	-----------------	-----------------	-----------------

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #2**1. Outcome Target**

Yearly updating of Weed Control Guide to reflect new herbicides and knowledge gained through research

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 1	2011 : 1	2012 : 1	2013 : 1	2014 : 1
-----------------	-----------------	-----------------	-----------------	-----------------

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #3**1. Outcome Target**

Number of teams working together to develop solutions

2. Outcome Type : Change in Knowledge Outcome Measure

2010 : 3	2011 : 3	2012 : 3	2013 : 3	2014 : 3
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3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #4**1. Outcome Target**

Development of enhanced weed-management strategies that incorporate knowledge gained on the biology of weeds

2. Outcome Type : Change in Action Outcome Measure

2010 :1 **2011 :**1 **2012 :**0 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #5

1. Outcome Target

Improved control of invasive perennial weeds using integrated methods

2. Outcome Type : Change in Action Outcome Measure

2010 :1 **2011 :**1 **2012 :**0 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #6

1. Outcome Target

Delayed evolution of herbicide-resistant weeds

2. Outcome Type : Change in Action Outcome Measure

2010 :1 **2011 :**0 **2012 :**0 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #7

1. Outcome Target

Estimated dollar value weed-control brings to North Dakota

2. Outcome Type : Change in Condition Outcome Measure

2010 :1000000000 **2011 :**1000000000 **2012 :**1000000000 **2013 :**1000000000 **2014 :**1000000000

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #8

1. Outcome Target

Percent of producers that utilize our recommendations

2. Outcome Type : Change in Condition Outcome Measure

2010 90 **2011** : 90 **2012** : 90 **2013** 90 **2014** :90

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Public Policy changes
- Economy
- Appropriations changes
- Government Regulations

Description

Decreased funding, changing priorities, changes in federal farm policy, farmer/consumer attitudes, herbicide-resistant crops and weeds, economic conditions, and coordination and cooperation with government entities.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- Time series (multiple points before and after program)
- Before-After (before and after program)
- During (during program)

Description

2. Data Collection Methods

- On-Site
- Mail
- Observation
- Sampling

Description

V(A). Planned Program (Summary)

Program #5

1. Name of the Planned Program

Soil Science

2. Brief summary about Planned Program

Nitrogen costs are historically high, and a number of surface and groundwaters in North Dakota are impaired with nitrates from over-application in crop land. Re-evaluation of N management and crop needs may result in lower N rates required to maintain yield or sustain profit, while less N is lost to the environment.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	80%		80%	
205	Plant Management Systems	20%		20%	
	Total	100%		100%	

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

1. Situation and priorities

Nitrogen costs are historically high, and a number of surface and groundwaters in North Dakota are impaired with nitrates from over-application in crop land. Reevaluation of N management and crop needs may result in lower N rates required to maintain yield or sustain profit, while less N is lost to the environment. The goal is to evaluate N use rates in a variety of crops, investigate better use of manures and residues, include the N contribution of previous crops and residues in N fertilizer recommendations, and investigate the interaction of N with other nutrients and varieties. Another priority is to document current nitrate levels in North Dakota ground and surface waters.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension
- In-State Research

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

1. Assumptions made for the Program

Funding will remain available to do this research. Nitrogen costs will remain high and nitrates will continue to be a concern in surface and groundwaters in North Dakota.

2. Ultimate goal(s) of this Program

- Grower profit increases
- Quality of ground and surface water is enhanced
- Alternative sources of N adopted by growers
- Wildlife habitat quality improved

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	1.0	0.0	3.0	0.0
2011	1.0	0.0	3.0	0.0
2012	1.0	0.0	3.0	0.0
2013	1.0	0.0	3.0	0.0
2014	1.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•N rate calibration research projects •Update producer-oriented resource materials to reflect research results of N rate studies
 •Present research results at workshops, field days and conferences •Evaluate nitrate levels in waterways

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class 	<ul style="list-style-type: none"> ● Newsletters ● Other 2 (Radio/TV) ● Other 1 (Circulars) ● Web sites

3. Description of targeted audience

•Growers •Soil testing laboratories •Government agencies •Federal land managers •Consultants, agricultural industry staff, public

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	3000	100000	100	5
2011	3000	100000	100	5
2012	3000	100000	100	5
2013	3000	100000	100	5
2014	3000	100000	100	5

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	3	2	5
2011	3	2	5
2012	3	2	5
2013	3	2	5
2014	3	2	5

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of individuals receiving individual assistance
2	Number of individuals decreasing excessive N use
3	Number of individuals using alternative N sources
4	Number of individuals implementing recommended action or practice
5	Continued decline of N in ground and surface water (%)
6	Estimated dollar value of adopted best management practices (\$)
7	Less commercial N is used (%)

Outcome #1

1. Outcome Target

Number of individuals receiving individual assistance

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :4000 **2011** : 4000 **2012** : 4000 **2013** :4000 **2014** :4000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #2

1. Outcome Target

Number of individuals decreasing excessive N use

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :2000 **2011** : 2000 **2012** : 2000 **2013** :2000 **2014** :1000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #3

1. Outcome Target

Number of individuals using alternative N sources

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :1000 **2011** : 1000 **2012** : 1000 **2013** :1000 **2014** :500

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #4

1. Outcome Target

Number of individuals implementing recommended action or practice

2. Outcome Type : Change in Action Outcome Measure

2010 :1000 **2011 :** 1000 **2012 :** 1000 **2013 :**1000 **2014 :**500

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #5

1. Outcome Target

Continued decline of N in ground and surface water (%)

2. Outcome Type : Change in Action Outcome Measure

2010 : 2 **2011 :** 2 **2012 :** 2 **2013 :** 2 **2014 :** 2

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #6

1. Outcome Target

Estimated dollar value of adopted best management practices (\$)

2. Outcome Type : Change in Condition Outcome Measure

2010 : 20000000 **2011 :** 20000000 **2012 :** 20000000 **2013 :** 20000000 **2014 :** 10000000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

Outcome #7

1. Outcome Target

Less commercial N is used (%)

2. Outcome Type : Change in Condition Outcome Measure

2010 : 5 **2011 :** 2 **2012 :** 2 **2013 :** 2 **2014 :** 2

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Government Regulations
- Public Policy changes

Description

N costs will remain high for some time; adoption of new N sources and rates; availability of funding for research; resistance of fertilizer industry to reduced sales; N sources in water not from agriculture.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Description

Extension educator surveys

During (during program) -Pre and post meeting tests of knowledge of information covered at training.

Retrospective (post program) -Analysis of tonnage figures, streams and other surface water impairment data, feedback through evaluations of changes in grower behavior due to previous trainings.

2. Data Collection Methods

- On-Site

Description

Government Agencies - Analysis of pre and post tests.

Comparison of surface water nitrate levels before, during and at intervals during training series.

ND Dept of Ag fertilizer tonnage data.

V(A). Planned Program (Summary)

Program #6

1. Name of the Planned Program

Biofuels

2. Brief summary about Planned Program

Petroleum supplies more than 95 percent of our transportation fuel needs. Increasing national and global demand for a limited petroleum supply has contributed to large increases in fuel costs. Biobased transportation fuels will strengthen rural economies by adding value to crops and crop residues while decreasing agriculture-related fuel costs. Additional benefits include decreased national reliance on foreign energy sources, the environmental benefits of reduced greenhouse gas emissions, potential increase in livestock production by use of co-products, and use of products that might otherwise require disposal.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
403	Waste Disposal, Recycling, and Reuse	5%		5%	
511	New and Improved Non-Food Products and Processes	80%		80%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	15%		15%	
	Total	100%		100%	

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

1. Situation and priorities

Petroleum supplies more than 95 percent of our transportation fuel needs. Increasing national and global demand for a limited petroleum supply has contributed to large increases in fuel costs. Biobased transportation fuels will strengthen rural economies by adding value to crops and crop residues while decreasing agriculture-related fuel costs. Additional benefits include decreased national reliance on foreign energy sources, the environmental benefits of reduced greenhouse gas emissions and increased opportunities for rural workforce employment. Priorities include making significant improvements in biomass collection, storage, transportation, pre-processing and conversion. Additional challenges are in the areas of process economics, economic policy, agronomics, crop development, product quality and marketing.

2. Scope of the Program

- In-State Research
- Integrated Research and Extension
- In-State Extension

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

1. Assumptions made for the Program

Funding will remain available to do this research. Petroleum supplies will be limited due to increasing national and global demand. Federal and state support will increase. Public support will be a driving force. Industrial support will increase.

