2011 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.

Agriculture is a critical component of North Dakota's economy. Food/fiber production accounts for about $5.5 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 eleven crops, plus the production of honey.

The purpose of the NDSU Extension Service is to create learning partnerships that help adults and youth enhance their lives and communities. Extension programs will be contributing to each of NIFA's new priority areas. Educational programs will contribute by improving crop productivity and adapting new crops within the area of global food security; improving soil management in the area of climate change; assisting with the development of sustainable energy sources; training families on nutrition to address childhood obesity; and training food handlers to minimize the risk of food borne disease. Extension programs will also continue to focus on state identified needs in the areas of agricultural and natural resources; 4-H youth development; family and consumer sciences; and community, leadership and economic development. Within these program areas, emerging areas of concern include animal welfare, response to natural disasters, transitional plans for farms and rural businesses, and rural business development.

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. Agricultural Experiment Station program also address each of NIFA's priority areas. In particular, plant breed efforts continue towards developing new and more competitive crops and animal science research will improve the nutritional and reproductive efficiencies for increased global food security. Expanded research is planned on soil salinity and other water and soil management in a response to recent increased precipitation associated with climate variability. Research will continue on economics of alternative bio- and sustainable energy sources and research on feedstock processing will contribute to developing sustainable energy technologies. Applied research on the adoption of nutritional practices will benefit national goals of reducing obesity. Basic research will continue on the functional traits of food and microbial resistance in the area of food safety.

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

Year	Extension		Research	
	1862	1890	1862	1890
2011	61.0	0.0	50.7	0.0
2012	61.0	0.0	50.7	0.0
2013	61.0	0.0	50.7	0.0
2014	61.0	0.0	50.7	0.0
2015	61.0	0.0	50.7	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. Extension bulletins are internally peer reviewed prior to publication.

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 National Institute of Food and Agriculture has identified five national priorities which the NDSU Extension Service will use to guide state programming needs. Within these priorities, Extension will gather input from the State Board of Agricultural Research and Education (SBARE), county advisory councils, focus groups and our own extension staff to further refine the issues and details to be addressed within most planned program activities. These stakeholder groups will also identify state needs not defined within the NIFA priorities. 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

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 supports these partnership through a NDSU liaison and participates in a 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 place 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. The Operation Military Kids program also provides support to youth of military families who live on reservations.

Small rural communities with high rates of poverty have also been supported by the Horizons program that is designed to increase community leadership to reduce poverty.

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. All Extension specialists on campus are integrated into departments to foster communication and nearly all campus Extension specialists hold joint Extension-research appoints to ensure integration of programs. In most programs areas, extension education and demonstration activities serve a dual purpose of education, but also gather input from stakeholders, which is then communicated to the research community. 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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey specifically with non-traditional groups
- Other (input from State Board of Agricultural Research and Education)

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. Advisory and commodity boards are used annually to identify issues and refine research and extension programs. Examples include county extension advisory boards, SARE advisory board, sugarbeet research and extension board, research extension center advisory boards, and the State Board of Agricultural Research and Education. 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, bioenergy economics, food borne illnesses, animal welfare issues. Using several methods and several venues 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 Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

Brief explanation.

The State Board of 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. SBARE actively solicits input from all sectors of agricultural interests (i.e. different commodity and livestock groups) and meets throughout the state to gather input.

County commissioners actively participate in county extension program reviews with extension district directors. The county extension budgeting process also results in strong engagement from county government. Local needs are also identified through area focus groups such as a recent session to gather input on a major pest outbreak. End of program surveys are used at most county and state extension programs to identify emerging clientele needs.

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.

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

Brief explanation.

3. A statement of how the input will be considered

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- 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 research and extension 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 centers.

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.

Stakeholders are frequently important contributors on the search committees of extension state specialists and county commissioners are partners in the interviews of county staff.

