2008 North Dakota State University Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

No other industry or activity plays a greater or more vital role in the life of North Dakota than agriculture. Nearly one fourth of our economic base is from agriculture. Almost 90 percent of North Dakota's land area is in farm and grazing land. The North Dakota Agricultural Experiment Station and the NDSU Extension Service are leaders in researching new economic opportunities and providing educational and other services that citizens need to take advantage of.

In 2008, North Dakota led the nation in the production of spring wheat, durum wheat, barley, canola, all sunflower, oil sunflower, non-oil sunflower, flaxseed, all dry edible beans, pinto beans, navy beans, dry edible peas, lentils, and honey. The state ranks second in sugarbeets and all wheat; fourth in oats; fifth in potatoes; and eleventh in soybeans. The total value of the 2008 crop production in North Dakota was estimated at $6.59 billion. A short growing season and low rainfall limits diversification, yields and cropping potential. Still, North Dakota is one of the most agriculturally diverse states in the nation with more than 40 different crops grown.

Changing climate conditions, pests and prices make crop production a challenge. In addressing these challenges, NDSU specialists and researchers help the state's producers find ways to improve the profitability and sustainability of crop production.

Producers need to implement new management tools. Over seven thousand producers attended meetings on new management tools such as Quicken, QuickBooks, Fair Rent, and Farm Bill spreadsheets. Outlook Conferences for Agricultural Leaders were held with 206 attendees. Evaluations indicated very beneficial information to the lenders with examples like projections of what to expect in 2008/09 and 2009/10 markets and ideas/suggestions for working up 2009 farm plans for borrowers and setting guidelines for doing so.

NDSU researchers continue to develop genetically improved varieties of major crops. Teams of breeders, pathologists, cereal chemists and entomologists work together to develop improved cultivars. Eight patents were submitted in 2008. Those varieties possess improved agronomic performance and quality and have a major economic impact on the state and region through increased yield, improved disease resistance and quality and improved access to markets. New varieties released in 2008 were Cavalier soybean, Avalanche navy bean, Northern Flare sugar maple, Sisseton sugar maple, Fireworks amur maple, Northland Boston ivy, and Northern Debut little leaf linden. Over fourteen thousand producers grew these new varieties. Estimated value of released new cultivars to North Dakota is 35 million dollars.

Germplasm from many crops developed at the North Dakota Agricultural Experiment Station have been shared with scientists at Oregon State University, Washington State University, USDA-ARS, Montana State University, Busch Agricultural Resources, WestBred, Utah State University, University of Minnesota, MillerCoors, Dakota Pasta Cooperative, South Dakota State University, University of Wisconsin, University of Delaware, Michigan State University, and Agripro. New pea, chickpea, and lentil germplasm was obtained and will be evaluated in North Dakota field nurseries in 2009. A pulse breeding program started in October 2008.

Fusarium head blight (FHB) is the major fungal disease in the spring wheat region, with the disease causing grain shriveling and losses due to the DON mycotoxin. The release of publicly developed resistant varieties and their adoption by North Dakota growers has saved millions of dollars. In 2008, ND producers planted substantial acreage to resistant wheat varieties, including Glenn wheat, which was the most widely-grown variety in the state. ND producers know that experiments performed at NDSU

showed efficacy of fungicide applications for reducing disease severity, yield losses, and quality losses. In 2008, fungicides were applied to approximately 1 million acres. Depending on variables (variety treated, timing of application, and so forth), yield increased 20 – 30%, DON decreased up to 50%, and severity decreased approximately 20 – 60%. Economic losses in North Dakota were reduced through use of better varieties and through use of fungicides (approximately $45 million statewide).

Weed control is a big part of our scientist's work to improve crop management. Research trials identity the acceptable amounts, application timing and safety of products. Preplant incorporated ethofumesate followed by four postemergence applications of conventional rates of traditional sugarbeet herbicides can provide effective control of kochia and pigweed species. Growers have incorporated micro-rate technology in herbicide applications to onion. DPX KJM44-062 applied at 2 ox/A or higher provided better long-term leafy spurge control than the standard treatments of picloram at 8 oz/A or picloram plus imazapic plus 2,4-D at 4+1+16 oz/A. The National Park Service has switched from using Tordon herbicide to Milestone to control Canada thistle on land they manage. Milestone is more effective on Canada thistle, less injurious to non-target plants, and safer to the environment than Tordon.

Each year, insect pests are present throughout North Dakota. Over 8,000 subscribers receive the North Dakota Crop and Pest Report Newsletter, which provides timely information on new applied research of various insect pest problems and other issues for agricultural crops grown in North Dakota. This information helps to minimize the use of pesticides through education of proper scouting techniques, economic thresholds and other control strategies. The NDSU Extension Entomology website had an estimated 50,000 hits in 2008 illustrating the need for entomology information. An estimated 10,000 copies and over 3,500 web 'hits' occurred in 2008 for the North Dakota Field Crop Insect Management Guide E-1143. This extension publication serves as an important resource for making accurate pest management decisions and providing updates on insecticides and other issues of economically important insect pests in the state.

Over 1,000 insect identifications were conducted through NDSU Extension Entomology in 2008. Proper insect identification is key to knowing how to control any insect pest. The diagnostic effort provides an accurate insect identification to many different audience groups.

The 2008 Regional Sunflower Insect Trapping Network was a cooperative effort with NDSU Extension, USDA-ARS Sunflower Unit and National Sunflower Association. There were seven states and one Canadian province that participated in the sunflower insect trapping network. Based on a web-based survey, over 90% found the sunflower insect trapping network useful for their work and 67% used the trap results for advice to growers and others.

The wheat stem sawfly management project is an example of a current applied research and extension program. The wheat stem sawfly is one of the most destructive insect pests of wheat in North Dakota. Outbreak populations are expanding through areas that until recently have had minimal losses, and areas with historical problems in North Dakota continue to experience heavy losses. Feeding by sawfly larvae in infested stems can reduce grain weight by 50-60% in susceptible hollow-stem varieties and 10-20% in lodging-resistant solid-stem varieties. Producers estimate that annual crop losses exceed $15 million due to damage from wheat stem sawfly in North Dakota. The wheat stem sawfly management project is continuing to evaluate a broad array of wheat germplasm for utility of superior lodging-resistant solid-stem varieties with high yields and to evaluate alternative pest management strategies.

Two regulatory pests of concern to the state of North Dakota are surveyed for in the IPM Survey: cereal leaf beetle and swede midge. A total of 972 wheat fields were surveyed in all 53 counties of North Dakota during 2008. This number represents approximately one field surveyed per 7,000 acres of wheat. Cereal leaf beetle is an export concern for shipments of hay from North Dakota to California and is monitored for state regulatory purposes. No cereal leaf beetle was detected in any of the surveyed wheat fields in North Dakota in 2008. The exotic insect pest, swede midge was introduced into North American in 2000 and was recently found on canola in Saskatchewan, Canada. It was of interest to see if the any populations exist in North Dakota and Montana because of the proximity of canola production in this region to that in Saskatchewan. In 2008, a total of 45 Jackson

pheromone traps in 12 counties in North Dakota and seven traps in five counties in Montana were monitored for swede midge. All traps were negative for swede midge in North Dakota and Montana.

Fertilizer nitrogen costs to growers are high. Growers are looking at different sources of nitrogen for crops to reduce costs. Programs have stressed soil testing, particularly site-specific management for residual soil nitrate. Also, crop rotations have been presented as ways that growers can reduce total nitrogen consumption. Soil testing increased during 2008, and the use of site-specific management by growers for nutrient management has increased, resulting in new hires for consultants engaged in helping growers in this process. One thousand growers have moved to below-surface placement of nitrogen sources, increasing efficiency and reducing rates required to maintain and increase production. Some growers used more manure in 2008 than normal, and use of cover crops increased.

Adoption of best management practices would increase the nitrogen efficiency of applied nitrogen to fields and increase grower profitability. A decrease in nitrogen rate of only 2 lb N/acre would result in 2008 of an increase in grower profits on 20,000,000 acres of crop land of about $15,000,000. Evaluations of programs in 2008 showed that growers were moving towards better N placement, soil testing and particularly site-specific management of nitrogen. Economic factors and recent NDSU research on N rates for wheat and corn are showing growers that they can effectively reduce N rates without sacrificing productivity.

No-till is a low-fuel alternative to other tillage systems that increase soil residue cover. No-till adoption has risen from under 2,000,000 acres in 2000 to over 8,000,000 acres in 2008. Approximately 400 growers have introduced cover crops into rotations and some have purchased strip-till machines to introduce reduced tillage onto formerly conventional-till farms. Growers have recently upgraded their planters to deliver fertilizer more effectively below the soil surface in no-till production. Information has helped over 500 growers be more knowledgeable about drying systems that utilize less fuel and have begun to install these systems on their bins.

The biofuel industry in North Dakota is still an important issue. Source of products is critical and production must be maintained at high levels for industry to succeed. Grant proposals were submitted for ethanol production from sugar beets, sugar beet pulp, and perennial grasses. Two of three projects were funded and the third is expected to be funded in 2009. Grant dollars received for proposals related to biofuels exceeded 7.4 million dollars in 2008.

Livestock production in North Dakota accounts for about 16 percent of the total agricultural cash receipt. Livestock production is the original value added enterprise adding value to the state's abundant crop forage and rangeland resources. More than 44 percent of North Dakota's land use is associated with rangeland, pasture land and hayland. NDSU programs help producers cut costs, boost returns and fund new opportunities.

Beef cattle producers face increasing feed costs in light of increased demand worldwide for cereal grains. Nutritional expenses (feed and associated grazing costs) make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Beef cow nutrition, supplementation, lower cost alternatives, and feedstuffs were the focus of 27 meetings across the state of North Dakota which attempted to address this issue. In addition, 4 extension bulletins, several newsletter articles, and numerous media interviews also focused on this topic. Almost 1700 direct audience contacts and over 6,400 indirect contacts were reached through this effort. Surveys were taken at selected meetings to determine if producers were more knowledgeable about nutrition, feedstuffs, and cost of production. Over 340 producers indicated they had gained knowledge in these areas. This year their estimated cost of production was $444 per beef cow.

Over 50 ranchers were engaged in direct management strategies that impact their land resources. Due to the high cost associated with range management improvements, cost-share programs from numerous federal and state government agencies allow land managers the opportunity to add improvement practices that may otherwise not be attainable. Twenty-six ranchers

applied for cost-share from the Natural Resource Conservation Service. Training provided to 51 ranchers resulted in 38 implementing range improvement practices in the first year. The range improvement practices incorporated on the 38 ranchers impacted 124,400 acres, providing added income of $237,100.

Reproductive performance of animals is a major component of the efficiency of livestock production and it also is a major component of socioeconomic well-being of humans. In 2008 there were 8 Masters and 1 PhD graduates; and 10 undergraduate interns involved in research in this area in the Department of Animal Sciences at NDSU. Twenty nine grant proposals were submitted to various agencies and entities.

Noxious and invasive weeds have a direct economic and ecological impact on range and pastureland. These weeds reduced forage production, thus livestock production potential, resulting in an economic drain to the livestock sector. Ecologically, noxious and invasive weeds reduce the integrity of the natural resource, reducing the soil and plant community value for health, esthetics, and wildlife habitat. Over 250 people were trained on noxious weed identification and management options presented within the educational materials and workshops in 2008. These trainings have a direct impact on over 100,000 acres of land per year. Fifty-five land managers of public land were offered an educational opportunity for managing public land with noxious weeds. These managers have a direct impact on over 1.5 million acres of rangelands in North Dakota. Over 13,000 acres of private land were controlled for noxious weeds. Plans were developed for cost-share programs to impact the rangeland, approximately 10,000 acres. Surveys using GPS records by weed board members and land owner surveys showed a 5% reduction of noxious weeds on rangeland and pastureland in 2008 versus 2007.

Land owners incorporated biological control techniques using insects and management techniques using sheep grazing to eliminate herbicide costs saving biocontrol operators $14/ac and sheep grazers $9/ac.

Agricultural pollution primarily from non-irrigated cropland, grazing land and feedlots presents a significant threat to North Dakota's surface waters. Livestock waste has been identified as an important source of pollutants. The NDSU Extension Livestock Waste Technical Information and Assistance program addresses manure nutrient utilization, livestock feeding, housing, and management impacts on livestock waste and defines and delineates the non-point pollution rules and the economics of proper livestock waste management. Livestock producers who are impacting waters of the state must implement management practices or facility upgrades to minimize environmental impact. Individual consultation with producers was conducted to share with them the options they have for reducing their environmental impact. Forty two individuals obtained an animal feeding operation permit from the ND Dept Health by installing facility upgrades to control runoff that impacted waters of the state.

There is an increased awareness of food safety issues in North Dakota and the country. Large-scale food production and marketing systems and food prepared in institutional or restaurant settings have the potential for large-scale outbreaks of foodborne illness. An increasing number of foodborne illnesses are being linked to produce in the U.S. Food recalls are consistently in the media. Safe refrigeration temperatures and cooling practices are an issue in households across the United States, with refrigeration temperatures not meeting the recommended 40 degrees Fahrenheit or lower. In 2007-08, two new lessons were implemented: Now Cooking Lean Beef, which included information about food temperatures, and Cooking for One or Two, which integrate the principles of the Fight BAC campaign. Food safety concepts were also covered in EFNEP, and the 2007-08 evaluation process focused on refrigeration of meat and dairy. Among the participants in the "Now Serving Lean Beef" program, about 93 percent indicated they had learned something new. On the post-survey, about 89 percent could correctly identify the safe internal cooking temperature for ground beef (160 degrees). About 45 percent planned to use the meat shopping tips, which included arranging the grocery cart to help prevent cross-contamination. Among the participants in the "Cooking for 1 or 2" lesson, about 94 percent indicated they had learned something new, 29 percent planned to use the grocery shopping tips, and 90 percent planned to share the lesson with family/friends. Following a series of nutrition lessons, 70 percent of EFNEP participants reported they do not let meat or dairy products sit out more than two hours.