2. Ultimate goal(s) of this Program

- Biofuels research is viewed as an area of strength for NDSU.
- Quality of biofuels research at NDSU is recognized by funding agencies and peer institutions.
- Strong institutional culture of collaborative, interdisciplinary research in biofuels.
- Improved economic viability of production agriculture and related industries.
- Displacement of some petroleum resources.
- Some diversification of regional production agriculture.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	0.5	0.0	2.0	0.0
2011	0.5	0.0	2.1	0.0
2012	0.5	0.0	2.1	0.0
2013	0.5	0.0	2.1	0.0
2014	0.5	0.0	2.1	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Identify research needs critical to North Dakota.
- Identify NDSU faculty, industries and other universities for collaboration.
- Expand research infrastructure and faculty expertise.
- Present results through publications and conference presentations.
- Educate through extension programming.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Newsletters ● Other 2 (Articles in the popular press) ● Other 1 (News releases) ● Web sites

3. Description of targeted audience

- Farmers
- Policymakers
- Biomass processors
- Equipment manufacturers
- Peer researchers
- Students
- The public

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	150	500	40	200
2011	175	500	40	300
2012	200	750	40	300
2013	200	750	50	300
2014	200	1000	50	300

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

Expected Patent Applications

2010 :0 2011 :1 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	4	2	6
2011	4	2	6
2012	5	1	6
2013	5	1	6
2014	5	1	6

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of faculty collaborations working on biofuels projects.
2	Number of proposals submitted for biofuels projects.
3	Number of graduate students working on biofuels projects.
4	Number of biofuels-related papers published by NDSU faculty.
5	Grant money received for biofuels research.
6	Increased demand for NDSU graduate students in academia/industry.
7	Increase in quality/quantity of student applicants in biofuels-related fields.
8	Biobased industries seek out NDSU faculty for collaborations on biofuels projects.
9	State and federal policymakers seek out NDSU faculty input.

Outcome #1

1. Outcome Target

Number of faculty collaborations working on biofuels projects.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 5 **2011** : 6 **2012** : 6 **2013** 5 **2014** :5

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #2

1. Outcome Target

Number of proposals submitted for biofuels projects.

2. Outcome Type : Change in Action Outcome Measure

2010 5 **2011** : 7 **2012** : 7 **2013** 7 **2014** :7

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #3

1. Outcome Target

Number of graduate students working on biofuels projects.

2. Outcome Type : Change in Action Outcome Measure

2010 3 **2011** : 4 **2012** : 5 **2013** 5 **2014** :6

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #4

1. Outcome Target

Number of biofuels-related papers published by NDSU faculty.

2. Outcome Type : Change in Action Outcome Measure

2010 : 4 **2011 :** 5 **2012 :** 6 **2013 :** 6 **2014 :** 6

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #5

1. Outcome Target

Grant money received for biofuels research.

2. Outcome Type : Change in Action Outcome Measure

2010 : 1250000 **2011 :** 1250000 **2012 :** 1500000 **2013 :** 150000 **2014 :** 250000

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #6

1. Outcome Target

Increased demand for NDSU graduate students in academia/industry.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 2 **2011 :** 2 **2012 :** 2 **2013 :** 3 **2014 :** 3

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #7

1. Outcome Target

Increase in quality/quantity of student applicants in biofuels-related fields.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 6 **2011 :** 8 **2012 :** 8 **2013 :** 8 **2014 :** 9

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #8

1. Outcome Target

Biobased industries seek out NDSU faculty for collaborations on biofuels projects.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 4 **2011 :** 4 **2012 :** 5 **2013 :** 5 **2014 :** 6

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

Outcome #9

1. Outcome Target

State and federal policymakers seek out NDSU faculty input.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 6 **2011 :** 6 **2012 :** 6 **2013 :** 8 **2014 :** 8

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Competing Public priorities
- Appropriations changes
- Government Regulations
- Public Policy changes
- Economy
- Natural Disasters (drought,weather extremes,etc.)

Description

Research funding priorities, public opinion, cost of petroleum, conversion technology breakthroughs, development of competing energy technologies, competing land uses (agricultural and other), public recognition of global climate change, and effect of climate change on agricultural productivity may affect activity and productivity.

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

1. Evaluation Studies Planned

- Comparisons between program participants (individuals,group,organizations) and non-participants
- Before-After (before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Time series (multiple points before and after program)
- During (during program)

Description

Evaluation studies and data collection will be done before, during, and after the program. Data and results will be compared between program participants.

2. Data Collection Methods

- Observation
- Sampling
- Tests

Description

Data will be collected using scientific method to include sampling, testing, and observation.

V(A). Planned Program (Summary)

Program #7

1. Name of the Planned Program

Insect Management

2. Brief summary about Planned Program

Understanding the ecology and behavior of arthropod populations to mitigate harmful impacts and to preserve ecosystem health.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
211	Insects, Mites, and Other Arthropods Affecting Plants	55%		55%	
216	Integrated Pest Management Systems	40%		40%	
721	Insects and Other Pests Affecting Humans	5%		5%	
	Total	100%		100%	

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

1. Situation and priorities

Understanding the ecology and behavior of arthropod populations to mitigate harmful impacts and to preserve ecosystem health. Priorities are protecting our urban, agricultural and natural ecosystems from native and introduced insects and insect outbreaks, and developing effective and economical integrated pest management practices that are adaptive and meet social and regulatory constraints.

2. Scope of the Program

- In-State Extension
- Integrated Research and Extension
- In-State Research

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

1. Assumptions made for the Program

Funding will remain available to support this program. Pests will remain an issue in agriculture, livestock, trees, shrubs, and for homeowners.

2. Ultimate goal(s) of this Program

- Increase agriculture profitability by decreasing costs and improving pest management decision-making
- Decrease health and environmental risk from insect management
- Enhanced insect diagnostic capacity

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	2.0	0.0	4.0	0.0
2011	2.0	0.0	4.0	0.0
2012	2.0	0.0	4.0	0.0
2013	2.0	0.0	4.0	0.0
2014	2.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Assess emerging pest issues
- Provide insect diagnostics
- Provide bio-based pest management systems
- Meet social and regulatory needs
- Evaluate activity effectiveness

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop 	<ul style="list-style-type: none"> ● Other 1 (electronic mail lists) ● Newsletters ● Public Service Announcement ● Web sites ● TV Media Programs

3. Description of targeted audience

- Crop and animal agricultural producers
- Home owners
- Agribusiness
- Government and NGO agency personnel
- Medical professionals
- Crop consultants
- General public

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	5000	100000	8000	0
2011	5000	100000	8000	0
2012	5000	100000	8000	0
2013	5000	100000	8000	0
2014	5000	100000	8000	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	12	75	87
2011	12	75	87
2012	12	75	87
2013	12	75	87
2014	12	75	87

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Pest alerts disseminated through various channels
2	Improved pest management practices based on currently available research knowledge
3	Relevant research and extension programs in entomology initiated
4	Conduct diagnostic insect identification review session with Plant Diagnostics Lab
5	Output materials made available to users
6	Accurate insect diagnostics and reporting integrated with Plant Diagnostics Lab, National Plant Diagnostic Network and others
7	Pest management technologies that meet social and regulatory constraints
8	Estimation of adoption rate of best pest management practices
9	Insect diagnostic capacity meeting national needs

Outcome #1

1. Outcome Target

Pest alerts disseminated through various channels

2. Outcome Type : Change in Knowledge Outcome Measure

2010 9000 **2011** : 9000 **2012** : 9000 **2013** 9000 **2014** :9000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #2

1. Outcome Target

Improved pest management practices based on currently available research knowledge

2. Outcome Type : Change in Knowledge Outcome Measure

2010 550 **2011** : 550 **2012** : 550 **2013** 550 **2014** :550

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #3

1. Outcome Target

Relevant research and extension programs in entomology initiated

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :1 **2011** : 1 **2012** : 1 **2013** :1 **2014** :1

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #4

1. Outcome Target

Conduct diagnostic insect identification review session with Plant Diagnostics Lab

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :3 **2011 :**3 **2012 :**3 **2013 :**3 **2014 :**3

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #5

1. Outcome Target

Output materials made available to users

2. Outcome Type : Change in Action Outcome Measure

2010 :100 **2011 :**100 **2012 :**100 **2013 :**100 **2014 :**100

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #6

1. Outcome Target

Accurate insect diagnostics and reporting integrated with Plant Diagnostics Lab, National Plant Diagnostic Network and others

2. Outcome Type : Change in Action Outcome Measure

2010 :14000 **2011 :**14000 **2012 :**14000 **2013 :**14000 **2014 :**14000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #7

1. Outcome Target

Pest management technologies that meet social and regulatory constraints

2. Outcome Type : Change in Condition Outcome Measure

2010 :1 **2011 :**1 **2012 :**1 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

Outcome #8

1. Outcome Target

Estimation of adoption rate of best pest management practices

2. Outcome Type : Change in Condition Outcome Measure

2010 :1 **2011 :**1 **2012 :**1 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #9

1. Outcome Target

Insect diagnostic capacity meeting national needs

2. Outcome Type : Change in Condition Outcome Measure

2010 :1 **2011 :**1 **2012 :**1 **2013 :**1 **2014 :**1

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems
- 721 - Insects and Other Pests Affecting Humans

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)
- Economy
- Public Policy changes

Description

Decreased funding and personnel, social and regulatory constraints to pest management practices, economic conditions, invasive species, climate and farming practice changes.