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

2. Brief summary about Planned Program

One objective of the project is to develop and release improved crop cultivars acceptable to producers in North Dakota and adjacent areas in the United States, and to those who use or process the crops that are produced. This objective is being accomplished using traditional breeding methodologies. Traits receiving top priorities are improved grain quality, resistance to Fusarium plant diseases, and improved agronomic performance. Breeding programs exist for wheat, durum, corn, soybean, barley, oat, flax, dry bean, canola, and potato. A sub-objective is to provide educational training to growers increase the adoption of new cultivars and new crops to increase productivity. A second objective is to conduct nutritional, reproductive and genetic research to increase the efficiency and production of livestock enterprises. Livestock species include beef, dairy, sheep, and swine. A sub-objective is to provide educational training to producers to adopt new management technologies to increase their production or efficiency and profitability.

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
121	Management of Range Resources	25%		0%	
202	Plant Genetic Resources	0%		15%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%		15%	
204	Plant Product Quality and Utility (Preharvest)	0%		5%	
205	Plant Management Systems	50%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%		5%	
212	Pathogens and Nematodes Affecting Plants	0%		30%	
301	Reproductive Performance of Animals	5%		10%	
302	Nutrient Utilization in Animals	20%		10%	
305	Animal Physiological Processes	0%		5%	
702	Requirements and Function of Nutrients and Other Food Components	0%		5%	
	Total	100%		100%	

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

1. Situation and priorities

North Dakota has natural resources that allow for highly productive crop and livestock sectors. However, the combination of environmental factors such as alkaline soils, typically lower rainfall, cold winters, and pests can limit the productivity of both crops and livestock. The large number of crops grown in North Dakota creates a demand for improved new cultivars that are adapted to the environmental conditions, have tolerance to diseases and other evolving pests, and retain high quality grain characteristics. Genetic resistance in the host plant is the most cost-effective and environmentally safe means of reducing losses. Consequently, basic and applied plant breeding is conducted to provide information that will facilitate achievement of our breeding goals and enhance our understanding of the crops we breed. Information on these new cultivars needs to be communicated to growers by extension so appropriate adoption decisions can be made by growers. Research on livestock systems is needed in the areas of reproductive physiology, especially for maternal health and fetal and neonatal growth, to increase efficiencies of cow-calf, sheep, and pork production. Research is also needed on cost effective grazing systems and the nutritional attributes of the abundant alternative feedstocks that are available in North Dakota and their effects on animal growth and carcass quality. The overall goal of this multi-disciplinary and multi-faceted program is to increase the agricultural productivity of North Dakota.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Funding will remain available to conduct the research. Insect and disease pests will continue to evolve resistance and attack current crops. Growers will accept new cultivars with improved disease resistance and agronomic performance under favorable and marginal growing conditions. End users accept new cultivars developed by researchers at NDSU. Cow-calf operations will continue to exist in North Dakota and rangeland will remain available. Ethanol plants and other industries will continue to produce alternative feed stuffs.

2. Ultimate goal(s) of this Program

Development and adoption of improved crop cultivars that require fewer grower inputs, have improved disease resistance, and have higher yields under favorable and marginal growing conditions. Development of new livestock feeding systems that will increase the efficiency of gain and adoption of management practices that will increase livestock reproductive rates and productivity of offspring.

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
2011	21.0	0.0	25.0	0.0
2012	21.0	0.0	25.0	0.0
2013	21.0	0.0	25.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2014	21.0	0.0	25.0	0.0
2015	21.0	0.0	25.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

Meet with stakeholder groups to gather input and refine program directions.
Develop improved crop cultivars acceptable to growers and those who use and process the grain.
Conduct research on alternative grazing and feeding systems.
Conduct research on the effect of maternal treatments on the productivity of offspring.
Present crop and livestock research results at field days and grower meetings, popular press, radio and TV spots, web sites, and educational classes and workshops to foster producer adoption.
Evaluate the effectiveness and impact of the extension programming.

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

Extension

Direct Methods	Indirect Methods
● Education Class	● Newsletters
● Workshop	● TV Media Programs
● Group Discussion	● Web sites
● Demonstrations	● Other 1 (Radio)

3. Description of targeted audience

Grain and livestock producers, crop consultants, nutritionists and feed personnel, veterinarians, extension personnel, commodity groups, crop improvement associations, and grain processors.