Increases in daycare, hospital and nursing home populations as well as growth in restaurant and deli businesses means a growing portion of the population is at risk from outbreaks of foodborne illness. In addition, quantity food preparation presents unique challenges for safe food handling and preparation. In this environment, more attention has been placed on the development and implementation of safe food handling guidelines. ServSafe Food Safety Certification and HACCP training programs have been conducted for foodservice managers and for members of the food industry. About 85 percent of participants taking the ServSafe exam have passed the national exam. On post-surveys administered to the students, they indicated they will do the following "more often" as a result of the class. About 96 percent will train others about the importance of handwashing, and 91 percent plan to wash their hands more often when preparing food. Among those in direct foodservice management position, 90 percent will check the sanitizer concentration, 91 percent will take additional steps to avoid cross-contamination, 88 percent will teach others how to avoid cross-contamination, 90 percent will teach others to cool foods more quickly using ice baths, shallow pans and other techniques, 88 percent will teach others how to use a thermometer, and 90 percent will use a food thermometer more often, and 79 percent will explain the importance of understanding food allergies to their foodservice workers. Nearly 99 percent will apply what they learned at home.

According to the Centers for Disease Control and Prevention (CDC), hand washing is the single most important means of preventing the spread of disease. During the past six years, a hand washing educational program has been done. Based on "seeing" where "germs" might hide on hands using a fluorescing dye and ultraviolet light, the "Wash Your Hands" project has reached more than 11,000 children in grades K-12 in schools throughout North Dakota. Fingertips, back of hand and wrists were commonly missed areas. About 90 percent recognized "20 seconds" as the recommended amount of time to wash your hands. According to post-surveys with students, about 92 percent said they would wash their hands more often, and 93 percent said they would wash their hands more carefully.

"Teens Serving Food Safely" is a statewide NDSU Extension Service food safety education effort designed to improve young food handlers' food safety knowledge and skills and decrease risk of foodborne illness outbreaks associated with food service establishments. According to a 2000 U.S. Department of Labor report, 32% of employed 15- to 17- year olds work in eating and drinking establishments. The pilot-tested "Teens" curriculum consists of five lessons based on the Fight BAC™ and Thermy™ national food safety campaign concepts, with pre/post and follow-up evaluation procedures. Knowledge scores, as measured by pre/post testing, increased from 51 percent correct on the pre-test to 84 percent on the post-test. About 51 percent of participants had been involved in food preparation for the public. As measured by follow-up surveys, 78 percent reported washing their hands more often during food preparation, 65 percent were more careful about cleaning and sanitizing utensils, and 48 percent had shared their knowledge about food safety with others, 39 percent had already applied what they learned when preparing food for the public, 25 percent are using a food thermometer more often, and 21 percent are checking refrigerator and freezer temperatures more often.

Risk for several chronic diseases, including heart disease, cancer, type 2 diabetes and osteoporosis, are related to diet and physical activity. These health conditions cost society an estimated $200 billion a year in medical expenses and lost productivity. Despite strong evidence supporting the health benefits of a healthy lifestyle, Americans, including North Dakotans, do not meet national nutrition and health goals. Walk North Dakota is a statewide eight-week walking program for adults and youth that uses an interactive Web site for data collection and assessment of miles walked. In FY 2008, participants in the Walk North Dakota program walked 230 million steps (115,000 miles) based on use of pedometers and a Web-based data collection system. About 58 percent reported an increase in their physical activity level, and 46 percent reported they walked five miles (10,000 steps) per day.

ND has a higher than average incidence of diabetes among its citizens and the research available today provides evidence that diabetes can be prevented in some cases, and can be limited in its impact on an individual in most all cases with proper education. Extension's longstanding and solid networks across the state have fostered the implementation of the program Dining With Diabetes (DWD), which addresses diabetes education, especially in rural areas that lack access to vital diabetes education services. The following health improvements were observed among Dining With Diabetes participants: increase in amount of exercise, improvement in overall diet quality, lower blood pressure, and better control of blood sugar levels. According to post surveys, 49 percent of participants could correctly identify carbohydrate exchanges based on information on the food label, 61 percent could correctly identify blood cholesterol level and 49 percent could correctly identify blood glucose values.

Cardiovascular disease is the leading cause of death in North Dakota. Proper nutrition and regular physical activity are two ways to reduce the risk of cardiovascular disease and other illnesses. According to results of a North Dakota Department of Health survey, only 18 percent of North Dakota adults eat five servings of fruits and vegetables per day and 34 percent of North Dakotans are completely physically inactive outside of work. Dietary intake that follows recommendations is associated with reduced risk of disease and nutritional deficiencies. The MyPyramid recommendations encourage optimal dietary intake for growth, development and good health. Community coalitions worked to promote awareness of healthy lifestyles, build skills, adapt community environments, and create policies that encourage healthy lifestyles. In 2007-8, 17 community coalitions with the potential to reach 70% of the state's population with information about healthy lifestyles were officially recognized as 5 + 5 communities. Seven communities reported policy changes in their service areas as a result of their activities. Six reported working with local schools on their local wellness policies; and one coalition noted changes in the snack policies at area worksites. One coalition reported a change in the local school environment. Following a series of nutrition lessons, 64 percent of EFNEP participants reported thinking about healthy choices when planning what to feed their family. Among the participants in the worksite Fruit and Veggie challenge, 66 percent indicated they were eating more fruits, 63 percent were eating more vegetables, 65 percent indicated they were eating a wider variety of colorful fruits and vegetables, and 91 percent were trying to consume at least the minimum recommendation of fruits and vegetables per day.

Childhood and adult obesity remain issues of concern in the U.S. Many children are considered overfed but under-nourished. Two curricula for youth ("Banking on Strong Bones" and "On the Move to Better Health"), as well as a statewide "Eat Smart. Play Hard. Together" program have been implemented with parent education components and evaluation. On the parent post-survey for the "Banking on Strong Bones" curriculum, about 55 percent of parents reported positive changes in their child's eating habits as a result of this program. About 20 percent of parents reported that the family eats breakfast together the majority of the time and 97 percent reported the family eats the evening meal together the majority of the time. In the "On the Move" program, 93 percent of the parents reported reading the newsletters and 74 percent used the information. About 68 percent of families set a goal each week; of those, 48 percent met their nutrition or fitness goal as a family. About 49 percent of parents reported an increase in their families' consumption of fruits and vegetables, and 25 percent reported an increase in consumption of dairy products. About 71 percent of parents reported eating family meals five or more times per week.

According to USDA, 70 percent of pre-teen girls and 60 percent of pre-teen boys do not meet daily calcium recommendations. Two curricula are being implemented in North Dakota. "Banking on Strong Bones" is a five-week, school-based educational intervention for fourth graders, with instruction by NDSU Extension Service Agents/Assistants. The purpose is to increase knowledge/awareness of the role calcium-rich foods and weight-bearing activities play in building and maintaining strong bones among children and to improve food and beverage choices. "On the Move to Better Health" is a curriculum for fifth graders, which includes education about MyPyramid and aims to increase fruits, vegetables and calcium-rich foods in the diets of children. In addition, a "Healthy North Dakota 4-H Club" recognition program has been implemented to increase awareness and implementation of MyPyramid guidelines at the organization level. In the "Banking on Strong Bones" program, students improved their knowledge scores and reported positive attitude and behavior changes toward consumption of dairy products. On the pre-survey for the "Banking on Strong Bones" fourth grade curriculum, 47 percent reported drinking three or more glasses of milk the previous day, compared to 65 percent on the post-survey. On the pre-survey, 16 percent reported drinking soda pop every day, compared to 12 percent on the post-survey. On the post-survey, about 88 percent were able to identify the color (blue) of the milk group on MyPyramid, compared with 61 percent on the presurvey. On the presurvey, 73 percent were able to identify calcium as the key nutrient in milk, compared to 87 percent on the post-survey. According to the results of the five-week "On the Move to Better Health" program, 55 percent of children reported increasing the amount of fruits and vegetables they consumed, 52 percent reported drinking more milk, 60 percent reported drinking less soda pop, 53 percent reported drinking more water, 56 percent chose healthier snacks, and 64 percent increased the amount of physical activity they did. In 4-H youth programming, 373 youth from 27 different 4-H Clubs were recognized for participating in at least six "healthy activities" based on MyPyramid guidelines.

Parents and other adults need increased knowledge on key issues related to family meals. An educational lesson was developed on the value and importance of family meals and presented across the state to 4050 participants. Eighty-nine percent of participants in the educational program indicated they had learned something new on key issues related to family meals. Eighty-seven percent of participants in the educational program indicated they were implementing specific steps related to healthy practices and family meals. Ninety percent of participants in the educational program indicated they were developing new

ideas and skills regarding family meal practices in the home.

Divorcing adults need increased understanding of the divorce process and how to make healthy adjustments. An educational program was delivered to 400 adults involved in or following the divorce process. On average, 53 percent of participants in the educational program indicated substantive change in their knowledge about varying aspects of the divorce process. Forty-nine percent of participants in the educational program indicate they are taking specific steps to better manage the divorce process for themselves and their children. Seventy-one percent of participants in the program indicate making improvements in effective communication practices.

Community leadership is as important as good roads, great schools and clean water. Leadership is required in communities to make sure things run smoothly and make them a better place to live, work and raise families. Strengthening leadership is critical and the NDSU Extension Service has programs to assist in this leadership development for North Dakotans; Rural Leadership North Dakota, Horizons and 4-H Ambassadors.

Rural Leadership North Dakota is a two year interactive study and travel program dedicated to producing graduates with the vision and commitment to lead themselves, their organizations and communities into the future. Fourteen RLND participants have started a community or organizational project. Participants are involved in the planning and implementation of their community RLND project. During October 2007-2008, the leadership skills of RLND participants increased by 33%.

Twenty one communities have completed the Horizons program that works to develop local leaders to address difficult issues such as poverty and demographic decline. A total of 105 community projects have been completed or are ongoing in the Horizons program. Communities identified community projects following a visioning and strategic planning locally. Some of these projects include (1) housing surveys and housing authority development, (2) development of welcome packets and committees, (3) set-up of local community foundations for future granting to local entities, and (4) expanding services to local seniors.

Results from the Horizons program included 622 individuals completing portions of the specific leadership training and utilizing this newfound skill and knowledge base to work with others in the community on specific projects. One community had 11 individuals running for a local council position which in the past has had no one running. Communities also report a greater knowledge of their assets. One community member in poverty in rural North Dakota Horizons community has now set up a housing authority board in her community and assisted with a local housing survey. Nine strategic planning sessions were completed in communities other than Horizons communities and project teams formed for each.

Youth leadership and involvement is critical to the state’s future. 4-H Ambassadors through the Extension Youth Conference were involved in cleaning up a tornado site, helping two local food banks, helping at a local Salvation Army, and cleaning up a local botanical center. Without the next generation stepping up to leadership roles, communities will face a void in leadership to tackle difficult issues and projects. Youth were recruited to be involved in Study Circles and Leadership Plenty within the Horizons program.

Developing skills to prepare youth for the workforce is one of the underlying goals of many 4-H activities. Contribution to communities is important to 4-H clubs/groups. Projects of service to community varied with the groups. Some projects were limited to clean-up of an area in the community, while others required many hours of planning and organization. Most groups engaging in community service plan to do more community service. This intent shows a movement to an established or expected behavior of great benefit to the local community. In just the 164 projects reported, more than 1400 hours of time was donated.

4-H club leaders were asked to respond to a survey about service to community projects. Sixty-three percent of the respondents reported their clubs did one to three service projects in the previous year. While 88 percent of the respondents reported service to community was part of their goals and purpose, 79 per cent agreed that contributing to their community was fun and it made their community a better place to live. The responses by 4-H club leaders showed a fairly balanced distribution of youth participating in service to community projects from ages under 10 years of age to over 15 years of age. Ninety-eight percent agreed or strongly agreed with the statement "We intend to continue to serve our community in the future."

Total Actual Amount of professional FTEs/SYs for this State

Year:2008	Extension		Research	
	1862	1890	1862	1890
Plan	175.0	0.0	454.0	0.0
Actual	85.0	0.0	50.0	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

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

2. Brief Explanation

Program leaders from the North Central Region met and exchanged ideas on plans of work and logic models in agriculture and natural resources, family and consumer science, 4 H youth development, and community resource development. Program leaders from the Great Plains (North Dakota, South Dakota, Nebraska, and Kansas) met and exchanged ideas on professional development, evaluation, and program planning tools. Extension program leaders from North Dakota and South Dakota met twice to develop joint program opportunities for sustainable agriculture programming.

Research programs were subjected to reviews prior to, during and at the conclusion of each research project. Research faculty who participate in multi state research projects received a critical review of their contributing project from fellow committee members, the administrative adviser and the North Central Multi State Research Committee. Many faculty have competitive grants which are awarded on the basis of scientific merit and have an external peer review. Each research faculty member with the North Dakota Agricultural Experiment Station was required to have a station project that was reviewed for scientific merit by a Project Review Committee that is comprised of one faculty member from each discipline. All research was peer reviewed, either internally or externally, prior to publication.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged 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

Brief Explanation

Establishing linkages with the public enables us to discover information about community/county/district/state assets and needs. Methods such as holding public meetings or listening sessions, using targeted invitations, and surveys are used for stakeholder input on an on going basis. 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. A tool that is being used more extensively is the turning point technology. It has been used in the classroom for some time but has a great utilization for the public to express their concerns anonymously in public forums or gatherings.