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

1. Evaluation Studies Planned

- During (during program)
- Before-After (before and after program)
- Retrospective (post program)
- After Only (post program)

Description

2. Data Collection Methods

- Sampling
- Mail
- Tests
- On-Site
- Journals
- Observation
- Other (Research trials)

Description

V(A). Planned Program (Summary)

Program #8

1. Name of the Planned Program

Center for Nutrition and Pregnancy

2. Brief summary about Planned Program

Increasing evidence suggests that fetal development plays a role in postnatal growth, development, productivity, reproductive success, and fetal survival, as well as long-term health and longevity of offspring. Improved understanding of the impacts of reproductive function, especially nutritional modulation, will result in improved livestock productivity and enhanced human health.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals	0%		40%	
302	Nutrient Utilization in Animals	0%		40%	
305	Animal Physiological Processes	0%		10%	
702	Requirements and Function of Nutrients and Other Food Components	0%		10%	
	Total	0%		100%	

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

1. Situation and priorities

Increasing evidence suggests that fetal development plays a role in postnatal growth, development, productivity, reproductive success, and fetal survival, as well as long-term health, productivity, and longevity of the offspring even into adulthood. Improved understanding of the impacts of reproductive function, especially nutritional modulation, will result in improved livestock productivity and enhanced human health. Priorities are to develop nutritional and therapeutic strategies that promote fetal and neonatal growth and development resulting in offspring that are healthy throughout infancy, adolescence and adulthood; promote maternal health and well being; and improve quality and nutritional value of resulting food products.

2. Scope of the Program

- In-State Research

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

1. Assumptions made for the Program

Funding will remain available to do this research. Long-term health, productivity, and longevity of offspring will be continue to be a focus of attention for animals and humans.

2. Ultimate goal(s) of this Program

- Improved livestock and human health
- Increased research capacity
- Increased livestock production efficiency
- Improved understanding of long-term nutritional impacts on product quality in livestock production systems

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	0.0	0.0	4.0	0.0
2011	0.0	0.0	4.0	0.0
2012	0.0	0.0	4.0	0.0
2013	0.0	0.0	4.0	0.0
2014	0.0	0.0	4.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Research projects
- Train students
- Publish research
- Secure funding
- Develop recommendations
- Identify emerging trends and issues
- Improve methodology
- Collaborate

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Group Discussion ● Education Class 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● TV Media Programs

3. Description of targeted audience

- Students: graduate and under-graduate
- Livestock producers
- Human health professionals
- Scientific peer groups
- Policy and agency influences
- Media professionals

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	14	0	14
2011	14	0	14
2012	14	0	14
2013	14	0	14
2014	14	0	14

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Numbers of producers with enhanced knowledge from livestock programming events
2	Number of grant requests for multidisciplinary educational, extension and research collaborative activities
3	Number of visiting scientists to the NDSU Department of Animal Sciences
4	Monitor cases of pregnancy-based metabolic diseases
5	Monitor North Dakota agricultural statistics to measure pregnancy rates of North Dakota livestock operations

Outcome #1

1. Outcome Target

Numbers of producers with enhanced knowledge from livestock programming events

2. Outcome Type : Change in Knowledge Outcome Measure

2010 40 **2011** : 25 **2012** : 25 **2013** 25 **2014** :25

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 702 - Requirements and Function of Nutrients and Other Food Components

Outcome #2

1. Outcome Target

Number of grant requests for multidisciplinary educational, extension and research collaborative activities

2. Outcome Type : Change in Action Outcome Measure

2010 5 **2011** : 5 **2012** : 5 **2013** 5 **2014** :5

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 702 - Requirements and Function of Nutrients and Other Food Components

Outcome #3

1. Outcome Target

Number of visiting scientists to the NDSU Department of Animal Sciences

2. Outcome Type : Change in Action Outcome Measure

2010 3 **2011** : 3 **2012** : 3 **2013** 3 **2014** :3

3. Associated Institute Type(s)

•1862 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 702 - Requirements and Function of Nutrients and Other Food Components

Outcome #4

1. Outcome Target

Monitor cases of pregnancy-based metabolic diseases

2. Outcome Type : Change in Condition Outcome Measure

2010 0 2011 : 0 2012 : 0 2013 0 2014 : 0

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals
- 302 - Nutrient Utilization in Animals
- 305 - Animal Physiological Processes
- 702 - Requirements and Function of Nutrients and Other Food Components

Outcome #5

1. Outcome Target

Monitor North Dakota agricultural statistics to measure pregnancy rates of North Dakota livestock operations

2. Outcome Type : Change in Condition Outcome Measure

2010 0 2011 : 0 2012 : 0 2013 0 2014 : 0

3. Associated Institute Type(s)

- 1862 Research

4. Associated Knowledge Area(s)

- 301 - Reproductive Performance of Animals

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Public Policy changes

Description

Decreased funding, changing priorities, producer attitudes, economic conditions, change in focus of agencies and the institution.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Description

2. Data Collection Methods

- On-Site

Description

V(A). Planned Program (Summary)

Program #9

1. Name of the Planned Program

Nutrition of Grazing Livestock

2. Brief summary about Planned Program

Feed costs associated with maintaining beef cows average 66 percent of total cash costs of production. Proper nutrition of the cow herd and cost effective use of dollars spent on purchased feed inputs is critical to the success of livestock operations. Over 44 percent of North Dakota's land use is associated with rangeland, pasture land, and hay land.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
121	Management of Range Resources	50%		0%	
302	Nutrient Utilization in Animals	50%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Feed costs associated with maintaining beef cows average 66 percent of total cash costs of production. Proper nutrition of the cow herd and cost effective use of dollars spent on purchased feed inputs is critical to the success of livestock operations. Over 44 percent of North Dakota's land use is associated with rangeland, pasture land, and hay land. Pasture costs (purchase and rental) continue to increase. Proper nutrient management of grazed forages, implementation of an efficient grazing system (including timing of grazing), and stored winter forages along with supplemental feeds, can play a vital role in profitability of cow-calf producers in North Dakota.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Cattle will continue to be a large part of the agricultural industry in North Dakota. Pastures will continue to be one of the economical ways to meet the nutritional needs of cattle.

2. Ultimate goal(s) of this Program

- Improved profitability and productivity of North Dakota livestock operations
- Improved rangeland productivity and health through improved management

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	6.0	0.0	0.0	0.0
2011	6.0	0.0	0.0	0.0
2012	6.0	0.0	0.0	0.0
2013	6.0	0.0	0.0	0.0
2014	6.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Develop presentation materials •Develop resource material •Provide presentations and workshops •Translate scientific and technical materials into lay materials •Identify emerging issues •Evaluate effectiveness of activities

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class ● Demonstrations 	<ul style="list-style-type: none"> ● Web sites ● Newsletters

3. Description of targeted audience

•Livestock producers •4-H youth •Feed and pharmaceutical industry personnel •Government agency personnel
•Veterinarians

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	425	1600	0	0
2011	450	1750	0	0
2012	475	1850	0	0
2013	500	2000	0	0
2014	500	2100	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	1
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of individuals receiving training and education
2	Number of individuals demonstrating increase in subject knowledge and skills
3	Number of producers implementing recommended actions or practices
4	Number of producers participating in government cost-share programs for range conservation
5	Estimated cost of production for North Dakota cattle ranches
6	Number of ranches implementing range management practices

Outcome #1

1. Outcome Target

Number of individuals receiving training and education

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :25 **2011** : 450 **2012** : 475 **2013** 500 **2014** :500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 302 - Nutrient Utilization in Animals

Outcome #2

1. Outcome Target

Number of individuals demonstrating increase in subject knowledge and skills

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :125 **2011** : 150 **2012** : 175 **2013** 200 **2014** :200

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 302 - Nutrient Utilization in Animals

Outcome #3

1. Outcome Target

Number of producers implementing recommended actions or practices

2. Outcome Type : Change in Action Outcome Measure

2010 30 **2011** : 35 **2012** : 40 **2013** 45 **2014** :45

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 302 - Nutrient Utilization in Animals

Outcome #4

1. Outcome Target

Number of producers participating in government cost-share programs for range conservation

2. Outcome Type : Change in Action Outcome Measure

2010 60 **2011** : 70 **2012** : 75 **2013** 80 **2014** :80

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources

Outcome #5

1. Outcome Target

Estimated cost of production for North Dakota cattle ranches

2. Outcome Type : Change in Condition Outcome Measure

2010 :525 2011 : 550 2012 : 600 2013 :625 2014 :625

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources
- 302 - Nutrient Utilization in Animals

Outcome #6

1. Outcome Target

Number of ranches implementing range management practices

2. Outcome Type : Change in Condition Outcome Measure

2010 :50 2011 : 60 2012 : 60 2013 :70 2014 :70

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 121 - Management of Range Resources

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Cattle production cycles and prices; changing priorities; farmer/rancher attitudes; natural disasters and environmental impacts; changing priorities of government agencies and policy makers. Changing government appropriations for conservation programs.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)
- Before-After (before and after program)

Description

Survey tools will be developed to evaluate the effectiveness of educational programs based on knowledge gained and changes in attitude and behavior.

2. Data Collection Methods

- Mail
- On-Site

Description

V(A). Planned Program (Summary)

Program #10

1. Name of the Planned Program

Food Safety

2. Brief summary about Planned Program

Food safety from farm to table remains an issue of concern in the U.S. Over 5,000 deaths and 76 million cases of foodborne illness occur annually. About half the food dollar is spend on foods away from home, and more people are involved in the handling of foods.

3. Program existence : Mature (More then five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
504	Home and Commercial Food Service	75%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Food safety from farm to table remains an issue of concern in the U.S. Over 5,000 deaths and 76 million cases of foodborne illness occur annually. About half the food dollar is spend on foods away from home, and more people are involved in the handling of foods. Priorities are safe food handling in the home and in the foodservice/processing sectors.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Food safety will remain an issue of concern in the U.S.

2. Ultimate goal(s) of this Program

Foodborne illness outbreaks will decrease.

Food companies will decrease recalls.