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	1500	10000	0	0
2012	1500	10000	0	0
2013	1500	10000	0	0
2014	1500	10000	0	0
2015	1500	10000	0	0

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	25	1	26
2012	25	1	26
2013	25	1	26
2014	25	1	26
2015	25	1	26

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number of additional acres grown of new NDSU developed crop varieties with improved disease resistance and the ability to produce a high quality crop under both favorable and marginal growing conditions.
2	Number of North Dakota livestock producers with increased knowledge of practices to improve the efficiency of livestock production systems, including use of improved livestock genetics, use of practices to improve reproductive efficiency, and use of improved nutrition.

Outcome # 1

1. Outcome Target

Number of additional acres grown of new NDSU developed crop varieties with improved disease resistance and the ability to produce a high quality crop under both favorable and marginal growing conditions.

2. Outcome Type : Change in Action Outcome Measure

2011:250000	**2012:**250000	**2013:**250000	**2014:**250000	**2015:**250000

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of North Dakota livestock producers with increased knowledge of practices to improve the efficiency of livestock production systems, including use of improved livestock genetics, use of practices to improve reproductive efficiency, and use of improved nutrition.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:500	**2012:**500	**2013:**500	**2014:**500	**2015:**500

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Natural disasters such as extreme weather, drought, excess precipitation, etc. may directly affect research sites and the ability to obtain reliable data that can be provided to stakeholders. Changes in public policy and government regulations may alter what crops growers choose to grow and agronomic practices they use for producing these crops. Decisions on the production levels of livestock producers can also be affected by the same set of external factors.

With the increasing gap in knowledge of how food is produced by our US consumers, new challenges are faced each day in production agriculture. Moreover people making regulation policies do not have first-hand knowledge of production agriculture. Without consistent priorities in extramural funding, developing a research program to address the needs of our citizens is difficult. Moreover, producers are facing more social pressures as they develop food, and therefore this alters the direction of extension programs.

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

1. Evaluation Studies Planned

- After Only (post program)
- During (during program)

Description

Data will be collected on which crop cultivars are being produced by North Dakota producers. Annual surveys are done on barley and wheat cultivars produced in North Dakota and other crops as well. These surveys will allow us to determine accurately if growers are adopting the cultivars developed by NDSU.

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
- Whole population
- Mail
- Telephone
- Observation

Description

USDA-NASS annually conducts surveys to determine which cultivars of wheat and barley, as well as other crops, are being produced in North Dakota. Extension programs collect information on levels of knowledge gained or on rates of adoption by producers at most educational events.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Climate Change

2. Brief summary about Planned Program

Increasing climate variation has affected crop production in North Dakota. Since 1992 increased rainfall in North Dakota has created challenges in production agriculture due to not being able to plant or delayed planting of crops, increased salinity of soil in fields, more fungal plant diseases, and a change or increase in weed species and insect pests. Cool summer temperatures have prevented full season crops from maturing and have altered fertility requirements. Recent wet falls have delayed harvest and reduced grain quality. The climate change programming is focused on identifying cropping systems to reduce the production risks for agricultural producers in North Dakota.

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
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
103	Management of Saline and Sodic Soils and Salinity	10%		10%	
205	Plant Management Systems	10%		15%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		15%	
212	Pathogens and Nematodes Affecting Plants	15%		15%	
213	Weeds Affecting Plants	15%		15%	
216	Integrated Pest Management Systems	10%		10%	
405	Drainage and Irrigation Systems and Facilities	20%		10%	
	Total	100%		100%	

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

1. Situation and priorities

Higher precipitation and a slight increase in the growing season have changed some of the agricultural issues in North Dakota. Planting and carrying out field operations on time have become more challenging due to the excess moisture. The additional rainfall also has increase salinity issues in many fields. Producers need information and practices to manage their risk by managing the water table in order to increase yields and reclaim areas in the field with salinity. The technologies for sub-surface water management are relatively new for the flat and northern growing region in the state. Research and education will help to increase the management under increasingly variable climatic conditions. With wetter conditions also disease, weeds and insect pest management also has to be adjusted. Research and education will help producers mitigate some of the negative effects of the weather changes.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Funding will remain available to conduct the necessary research and extension. Crop production will remain a major economic activity in North Dakota and Extension will be able to partner with major commodity organizations as stakeholders to more effectively reach target audiences.