2(A). A brief statement of the process that was 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 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.

The North Dakota Department of Human Services and NDSU Extension Service formed 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 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.

2(B). A brief statement of the process that was 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

The State Board for Agricultural Research and Education (SBARE) meets bimonthly. Both the Extension Service and the Experiment Station are represented on the board, affording opportunities for input and program directions.

County commissioners are met with at least once a year and in most cases twice for input.

The statewide Family Life Education Committee meets quarterly where input is sought for programming and direction.

3. A statement of how the input was considered

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

Brief Explanation

Brief Explanation of what you learned from your Stakeholders

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.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
3042366	0	2458008	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	1880760	0	1069300	0
Actual Matching	2821140	0	1572500	0
Actual All Other	0	0	84000	0
Total Actual Expended	4701900	0	2725800	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	0	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Energy in Crop Agriculture
2	Economics of Crop Production
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

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Energy in Crop Agriculture

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	0.0	0.0
Actual	10.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
280000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
420000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1000	4500	0	0
2008	1400	5000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Number of farmers gaining knowledge on new tillage options

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	250	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Growers show interest in reduced tillage systems as evidenced by attendance at field demonstrations and presentations.

What has been done

Growers have introduced cover crops into rotations and some have purchased strip-till machines to introduce reduced tillage onto formerly conventional-till farms.

Results

Grower have increased knowledge regarding reduced till options and have begun to purchase equipment to practice reduce till

4. Associated Knowledge Areas

KA Code	Knowledge Area
404	Instrumentation and Control Systems
205	Plant Management Systems
402	Engineering Systems and Equipment

Outcome #2

1. Outcome Measures

Number of farmers gaining knowledge of energy alternatives

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	600

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Growers are more knowledgeable about use of ethanol and biodiesel.

What has been done

Presentations have been made on use of ethanol and biodiesel as fossil fuel replacements.

Results

Growers and the public are increasing their use of alternative fuels.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
205	Plant Management Systems

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Growers are interested in energy as it related to crop type required in the present and in the future.

What has been done

Presentations to growers have included information on oil content of certain crops and energy potential of cellulosic-ethanol feedstock crops.

Results

There is increased knowledge gained by growers, but as of yet, no industry demand has arisen for these types of crops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	300	300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

No-till systems conserve soil and fuel.

What has been done

Presentations continue to be offered and demonstrations held that present the benefits of no-till systems in many soils.

Results

No-till adoption has risen from under 2,000,000 acres in 2000 to over 8,000,000 acres today.

4. Associated Knowledge Areas

KA Code	Knowledge Area
404	Instrumentation and Control Systems
205	Plant Management Systems
402	Engineering Systems and Equipment

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	750	750

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Soil testing is a recommended input into fertilizer recommendations. Use of soil testing improves nutrient application efficiency.

What has been done

A number of presentations have shown the benefits of soil testing, particularly in a site-specific manner.

Results

Grower adoption of soil testing, particularly soil testing using zone soil sampling has increased in the region.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Number of acres under reduced tillage

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7000000	8000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Reduced tillage saves soil, improves productivity and saves fuel.

What has been done

Presentations and field days have promoted reduced tillage systems.

Results

Growers have adopted no-till and reduced tillage systems steadily since 2000.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
404	Instrumentation and Control Systems
402	Engineering Systems and Equipment

Outcome #7

1. Outcome Measures
Number of farmers using reduced energy technologies

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Energy is expensive and reducing energy in farm operations is necessary for profitability.

What has been done

Presentations on options for reducing grain drying costs.

Results

Growers are more knowledgeable about drying systems that utilize less fuel and have begun to install these systems on their bins.

4. Associated Knowledge Areas

KA Code	Knowledge Area
402	Engineering Systems and Equipment
404	Instrumentation and Control Systems
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Public policy, the economy and government regulations have lately spurred grower acceptance of energy programs, including reduced tillage, alternative fuels and reduced energy systems.

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

1. Evaluation Studies Planned

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

Evaluation Results

Evaluations from presentations and field days indicate a greater acceptance and adoption of all of the above programs, including soil testing, reduced energy systems, no-till and reduced tillage and alternative fuels.

Key Items of Evaluation

Adoption of these energy systems will continue as cost of energy and fertilizer continue to increase.

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Economics of Crop Production

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	9.0	0.0	0.0	0.0
Actual	9.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
252000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
378000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	5000	250000	0	0
2008	5000	250000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	15	1	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5000	5000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Meetings will be provided.

What has been done

Numerous local, county, regional and state level meetings were held.

Results

Many producers were exposed to educational material.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
602	Business Management, Finance, and Taxation
601	Economics of Agricultural Production and Farm Management
603	Market Economics

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2500	2500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increase in subject knowledge and skills.

What has been done

Extension economists provided new, cutting-edge management and marketing information.

Results

The knowledge base of many agricultural producers was expanded.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
601	Economics of Agricultural Production and Farm Management

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	15000	15000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Enterprise budgets, computerized decision-making tools and marketing plans are essential marketing tools.

What has been done

Examples of budgets, computerized decision-making tools and marketing plans were developed.

Results

Numerous North Dakota producers used these examples to develop farm specific budgets and marketing plans.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices
602	Business Management, Finance, and Taxation

Outcome #4

1. Outcome Measures

Number of marketing clubs in the state.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	50

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Maintain at least 50 active marketing clubs in North Dakota.

What has been done

Two clubs decided to cease operations, but two new ones were started.

Results

A total of 50 clubs were provided with information to continue their viability.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices
601	Economics of Agricultural Production and Farm Management

Outcome #5

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	10000	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Producers need to work with agricultural service personnel.

What has been done

Several conferences with service personnel including ag lenders, crop insurance agents, marketing club facilitators, and tax practitioners were held.

Results

Both service personnel and producers acknowledged a greater understanding of the challenges of each other's businesses.

4. Associated Knowledge Areas

KA Code	Knowledge Area
602	Business Management, Finance, and Taxation
603	Market Economics

601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #6

1. Outcome Measures

Evidence of producers implementing activities indicated by the management tools.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7500	7500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Producers need to implement new management tools.

What has been done

Meetings to provide education on new management tools such as Quicken, QuickBooks, Fair Rent, and Farm Bill spreadsheets.

Results

Many producers implemented new management tools to aid in the multitude of decisions that must be made for the farm firm.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
603	Market Economics
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation

Outcome #7

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	90000000	90000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Monetary rewards from marketing club participation are needed to continue interest in club activities.

What has been done

Producers received educational material to implement pre- and post-harvest pricing strategies.

Results

Crops were priced at higher than harvest low prices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices
602	Business Management, Finance, and Taxation
603	Market Economics

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	90000000	90000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Crop production is an important income source for North Dakota.

What has been done

Educational activities which helped agricultural producers adopt best management practices was provided.

Results

The value of crop production increased in 2008 due to both higher prices and producers adopting best management practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
603	Market Economics
602	Business Management, Finance, and Taxation
601	Economics of Agricultural Production and Farm Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- During (during program)

Evaluation Results

Outlook Conference for Agricultural Leaders Evaluation Summary.
My attendance at this event should prove (7 = very beneficial, 1 = no value):
Overall: 206 responses, 5.85 average ranking.
Overall, I consider this learning experience (7= excellent, 1 = poor):
Overall: 204 responses, 5.92 average ranking.
Give an example of something you gained from this session which may help you in your operation:

- The commodity price presentation is very beneficial.
- Projections of what to expect in 2008/09 and 2009/10 markets.
- Ideas/suggestions for working up 2009 farm plans for borrowers, setting guidelines for doing so.
- Projected prices for the 2009 crop year.
- Marketing
- Wind energy development
- Crop input costs, livestock outlook
- Both livestock livestock and crop outlook were very good; land values and rents for land.
- Crop outlook and the crude to crop price correlation.
- Better understanding of economic issues regarding agriculture in 2009
- Talking points for livestock producers who aren't having as good of times as the grain farmers.
- Input costs for crops will be a useful guide; crop outlook prices also another good resource.
- The economic sessions were great-to-see predictions for future prices.
- Crop outlook plus better understanding of economic forces at work.

Key Items of Evaluation

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Plant Breeding

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	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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	0.0	0.0	13.0	0.0
Actual	0.0	0.0	13.0	0.0

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

Extension		**Research**	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	442000	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	650000	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	3
2008 :	8

Patents listed

PVP for Rawson barley
PVP for Pinnacle barley
PVP for Cavalier soybean
Trademark for Northern Flare sugar maple
Trademark for Sisseton sugar maple
Trademark for Fireworks amur maple
Trademark for Northland Boston Ivy
Trademark for Northern Debut little leaf linden

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	13	
2008	0	28	28

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Estimated dollar value new cultivars bring to North Dakota

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	35000000	35000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers get new varieties.
* Processors that utilize the grain get varieties with improved quality.
* Crop consultants receive up-to-data on all available crop varieties.
* Stakeholders of the local and regional commodity groups get improved varieties.

What has been done

Release of new varieties

Results

Release of Cavalier soybean, Avalanche navy bean, Northern Flare sugar maple, Sisseton sugar maple, Fireworks amur maple, Northland Boston ivy, and Northern Debut little leaf linden.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers get new varieties.
* Processors that utilize the grain get varieties with improved quality.
* Crop consultants receive up-to-data on all available crop varieties.
* Stakeholders of the local and regional commodity groups get improved varieties.

What has been done

Release of new crop varieties.

Results

Cavalier soybean
Avalanche navy bean
Northern Flare sugar maple
Sisseton sugar maple
Fireworks amur maple
Northland Boston ivy
Northern Debut little leaf linden.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Changes in breeding priorities that match needs

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers get new varieties.
* Processors that utilize the grain get varieties with improved quality.
* Crop consultants receive up-to-data on all available crop varieties.
* Stakeholders of the local and regional commodity groups get improved varieties.

What has been done

Breeding of improved pea germplasm commenced
Breeding of improved chickpea germplasm commenced
Breeding of improved lentil germplasm commenced

Results

New pea, chickpea, and lentil germplasm was obtained and will be evaluated in North Dakota field nurseries in 2009.

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources

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

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers get new varieties.
* Processors that utilize the grain get varieties with improved quality.
* Crop consultants receive up-to-data on all available crop varieties.
* Stakeholders of the local and regional commodity groups get improved varieties.

What has been done

Pulse breeding program started in October 2008.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants
202	Plant Genetic Resources

Outcome #5

1. Outcome Measures

Number of teams working together to develop genetic solutions

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

*Producers get new varieties.
*Processors that utilize the grain get varieties with improved quality.
*Crop consultants receive up-to-data on all available crop varieties.
*Stakeholders of the local and regional commodity groups get improved varieties.
*Federal scientists

What has been done

Teams of plant breeders, geneticists, pathologists, and cereal chemists are working together to develop improved varieties.

Results

Teams are working together for the following crops: barley, durum wheat, hard red spring wheat, potato, dry bean, oat, and soybean.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Number of individuals growing improved cultivars

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	14500	14500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

*Producers get new varieties.
*Processors that utilize the grain get varieties with improved quality.
*Crop consultants receive up-to-data on all available crop varieties.
*Stakeholders of the local and regional commodity groups get improved varieties.
*Agribusiness/Agrifinance personnel

What has been done

New varieties are released and made available to regional producers.

Results

Cavalier soybean
Avalanche navy bean
Northern Flare sugar maple
Sisseton sugar maple
Fireworks amur maple
Northland Boston ivy
Northern Debut little leaf linden.

4. Associated Knowledge Areas

KA Code	Knowledge Area

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

Outcome #7

1. Outcome Measures

Number of other breeding programs using NDSU developed germplasm

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	15	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

*Scientists at other institutions.
*Producers get new varieties.
*Processors that utilize the grain get varieties with improved quality.
*Crop consultants receive up-to-data on all available crop varieties.
*Stakeholders of the local and regional commodity groups get improved varieties.

What has been done

Germplasm has been shared with plant breeders at other institutions.

Results

Germplasm from many crops developed at the North Dakota Agricultural Experiment Station have been shared with scientists at Oregon State University, Washington State University, USDA-ARS, Montana State University, Busch Agricultural Resources, WestBred, Utah State University, University of Minnesota, MillerCoors, Dakota Pasta Cooperative, South Dakota State University, University of Wisconsin, University of Delaware, Michigan State University, and Agripro.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Success in long term variety improvement programs is dependent on collection of reliable data not adversely affected by unfavorable growing conditions during the growing season and reliable funding for long-term efforts.Reductions in funding for variety improvement efforts due to budget cuts because of the poor economy will not be immediately recognized, but will have serious implications five years or more in the future.In order for breeders and pathologists to keep ahead of new and emerging diseases that may affect their crop, they must be proactive in developing germplasm that is resistant to pests before they enter an area.An example would be developing wheat and barley germplasm with resistance to the new race of wheat stem rust identified in Uganda in 1999.All of the barley varieties and greater than 70% of the wheat varieties currently grown in the US are susceptible to the wheat stem rust pathotype identified in Uganda.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #4

V(A). Planned Program (Summary)

1. Name of the Planned Program

Weed Science

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.0	0.0
Actual	0.0	0.0	4.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	136000	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	200000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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. Brief description of the target 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(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	5	
2008	2	7	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Changes in weed science research priorities that match needs

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increased weed control reduces crop losses, micro-rate applications of herbicides reduces herbicide costs to stakeholders, and new herbicide treatments are more effective and less injurious to non-target species.