Food businesses will change policies and implement HACCP.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	7.0	0.0	0.0	0.0
2011	7.0	0.0	0.0	0.0
2012	7.0	0.0	0.0	0.0
2013	7.0	0.0	0.0	0.0
2014	7.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Implement programs for children and adults based on Fight BAC, Thermy, Produce Safety and BAC Down campaigns; USDA food preservation rules; and implement food safety programs for foodservice and processors (ServSafe, TAPS, HACCP).

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Demonstrations ● Group Discussion 	<ul style="list-style-type: none"> ● Web sites ● Newsletters ● Public Service Announcement ● TV Media Programs

3. Description of targeted audience

Children in school and youth program settings

Teen food handlers in high school and community

Adults in home settings

Volunteer food handlers in community settings

Professionals in foodservice and food processing environments

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	5000	400000	2500	25000
2011	5000	400000	2500	25000
2012	5000	400000	2500	25000
2013	5000	400000	2500	25000
2014	5000	400000	2500	25000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	2	3
2011	1	2	3
2012	1	2	3
2013	1	2	3
2014	1	2	3

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Based on post-surveys, 75 percent of children participating in handwashing classes will report intentions to wash hands properly
2	Based on post-surveys, 50 percent of teens will report changes in food handling practices to reduce risk of foodborne illness outbreaks
3	Seventy-five percent of foodservice and food industry participants in ServSafe, HACCP or other food sanitation courses will pass the examination.
4	Based on post-surveys, 50 percent of adult participants in consumer food safety classes will report intent to change one or more food handling behaviors.

Outcome #1**1. Outcome Target**

Based on post-surveys, 75 percent of children participating in handwashing classes will report intentions to wash hands properly

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :500 2011 : 500 2012 : 500 2013 :500 2014 :500

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 504 - Home and Commercial Food Service
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #2**1. Outcome Target**

Based on post-surveys, 50 percent of teens will report changes in food handling practices to reduce risk of foodborne illness outbreaks

2. Outcome Type : Change in Action Outcome Measure

2010 :1200 2011 : 1200 2012 : 1200 2013 :1200 2014 :1200

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 504 - Home and Commercial Food Service
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3**1. Outcome Target**

Seventy-five percent of foodservice and food industry participants in ServSafe, HACCP or other food sanitation courses will pass the examination.

2. Outcome Type : Change in Action Outcome Measure

2010 :60 2011 : 60 2012 : 60 2013 :60 2014 :60

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 504 - Home and Commercial Food Service
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #4**1. Outcome Target**

Based on post-surveys, 50 percent of adult participants in consumer food safety classes will report intent to change one or more food handling behaviors.

2. Outcome Type : Change in Condition Outcome Measure

2010 :3000

2011 :3000

2012 :3000

2013 :3000

2014 :3000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 504 - Home and Commercial Food Service
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Government Regulations
- Appropriations changes
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities

Description

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

1. Evaluation Studies Planned

- Retrospective (post program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Description

NDSU Extension has adopted the Kirkpatrick Model for evaluation of Extension programming. All staff have had two opportunities to receive specific training with this model from an Evaluation expert in the Education Department. Each team leader is working with this expert to develop a comprehensive plan for evaluation of their program.

2. Data Collection Methods

- Sampling
- On-Site
- Tests

Description

V(A). Planned Program (Summary)

Program #11

1. Name of the Planned Program

Healthy Patterns of Eating & Physical Activity

2. Brief summary about Planned Program

Changes in food intake and physical activity patterns in North Dakota have increased the prevalence of overweight and obesity and the risk for chronic diseases such as heart disease, type 2 diabetes and cancer.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	70%		0%	
724	Healthy Lifestyle	10%		0%	
806	Youth Development	20%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Changes in food intake and physical activity patterns in North Dakota have increased the prevalence of overweight and obesity and the risk for chronic diseases such as heart disease, type 2 diabetes and cancer. Priorities are promoting the development/maintenance of healthy lifestyles for individuals/families within homes, worksites and communities.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Overweight and obesity plus physical inactivity will continue to be a problem in North Dakota. Chronic disease (heart disease, type 2 diabetes and certain types of cancer) related to overweight and obesity will continue to be a problem in North Dakota.

2. Ultimate goal(s) of this Program

Increase in number of people with healthy body weights.

Reduction in risk factors for development of chronic diseases.

Reduction in chronic diseases .

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	8.0	0.0	0.0	0.0
2011	8.0	0.0	0.0	0.0
2012	8.0	0.0	0.0	0.0
2013	8.0	0.0	0.0	0.0
2014	8.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Identify emerging issues.

Translate scientific data.

Develop lessons and curricula.

Develop public campaigns.

Promote changes in public policy.

Train extension agents.

Develop evaluation methodology.

Analyze/report impacts.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Demonstrations ● Education Class ● Group Discussion 	<ul style="list-style-type: none"> ● Billboards ● Web sites ● Public Service Announcement ● Newsletters

3. Description of targeted audience

Youth - schools, afterschool, 4-H

Adults - homes, worksites, communities, people with chronic disease

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	7000	400000	7000	25000
2011	7000	400000	7000	25000
2012	7000	400000	7000	25000
2013	7000	400000	7000	25000
2014	7000	400000	7000	25000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	3	4
2011	1	3	4
2012	1	3	4
2013	1	3	4
2014	1	3	4

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Based on follow-up surveys of adult participants in walking programs, 50 percent will report increased number of steps or minutes of walking
2	Based on follow-up surveys of adult participants in nutrition education programs, 25 percent will report a change in behavior to be more consistent with current nutrition recommendations based on MyPyramid
3	Based on follow-up surveys of parents of children participating in nutrition education programs, 25 percent of parents will report a family behavior change to be consistent with current recommendations
4	Based on post-surveys of children involved in multi-session nutrition/fitness classes, 25 percent of participants will report a change in nutrition or fitness behavior to be consistent with current MyPyramid recommendations
5	Based on program evaluations, 25 percent of adult participants will demonstrate an increased knowledge and an intent to change nutrition behavior, which may help prevent diabetes or improve disease management.

Outcome #1

1. Outcome Target

Based on follow-up surveys of adult participants in walking programs, 50 percent will report increased number of steps or minutes of walking

2. Outcome Type : Change in Action Outcome Measure

2010 500 **2011** : 500 **2012** : 500 **2013** 500 **2014** :500

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 806 - Youth Development

Outcome #2

1. Outcome Target

Based on follow-up surveys of adult participants in nutrition education programs, 25 percent will report a change in behavior to be more consistent with current nutrition recommendations based on MyPyramid

2. Outcome Type : Change in Action Outcome Measure

2010 5000 **2011** : 5000 **2012** : 5000 **2013** 5000 **2014** :5000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior

Outcome #3

1. Outcome Target

Based on follow-up surveys of parents of children participating in nutrition education programs, 25 percent of parents will report a family behavior change to be consistent with current recommendations

2. Outcome Type : Change in Action Outcome Measure

2010 3000 **2011** : 3000 **2012** : 3000 **2013** 3000 **2014** :3000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 806 - Youth Development

Outcome #4

1. Outcome Target

Based on post-surveys of children involved in multi-session nutrition/fitness classes, 25 percent of participants will report a change in nutrition or fitness behavior to be consistent with current MyPyramid recommendations

2. Outcome Type : Change in Action Outcome Measure**2010** :3500**2011** : 3500**2012** : 3500**2013** 3500**2014** :3500**3. Associated Institute Type(s)**

- 1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 806 - Youth Development

Outcome #5**1. Outcome Target**

Based on program evaluations, 25 percent of adult participants will demonstrate an increased knowledge and an intent to change nutrition behavior, which may help prevent diabetes or improve disease management.

2. Outcome Type : Change in Knowledge Outcome Measure**2010** :125**2011** : 125**2012** : 125**2013** :125**2014** :125**3. Associated Institute Type(s)**

- 1862 Extension

4. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

V(J). Planned Program (External Factors)**1. External Factors which may affect Outcomes**

- Economy
- Government Regulations
- Public Policy changes
- Competing Public priorities

Description

Funding priorities; economic impacts such as cost of health care; societal attitudes; policy changes; coordination and cooperation with government agencies.

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

- Comparisons between program participants (individuals,group,organizations) and non-participants
- During (during program)
- Comparison between locales where the program operates and sites without program intervention
- Before-After (before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Retrospective (post program)

Description

During (during program).

Before-After (before and after program) -Preschool fruit and vegetable study; Banking on Strong Bones; On the Move to Better Health; Eating for Your Eyes, Go Wild for Fruit and Vegetables!

2. Data Collection Methods

- Telephone
- Sampling
- Whole population
- On-Site

Description

V(A). Planned Program (Summary)

Program #12

1. Name of the Planned Program

Livestock Waste Management

2. Brief summary about Planned Program

Protecting our nation’s water supply through education, research and water quality monitoring within watersheds containing livestock feedlots and grazing lands.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	25%		0%	
133	Pollution Prevention and Mitigation	25%		0%	
403	Waste Disposal, Recycling, and Reuse	50%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Protecting our nation’s water supply through education, research and water quality monitoring within watersheds containing livestock feedlots and grazing lands. Areas of concern include watersheds (nutrients effecting water quality), ecosystems (elements affecting wetland, stream, and riverine function), manure nutrient utilization, animal husbandry and emerging issues.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Protecting our nation’s water supply will remain a top priority. Animal production will remain a significant part of North Dakota agriculture.