2. Ultimate goal(s) of this Program

Reducing production risks and stabilize crop production yields at a higher level in order to create profitable farming systems 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
2011	16.0	0.0	15.0	0.0
2012	16.0	0.0	15.0	0.0
2013	16.0	0.0	15.0	0.0
2014	16.0	0.0	15.0	0.0
2015	16.0	0.0	15.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

1) Establish the best water management practices for North Dakota
2) Create a system to reclaim salty areas within the farm
3) Calibrate fertilizer application under higher moisture environments
4) Adjust disease management for all the major crops due to increased rainfall and higher humidity
5) Survey and improve management recommendations for insect pests on the major crops
6) Adapt weed management strategies to changing cropping systems, including resistance management
7) Investigate agronomics due to the change in rainfall and longer growing season
8) Translate scientific findings into practical producer applications and provide transformational education through workshops, field days and conferences, and resource materials

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

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● Demonstrations	● Newsletters ● TV Media Programs ● Web sites ● Other 1 (Circulars) ● Other 2 (Radio/TV)

3. Description of targeted audience

1) Crop producers in both North Dakota and adjacent states
2) Crop consultants and agricultural advisors
3) County Extension personnel
4) Agribusiness and agricultural finance personnel
5) Government agency staff

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	19350	150000	3000	700
2012	19375	150000	3000	750
2013	19400	150000	3000	750
2014	19400	150500	3000	1000
2015	19400	150500	3000	1000

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	20	30	50
2012	20	30	50
2013	20	30	50
2014	20	30	50

Year	Research Target	Extension Target	Total
2015	20	30	50

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number of farmers adopting new practices to achieve highly productive crops in a changing environment.
2	Number of farmers adopting new practices to improve pest management in a changing environment.
3	Number of farmers adopting improved soil and water management practices in response to a changing environment.

Outcome # 1

1. Outcome Target

Number of farmers adopting new practices to achieve highly productive crops in a changing environment.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
500	600	600	600	600

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 103 - Management of Saline and Sodic Soils and Salinity

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 2

1. Outcome Target

Number of farmers adopting new practices to improve pest management in a changing environment.

2. Outcome Type : Change in Action Outcome Measure

2011:	**2012:**	**2013:**	**2014:**	**2015:**
150	175	175	175	175

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

Outcome # 3

1. Outcome Target

Number of farmers adopting improved soil and water management practices in response to a changing environment.

2. Outcome Type : Change in Action Outcome Measure

2011:100	**2012:**125	**2013:**125	**2014:**125	**2015:**150

3. Associated Knowledge Area(s)

- 102 - Soil, Plant, Water, Nutrient Relationships
- 103 - Management of Saline and Sodic Soils and Salinity
- 405 - Drainage and Irrigation Systems and Facilities

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

Extreme weather conditions can interfere with the successful conduct of planned field research and affect grower perceptions of practices that are demonstrated in the field. Grain prices, costs of inputs, and farm policies affect the economic viability of new management practices and the willingness of farmers to try new practices.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Comparison between locales where the program operates and sites without program intervention

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
- Structured
- Observation

Description

At educational events a pre and post survey will provide information on the knowledge gained. State trends will be

observed to see changes in pest and diseases reported and adoption of new technology. Summer scouts will survey production fields and document IPM practices, weed, insect and disease numbers.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Sustainable Energy

2. Brief summary about Planned Program

Petroleum supplies more than 95% of our transportation fuel needs. Under the Energy Independence and Security Act (EISA) of 2007, the agriculture sector and rural communities have been challenged to provide 36 billion gallons per year of renewable biofuels. Biobased fuels will strengthen rural economies by adding value to crops and crop residues while decreasing agricultural-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. Planned research and extension activities will increase the capacity of North Dakota growers to economically and efficiently harvest, transport, process and convert crops and their residues into biofuels while protecting natural resources. Two specific projects under way in 2011 include development of biomass processing infrastructure to support a new combined heat power facility located near Spiritwood and creation of a new energy beet to biofuel industry.