* Producers
* Crop consultants
* Extension state specialists and county educators
* Commodity groups
* Personnel in agribusiness and agrifinance
* Personnel working for government agencies

What has been done

New herbicide recommendations provided to stakeholders.

Results

* Preplant incorporated ethofumesate followed by four postemergence applications of conventional rates of traditional sugarbeet herbicides can provide effective control of kochia and pigweed species.
* Growers have incorporated micro-rate technology in herbicide applications to onion.
* DPX KJM44-062 applied at 2 ox/A or higher provided better long-term leafy spurge control than the standard treatments of picloram at 8 oz/A or picloram plus imazapic plus 2,4-D at 4+1+16 oz/A.
* The National Park Service has switched from using Tordon herbicide to Milestone to control Canada thistle on land they manage. Milestone is more effective on Canada thistle, less injurious to non-target plants, and safer to the environment than Tordon.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers
* Crop consultants
* Extension state specialists and county educators
* Commodity groups
* Personnel in agribusiness and agrifinance
* Personnel working for government agencies

What has been done

Weed Control Guide was updated.

Results

Updated Weed Control Guide was made available to stakeholders via hardcopies and on the Web.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants

Outcome #3

1. Outcome Measures
Number of teams working together to develop solutions

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers
* Crop consultants
* Extension state specialists and county educators
* Commodity groups
* Personnel in agribusiness and agrifinance
* Personnel working for government agencies

What has been done

Teams of scientists are working together on annual weeds, perennial weeds, and herbicide resistant weeds

Results

Revised weed control guide published and made available to stakeholders.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants

Outcome #4

1. Outcome Measures

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

Not reporting on this Outcome for this Annual Report

Outcome #5

1. Outcome Measures

Improved control of invasive perennial weeds using integrated methods

Not reporting on this Outcome for this Annual Report

Outcome #6

1. Outcome Measures

Delayed evolution of herbicide-resistant weeds

Not reporting on this Outcome for this Annual Report

Outcome #7

1. Outcome Measures

Estimated dollar value weed-control brings to North Dakota

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1000000000	100000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers
* Crop consultants
* Extension state specialists and county educators
* Commodity groups
* Personnel in agribusiness and agrifinance
* Personnel working for government agencies

What has been done

Weed control strategies have been provided to regional stakeholders

Results

Damage and losses due to weeds have been reduced.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants

Outcome #8

1. Outcome Measures

Percent of producers that utilize our recommendations

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	90	90

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

* Producers
* Crop consultants
* Extension state specialists and county educators
* Commodity groups
* Personnel in agribusiness and agrifinance
* Personnel working for government agencies

What has been done

Strategies have been provided to regional stakeholders to reduce damage and losses due to weeds.

Results

Financial losses due to weeds are reduced.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants
213	Weeds Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Success in long term annual and perennial weed control programs is dependent on collection of reliable data not adversely affected by unfavorable growing conditions during the growing season and reliable funding for long-term efforts.Reductions in funding for research in these areas due to budget cuts because of the poor economy will not be immediately recognized, but will have serious implications five years or more in the future.For example, herbicide-tolerant weeds may develop over time and new control strategies need to be developed.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #5

V(A). Planned Program (Summary)

1. Name of the Planned Program

Soil Science

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	60%		60%	
205	Plant Management Systems	40%		40%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	3.0	0.0
Actual	1.0	0.0	3.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
28000	0	102000	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
42000	0	150000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	4000	30000	0	0
2008	4000	35000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	1	
2008	3	1	4

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of individuals receiving individual assistance
2	Number of individuals decreasing 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 (%)
8	Amount of N in ground and surface water is reduced (%)

Outcome #1

1. Outcome Measures

Number of individuals receiving individual assistance

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3000	3500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Fertilizer nitrogen costs to growers are high. Growers are looking at different sources of nitrogen for crops to reduce costs.

What has been done

Programs have stressed soil testing, particularly site-specific management for residual soil nitrate. Also, crop rotations have been presented as ways that growers can reduce total nitrogen consumption.

Results

Soil testing increased during 2008, and the use of site-specific management by growers for nutrient management has increased, resulting in new hires for consultants engaged in helping growers in this process.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Number of individuals decreasing N use

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2000	1000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nitrogen efficiency to crops is only 50% at best and often it is lower. Better efficiency practices reduces rates growers should use and decrease adverse environmental effects.

What has been done

Programming on more efficient placement of urea fertilizer and use of soil testing to direct rates.

Results

More growers have moved to below-surface placement of nitrogen sources, increasing efficiency and reducing rates required to maintain and increase production. Current, ongoing research into nitrogen rates suggests lower rates are appropriate for wheat and corn.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

Outcome #3

1. Outcome Measures

Number of individuals using alternative N sources

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	800	500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nitrogen costs are high and growers are looking for alternative sources of nitrogen nutrition.

What has been done

Programming on better utilization of manure where it is available and use of cover crops and crop rotations to decrease total supplemental nitrogen purchases.

Results

Some growers used more manure in 2008 than normal, and use of cover crops increased. The quantitative outcome was lower than anticipated due to high crop prices until fall, 2008.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

Outcome #4

1. Outcome Measures

Number of individuals implementing recommended action or practice

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2000	2000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The outcome is a reduction in nitrogen use do to increased efficiency of placement, timing, fertilizer source.

What has been done

Programming to support all of these areas.

Results

Soil testing increased, site-specific management increased, growers moved towards more efficient placement, and better use of manure and cover crops.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #5

1. Outcome Measures
Continued decline of N in ground and surface water (%)

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Low levels of nitrate in ground and surface water are desirable for environmental reasons, and to an extent also represent some financial loss to growers whose inefficiencies may lead to leaching losses.

What has been done

Programming to support soil testing, use of site-specific management and proper timing and placement of fertilizers for better efficiency and lower losses.

Results

Soil testing has increased, site-specific management has increased and there is increased grower acceptance of better placement options to increase nitrogen efficiency.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Estimated dollar value of adopted best management practices ($)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12000000	15000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Adoption of best management practices would increase the nitrogen efficiency of applied nitrogen to fields and increase grower profitability.

What has been done

Programs 1-5.

Results

A decrease in nitrogen rate of only 2 lb N/acre would result in 2008 of an increase in grower profits on 20,000,000 acres of crop land of about $15,000,000

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #7

1. Outcome Measures

Less commercial N is used (%)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Less N used, if the decrease were accompanied by soil testing site-specifically, better placement and timing and use of rotation and cover crops, would result in higher grower profits.

What has been done

Programming in 1-6.

Results

Although grower movement towards higher efficiency practices was observed, data for fertilizer use for 2008 will not be published through the ND Dept of Ag until June, 2009.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
205	Plant Management Systems

Outcome #8

1. Outcome Measures

Amount of N in ground and surface water is reduced (%)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Amount of N in ground in surface water may adversely affect the environment.

What has been done

Programming in 1-6.

Results

2008 data is not yet available, although individual aquifers have recently shown a trend to lower nitrate levels (Karlsruhe aquifer report, 2006).

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
102	Soil, Plant, Water, Nutrient Relationships

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Public Policy changes
- Government Regulations

Brief Explanation

Very high crop prices from fall 2007-summer 2008 limited more reduction in fertilizer N used. Although the data will not be published and available from the State of ND for several months, the first half of 2008 was not a period that economically supported reduction in N rates.

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

1. Evaluation Studies Planned

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

Evaluation Results

Evaluations of programs in 2008 showed that growers were moving towards better N placement, soil testing and partcularily stie-specific management of nitrogen.

Key Items of Evaluation

Economic factors and recent NDSU research on N rates for wheat and corn are showing growers that they can effectively reduce N rates without sacrificing productivity. Growers have recently upgraded their planters to deliver fertilizer more effectively below the soil surface in no-till production.

Program #6

V(A). Planned Program (Summary)

1. Name of the Planned Program

Biofuels

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	10%		10%	
511	New and Improved Non-Food Products and Processes	80%		80%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	0.6	0.0	3.4	0.0
Actual	0.2	0.0	1.4	0.0

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

Extension		**Research**	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
5600	0	49300	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
8400	0	72500	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	100	0	0	0
2008	200	0	40	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	3	
2008	0	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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	Number of biofuels research proposals submitted.
6	Grant money received for biofuels research.
7	Increased demand for NDSU graduate students in academia/industry.
8	Increase in quality/quantity of student applicants in biofuels-related fields.
9	Increased funding rate for NDSU biofuels research proposals.
10	Biobased industries seek out NDSU faculty for collaborations on biofuels projects.
11	State and federal policymakers seek out NDSU faculty input.

Outcome #1

1. Outcome Measures

Number of faculty collaborations working on biofuels projects.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	18	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Stakeholders care because collaboration enhances research quality.

What has been done

Collaborated on an inter-institutional grant proposal with 6-8 faculty from several institutions. Also collaborate with or interact with faculty from several departments and colleges at NDSU.

Results

Strong relationships have developed that will improve current and future research results.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Number of proposals submitted for biofuels projects.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Proposals must be submitted to generate funding and produce results.

What has been done

Proposals have been submitted for ethanol production from sugar beets, sugar beet pulp, and perennial grasses.

Results

Two of three projects have been funded and the third is expected to be funded this year.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Number of graduate students working on biofuels projects.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Students are needed to do research and work in biobased industries.

What has been done

Students have been recruited and contact the department independently.

Results

One new student was hired and another continues to work on a biofuels-related project.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Number of biofuels-related papers published by NDSU faculty.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Publishing is necessary to disseminate results.

What has been done

Papers were written for various projects.

Results

Three papers were submitted for peer-review and four papers were written and published.

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

Number of biofuels research proposals submitted.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Proposals must be submitted to generate funding and produce results.

What has been done

Proposals have been submitted for ethanol production from sugar beets, sugar beet pulp, and perennial grasses.

Results

Two of three projects have been funded and the third is expected to be funded this year.

4. Associated Knowledge Areas

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

Outcome #6

1. Outcome Measures

Grant money received for biofuels research.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1000000	7400000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Money must be received to complete research projects.

What has been done

Several proposals were submitted to public and private sources.

Results

Funding is available for three biofuels related projects.

4. Associated Knowledge Areas

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

Outcome #7

1. Outcome Measures
Increased demand for NDSU graduate students in academia/industry.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Competent graduates are needed in industry.

What has been done

Two graduate students are working on advanced degrees.

Results

No students graduated in 2008.

4. Associated Knowledge Areas

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

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Quality students enhance research productivity and results.

What has been done

Students were recruited.

Results

The quality of some students was high. The new student has a good background and is performing well.

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

Increased funding rate for NDSU biofuels research proposals.

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500000	7400000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

High funding rate indicates strong skills and good ideas.

What has been done

Proposals were submitted to various agencies.

Results

One project received funding from three sources (industry, government, and commodity group). Another received a large multi-state award. Two of three projects were funded.

4. Associated Knowledge Areas

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

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	6	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Strong reputation with industry leads to good, applied research.

What has been done

Results

Relationships have been developed.

4. Associated Knowledge Areas

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

Outcome #11

1. Outcome Measures

State and federal policymakers seek out NDSU faculty input.

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	8	6

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Policy makers are elected by the public they serve.

What has been done

Faculty have hosted several political groups and agencies in their facilities and made presentations concerning their research.

Results

Policy makers are familiar with faculty and their related work.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The 2007 EISA has increased interest in bioenergy.The economic collapse and drop in oil price has also hurt industry, but interest remains high and my increase with the economic stimulus planned by the government.

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

1. Evaluation Studies Planned

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

Evaluation Results

No long term evaluation has been done.

Key Items of Evaluation

Program #7

V(A). Planned Program (Summary)

1. Name of the Planned Program

Insect Management

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	2.0	0.0	5.0	0.0
Actual	2.0	0.0	4.0	0.0

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

Extension		**Research**	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
56000	0	136000	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
84000	0	200000	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

•Crop and animal agricultural producers •Home owners •Agribusiness •Government and NGO agency personnel •Medical professionals •Crop consultants

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	3000	10000	0	0
2008	5000	100000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	4	12	
2008	4	12	16

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Pest alerts disseminated through various channels
2	Best pest management guides based on currently available research knowledge
3	Relevant research and extension programs initiated
4	Conduct diagnostic insect identification review session with Plant Diagnostics Lab
5	Output materials made available to users
6	Assess grower acceptance of new technologies
7	Insect diagnostics and reporting integrated with Plant Diagnostics Lab and others
8	Pest management technologies that meet social and regulatory constraints
9	Valuation of best pest management practices
10	Estimation of adoption rate of best pest management practices
11	Insect diagnostic capacity meeting national needs

Outcome #1

1. Outcome Measures

Pest alerts disseminated through various channels

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Provide timely updates on current pest issues for growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, and others in the agricultural industry.

What has been done

A seasonal North Dakota Crop and Pest Report Newsletter is produced and sent to subscribers weekly during the growing season (15 issues per year) to provide timely information. Because more and more people have access and are using the internet, a NDSU Extension Entomology website has been continually improved and updated. One of the purposes of this website is to provide up-to-the-minute information in a real-time setting. This flexibility has been and will be most important when dealing with insect pest issues of North Dakota and regional concern.