2. Ultimate goal(s) of this Program

- Livestock producers will implement nutrient management practices that protect water resources, more efficiently utilize manure nutrients and successfully operate and maintain livestock manure management systems.
- Enhanced water quality in North Dakota

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	5.0	0.0	0.0	0.0
2011	5.0	0.0	0.0	0.0
2012	5.0	0.0	0.0	0.0
2013	5.0	0.0	0.0	0.0
2014	5.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Develop presentation materials
- Develop resource material
- Provide presentations and workshops
- Translate scientific materials into lay materials
- Identify emerging issues
- Evaluate effectiveness of activities

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Demonstrations ● Workshop ● Education Class ● Group Discussion 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● Other 2 (One-on-one consultation) ● Other 1 (News Releases)

3. Description of targeted audience

- Owners, managers and employees of animal operations
- Agribusines and agrifinance personnel
- Government agency personnel

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	400	400	0	0
2011	400	400	0	0
2012	400	400	0	0
2013	400	400	0	0
2014	400	400	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	2	2
2011	0	2	2
2012	0	2	2
2013	0	2	2
2014	1	1	2

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of individuals requesting information
2	Number of individuals demonstrating increase in subject knowledge and skills
3	Number of individuals implementing recommended action or practice
4	Number of individuals requesting assistance
5	Number of people trained to assist producers with nutrient management planning
6	Number of sub-watersheds where water quality is monitored to determine effectiveness of bmp implementation

Outcome #1

1. Outcome Target

Number of individuals requesting information

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100 **2011 :** 100 **2012 :** 100 **2013 :**100 **2014 :**100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management

Outcome #2

1. Outcome Target

Number of individuals demonstrating increase in subject knowledge and skills

2. Outcome Type : Change in Action Outcome Measure

2010 :100 **2011 :** 100 **2012 :** 100 **2013 :**100 **2014 :**100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management

Outcome #3

1. Outcome Target

Number of individuals implementing recommended action or practice

2. Outcome Type : Change in Action Outcome Measure

2010 :40 **2011 :** 40 **2012 :** 40 **2013 :**40 **2014 :**40

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #4

1. Outcome Target

Number of individuals requesting assistance

2. Outcome Type : Change in Action Outcome Measure

2010 :40 **2011 :** 40 **2012 :** 40 **2013 :**40 **2014 :**40

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 133 - Pollution Prevention and Mitigation

Outcome #5

1. Outcome Target

Number of people trained to assist producers with nutrient management planning

2. Outcome Type : Change in Action Outcome Measure

2010 50 **2011** : 50 **2012** : 50 **2013** 50 **2014** :50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 403 - Waste Disposal, Recycling, and Reuse

Outcome #6

1. Outcome Target

Number of sub-watersheds where water quality is monitored to determine effectiveness of bmp implementation

2. Outcome Type : Change in Condition Outcome Measure

2010 3 **2011** : 3 **2012** : 3 **2013** 3 **2014** :4

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 112 - Watershed Protection and Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)
- Government Regulations
- Appropriations changes
- Public Policy changes
- Economy
- Other (Swings in commodity prices)

Description

Decrease funding, changing priorities; farmer/rancher attitudes; natural disasters; economic conditions; changing regulatory climate, coordination and cooperation with government entities.

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

1. Evaluation Studies Planned

- Case Study
- Retrospective (post program)
- During (during program)

Description

Evaluation tools will be utilized post-session at educational events and will be developed and mailed to target audience to determine effectiveness of whole program. On-site case studies will be conducted to evaluate adoption and effectiveness of recommended practices.

2. Data Collection Methods

- Whole population
- Observation
- On-Site
- Mail
- Case Study

Description

Whole population mail surveys are an accepted method to evaluate long term effectiveness of a program. Case studies are a successful method of monitoring behavior and delineating quantitative results of practice adoption.

V(A). Planned Program (Summary)

Program #13

1. Name of the Planned Program

Citizenship and Leadership Development

2. Brief summary about Planned Program

Youth desire a connection and sense of purpose within their community. 4-H youth development is in the unique position to help youth develop citizenship and leadership skills through activities and opportunities including, but not limited to, 4-H community clubs, school enrichment, community development and short-term and special interest programs. By developing youth civic activism, 4-H youth development insures a future generation of productive North Dakota citizens and tomorrow's community leaders.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Youth desire a connection and sense of purpose within their community. 4-H youth development is in the unique position to help youth develop citizenship and leadership skills through activities and opportunities not limited to, 4-H community clubs, school enrichment, community development and short-term and special interest programs. By developing youth civic activism, 4-H youth development ensures a future generation of productive North Dakota citizens and tomorrow's community leaders. The priority is to develop youth civic engagement to enhance their leadership skills and to become active citizens in their community.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

4-H will remain an important youth program. Communities need youth to be involved to remain vibrant.

2. Ultimate goal(s) of this Program

More youth are involved in leadership roles in their community.

Youth are involved in community organizations as partners.

Youth governmental boards may be developed to influence legislation affecting youth.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	1.5	0.0	0.0	0.0
2011	1.5	0.0	0.0	0.0
2012	1.5	0.0	0.0	0.0
2013	1.5	0.0	0.0	0.0
2014	1.5	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Develop Leadership Training module.

Contribution module to include how community service leads to belonging, independence, mastery and generosity.

Future modules on youth involvement, diversity, civic engagement and teamwork.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class ● Group Discussion 	<ul style="list-style-type: none"> ● Newsletters ● Web sites

3. Description of targeted audience

4-H youth,

4-H youth leaders,

4-H adult leaders,

County extension staff,

Other community organizations, councils and boards.

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	250	1500	400	1500
2011	300	3000	400	1000
2012	300	3000	400	1000
2013	300	3000	400	1000
2014	200	1000	400	900

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Fifty percent of organized clubs will have someone complete education/training on service to community.
2	Forty percent of clubs will do one or more community service projects.
3	Twenty-five percent of county 4-H leadership will participate in leadership education/training.
4	One hundred community service projects will be reported.
5	Fifty percent of 4-H clubs will participate in leadership education/training.
6	Five percent of leadership of 4-H clubs participating in leadership education/training will report more civic activism.
7	Fifty percent of clubs will report community service projects.
8	Sixty percent of county 4-H clubs will have someone participate in leadership education/training.
9	The number of county 4-H leadership participating in leadership education/training reporting more civic activism will increase.

Outcome #1

1. Outcome Target

Fifty percent of organized clubs will have someone complete education/training on service to community.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100 **2011** : 150 **2012** : 180 **2013** 200 **2014** :220

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #2

1. Outcome Target

Forty percent of clubs will do one or more community service projects.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 90 **2011** : 120 **2012** : 150 **2013** :180 **2014** :190

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #3

1. Outcome Target

Twenty-five percent of county 4-H leadership will participate in leadership education/training.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :50 **2011** : 80 **2012** : 90 **2013** :100 **2014** :120

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #4

1. Outcome Target

One hundred community service projects will be reported.

2. Outcome Type : Change in Action Outcome Measure

2010 :75 **2011** : 90 **2012** : 100 **2013** :100 **2014** :100

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #5

1. Outcome Target

Fifty percent of 4-H clubs will participate in leadership education/training.

2. Outcome Type : Change in Action Outcome Measure

2010 :100 **2011** : 150 **2012** : 200 **2013** 200 **2014** :250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #6

1. Outcome Target

Five percent of leadership of 4-H clubs participating in leadership education/training will report more civic activism.

2. Outcome Type : Change in Action Outcome Measure

2010 :10 **2011** : 15 **2012** : 20 **2013** 20 **2014** :25

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #7

1. Outcome Target

Fifty percent of clubs will report community service projects.

2. Outcome Type : Change in Condition Outcome Measure

2010 :75 **2011** : 90 **2012** : 100 **2013** :150 **2014** :250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #8

1. Outcome Target

Sixty percent of county 4-H clubs will have someone participate in leadership education/training.

2. Outcome Type : Change in Condition Outcome Measure

2010 :50 **2011** : 150 **2012** : 150 **2013** 200 **2014** :250

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

Outcome #9

1. Outcome Target

The number of county 4-H leadership participating in leadership education/training reporting more civic activism will increase.

2. Outcome Type : Change in Condition Outcome Measure

2010 : 0 **2011 :** 20 **2012 :** 20 **2013 :** 20 **2014 :** 25

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 806 - Youth Development

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Populations changes (immigration,new cultural groupings,etc.)
- Competing Public priorities

Description

Local community needs, changing demographics, and advancement in technology will effect the use of training materials.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

Description

The evaluation of youth contribution to community will seek answers to:

How is 4-H affecting the community?

Is service to community affecting the youth involved?

Is youth citizenship and leadership involvement increasing?

Is there an increase in the number of service to community projects?

What is the economic affect of youth service to community projects?

2. Data Collection Methods

- Other (Service to community reports)
- On-Site
- Sampling
- Observation

Description

Participants in leadership roles will be asked about their involvement in community.

Clubs doing community service projects will be asked to report their service projects.