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
205	Plant Management Systems	5%		5%	
402	Engineering Systems and Equipment	20%		20%	
404	Instrumentation and Control Systems	10%		10%	
511	New and Improved Non-Food Products and Processes	10%		10%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	20%		20%	
601	Economics of Agricultural Production and Farm Management	15%		15%	
604	Marketing and Distribution Practices	20%		20%	
	Total	100%		100%	

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

1. Situation and priorities

Petroleum supplies more than 95% of our transportation fuel needs. Under the Energy Independence and Security Act of 2007, the agriculture sector and rural communities have been challenged to provide 36 billion gallons per year of renewable biofuels. Biobased fuels will strengthen rural economies by adding value to crops and crop residues while decreasing agricultural-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 improvement 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. Two specific projects under way in 2011 include development of biomass processing infrastructure to support a new combined heat power facility located near Spiritwood and creation of a new energy beet to biofuel industry. Biomass infrastructure includes formation of a biomass testing laboratory, market quality standards, searchable inventory, development of risk management strategies, and grower organization. The energy beet project will conduct varietal trials in new producing regions, evaluate new juice storage methods, design new logistic and transportation strategies, and organize groups of producers in new dryland and irrigated production regions.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Funding will remain available to conduct planned research and extension activities. North Dakota is the nation's leading supplier of biomass and sugar beets. EISA provides an important new opportunity to develop these resources and new rural development economic activity. Two imminent opportunities in North Dakota are a new combined heat power facility near Spiritwood and creation of an energy beet to biofuel industry. Farm producers and rural communities are generally unaware of both opportunities, especially new technology that will likely be developed, unique market quality and production standards, and alternative risk management strategies.

2. Ultimate goal(s) of this Program

New biomass markets will be developed for North Dakota growers and growers will profitability produce biomass while sustaining natural resources.

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
2011	3.0	0.0	3.0	0.0
2012	3.0	0.0	3.0	0.0
2013	3.0	0.0	3.0	0.0
2014	3.0	0.0	3.0	0.0
2015	3.0	0.0	3.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

1) Conduct research on processing, densifing, storage, and transportation of biomass.
2) Conduct economic analyses of biomass sources for energy production.

3) Develop market quality and testing standards, including supporting infrastrature.
4) Assist growers in new producing regions with business organization, technology adoption, and market development, and formation of risk management strategies.
5) Provide educational materials and programming on production, economics, and policy analysis to decision makers, growers, and industry personnel.

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

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● Demonstrations	● Newsletters ● TV Media Programs ● Web sites ● Other 1 (News releases) ● Other 2 (Articles in Popular press)

3. Description of targeted audience

Farmers
Policy makers
Biomass processors
Equipment manufacturers

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	3000	10000	40	300
2012	3000	10000	40	300
2013	3000	10000	40	300
2014	3000	10000	40	300
2015	3000	10000	40	300

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	4	3	7
2012	5	2	7

Year	Research Target	Extension Target	Total
2013	5	2	7
2014	5	2	7
2015	5	2	7

V(H). State Defined Outputs

1. Output Target

- Determine the economic potential of pending biomass and energy beet opportunities in North Dakota and provide research-based information to all parties in this developing industry

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number of growers and industry personnel who use research-based economic analyses when they assess biomass/energy beet contracts, rely on densification technologies to collect, store and transport biomass/energy beets and employ risk management strategies when they develop their business organizations to supply biomass/energy beets.

Outcome # 1

1. Outcome Target

Number of growers and industry personnel who use research-based economic analyses when they assess biomass/energy beet contracts, rely on densification technologies to collect, store and transport biomass/energy beets and employ risk management strategies when they develop their business organizations to supply biomass/energy beets.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:100	**2012:**300	**2013:**400	**2014:**400	**2015:**400

3. Associated Knowledge Area(s)

- 205 - Plant Management Systems
- 402 - Engineering Systems and Equipment
- 404 - Instrumentation and Control Systems
- 511 - New and Improved Non-Food Products and Processes
- 512 - Quality Maintenance in Storing and Marketing Non-Food Products
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

4. Associated Institute Type(s)

- 1862 Extension
- 1862 Research

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Public Policy changes
- Competing Programmatic Challenges

Description

The development of the proposed biomass-based energy industries is dependent on several external factors including the overall market strength which will affect investors, federal policy which affects market incentives, and the profit potential for potential biomass crops versus traditional crops.