Results

Over 8,000 subscribers receive the North Dakota Crop and Pest Report Newsletter, which provides timely information on new applied research of various insect pest problems and other issues for agricultural crops grown in North Dakota. This information in the newsletter helps to minimize the use of pesticides through education of proper scouting techniques, economic thresholds and other control strategies. The NDSU Extension Entomology website had an estimated >50,000 hits in 2008 illustrating the need for entomology information. The 2008 Regional Sunflower Insect Trapping Network was cooperative effort with NDSU Extension, USDA-ARS Sunflower Unit and National Sunflower Association. There were seven states and one Canadian province that participated in the sunflower insect trapping network. Based on a web-based survey, over 90% found the sunflower insect trapping network useful for their work and 67% used the trap results for advice to growers and others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Best pest management guides based on currently available research knowledge

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12	12

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Provide the most up-to-date research information for management of insect pests of agricultural crops grown in North Dakota.

What has been done

Each year the North Dakota Field Crop Insect Management Guide E-1143 is updated and published, which summarizes pest management strategies for insect pests of agricultural crops in North Dakota. Other insect pest management bulletins are published through NDSU Extension Service and are also available on-line.

Results

An estimated 10,000 copies and over 3,500 web 'hits' occurred in 2008 for the North Dakota Field Crop Insect Management Guide E-1143. These extension publications serve as an important resource for making accurate pest management decisions and provide updates on insecticides and other issues of economically important insect pests in the state for growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, and others in the agricultural industry.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures
Relevant research and extension programs initiated

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are increasing demands for answers through applied research and extension outreach programs to many established and emerging insect pest problems due to the large diversity of crops grown in ND, changes in insect pest complexes, and fewer research faculty who conduct applied research.

What has been done

The wheat stem sawfly management project is provided as an example of a current applied research and extension program. The wheat stem sawfly is one of the most destructive insect pests of wheat in North Dakota. Outbreak populations are expanding through areas that until recently have had minimal losses, and areas with historical problems in North Dakota continue to experience heavy losses. Feeding by sawfly larvae in infested stems can reduce grain weight by 50-60% in susceptible hollow-stem varieties and 10-20% in lodging-resistant solid-stem varieties.

Results

Producers estimate that annual crop losses exceed $15 million due to damage from wheat stem sawfly in North Dakota. The wheat stem sawfly management project is continuing to evaluate a broad array of wheat germplasm for utility of superior lodging-resistant solid-stem varieties with high yields and to evaluate alternative pest management strategies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
721	Insects and Other Pests Affecting Humans
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #4

1. Outcome Measures

Conduct diagnostic insect identification review session with Plant Diagnostics Lab

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for accurate insect diagnostic. Audience groups include: growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, medical professionals, homeowners and general public.

What has been done

Over 1,000 insect identifications were conducted through NDSU Extension Entomology in 2008. Proper insect identification is key to knowing how to control any insect pest.

Results

The diagnostic effort has provided accurate insect identifications to many different audience groups. In turn, this has resulted in the diagnostician providing the proper pest management information based on the correct insect identification.

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #5

1. Outcome Measures

Output materials made available to users

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	16	16

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for relevant insect pest and pest management information. Audience groups include: growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, medical professionals, homeowners and general public.

What has been done

Coordinate writing, publication and distribution of the entomology publications, such as the North Dakota Field Crop Insect Management Guide and other extension bulletins, and website information.

Results

The website and publications of extension entomology serve as an important resource for many audience groups in making accurate pest management decisions on economically important insect pests in the state. The NDSU Extension Entomology website had an estimated >50,000 hits in 2008 illustrating the need for entomology information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
721	Insects and Other Pests Affecting Humans
216	Integrated Pest Management Systems

Outcome #6

1. Outcome Measures

Assess grower acceptance of new technologies

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for assessments of grower practices for crop production.

What has been done

A 2008 survey of dry bean grower practices in North Dakota and Minnesota was conducted to assess practices on current pest problems, pesticide use, pest management practices and varieties grown for Northarvest Bean Growers Association.

Results

This survey provided information on: 1)Provide information on class and variety used by Northarvest growers, as well as by growers in each state and district. 2)Provide information on the major production problems. 3)Provide information on the major weed, disease and insect problems that may change dramatically from year to year. Data is used to support the need for registration of new pesticides. 4)Provide information on pesticide use that is used by chemical companies,
EPA and the IR-4 minor use registration program. Also used in section 18 requests for specific exemptions to use new products. 5)Provide information on the major pest problems that help determine research and extension needs and shape priorities. Comments surveys are circulated to Northarvest directors and to research and extension faculty.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #7

1. Outcome Measures

Insect diagnostics and reporting integrated with Plant Diagnostics Lab and others

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	14000	14000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for accurate reporting of insect diagnostic. Audience groups include: growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, medical professionals, homeowners and general public.

What has been done

Extension Entomology actively participates in the National Plant Diagnostic Network (NPDN) of the USDA, CSREES. The network is a collective of Land Grant University plant disease and pest diagnostic facilities from across the United States. The mission of the network is to enhance national agricultural security by quickly detecting introduced pests and pathogens. It provides a means for quick identifications and establishing protocols for immediate reporting to appropriate responders and decision makers.

Results

The establishment of the network provides the means necessary for ensuring all participating Land Grant University diagnostic facilities are alerted of possible outbreaks and/or introductions and are technologically equipped to rapidly detect and identify high risk pests and pathogens. This is accomplished by establishing an effective communication network between regional experts, developing harmonized reporting protocols with the national diagnostic network participants, and cataloging pest and disease occurrence to be included in national database. The diagnostic effort has resulted in accurate insect identifications and an historical database of insect identifications in the State of North Dakota.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
721	Insects and Other Pests Affecting Humans
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #8

1. Outcome Measures

Pest management technologies that meet social and regulatory constraints

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for cooperation with state regulatory and health agencies.

What has been done

Two regulatory pests of concern to the state of North Dakota are surveyed for in the IPM Survey: cereal leaf beetle (Oulema melanopus) and swede midge (Contarinia nasturtii).

Results

A total of 972 wheat fields was surveyed in all 53 counties of North Dakota during 2008. This number represents approximately one field surveyed per 7,000 acres of wheat. Crops were surveyed from the 1-leaf stage through hard kernel (ripening) stage. Cereal leaf beetle is an export concern for shipments of hay from North Dakota to California and is monitored for state regulatory purposes. No cereal leaf beetle was detected in any of the surveyed wheat fields in North Dakota in 2008. The exotic insect pest, swede midge was introduced into North American in 2000 and was recently found on canola in Saskatchewan, Canada. In 2008, a 45 Jackson pheromone traps in 12 counties in North Dakota and 7 in five counties in Montana were monitored for swede midge. All traps were negative for swede midge in North Dakota and Montana.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
721	Insects and Other Pests Affecting Humans
216	Integrated Pest Management Systems

Outcome #9

1. Outcome Measures

Valuation of best pest management practices

Not reporting on this Outcome for this Annual Report

Outcome #10

1. Outcome Measures

Estimation of adoption rate of best pest management practices

Not reporting on this Outcome for this Annual Report

Outcome #11

1. Outcome Measures

Insect diagnostic capacity meeting national needs

2. Associated Institution Types

•1862 Extension
•1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Need for insect diagnostic capacity meeting national needs. Audience groups include: growers, crop consultants, Extension agents and specialists, ND Department of Ag personnel, crop insurance adjustors, university researchers, USDA/ARS researchers, U.S. Environmental Protection Agency personnel, agricultural chemical and seed company personnel, medical professionals, homeowners and general public.

What has been done

Extension Entomology actively participates in the National Plant Diagnostic Network (NPDN). Hundreds of insect identifications were entered into the NPDN database that serves as one of the official insect references for the State of North Dakota.

Results

The NPDN database provides a central database to house national insect diagnostic data and will provide an historical reference database of insects in the State of North Dakota over the years.

4. Associated Knowledge Areas

KA Code	Knowledge Area
721	Insects and Other Pests Affecting Humans
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #8

V(A). Planned Program (Summary)

1. Name of the Planned Program

Center for Nutrition and Pregnancy

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.0	0.0
Actual	0.0	0.0	4.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	136000	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	200000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	12	
2008	2	8	10

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 and Range 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 Measures

Numbers of producers with enhanced knowledge from livestock programming events

2. Associated Institution Types

•1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	663

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Students: graduate and under-graduate; Livestock producers; Human health professionals; Scientific peer groups; Policy and agency influences; Media professionals.The issue of nutritional impacts on pregnancy outcome is of high importance because:
* Reproductive performance of animals is a major component of the efficiency of livestock production; it also is a major component of socioeconomic well-being of humans
* Reproductive performance is impacted dramatically by maternal and offspring nutrition
* Maternal and offspring nutrition impact birth weights and neonatal survival and growth
* Maternal and offspring nutrition also have a major impact on health and well-being during infancy and throughout adulthood, a concept known as 'fetal programming' or, more accurately, 'developmental programming'
* Importantly, the phenotypes impacted by maternal and offspring nutrition (e.g., growth rate, efficiency of growth, reproductive performance, etc.) are the very ones we use for animal selection, whether by traditional means or by molecular markers (i.e., marker-assisted selection)
* Additonally, the impacts of maternal and offspring nutrition in one generation have now been shown to extend across multiple generation, potentially via epigenetic mechanisms
* All of the groups named above have a major stake in the outcome of studies investigating the impact of nutrition during pregnancy and also during infancy on the long-term health and productivity of the offspring}

What has been done

In 2008 there were 8 Masters and 1 PhD graduates; and 10 undergraduate interns involved in research.

Results

In 2008 there were 8 Masters and 1 PhD graduates; and 10 undergraduate interns involved in research.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	29

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

29 Grant proposals submitted to various agencies, entitites.

Results

Grants pending.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures
Number of visiting scientists to the NDSU Department of Animal and Range Sciences

2. Associated Institution Types

•1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	5	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

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

What has been done

Visits by 2 scientists: Dr. Matt Wilson, Department of Animal & Veterinary Sciences, University of West Virginia, Morgantown (October-November 2008). Dr. Bret Taylor, USDA-ARS Sheep Experiment Station, Dubois, ID (May 2008).

Results

Dr. Matt Wilson - visited twice to participate in ongoing collaboration concerning progesterone metabolism in dairy cows and to discuss ongoing and future collaborations and joint grant proposal.
Dr. Bret Taylor - visited once to participate in ongoing grant-funded collaborative research and to discuss and plan ongoing and future studies and joint grant proposals.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Monitor cases of pregnancy-based metabolic diseases

Not reporting on this Outcome for this Annual Report

Outcome #5

1. Outcome Measures

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

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

North Dakota suffered from extreme drought conditions in 2008. This affected feed availability and costs of production.

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

1. Evaluation Studies Planned

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

Evaluation Results

Over 600 ranchers, veterenarians, and beef industry personnel attended meetings related to nutrition and pregnancy in beef cattle.

Key Items of Evaluation

Program #9

V(A). Planned Program (Summary)

1. Name of the Planned Program

Nutrition of Grazing Livestock

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	0.0	0.0
Actual	6.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
168000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
252000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	350	1000	0	0
2008	1682	6440	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	1	0	
2008	5	0	5

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Number of individuals receiving training and education

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	350	1682

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs) make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

Beef cow nutrition, supplementation, lower cost alternatives, and feedstuffs were the focus of 27 meetings across the state of North Dakota which attempted to address this issue. In addition, 4 extension bulletins, several newsletter articles, and numerous media interviews also focused on this topic.

Results

Almost 1700 direct audience contacts and over 6,400 indirect contacts were reached through this effort.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
121	Management of Range Resources

Outcome #2

1. Outcome Measures

Number of individuals demonstrating increase in subject knowledge and skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	250	345

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs) make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

Surveys were taken at selected meetings to determine if producers were more knowledgeable about nutrition, feedstuffs, and cost of production.

Results

Over 340 producers indicated they had gained knowledge in these areas.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
302	Nutrient Utilization in Animals

Outcome #3

1. Outcome Measures

Number of producers implementing recommended actions or practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	75	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs) make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

Field tour and workshops were conducted for ranchers on range management to apply direct impact to the resource.

Results

Over 50 ranchers were engaged in direct management strategies that impact their land resources.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
121	Management of Range Resources

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	26

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

Due to the high cost associated with range management improvements, cost-share programs allow land managers the opportunity to add improvement practices that may otherwise not be attainable.

Results

Twenty-six ranchers applied for cost-share from the Natural Resource Conservation Service.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

Outcome #5

1. Outcome Measures
Estimated cost of production for North Dakota cattle ranches

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	390	444

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

The North Dakota Farm Business Management Program collects data from participating cow-calf producers to determine cost of production each year.

Results

This year their estimated cost of production was $444 per beef cow. This represents a $19/head increase from the year before.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals
121	Management of Range Resources

Outcome #6

1. Outcome Measures

Number of ranches implementing range management practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	125	38

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Nutritional expenses (feed and associated grazing costs make up 65 to 75% of the cost of cow calf production in North Dakota. Harvested forages and supplemental feedstuffs make up a large portion of this total. Educational programs which help livestock producers better understand nutrition can improve animal performance and/or lower feed costs thereby improving cost of production.

What has been done

Of the 51 ranchers that participated in the training, 38 implemented range improvement practices in the first year.