V(A). Planned Program (Summary)

Program #14

1. Name of the Planned Program

Developing Leadership Systems

2. Brief summary about Planned Program

The foundation of community and economic development in North Dakota is local leadership, including the identification and development of current and emerging leaders, programs to strengthen leadership, and local capacity to enhance community self-sufficiency.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
803	Sociological and Technological Change Affecting Individuals, Families and Communities	50%		0%	
805	Community Institutions, Health, and Social Services	50%		0%	
	Total	100%		0%	

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

1. Situation and priorities

The foundation of community and economic development in North Dakota is local leadership, including the identification and development of current and emerging leaders, programs to strengthen leadership, and local capacity to enhance community self-sufficiency. Priorities include developing leadership systems, strengthening emerging and existing leaders' knowledge and skills, and strengthening youth-adult partnerships.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

If North Dakota leadership systems are enhanced, then the current and emerging youth and adult leaders will be actively involved in strengthening the region in which they live.

2. Ultimate goal(s) of this Program

Youth and adults are engaged in leadership roles.

The quality of life for individuals, organizations and communities will be improved.

Youth and adults partner for community improvement.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	5.0	0.0	0.0	0.0
2011	5.0	0.0	0.0	0.0
2012	5.0	0.0	0.0	0.0
2013	7.0	0.0	0.0	0.0
2014	7.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Rural Leadership North Dakota program,

Horizons project,

Leadership Plenty,

Study Circles,

Ethical Leadership,

Generational Leadership

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Newsletters ● Web sites ● TV Media Programs

3. Description of targeted audience

Youth

Schools

Elected officials

Community asset builders

Community collaborators

Association of Counties

Service groups

Governor's office

Chamber

Economic developers

Higher Education

SBARE

RLND

Soil Conservation Districts

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	2000	1300	200	100
2011	2000	1300	200	100
2012	2000	1300	200	100
2013	2000	1300	200	100
2014	2000	1300	200	100

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	1
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of community members including youth who display leadership skills sets.
2	Number of community members including youth who understand how they can be involved in leadership roles
3	Number of people from diverse backgrounds involved in leadership activities.
4	Number of community projects being accomplished and reported on

Outcome #1

1. Outcome Target

Number of community members including youth who display leadership skills sets.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 400 **2011** : 400 **2012** : 200 **2013** 200 **2014** :200

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 - Community Institutions, Health, and Social Services

Outcome #2

1. Outcome Target

Number of community members including youth who understand how they can be involved in leadership roles

2. Outcome Type : Change in Knowledge Outcome Measure

2010 400 **2011** : 400 **2012** : 200 **2013** 200 **2014** :200

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 - Community Institutions, Health, and Social Services

Outcome #3

1. Outcome Target

Number of people from diverse backgrounds involved in leadership activities.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 32 **2011** : 32 **2012** : 32 **2013** 32 **2014** :32

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 - Community Institutions, Health, and Social Services

Outcome #4

1. Outcome Target

Number of community projects being accomplished and reported on

2. Outcome Type : Change in Action Outcome Measure

2010 40 **2011** : 40 **2012** : 20 **2013** 20 **2014** :20

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 805 - Community Institutions, Health, and Social Services

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Number of CEDL personnel, partnerships and regional receptivity to change.

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

1. Evaluation Studies Planned

- During (during program)
- Time series (multiple points before and after program)
- Before-After (before and after program)
- Retrospective (post program)

Description

- Retrospective post- then pre- survey on leadership that include concepts of confidence and involvement.This survey will be administered to all involved in any leadership program delivered that is more than one session in length.
- Rural Leadership North Dakota pre-and post- surveys done prior to participation in the program as well as after on-site.A five year follow-up study will also be done with previous RLND participants through the mail.
- Horizons final panel study evaluation done with sample communities. Data collected through telephone interviews.

2. Data Collection Methods

- On-Site
- Telephone
- Structured
- Sampling

Description

Pre-post surveys of program participants.

Qualitative interviews through a panel study.

V(A). Planned Program (Summary)

Program #15

1. Name of the Planned Program

Financial Security for All

2. Brief summary about Planned Program

Many Americans and, more specifically, North Dakotans, are in great danger of not being financially stable and secure throughout their lifetimes. Because most people did not receive formal financial education in their youth, they need lifelong learning opportunities to help them improve their financial management skills. Increasing financial literacy throughout the life cycle is essential to avoid threats to financial security.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	100%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Many Americans and, more specifically, North Dakotans, are in great danger of not being financially stable and secure throughout their lifetimes. Because most people did not receive formal financial education in their youth, they need lifelong learning opportunities to help them improve their financial management skills. Increasing financial literacy throughout the life cycle is essential to avoid threats to financial security.

Programs in this area are designed to increase the number of people who are financially literate and empowered with the knowledge, attitudes, skills, and confidence to practice effective and successful financial management strategies that insure financial security and stability across the life cycle. Education programs encourage families to adopt financial practices that will increase financial security and stability, and help them cope with financial impacts of periods of reduced income due to plant downsizing and military base closings, as well as from divorce, widowhood and natural disasters. A majority of the effort to provide these programs will be through eXtension, an online, interactive, virtual environment.

2. Scope of the Program

- Multistate Extension
- In-State Extension

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

1. Assumptions made for the Program

- North Dakota economy remains relatively stable
- Homeland security maintained
- North Dakotans can earn a living wage
- People will be motivated to learn
- Knowledge change leads to behavior change
- Behavior change leads to condition change
- Funding will be secure throughout the course of the project

2. Ultimate goal(s) of this Program

- Increased financial security
- Decrease risk factors for financial problems
- Reduce anxiety related to financial problems
- Increased savings
- Decreased debt
- Decreased bankruptcy rate
- Communities have improved financial stability

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	3.0	0.0	0.0	0.0
2011	3.0	0.0	0.0	0.0
2012	3.0	0.0	0.0	0.0
2013	3.0	0.0	0.0	0.0
2014	3.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Promote Interactive learning modules
- Packaged programs
- NDSU Extension Service Family Economics Web site
- Media work
- Collaborative projects

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Group Discussion ● Education Class 	<ul style="list-style-type: none"> ● Web sites ● TV Media Programs ● Newsletters

3. Description of targeted audience

- Extension educators
- Specialists
- General public
- Targeted audiences - Baby Boomers, women, couples, farm/ranch
- Families - older adults
- Collaborators
- Youth
- Financially vulnerable

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	2600	160000	2000	9500
2011	2700	180000	2000	10000
2012	2700	180000	2000	10000
2013	2800	180000	2000	10000
2014	2900	180000	2000	10000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	2	3
2011	1	2	3
2012	1	2	3
2013	1	2	3
2014	1	2	3

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of educational programs and activities conducted
2	Number of people completing educational programs
3	Number of people reporting increased knowledge from the number completing educational programs
4	Number of people who plan to adopt practices from the number of people who increased knowledge
5	Number of people adopting practices from the number of people who increased knowledge
6	Number of people receiving information through non-program contacts such as telephone, office and farm visits
7	Number of people who participate in programs to cope with financial impacts of reduced income
8	Decreased numbers of personal bankruptcy filings in state of North Dakota

Outcome #1**1. Outcome Target**

Number of educational programs and activities conducted

2. Outcome Type : Change in Knowledge Outcome Measure

2010 200	2011 : 200	2012 : 200	2013 200	2014 :200
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3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #2**1. Outcome Target**

Number of people completing educational programs

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :150	2011 : 200	2012 : 250	2013 300	2014 :300
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3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #3**1. Outcome Target**

Number of people reporting increased knowledge from the number completing educational programs

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :120	2011 : 150	2012 : 200	2013 250	2014 :250
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3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #4**1. Outcome Target**

Number of people who plan to adopt practices from the number of people who increased knowledge

2. Outcome Type : Change in Knowledge Outcome Measure

2010 20	2011 : 30	2012 : 40	2013 50	2014 :100
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3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #5**1. Outcome Target**

Number of people adopting practices from the number of people who increased knowledge

2. Outcome Type : Change in Action Outcome Measure

2010 :10 2011 : 15 2012 : 20 2013 25 2014 :30

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #6**1. Outcome Target**

Number of people receiving information through non-program contacts such as telephone, office and farm visits

2. Outcome Type : Change in Action Outcome Measure

2010 :1200 2011 : 1200 2012 : 1200 2013 :1200 2014 :1200

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #7**1. Outcome Target**

Number of people who participate in programs to cope with financial impacts of reduced income

2. Outcome Type : Change in Action Outcome Measure

2010 :600 2011 : 700 2012 : 700 2013 800 2014 :800

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

Outcome #8**1. Outcome Target**

Decreased numbers of personal bankruptcy filings in state of North Dakota

2. Outcome Type : Change in Condition Outcome Measure

2010 :70 2011 : 70 2012 : 70 2013 70 2014 :70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 801 - Individual and Family Resource Management

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Competing Public priorities
- Public Policy changes
- Appropriations changes

Description

•Institutional commitment •Changing priorities •Economic conditions •Cooperation with partners

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

1. Evaluation Studies Planned

- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- During (during program)
- Retrospective (post program)

Description

Program participant surveys, selected followups.

2. Data Collection Methods

- Mail
- Other (computer)
- On-Site

Description

Participants in programs will be surveyed using a post then pre method. Online data collection methods will be used when feasible.