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

1. Evaluation Studies Planned

- Retrospective (post program)
- During (during 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 # 4

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 spent on foods away from home, and more people are involved in the handling of foods. Education and training to improve food handling practices and technologies will contribute to reductions in foodborne illness.

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%		25%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	25%		75%	
	Total	100%		100%	

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 spent 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 food service/processing sectors.

2. Scope of the Program

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

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

1. Assumptions made for the Program

Food safety will remain a 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
2011	7.0	0.0	7.0	0.0
2012	7.0	0.0	7.0	0.0
2013	7.0	0.0	7.0	0.0
2014	7.0	0.0	7.0	0.0
2015	7.0	0.0	7.0	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
● Education Class ● Workshop ● Group Discussion ● Demonstrations	● Newsletters ● Web sites

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	1500	400000	2000	25000
2012	1500	400000	2000	25000
2013	1500	400000	2000	25000
2014	1500	400000	2000	25000
2015	1500	400000	2000	25000

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	1	1	2
2012	1	1	2
2013	1	1	2
2014	1	1	2
2015	1	1	2

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

O. No.	Outcome Name
1	Based on post-surveys, 50 percent of teens will report changes in food handling practices to reduce risk of foodborne illness outbreaks
2	Seventy-five percent of foodservice and food industry participants in ServSafe, HACCP or other food sanitation courses will pass the examination and become certified.
3	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, 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

2011:1200	**2012:**1200	**2013:**1200	**2014:**1200	**2015:**1200

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

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

2. Outcome Type : Change in Action Outcome Measure

2011:60	**2012:**60	**2013:**60	**2014:**60	**2015:**60

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 3

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 Action Outcome Measure

2011:700	**2012:**700	**2013:**700	**2014:**700	**2015:**700

3. Associated Knowledge Area(s)

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

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

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

Description

The availability and interest of youth and adults to receive food safety training is dependent on incentives provided by policies and regulations. Their interest may be limited because of competing activities, especially for youth.

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

1. Evaluation Studies Planned

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

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

Pre/post and follow-up surveys will be used to collect evaluation data for Extension programs.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Childhood Obesity

2. Brief summary about Planned 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. Educational curricula have been developed and will be delivered through a network of county agents to reach youth in schools and adults in communities. The curricula are based on both improved nutrition and increased physical activity.

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
703	Nutrition Education and Behavior	45%		50%	
724	Healthy Lifestyle	35%		50%	
802	Human Development and Family Well-Being	10%		0%	
806	Youth Development	10%		0%	
	Total	100%		100%	

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
- In-State Research

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

The goal is to increase in number of people with healthy body weights and to reduce risk factors for development of 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
2011	8.0	0.0	0.7	0.0
2012	8.0	0.0	0.7	0.0
2013	8.0	0.0	0.7	0.0
2014	8.0	0.0	0.7	0.0
2015	0.0	0.0	0.7	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

School-based curricula, including "On the Move to Better Health", "Banking on Strong Bones", and "Going Wild" will continue to be used with children. Community-based programs for adults and children, including "Walk North Dakota" and "Moving More, Eating Smarter," will continue.

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

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion ● Demonstrations	● Public Service Announcement ● Billboards ● Newsletters ● TV Media Programs ● Web sites

3. Description of targeted audience

Children and adults will be the target groups for the programming. They will be reached with both direct and indirect methods.

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	7000	400000	7000	25000
2012	7000	400000	7000	25000
2013	7000	400000	7000	25000
2014	7000	400000	7000	25000
2015	7000	400000	7000	25000

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	1	3	4
2012	1	3	4
2013	1	3	4
2014	1	3	4
2015	1	3	4

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

O. No.	Outcome Name
1	Number of children participating in the youth education curricula who will improve their diet quality and/or their physical activity level.
2	Number of adults participating in adult education curricula who will improve their knowledge of current nutrition and/or physical activity level.

Outcome # 1

1. Outcome Target

Number of children participating in the youth education curricula who will improve their diet quality and/or their physical activity level.

2. Outcome Type : Change in Action Outcome Measure

2011:3000	**2012:**3000	**2013:**3000	**2014:**3000	**2015:**3000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Number of adults participating in adult education curricula who will improve their knowledge of current nutrition and/or physical activity level.