Results

The range improvement practices incorporated on the 38 ranchers impacted 124,400 acres, provided added income of $237,100.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Like the rest of the country, the federal government’s policies on renewable fuels increased feed prices for the entire livestock sector.This increased cost of production for the entire livestock agriculture sector.In addition, much of North Dakota suffered drought conditions in 2008.This affected feed prices as well as animal productivity.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #10

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food Safety

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	**Extension**		**Research**	
	1862	**1890**	**1862**	**1890**
Plan	7.0	0.0	0.0	0.0
Actual	7.0	0.0	0.0	0.0

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

Extension		**Research**	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
196000	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
294000	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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. Brief description of the target 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(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	5200	410000	5200	22000
2008	5500	490000	3200	25000

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2200	900

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the Centers for Disease Control and Prevention (CDC), hand washing is the single most important means of preventing the spread of disease. Studies in schools and childcare centers have shown links between improper or infrequent hand washing and colds, flu and foodborne illness outbreaks.

What has been done

Initiated in 2002, the 'Wash Your Hands' project instructors used a fluorescing dye and ultraviolet light to show areas the students missed washing. The students were provided a handout showing a hand and asked to mark the spots they missed washing (where the dye remained). A follow-up survey was implemented with teachers to determine their observations of behavior change among children in their classrooms.

Results

During the past six years, a hand washing educational program has been done. Based on 'seeing' where 'germs' might hide on hands using a fluorescing dye and ultraviolet light, the 'Wash Your Hands' project has reached more than 11,000 children in grades K-12 in schools throughout North Dakota. Fingertips, back of hand and wrists were commonly missed areas. About 90 percent recognized '20 seconds' as the recommended amount of time to you're your hands. According to post-surveys with students, about 92 percent said they would wash their hands more often, and 93 percent said they would wash their hands more carefully. In 2007-8, our 'actual numbers' are lower than our target, because a nutrition education program became a priority area for our educators.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1600	1400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

'Teens Serving Food Safely' is a statewide NDSU Extension Service food safety education effort designed to improve young food handlers' food safety knowledge and skills and decrease risk of foodborne illness outbreaks associated with food service establishments. According to a 2002 U.S. Department of Labor report, 22% of employed 15- to 17- year olds work in eating and drinking establishments. Teaching young food handlers the 'rules' could have significant public health implications.

What has been done

The 'Teens' curriculum consists of five lessons based on the Fight BAC(tm) and Thermy(tm) national food safety campaign concepts, with pre/post and follow-up evaluation procedures. Youth benefit from the curriculum's experiential learning model, obtaining information and tools to share with their families. Since 2001 more than 4,500 North Dakota teens have been trained and received completion certificates.

Results

Knowledge scores, as measured by pre/post testing, increased from 51 percent correct on the pre-test to 84 percent on the post-test. About 51 percent of participants had been involved in food preparation for the public. As measured by follow-up surveys, 78 percent reported washing their hands more often during food preparation, 65 percent were more careful about cleaning and sanitizing utensils, and 48 percent had shared their knowledge about food safety with others, 39 percent had already applied what they learned when preparing food for the public, 25 percent are using a food thermometer more often, and 21 percent are checking refrigerator and freezer temperatures more often.

4. Associated Knowledge Areas

KA Code	Knowledge Area
504	Home and Commercial Food Service
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	85	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Increases in daycare, hospital and nursing home populations as well as a growth in restaurant and deli businesses means a growing portion of the population is at risk from outbreaks of foodborne illness. In addition, quantity food preparation presents unique challenges for safe food handling and preparation. In this environment, more attention has been placed on the development and implementation of safe food handling guidelines. As a result, there is high demand for training and educational materials in food safety.

What has been done

ServSafe Food Safety Certification and HACCP certification programs have been conducted for foodservice managers and for members of the food industry. ServSafe is a nationally recognized food safety training program of the National Restaurant Association, with a standardized examination. HACCP Alliance certification programs have been conducted for the food processing industry, in partnership with the North Dakota Department of Animal and Range Sciences and the North Dakota Department of Agriculture meat inspection program.

Results

About 85 percent of participants taking the ServSafe exam have passed the national exam. On post-surveys administered to the students, they indicated they will do the following 'more often' as a result of the class. About 96 percent will train others about the importance of handwashing, and 91 percent plan to wash their hands more often when preparing food. Among those in direct foodservice management position, 90 percent indicated they would chemicals separate from food. About 90 percent will check the sanitizer concentration, 91 percent will take additional steps to avoid cross-contamination, 88 percent will teach others how to avoid cross-contamination, 90 percent will teach others to cool foods more quickly using ice baths, shallow pans and other techniques, 88 percent will teach others how to use a thermometer, and 90 percent will use a food thermometer more often, and 79 percent will explain the importance of understanding food allergies to their foodservice workers. Nearly 99 percent will apply what they learned at home.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

Outcome #4

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2200	3000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Foodborne illness continues to be an issue in the U.S., with increasing numbers of foodborne illnesses are being linked to produce. Food recalls are reported by the media. Safe refrigeration temperatures and cooling practices are an issue in households across the United States, with refrigeration temperatures not meeting the recommended 40 degrees Fahrenheit or lower. Only about 5 percent of the general public regularly use a food thermometer.

What has been done

From 2005-08, two national campaigns were implemented in North Dakota: the 'Fight BAC' and the 'BAC Down' campaigns through our statewide nutrition and food safety education programs. The 'Fight BAC' produce safety campaign promotes concepts such as checking fruits and vegetables for bruises or damage; proper rinsing/cleaning of produce; avoiding cross-contamination; cooking or throwing away fruits or vegetables that have touched raw meat, poultry or their juices. The 'BAC Down' campaign promotes the use of refrigerator thermometers and safe storage temperatures and cooling procedures for perishable foods. To promote these campaigns, lesson plans, displays and games were developed, and training sessions were held with staff across North Dakota. In 2007-08, two new lessons, were implemented: Now Cooking: Lean Beef, which included information about food temperatures, and Cooking for One or Two, which integrate the principles of the Fight BAC campaign. Food safety concepts also are covered in EFNEP, and the 2007-08 evaluation process focused on refrigeration of meat and dairy.

Results

Among the participants in the 'Now Serving: Lean Beef' program, about 93 percent indicated they had learned something new. On the post-survey, about 89 percent could correctly identify the safe internal cooking temperature for ground beef (160 degrees). About 45 percent planned to use the meat shopping tips, which included arranging the grocery cart to help prevent cross-contamination. About 22 percent planned to visit the Web sites provided, which included sites with additional food safety information. About 91 percent planned to share the information with family and friends. Among the participants in the 'Cooking for 1 or 2' lesson, about 94 percent indicated they had learned something new, 29 percent planned to use the grocery shopping tips, and 90 percent planned to share the lesson with family/friends. Following a series of nutrition lessons, 70 percent of EFNEP participants reported that do not let meat or dairy products sit out more than two hours.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
504	Home and Commercial Food Service

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Competing Public priorities

Brief Explanation

Food safety continues to be an area of concern, but the ways that people prefer to learn about food safety has changed.Younger groups of people tend to access their information on the computer instead of through face-to-face contact in traditional Extension programs.

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

1. Evaluation Studies Planned

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

Evaluation Results

About 82% of New American/refugee respondents knew to separate raw meat from raw vegetables. About 47% knew to chill leftovers within 2 hours, 27% knew they should eat meat after it has reached a safe temperature, and 21% knew how to correctly thaw meat. About 88% indicated concern about not washing the cutting board after cutting raw meat. About 81% indicated concern if perishable food has been left un-refrigerated for more than 2 hours, and 71% indicated concern if they thaw food on the counter or in the sink.About 58% are interested in using a food thermometer when cooking. About 57% correctly refrigerate leftovers within 2 hours, 50% correctly thaw frozen meat, and 75% rely on their senses to determine when food is fully cooked. The survey results revealed some food handling practices inconsistent with current recommendations. Educators can use this information to emphasize correctly chilling leftovers, thawing frozen meat, and safe temperatures for cooking meat.

Key Items of Evaluation

Knowledge, attitudes, and behavior related to the principles of the Fight BAC campaign (clean, separate, cook, chill).

Program #11

V(A). Planned Program (Summary)

1. Name of the Planned Program

Healthy Patterns of Eating & Physical Activity

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	8.0	0.0	0.0	0.0
Actual	8.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
224000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
336000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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. Brief description of the target audience

Youth - schools, afterschool, 4-H

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	7200	410000	6200	22000
2008	9100	490000	7600	50000

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	3	1	
2008	5	1	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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, 25percent 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 pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will demonstrate an improved ability to read and interpret nutrition labels.
6	Based on pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will report an increased time/intensity physical activity each week.
7	Based on pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will demonstrate an increased knowledge of recommended levels of lab values (hemoglobin A, C, blood pressure, LDL-cholesterol.

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1200	670

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Risk for several chronic diseases, including heart disease, cancer, type 2 diabetes and osteoporosis, are related to diet and physical activity. These health conditions cost society an estimated $200 billion a year in medical expenses and lost productivity. Despite strong evidence supporting the health benefits of a healthy lifestyle, North Dakotans do not meet national physical activity goals. Physical active children and adults benefit from improved physical, mental and social health.

What has been done

Walk North Dakota is a statewide eight-week walking program for adults and youth that uses an interactive Web site for data collection and assessment of miles walked. The program provides biweekly educational e-mails and incentives at the conclusion of the program. Dining with Diabetes also implements a walking program for its participants.

Results

In FY 2008, participants in the Walk North Dakota program walked 230 million steps (115,000 miles) based on use of pedometers and a Web-based data collection system. About 58 percent reported an increase in their physical activity level, and 46 percent reported they walked five miles (10,000 steps) per day.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior
806	Youth Development

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3200	5200

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Cardiovascular disease is the leading cause of death in North Dakota. Nationally, 40 percent of the deaths in the United States are due to heart disease and stroke, with a national annual health care cost of $260 million. Proper nutrition and regular physical activity are two ways to reduce the risk of cardiovascular disease and other illnesses. According to results of a North Dakota Department of Health survey, only 18 percent of North Dakota adults eat five servings of fruits and vegetables per day and 34 percent of North Dakotans are completely physically inactive outside of work. Dietary intake that follows recommendations is associated with reduced risk of disease and nutritional deficiencies. The MyPyramid recommendations encourage optimal dietary intake for growth, development and good health.

What has been done

Community coalitions worked to promote awareness of healthy lifestyles, build skills, adapt community environments, and create policies that encourage healthy lifestyles. Partners in the program include Healthy North Dakota, the North Dakota Department of Health (DoH), public health nutritionists located in local public health units, and the NDSU Extension Service at the state level and extension personnel located in county extension offices throughout the state. Coalitions direct their activities toward the six principle target areas recommended by the Centers for Disease Control (CDC) to reduce overweight and obesity: increase physical activity, increase consumption of fruits and vegetables, decrease the consumption of sugar-sweetened beverages, reduce the consumption of high-energy-dense foods, increase breastfeeding initiation and duration and decrease television viewing. For families, an 'Eat Smart. Play Hard.' campaign based on the USDA campaign and MyPyramid has been implemented to target families with programs to encourage physical activity and sound nutrition practices based on current MyPyramid guidance. For worksites, a fruit and veggie challenge has been implemented, with two lessons provided by an Extension agent or partner in public health.

Results

In 2007-8, 17 community coalitions with the potential to reach 70% of the state's population with information about healthy lifestyles were officially recognized as 5 + 5 communities. Seven communities reported policy changes in their service areas as a result of their activities. Six reported working with local schools on their local wellness policies; and one coalition noted changes in the snack policies at area worksites. One coalition reported a change in the local school environment.

Following a series of nutrition lessons, 64 percent of EFNEP participants reported thinking about healthy choices when planning what to feed their family.

Among the participants in the worksite Fruit and Veggie challenge, 66 percent indicated they were eating more fruits, 63 percent were eating more vegetables, 65 percent indicated they were eating a wider variety of colorful fruits and vegetables, and 91 percent were trying to consume at least the minimum recommendation of fruits and vegetables per day.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #3

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2200	3100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood and adult obesity remain issues of concern in the U.S. Many children are considered overfed but under-nourished. Eating meals as a family is associated with reducing risky behavior as well as improving communication and nutritional quality among children.

What has been done

Two curricula for youth ('Banking on Strong Bones' and 'On the Move to Better Health') as well as a statewide 'Eat Smart. Play Hard. Together' program have been implemented with parent education components and evaluation. In addition a Web site, www.ndsu.edu/eatsmart, family mealtimes newsletters, a cookbook and other resources have been developed to reach families with MyPyramid information.

Results

Parent pre/post surveys were used in both of the curricula. On the parent post-survey for the 'Banking on Strong Bones' curriculum, about 55 percent of parents reported positive changes in their child's eating habits as a result of this program. About 20 percent of parents reported that the family eats breakfast together the majority of the time and 97 percent reported the family eats the evening meal together the majority of the time. 74 percent reported eating meals together as a family five or more times per week. In the 'On the Move' program, 93 percent of the parents reported reading the newsletters and 74 percent used the information. About 68 percent of families set a goal each week; of those, 48 percent met their nutrition or fitness goal as a family. About 49 percent of parents reported an increase in their families' consumption of fruits and vegetables, and 25 percent reported an increase in consumption of dairy products. About 71 percent of parents reported eating family meals five or more times per week.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
806	Youth Development

Outcome #4

1. Outcome Measures

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. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3600	4430

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood obesity remains an issue of concern in the U.S., with some researchers considering children to be 'overfed' but 'undernourished.' Calcium is the nutrient most likely lacking in the American diet. According to the USDA, 70 percent of pre-teen girls and 60 percent of pre-teen boys do not meet daily calcium recommendations.

What has been done

Two curricula are being implemented in North Dakota, and many are used in school wellness plans. 'Banking on Strong Bones' is a five-week, school-based educational intervention for fourth graders, with instruction by NDSU Extension Service Agents/Assistants. The purpose is to increase knowledge/awareness of the role calcium-rich foods and weight-bearing activities play in building and maintaining strong bones among children and to improve food and beverage choices. Families received newsletters designed to improve knowledge of nutrition and physical activity.