V(A). Planned Program (Summary)

Program #16

1. Name of the Planned Program

Noxious and Invasive Weed Management

2. Brief summary about Planned Program

Rangeland and pasture comprise about 42 percent of the land area of the United States, with three-quarters of all domestic livestock depending upon these lands for survival. Today, more than 300 rangeland weeds are found in the United States. In total, noxious and invasive weeds in rangeland cause an estimated loss of \$2 billion annually (which is more than all other pests combined). Primary impacts are to the livestock industry, wildlife habitat, and soil and plant community health.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
213	Weeds Affecting Plants	20%		0%	
215	Biological Control of Pests Affecting Plants	40%		0%	
216	Integrated Pest Management Systems	40%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Rangeland and pasture comprise about 42 percent of the land area of the United States, with three-quarters of all domestic livestock depending upon these lands for survival. Today, more than 300 rangeland weeds are found in the United States. In total, noxious and invasive weeds in rangeland cause an estimated loss of \$2 billion annually (which is more than all other pests combined). Primary impacts are to the livestock industry, wildlife habitat, and soil and plant community health. Rangeland weed populations increase an average 4 percent annually in the United States, indicating a need to provide education opportunities and awareness of the problem and techniques to control weed invasion. Priorities are to develop integrated pest management workshops, demonstration projects and research trials to teach land managers (both private and public) best management practices to minimize weed invasion and control known populations.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Noxious and invasive weeds will continue to be a problem in rangeland both in North Dakota and across the United States. Damage will affect both private and public lands.

2. Ultimate goal(s) of this Program

•Improved profitability and productivity of North Dakota livestock operations •Improved rangeland productivity and health through improved management

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	4.0	0.0	0.0	0.0
2011	4.0	0.0	0.0	0.0
2012	4.0	0.0	0.0	0.0
2013	4.0	0.0	0.0	0.0
2014	4.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Develop presentation materials •Develop resource material •Provide workshops and field tours •Translate scientific materials into lay materials •Develop demonstration and research trials •Evaluate effectiveness of activities

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Demonstrations ● Education Class 	<ul style="list-style-type: none"> ● Web sites ● Newsletters ● Other 1 (Handbooks)

3. Description of targeted audience

•Private land managers, including livestock producers •Public land managers •4-H youth •Government agency personnel •Conservation groups

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	325	3500	125	600
2011	350	5000	125	700
2012	375	5000	150	750
2013	400	5000	150	750
2014	400	5500	175	1000

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	1	2
2011	0	0	0
2012	1	1	2
2013	0	1	1
2014	0	1	1

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Number of individuals receiving training and education
2	Number of individuals demonstrating increase in subject knowledge and skills
3	Number of producers implementing recommended actions or practices
4	Number of producers participating in government cost share programs for range conservation
5	Estimated cost savings and return for North Dakota landowners implementing an integrated pest management program (\$/acre)
6	Reduce number of noxious weed acres by two to five percent annually in North Dakota

Outcome #1

1. Outcome Target

Number of individuals receiving training and education

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :300 **2011** : 200 **2012** : 350 **2013** 250 **2014** :350

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #2

1. Outcome Target

Number of individuals demonstrating increase in subject knowledge and skills

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :60 **2011** : 60 **2012** : 70 **2013** 70 **2014** :75

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #3

1. Outcome Target

Number of producers implementing recommended actions or practices

2. Outcome Type : Change in Action Outcome Measure

2010 25 **2011** : 25 **2012** : 30 **2013** 30 **2014** :25

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 213 - Weeds Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #4

1. Outcome Target

Number of producers participating in government cost share programs for range conservation

2. Outcome Type : Change in Action Outcome Measure

2010 25 **2011** : 25 **2012** : 30 **2013** 30 **2014** :35

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #5

1. Outcome Target

Estimated cost savings and return for North Dakota landowners implementing an integrated pest management program (\$/acre)

2. Outcome Type : Change in Condition Outcome Measure

2010 4 **2011** : 5 **2012** : 5 **2013** 5 **2014** :6

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

Outcome #6

1. Outcome Target

Reduce number of noxious weed acres by two to five percent annually in North Dakota

2. Outcome Type : Change in Condition Outcome Measure

2010 3 **2011** : 3 **2012** : 3 **2013** 3 **2014** :3

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Public Policy changes
- Competing Public priorities
- Economy
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)

Description

Land manager attitudes and economic parameters; environmental conditions; changing priorities of government agencies and policy makers.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study
- Retrospective (post program)

Description

NDSU Extension has adopted the Kirkpatrick Model for evaluation of Extension programming. All staff have had two opportunities to receive specific training with this model from an Evaluation expert in the Education Department. Each team leader is working with this expert to develop a comprehensive plan for evaluation of their program.

2. Data Collection Methods

- Sampling
- On-Site

Description

V(A). Planned Program (Summary)

Program #17

1. Name of the Planned Program

Fusarium head blight of wheat

2. Brief summary about Planned Program

Fusarium head blight is a disease of wheat that has cost the North Dakota economy in excess of \$4 billion in losses since 1993. The disease reduces yield of wheat and reduces quality by lowering market grade and introducing toxins that are harmful to animals and humans.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
212	Pathogens and Nematodes Affecting Plants	100%		100%	
	Total	100%		100%	

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

1. Situation and priorities

Fusarium head blight is a disease of wheat that has cost the North Dakota economy in excess of \$4 billion in losses since 1993. The disease reduces yield of wheat and reduces quality by lowering market grade and introducing toxins that are harmful to animals and humans. Areas of concern include evaluating performance of released varieties; identifying, improving and communicating disease-management strategies; and reporting outbreaks.

2. Scope of the Program

- In-State Research
- Integrated Research and Extension
- In-State Extension

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

1. Assumptions made for the Program

Funding will remain available to do this research. Wheat will continue to one of the important crops in North Dakota.

2. Ultimate goal(s) of this Program

Adding economic value to our wheat and barley crop by increasing yield and health of the crop

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	1.5	0.0	2.0	0.0
2011	1.5	0.0	2.0	0.0
2012	1.5	0.0	2.0	0.0
2013	1.5	0.0	2.0	0.0
2014	1.5	0.0	2.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

•Research on fungicidal- and bio-control and application technology •Field surveys on disease severity and losses to disease •Develop resource material •Provide presentations and workshops •Translate scientific materials into lay materials

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Education Class ● Group Discussion 	<ul style="list-style-type: none"> ● Newsletters ● Web sites

3. Description of targeted audience

•Wheat and barley producers •Crop consultants and ag advisors •Research Extension Centers •Extension personnel •Agribusiness and agrifinance personnel •Government agency personnel

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	6000	15000	0	0
2011	6000	15000	0	0
2012	6000	15000	0	0
2013	6000	15000	0	0
2014	6000	15000	0	0

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

Expected Patent Applications

2010 :0

2011 :0

2012 :0

2013 :0

2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	1	2
2011	2	1	3
2012	2	1	3
2013	2	1	3
2014	2	1	3

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of acres planted to resistant varieties
2	Percent of acres treated with fungicides
3	Economic losses to disease (\$)
4	Number of individuals demonstrating increased knowledge and skills
5	Number of individuals implementing recommended action or practice
6	Estimated dollar value of adopted best management practices (\$)
7	Stable export market unaffected by quality issues (\$)

Outcome #1

1. Outcome Target

Percent of acres planted to resistant varieties

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :55 **2011** : 60 **2012** : 60 **2013** : 60 **2014** :60

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Target

Percent of acres treated with fungicides

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :14 **2011** : 12 **2012** : 10 **2013** :10 **2014** :10

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Target

Economic losses to disease (\$)

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :100000000 **2011** : 80000000 **2012** : 60000000 **2013** : 60000000 **2014** :60000000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #4

1. Outcome Target

Number of individuals demonstrating increased knowledge and skills

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :17000 **2011** : 18000 **2012** : 20000 **2013** : 21000 **2014** :22000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Target

Number of individuals implementing recommended action or practice

2. Outcome Type : Change in Action Outcome Measure

2010 :13000 **2011 :** 15000 **2012 :** 18000 **2013 :** 20000 **2014 :**20000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #6

1. Outcome Target

Estimated dollar value of adopted best management practices (\$)

2. Outcome Type : Change in Condition Outcome Measure

2010 :85000000 **2011 :** 100000000 **2012 :** 100000000 **2013 :**100000000 **2014 :**100000000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

Outcome #7

1. Outcome Target

Stable export market unaffected by quality issues (\$)

2. Outcome Type : Change in Condition Outcome Measure

2010 :565000000 **2011 :** 600000000 **2012 :** 600000000 **2013 :** 600000000 **2014 :**600000000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 212 - Pathogens and Nematodes Affecting Plants

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Appropriations changes
- Other (Grain prices, biofuels)
- Economy
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)

Description

Decrease funding, changing priorities; producer attitudes toward varieties; weather favorable for disease; economic conditions; coordination and cooperation with government entities

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during program)

Description

Grower surveys
Field scouting
Pre- and Post-testing

2. Data Collection Methods

- On-Site

Description

Meetings
In Field
Mail-in surveys

V(A). Planned Program (Summary)**Program #18****1. Name of the Planned Program**

Family Meals

2. Brief summary about Planned Program

Family meals are one of the most common social opportunities for individuals to build family connections, learn healthy nutrition and develop practical skills. Over a third of families eat less than three meals together a week; child and adult obesity is increasing; and family relationships are at risk.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : No

V(B). Program Knowledge Area(s)**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	100%		0%	
	Total	100%		0%	

V(C). Planned Program (Situation and Scope)**1. Situation and priorities**

Family meals are one of the most common social opportunities for individuals to build family connections, learn healthy nutrition, and develop practical skills. Over a third of families eat less than three meals together a week; child and adult obesity is increasing; and family relationships are at risk. Critical areas related to family meals include family identity, transmission of values, family connections, family time, monitoring children's behavior, protective elements related to risk issues, healthy nutrition habits and overall diet quality.