2. Outcome Type : Change in Knowledge Outcome Measure

2011:3000	**2012:**3000	**2013:**3000	**2014:**3000	**2015:**3000

3. Associated Knowledge Area(s)

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Populations changes (immigration, new cultural groupings, etc.)

Description

Spring flooding, which has occurred frequently in the past 4 years, has closed schools and prevented the instruction of these curricula. The student enrollment in small rural schools can change dramatically and alter the number of youth targeted.

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

1. Evaluation Studies Planned

- Before-After (before and after program)
- 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.

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
- Tests

Description

Pre/post and follow-up program evaluations (surveys) will be used to assess knowledge and behavior changes.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Citizenship and Leadership Development

2. Brief summary about Planned Program

The 4-H Youth Development program includes opportunities for youth to become involved in their community, build personal skills, and develop positive attitudes about their behaviors, their community, and place in the community. Youth will develop awareness through participation in state and national citizenship events. Leadership is developed through club and other group activities.

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
806	Youth Development	100%		0%	
	Total	100%		0%	

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

1. Situation and priorities

Youth desire a connection to their community. They want to feel needed, useful, and a part of the community. The study of positive youth development has shown a link between youth involved in a youth development program and positive outcomes related to Competence, Caring, Connections, Confidence, Character, and Contribution. The 4-H program will provide opportunities for leadership development and community involvement.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

North Dakota will continue to be a part of the 4-H Youth Development study. Financial support is available to participate in citizenship events on a statewide or national level. Clubs and groups have officers and provide other leadership opportunities.

2. Ultimate goal(s) of this Program

The 4-H Youth Development program will develop leadership and community skills of youth. Results of the study show

differences between youth in 4-H and non 4-H youth with respect to competence, caring, connections, confidence, character, and contribution. Youth are confident with abilities to contribute to community, lead meetings, and participate in groups.

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
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
2015	6.0	0.0	0.0	0.0

V(F). Planned Program (Activity)

1. Activity for the Program

4-H Study of Positive Youth Development will be administered. A citizenship event will be held at the state capital. Youth will participation in national 4-H events. Parliamentary procedure and leadership resources will be provided to youth groups.

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

Extension

Direct Methods	Indirect Methods
● Education Class ● Workshop ● Group Discussion	● Web sites

3. Description of targeted audience

Study will be conducted in selected schools. 4-H clubs and groups targeted for citizenship events.

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 Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2011	75	900	75	450
2012	100	900	100	450
2013	150	900	150	900

	Direct Contact Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2014	225	900	225	900
2015	225	900	225	900

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

2011:0 **2012:**0 **2013:**0 **2014:**0 **2015:**0

3. Expected Peer Review Publications

Year	Research Target	Extension Target	Total
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0

V(H). State Defined Outputs

1. Output Target

V(I). State Defined Outcome

O. No.	Outcome Name
1	Characterize the positive personality traits of 4-H youth compared to non 4-H youth.
2	Percentage of 4-H club members who show improved leadership skills.

Outcome # 1

1. Outcome Target

Characterize the positive personality traits of 4-H youth compared to non 4-H youth.

2. Outcome Type : Change in Condition Outcome Measure

2011:200	**2012:**200	**2013:**200	**2014:**200	**2015:**200

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

Outcome # 2

1. Outcome Target

Percentage of 4-H club members who show improved leadership skills.

2. Outcome Type : Change in Action Outcome Measure

2011:75	**2012:**100	**2013:**150	**2014:**225	**2015:**225

3. Associated Knowledge Area(s)

- 806 - Youth Development

4. Associated Institute Type(s)

- 1862 Extension

V(J). Planned Program (External Factors)

1. External Factors which may affect Outcomes

- Economy
- Populations changes (immigration, new cultural groupings, etc.)

Description

The engagement of youth in 4-H clubs and their subsequent level of activity may be affected by the overall economy. Declining rural populations and number of farms may reduce the number of youth in 4-H.

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

1. Evaluation Studies Planned

- After Only (post 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

- Observation
- Other (Self evaluation study)

Description

4-H Youth Development study will be conducted through selected schools
4-H club leadership development will use a self evaluation.