'On the Move to Better Health' is a five-week school-based curriculum for fifth graders, which includes education about MyPyramid and aims to increase fruits, vegetables and calcium-rich foods in the diets of children, as well as increase physical activity.

The overall goal of the 'Eat Smart. Play Hard. Together.' project is to increase awareness of the importance of a healthy lifestyle, particularly food choices, regular physical activity and family meals, in maintaining good health among North Dakota youth and their families. The materials developed included pocket folders, parent newsletters, teacher/4-H leader activity guides, posters, bookmarks and billboards. In addition, a 'Healthy North Dakota 4-H Club' recognition program has been implemented to increase awareness and implementation of MyPyramid guidelines at the organization level.

Results

In the 'Banking on Strong Bones' program, students improved their knowledge scores and reported positive attitude and behavior changes toward consumption of dairy products. On the pre-survey for the 'Banking on Strong Bones' fourth grade curriculum, 47 percent reported drinking three or more glasses of milk the previous day, compared to 65 percent on the post-survey. On the pre-survey, 16 percent reported drinking soda pop every day, compared to 12 percent on the post-survey. On the pre-survey, 36 percent of children indicated they would choose soda pop over milk if given the choice; on the post-survey 27 percent would choose soda pop over milk if given the choice. On the post-survey, about 88 percent were able to identify the color (blue) of the milk group on MyPyramid, compared with 61 percent on the presurvey. On the presurvey, 73 percent were able to identify calcium as the key nutrient in milk, compared to 87 percent on the post-survey.

According to the results of the five-week 'On the Move to Better Health' program, 69 percent reported setting at least one family goal with parent(s); of those, 77 percent reported meeting the goals they set. About 55 percent of children reported increasing the amount of fruits and vegetables they consumed, 52 percent reported drinking more milk, 60 percent reported drinking less soda pop, 53 percent reported drinking more water, 56 percent chose healthier snacks, and 64 percent increased the amount of physical activity they did.

In 4-H youth programming, 373 youth from 27 different 4-H Clubs were recognized for participating in at least six 'healthy activities' based on MyPyramid guidelines. In addition to traditional activities such as in-line skating, biking, skiing, snowboarding and sledding, others that the 4-H clubs learned about snowmobile safety, scraped and painted picnic tables and benches in a local park, toured restaurant kitchens and the produce section in grocery stores, learning proper hand-washing techniques, hosting a safety/nutrition booth at a farm day event, holding a food drive, learning how to use a pogo stick, planting a garden and taking part in the Walk North Dakota program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle
806	Youth Development

Outcome #5

1. Outcome Measures

Based on pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will demonstrate an improved ability to read and interpret nutrition labels.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	35	84

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

ND has a higher than average incidence of diabetes among its citizens and the research available today provides evidence that diabetes can be prevented in some cases, and can be limited in its impact on an individual in most all cases with proper education.

What has been done

Extension's longstanding and solid networks across the state have fostered the implementation of the program Dining With Diabetes (DWD), which addresses diabetes education, especially in rural areas that lack access to vital diabetes education services. Diabetes demands much self-management around healthy lifestyle changes. As people endeavor to change, they need information about the best approaches to achieve health when living with diabetes. They also need coaching or support to make those changes. DWD, a hands-on, community-based program, addresses the variety of learning needs people with diabetes have. Food and Consumer Science Extension agents and certified diabetes educators or registered dietitians partner to deliver this comprehensive diabetes education program to 84 people in six counties.

Results

The following health improvements were observed among Dining With Diabetes participants: increase in amount of exercise, improvement in overall diet quality, lower blood pressure, and better control of blood sugar levels. According to post surveys, 49 percent of participants could correctly identify carbohydrate exchanges based on information on the food label, 61 percent could correctly identify blood cholesterol level and 49 percent could correctly identify blood glucose values. Regarding exercise, the amount of exercise, aerobic activity scores increased significantly from 5.772.22 to 6.682.25. Strength activity scores increased from a baseline level of 25 to follow-up of 40. Flexibility scores increased from a baseline measurement of 27% to a follow-up level of 49%. Diet quality scores significantly increased from 29.5 to 35.2. The dietary score was calculated based on MyPyramid recommendations for adults: 1) greater than or equal to 1Ãƒ Â,Ã‚Â½ cups fruit, 2) greater than or equal to 2 cups vegetables, 3) greater than or equal to 3 cups low-fat milk, 4) greater than or equal to 3 servings of whole grains, 5) greater than or equal to 1Ãƒ Â,Ã‚Â½ cups beans, 6) greater than or equal to 1/4 cups nuts or seeds, 7)greater than or equal to 3 teaspoons of health oils, and 8) 3-6 ounces of lean meat. (0-7 for each component).

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Based on pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will report an increased time/intensity physical activity each week.

Not reporting on this Outcome for this Annual Report

Outcome #7

1. Outcome Measures

Based on pre- and post- surveys of adults involved in a multisession diabetes education, 25 percent of participants will demonstrate an increased knowledge of recommended levels of lab values (hemoglobin A, C, blood pressure, LDL-cholesterol.

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

quot;On the Move to Better Health" and "Banking on Strong Bones" are ongoing evaluated programs. A graduate student will analyze the data for use in a thesis. Results will be reported next year.

Key Items of Evaluation

Items being evaluated are self-reported intake based on MyPyramid guidelines and family meals.

Program #12

V(A). Planned Program (Summary)

1. Name of the Planned Program

Livestock Waste Management

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	**1890**	**1862**	**1890**
Plan	5.0	0.0	0.0	0.0
Actual	4.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
112000	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
168000	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

•Owners, managers and employees of animal operations •Agribusiness and agrifinance personnel •Government agency personnel

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	200	200	0	0
2008	320	200	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	0	
2008	2	0	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 nutrient management plans written and people trained
6	Estimated dollar value of adopted best management practices
7	Number of nutrient management plans implemented
8	Surface water quality monitoring data collected in watersheds before and after bmp implementation

Outcome #1

1. Outcome Measures

Number of individuals requesting information

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	60

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

With the increased emphasis on handling manure in an environmentally friendly manner and the increase in cost of commercial fertilizer, producers are greatly interested in the fertilizer value of manure

What has been done

The awareness of producers on the fertilizer value of manure and proper application methods was increased through public meetings, media pieces and contacts with other technical agencies concerning the information they can get through the ND Nutrient Management Program.

Results

Producers with the greatest concern for the impact of their livestock operation on the environment contacted the program for more information.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #2

1. Outcome Measures

Number of individuals demonstrating increase in subject knowledge and skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	100

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock and crop producers that need to adopt better nutrient management practices must have a better understanding of why and how to achieve this.

What has been done

Group and one-on-one meetings with producers have been conducted to teach them about nutrient management best management practices

Results

At this time no evaluation has been conducted to determine the increase in knowledge of these participants, however, a tool is currently being developed.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

Outcome #3

1. Outcome Measures

Number of individuals implementing recommended action or practice

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers who are impacting waters of the state must implement management practices or facility upgrades to minimize environmental impact.

What has been done

Individual consultation with producers was conducted to share with them the options they have for reducing their environmental impact.

Results

Forty two individuals obtained an animal feeding operation permit from the ND Dept Health by installing facility upgrades to control runoff that impacted waters of the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse

Outcome #4

1. Outcome Measures

Number of individuals requesting assistance

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers who may be impacting waters of the state or those who are planning on entering the livestock production industry need assistance with assessing their site for environmental impact.

What has been done

Individual consultation was conducted with producers who made direct contact requesting assistance

Results

On-site visits were made and information shared with the producers as to the risk of their operation impacting waters of the state

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #5

1. Outcome Measures

Number of nutrient management plans written and people trained

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock and crop producers who use livestock manure as a fertilizer need to have a nutrient management plan to ensure proper utilization of the manure

What has been done

Consultants who work with producers to write nutrient management plans attended group trainings to learn about writing nutrient management plans

Results

NRCS employees and several private consultants can now write nutrient management plans

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse

Outcome #6

1. Outcome Measures

Estimated dollar value of adopted best management practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	75000	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is assumed that producers who utilize manure as fertilizer and upgrade their livestock facilities will have enhanced profitability because of better management

What has been done

At this point, planning is underway to develop a survey instrument that will be used with producers who have adopted these practices to delineate the economics of those practices.

Results

In Progress

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse

Outcome #7

1. Outcome Measures
Number of nutrient management plans implemented

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	42

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers who need an animal feeding operation permit are required to have a nutrient management plan written and implemented.

What has been done

Forty-two producers have received an animal feeding operation permit from the ND Dept. of Health that included a nutrient management plan

Results

At this point, follow-up evaluation with those who have received a permit is being planned to assess if they fully adopted the nutrient management plan.

4. Associated Knowledge Areas

KA Code	Knowledge Area
403	Waste Disposal, Recycling, and Reuse

Outcome #8

1. Outcome Measures

Surface water quality monitoring data collected in watersheds before and after bmp implementation

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

To determine if best management practices that are being adopted are actually effective, monitoring of sub-watershed water quality monitoring must be conducted before and after bmp adoption.

What has been done

Three livestock producers have volunteered to have sub-watershed on their farms intensively monitored for water quality.

Results

In 2008, 2 farms were being monitored and a 3rd had equipment installed. Due to an extremely dry year, there was no significant runoff data collected. Therefore, the results of this outcome are still in progress.

4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

As mentioned above, dry weather conditions had a severe impact on water quality monitoring.

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

1. Evaluation Studies Planned

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

Evaluation Results

A retrospective evaluation is being developed and case study data is being collected on 3 farms.

Key Items of Evaluation

Key items that will be evaluated include attitudes of producers towards manure managmenet as well as effectivenss of educational programming on their adoption of bmp's.

Program #13

V(A). Planned Program (Summary)

1. Name of the Planned Program

Citizenship and Leadership Development

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	0.0	0.0
Actual	2.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
56000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
84000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

1. Develop Leadership Training module

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

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

2. Brief description of the target audience

4-H youth

4-H youth leaders

4-H adult leaders

County extension staff

Other community organizations, councils and boards

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	400	1000	200	1000
2008	330	800	350	1180

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Fifty percent of clubs will have someone complete contribution module.
2	Forty percent of clubs will do one or more community service projects.
3	Twenty-five percent of county 4-H leadership will complete leadership modules.
4	One hundred community service projects will be reported.
5	Fifty percent of county 4-H leadership will complete leadership modules.
6	Five percent of county 4-H leadership completing leadership modules will report more civic activism.
7	Fifty percent of clubs will report contributions to their community.
8	Seventy-five percent of county 4-H leadership will complete leadership modules.
9	Twenty-five percent of county 4-H leadership who complete leadership modules will report more civic activism.

Outcome #1

1. Outcome Measures

Fifty percent of clubs will have someone complete contribution module.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	240	250

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Leadership development is one of the goals of the 4-H club program. Providing opportunities for young people to practice and develop skills of leadership is a function to contribute to the goal.

What has been done

4-H clubs are encouraged to give back to the community. A survey of club volunteers shows a high percentage of clubs take on projects to contribute to their communities.

Results

Volunteers responding for their clubs and the youth they work with agreed or strongly agreed with the statement 'The things we learn in 4-H are useful in our lives.' As youth participants learn leadership and the importance of contribution, we expect this to carry over into their adult lives.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	200	310

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Communities struggle to find resources for many of the projects and community improvement ideas generated. Some communities have developed lists of needed projects. The service to community projects from some 4-H clubs show that many are 'thought of' by the members of the group, recognizing a need in their community.

What has been done

Clubs are encouraged to participate in community service and to track the results of the projects.

Results

A great variety of projects to benefit the local community is the result of what has been learned through participation in other community service. Some have said they find new projects to do while participating in another activity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #3

1. Outcome Measures

Twenty-five percent of county 4-H leadership will complete leadership modules.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	450	415

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Developing the skills to participate as leaders helps the community now, but also provides a base for community leadership in the future. Training young people in skills related to leading and setting examples for younger members enables them to do more and empowers them to take on roles of leadership.

What has been done

Planning activities, learning skills related to meeting participation and parliamentary procedure, and participation in programs to understand and appreciate differences strengthens each participant's role.

Results

Service to community results show youth with some experience taking on roles of greater leadership when planning and organizing their service projects. They have developed the skills necessary to plan and carry out projects.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #4

1. Outcome Measures

One hundred community service projects will be reported.

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	164

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Projects of service to community varied with the groups. Some projects were limited to clean-up of an area in the community, while others required many hours of planning and organization. In each case the community benefited from the project and individual lives were affected in a positive way.

What has been done

Community service is encouraged and when accomplished the participants report a very high rate of enjoyment and purpose.

Results

Most groups engaging in community service plan to do more community service. This intent shows a movement to an established or expected behavior of great benefit to the local community. In just the projects reported, more than 1400 hours of time was donated. A great benefit to the community in aesthetic value, financially and general attitude of pride.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #5

1. Outcome Measures

Fifty percent of county 4-H leadership will complete leadership modules.

Not reporting on this Outcome for this Annual Report

Outcome #6

1. Outcome Measures

Five percent of county 4-H leadership completing leadership modules will report more civic activism.

Not reporting on this Outcome for this Annual Report

Outcome #7

1. Outcome Measures

Fifty percent of clubs will report contributions to their community.

Not reporting on this Outcome for this Annual Report

Outcome #8

1. Outcome Measures

Seventy-five percent of county 4-H leadership will complete leadership modules.