2. Scope of the Program

- In-State Extension

V(D). Planned Program (Assumptions and Goals)**1. Assumptions made for the Program**

Families will continue to struggle balancing family meal time with other scheduling commitments.

2. Ultimate goal(s) of this Program

1. Improving the quality of family relationships and the overall well-being of children and adolescents through meaningful family nutrition.
2. Improving dietary quality for family members.
3. Enhanced public awareness of the value and importance of family meals.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	3.0	0.0	0.0	0.0
2011	3.0	0.0	0.0	0.0
2012	3.0	0.0	0.0	0.0
2013	3.0	0.0	0.0	0.0
2014	3.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Develop newsletter resources on family meals

Develop presentation and resource materials

Provide training through presentations and workshops

Identify key and emerging issues

Evaluate effectiveness of activities

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Group Discussion ● Education Class ● Workshop 	<ul style="list-style-type: none"> ● Public Service Announcement ● Newsletters ● Web sites

3. Description of targeted audience

Parents and family caregivers

4-H youth and other youth

Child care programs, caregivers

School system personnel

Government agency personnel

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	2500	7500	1400	2500
2011	3000	10000	1800	3000
2012	3500	12500	2200	3500
2013	4000	15000	2200	3500
2014	4000	15000	2500	3500

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	0	1	1
2011	0	1	1
2012	0	1	1
2013	0	1	1
2014	0	1	1

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED} {NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of participating individuals demonstrating increase in subject knowledge and skills
2	Percent of individuals implementing recommended actions or practices
3	Percent of individuals indicating a change in frequency of family meals.
4	Percent of individuals indicating a change in other quality indicators of the family meal experience
5	Percent of individuals showing an improvement in measures of family connection and well-being
6	Percent of individuals showing an improvement in family nutritional wellness.
7	Number of individuals receiving information through materials or training

Outcome #1

1. Outcome Target

Percent of participating individuals demonstrating increase in subject knowledge and skills

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :75 **2011 :**75 **2012 :**75 **2013 :**75 **2014 :**75

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #2

1. Outcome Target

Percent of individuals implementing recommended actions or practices

2. Outcome Type : Change in Action Outcome Measure

2010 :60 **2011 :**70 **2012 :**70 **2013 :**70 **2014 :**70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #3

1. Outcome Target

Percent of individuals indicating a change in frequency of family meals.

2. Outcome Type : Change in Action Outcome Measure

2010 :60 **2011 :**70 **2012 :**70 **2013 :**70 **2014 :**70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #4

1. Outcome Target

Percent of individuals indicating a change in other quality indicators of the family meal experience

2. Outcome Type : Change in Action Outcome Measure

2010 :60 **2011 :**70 **2012 :**70 **2013 :**70 **2014 :**70

3. Associated Institute Type(s)

•1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #5

1. Outcome Target

Percent of individuals showing an improvement in measures of family connection and well-being

2. Outcome Type : Change in Condition Outcome Measure

2010 50 **2011** : 50 **2012** : 50 **2013** 50 **2014** :50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #6

1. Outcome Target

Percent of individuals showing an improvement in family nutritional wellness.

2. Outcome Type : Change in Condition Outcome Measure

2010 50 **2011** : 50 **2012** : 50 **2013** 50 **2014** :50

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #7

1. Outcome Target

Number of individuals receiving information through materials or training

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :14000 **2011** : 18000 **2012** : 22000 **2013** 25000 **2014** :25000

3. Associated Institute Type(s)

- 1862 Extension

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Populations changes (immigration,new cultural groupings,etc.)
- Economy

Description

Limits on family time and overscheduling; availability of "fast food" alternatives; consumer-oriented lifestyles; lack of knowledge and skills regarding family meals; and community awareness.

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

1. Evaluation Studies Planned

- Comparisons between program participants (individuals,group,organizations) and non-participants
- Before-After (before and after program)
- Retrospective (post program)
- During (during program)

Description

Retrospective.

2. Data Collection Methods

- Whole population
- On-Site

Description

On-site.

V(A). Planned Program (Summary)

Program #19

1. Name of the Planned Program

Parent Education - Parents Forever

2. Brief summary about Planned Program

Children learn and develop in safe, supportive environments where they experience caring relationships with trusted adults. Parent education has been identified as a critical need and resource for families. Parents and communities will gain understanding of needs in children, learn skills to meet such needs, and develop healthy environments for children from the early years through adolescence.

3. Program existence : Intermediate (One to five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	100%		100%	
	Total	100%		100%	

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

1. Situation and priorities

Children learn and develop in safe, supportive environments where they experience caring relationships with trusted adults. Parent education has been identified as a critical need and resource for families. Parents and communities will gain understanding of needs in children, learn skills to meet such needs, and develop healthy environments for children from the early years through adolescence. Critical issues related to parenting during divorce or separation include stress and coping in children, effective communication, and problem solving skills.

2. Scope of the Program

- In-State Extension
- In-State Research

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

1. Assumptions made for the Program

Educational programs are an effective means for parents to learn about child development and effective parenting. Parents have a need for information on parenting and childhood issues. Parents can gain useful knowledge, skills and experience for raising children through educational programs and resources.

2. Ultimate goal(s) of this Program

- Improving the quality of family relationships and the overall well-being of children and adolescents through effective parenting.

- Improving the knowledge and skills of parents and caregivers.
- Enhanced child, family and community well-being through healthy parent-child relationships.

V(E). Planned Program (Inputs)

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

Year	Extension		Research	
	1862	1890	1862	1890
2010	6.0	0.0	1.0	0.0
2011	6.0	0.0	1.0	0.0
2012	6.0	0.0	1.0	0.0
2013	6.0	0.0	1.0	0.0
2014	6.0	0.0	1.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

- Develop educational resources on healthy parenting and child development.
- Develop presentation and resource materials for staff members and community professionals.
- Provide training and education through seminars and workshops.
- Identify key and emerging issues to address.
- Evaluate the effectiveness of activities.

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

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> ● Other 1 (One-on-One Discussion) ● Education Class ● Group Discussion ● Workshop 	<ul style="list-style-type: none"> ● Web sites ● Newsletters ● Public Service Announcement

3. Description of targeted audience

- Parents and family caregivers;
- Child care programs;
- School system personnel;
- Government agency;
- Personnel community workers and professionals

V(G). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2010	300	3500	0	0
2011	300	4000	0	0
2012	300	5000	0	0
2013	300	6000	0	0
2014	300	5000	0	0

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

Expected Patent Applications

2010 :0 2011 :0 2012 :0 2013 :0 2014 :0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2010	1	1	2
2011	1	1	2
2012	1	1	2
2013	1	1	2
2014	1	1	2

V(H). State Defined Outputs

1. Output Target

- {NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

{NO DATA ENTERED}

V(I). State Defined Outcome

O. No	Outcome Name
1	Percent of individuals demonstrating increase in subject knowledge and skills
2	Percent of individuals implementing recommended actions or practices.
3	Percent of individuals indicating a change in frequency of specified parenting practices.
4	Percent of individuals indicating a change in other quality indicators of parent-child relationships.
5	Number of individuals receiving information through materials or training.

Outcome #1

1. Outcome Target

Percent of individuals demonstrating increase in subject knowledge and skills

2. Outcome Type : Change in Knowledge Outcome Measure

2010 80 **2011** : 85 **2012** : 90 **2013** 90 **2014** :90

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #2

1. Outcome Target

Percent of individuals implementing recommended actions or practices.

2. Outcome Type : Change in Action Outcome Measure

2010 60 **2011** : 70 **2012** : 75 **2013** 75 **2014** :75

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #3

1. Outcome Target

Percent of individuals indicating a change in frequency of specified parenting practices.

2. Outcome Type : Change in Action Outcome Measure

2010 60 **2011** : 70 **2012** : 75 **2013** 75 **2014** :75

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #4

1. Outcome Target

Percent of individuals indicating a change in other quality indicators of parent-child relationships.

2. Outcome Type : Change in Condition Outcome Measure

2010 60 **2011** : 70 **2012** : 75 **2013** 75 **2014** :75

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

Outcome #5

1. Outcome Target

Number of individuals receiving information through materials or training.

2. Outcome Type : Change in Knowledge Outcome Measure

2010 :5600 **2011** : 6200 **2012** : 6800 **2013** :7000 **2014** :7000

3. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

4. Associated Knowledge Area(s)

- 802 - Human Development and Family Well-Being

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Populations changes (immigration,new cultural groupings,etc.)
- Competing Programmatic Challenges
- Economy
- Public Policy changes

Description

Limits on family time and availability; competition from media alternatives; lack of knowledge and skills regarding parenting; community awareness; economic stresses; and public policy mandates.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- Before-After (before and after program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

Description

Evaluation studies will be developed to fit with program objectives, audience needs, and capacity of staff members to carry out evaluation efforts.

2. Data Collection Methods

- On-Site
- Whole population

Description

Data collection methods will be developed to fit with program objectives, audience needs, and capacity of staff members to carry out evaluation efforts.