Not reporting on this Outcome for this Annual Report

Outcome #9

1. Outcome Measures

Twenty-five percent of county 4-H leadership who complete leadership modules will report more civic activism.

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Time for volunteers to commit to training and related projects with the youth they worked with. Resources for the projects were occasionally a limiting factor.

V(I). 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.

Evaluation Results

4-H club leaders were asked to respond to a survey about service to community projects. Sixty-three percent of the respondents reported their clubs did one to three service projects in the previous year.While 88 percent of the respondents reported service to community was part of their goals and purpose. 79 per cent agreed that contributing to their community was fun and it made their community a better place to live.

Key Items of Evaluation

The responses by 4-H club leaders showed a fairly balanced distribution of youth participating in service to community projects from ages under 10 years of age to over 15 years of age. Ninety-eight percent agreed or strongly agreed with the statement "We intend to continue to serve our community in the future."

Program #14

V(A). Planned Program (Summary)

1. Name of the Planned Program

Developing Leadership Systems

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	4.2	0.0	0.0	0.0
Actual	4.7	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
131600	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
197400	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Rural Leadership North Dakota program, Horizons project , Leadership Plenty Study Circles, Ethical Leadership, Generational Leadership, 4-H Ambassador Program

2. Brief description of the target audience

Youth

Schools

Elected officials

Community asset builders

Community collaborators

Association of Counties

Service groups

Governor's office

Chamber personnel

Economic developers

Higher Education personnel

SBARE

RLND

Soil Conservation Districts

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	**Target**	**Target**	**Target**	**Target**
Plan	1350	1700	400	600
2008	5155	1508	271	168

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	1	
2008	1	1	2

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of community members who display leadership skills sets
2	Number of community members who understand how they can be involved in leadership roles
3	Number of people from diverse backgrounds involved
4	Number of community projects being accomplished and reported on
5	Number of non-traditional leaders including youth
6	Number of individuals available in communities for leadership on community organizations
7	Number of community organizations with youth on boards

Outcome #1

1. Outcome Measures

Number of community members who display leadership skills sets

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1350	1148

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Community leadership is as important as good roads, great schools and clean water. Leadership is required in communities to make sure things run smoothly and make them a better place to live, work and raise families. Strengthening leadership in communities is critical and the NDSU Extension Service has various long-term programs to assist in this leadership development of North Dakotans: Horizons, Rural Leadership North Dakota and 4-H leadership programs. We also provide short term leadership development programming throughout the year.

What has been done

RLND - Participants attended five different three-day seminars on five topics dealing with leadership skills.
Horizons - works to develop local leaders to address difficult local issues such as poverty and demographic decline.
4-H Ambassadors take leadership using their skills to plan Extension Youth Conference each year for approximately 100 young people. They also planned a ND Ambassador Alumni Reunion in which 75 alums attended.

Results

RLND - the leadership skills of RLND participants increased by 33%. USDA Rural Development personnel's leadership capacity increased.
Results from the Horizons program included 622 individuals completing portions of the specific leadership training and utilizing this newfound skill and knowledge base to work with others in the community on specific projects. Newfound knowledge has been reported qualitatively by community members as they refer to meetings now attended with agendas and better communication methods across the entire community. Nine strategic planning sessions were completed in communities other than Horizons communities and project teams formed for each.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Families and Communities

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1350	763

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Participants in Horizons, Rural Leadership North Dakota and 4-H Ambassador programs understand how they can be involved in leadership roles as they move through the program's processes. A major part of both programs is to encourage community involvement by serving as a leader or volunteer in organizations and community. Once individuals have completed the program, they become much more aware of how they can be involved and are required to take some action by each respective program.

What has been done

RLND - Participants attended five different three-day seminars on five topics dealing with leadership skills. Horizons - Twenty one communities have completed the Horizons program that works to develop local leaders to address difficult issues such as poverty and demographic decline. A total of 622 North Dakotan's participated in the leadership training. Beginning Again North Dakota, a program designed to uncover community assets to then develop strategic plans was developed and piloted in two rural North Dakota communities.

Results

RLND - Participants are involved in the planning and implementation of their community RLND project. Horizons- Community members report having multiple individuals on local ballots for the election process. One community had 11 individuals running for a local council position which in the past has had no one running. Communities also report a greater knowledge of their assets. One community member in poverty in rural North Dakota Horizons community has now set up a housing authority board in her community and assisted with a local housing survey. Beginning Again North Dakota had 43 project team members involved from two pilot communities. These project teams were responsible for a community celebration, a farmer's market and a tourism study for economic impact.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services

Outcome #3

1. Outcome Measures

Number of people from diverse backgrounds involved

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	22	95

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

While North Dakota is made up of a relatively large Caucasian population, both the Horizons program and the RLND program strive to be inclusive of all. In order to develop effective leaders to address issues in rural North Dakota communities, people of all ages, ethnicities, genders and socioeconomic backgrounds need to be involved. For this outcome, we looked at ethnicity and socioeconomic background (those in poverty).

What has been done

RLND -Several RLND participants from the current class are from diverse backgrounds.
Horizons - The twenty one communities that participated in the Horizons program is required to consider the demographic makeup of their town before recruiting people to steering committee meeting, leadership trainings and community visioning sessions. Each community has at least a 10% poverty rate and worked to insure committees and groups were representative of this situation. Communities also looked at race and ethnicity and were asked to make sure that people of all races and ethnicities were involved in the program if they lived in that community.

Results

RLND - Numerous RLND participants have expressed greater understanding about the background and culture of the Native American and Middle Eastern culture.
Horizons - Horizons communities have focused on the issue of poverty and those individuals of socioeconomic diversity. Multiple actions they have taken as a community revolve around making their town a better place to live and how individuals in this diverse culture live and work. Numerous Horizons communities worked on blight issues and are helping remove blighted homes through rehab or removal. Because some of these homes are owned by those with limited financial resources, the community now better understands how to help the homeowner make it a safe, livable place they can be proud of. Community members are working to keep senior citizens in town for their family support systems especially if they have limited incomes. They are addressing their housing needs, transportation needs and medical needs through volunteerism and additional services.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Families and Communities

Outcome #4

1. Outcome Measures

Number of community projects being accomplished and reported on

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	35	198

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Community projects offer participants an opportunity to showcase their new leadership skills and provide a small 'win' to further their efforts on other projects.

What has been done

The Horizons project, the RLND program and the 4-H Ambassadors get involved in community projects. Various resources are available to help complete these projects and get multiple individuals involved.

Results

RLND - Fourteen RLND participants have started a community or organizational project. One individual has completed her project while the other 13 are in various stages of completion. Projects are divided into three categories; (1) economic development - 3 projects, (2) tourism - 3 projects, (3) quality of life - 8 projects. Additional information on the RLND Projects can be found at www.ag.ndsu.edu/rlnd/projects.html.
Horizons - a total of 105 community projects have been completed or are ongoing in the Horizons program. Communities identified community projects following a visioning and strategic planning locally. Some of these projects include (1) housing surveys and housing authority development, (2) development of welcome packets and committees, (3) set-up of local community foundations for future granting to local entities, and (4) expanding services to local seniors.
A complete results tabloid can be found at http://www.ag.ndsu.edu/horizons/phaseIII/sample%20only%20-%20Horizons%20Report%202008.pdf.
4-H Ambassadors through the Extension Youth Conference were involved in cleaning up a tornado site, helping two local food banks. Cleaning up Western 4-H Camp, helping at a local Salvation Army, and cleaning up a local botanical center.
The Beginning Again North Dakota program has three community projects in the works that include (1) a community celebration, (2) a farmer's market and (3) a tourism study for economic impact.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services

Outcome #5

1. Outcome Measures

Number of non-traditional leaders including youth

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	30	20

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Youth leadership and involvement is critical to the state's future. Without the next generation stepping up to leadership roles, communities will face a void in leadership to tackle difficult issues and projects.

What has been done

Horizons - youth are constantly recruited to be involved in the Horizons program as committee members and they often work on projects with adult partners. We have not measured this outcome specifically this year (2008). Provided all-day leadership training for youth at Extension Youth Conference. Training included conflict management, understanding professionalism, ethnical leadership.

Results

Youth reported having a greater understanding of leadership skills and professionalism during the Extension Youth Conference training.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services

Outcome #6

1. Outcome Measures

Number of individuals available in communities for leadership on community organizations

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1350	884

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

When ample leaders are available in communities for leadership, organizational and community work goes much more smoothly.

What has been done

RLND-Participants recruit individuals from their community to assist them with their project. Horizons - Over 700 individuals participated in local community projects completed during the Horizons program. New people have been involved because of training received through the program or due to others asking them to volunteer. Various strategic planning sessions were held for organizations across North Dakota.

Results

RLND - Fourteen different communities across North Dakota have individuals assisting in leading fourteen different project committees.
Horizons - Over 100 community projects are in progress in 21 Horizons communities. Multiple individuals are working on these projects in committees to complete the efforts locally. Projects range from starting farmer's markets to pushing for mill levy increases for local libraries and facilities. These projects are ongoing but many more individuals are stepping up and available for this work. Results from the strategic planning sessions included airport expansion, a legislative initiative, creation of a county fair plan, and creation of a hospital foundation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
805	Community Institutions, Health, and Social Services
803	Sociological and Technological Change Affecting Individuals, Families and Communities

Outcome #7

1. Outcome Measures

Number of community organizations with youth on boards

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a substantial out-migrations of youth leaving North Dakota communities - a long term goal has been to have younger citizens on boards to have a voice in their community's future.

What has been done

Horizons - Youth are involved in the Horizons program in communities and discussion often revolves around how to get youth engaged on official boards, councils and committees. There was limited youth involvement at this level with the 2006-2008 Horizons program and only one community has a specific 'youth' board that informs the local bank on youth issues in the region.

Results

There has been no data gathered on youth on boards this year (2008).

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families and Communities
805	Community Institutions, Health, and Social Services

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #15

V(A). Planned Program (Summary)

1. Name of the Planned Program

Financial Security for All

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	2.8	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
77560	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
116340	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	2600	120000	2000	8500
2008	3400	130000	1700	20000

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	2	1	
2008	6	3	9

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 engage in activities that increase their financial literacy related to later life issues
8	Number of people who initiate or increase contributions to a savings plan for retirement or future income needs or participate in America Saves program
9	Number of people who participate in the Legally Secure Your Financial Future program
10	Number of people who participate in the Investing for Your Future program
11	Number of people who participate in programs to cope with financial impacts of reduced income
12	Number of participants reporting reduced anxiety related to financial problems
13	Number of participants reporting increased savings
14	Amount of increased savings
15	Number of participants reporting decreased debt
16	Amount of decreased debt
17	Decreased numbers of personal bankruptcy filings in state of North Dakota

Outcome #1

1. Outcome Measures

Number of educational programs and activities conducted

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	200	240

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In times of economic insecurity, North Dakota consumers are in need of good, unbiased, research-based information to help make sound financial decisions.

What has been done

Financial Security for All Managing Money in Tough Times web site has provided sold information for consumers and resources for professional staff.

Results

MM in TT resources used for news releases, columns, radio shows.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #2

1. Outcome Measures

Number of people completing educational programs

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2000	3400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Educators teaching financial management to youth need sound and unbiased educational resources and training opportunities

What has been done

Dollar Works Training
Annie's Project
Two (2) Continuing Education classes were provided for educators, with reduced costs through a grant.

Results

Educators participating in the CE classes reported significant increased perceived confidence and competence in teaching financial management concepts. When asked about strengths of the course, participants in the post course survey responded: 'Web Resources;' 'excellent teachers, flexibility, good resources;' 'resources, definitely!;' 'instructors, content, materials, being able to take via internet;' 'The various interactions of the class, WIMBA, IVN, Email;' 'Convenience, facilitator feedback, topics and discussions;' 'The flexibility of the instructors and the variety of methods of presenting course materials.'

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1800	2300

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1500	1900

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures
Number of people adopting practices from the number of people who increased knowledge

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #6

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1200	1500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Just in time, unbiased, fact and research-based answers to personal finance questions are needed by the public.

What has been done

In addition to agent personal contact through phone, email, office and farm visits, over 1200 Frequently Asked Questions and answers are available on the Financial Security for All eXtension website. If a consumer question is not found in the database, there is the option of asking an 'expert' for the FSA CoP Community of Practice, with a response in 48 hours.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #7

1. Outcome Measures

Number of people who engage in activities that increase their financial literacy related to later life issues

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	2200	2400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #8

1. Outcome Measures

Number of people who initiate or increase contributions to a savings plan for retirement or future income needs or participate in America Saves program

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	500	600

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #9

1. Outcome Measures

Number of people who participate in the Legally Secure Your Financial Future program

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	75	24

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #10

1. Outcome Measures

Number of people who participate in the Investing for Your Future program

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20	33

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	400	750

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #12

1. Outcome Measures

Number of participants reporting reduced anxiety related to financial problems

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	600	900

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #13

1. Outcome Measures

Number of participants reporting increased savings

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	1200	1500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #14

1. Outcome Measures

Amount of increased savings

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	236000	220000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #15

1. Outcome Measures

Number of participants reporting decreased debt

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	600	800

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #16

1. Outcome Measures

Amount of decreased debt

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	20000	20000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #17

1. Outcome Measures

Decreased numbers of personal bankruptcy filings in state of North Dakota

Not reporting on this Outcome for this Annual Report

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Competing Public priorities

Brief Explanation

V(I). 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.

Evaluation Results

Key Items of Evaluation

Program #16

V(A). Planned Program (Summary)

1. Name of the Planned Program

Noxious and Invasive Weed Management

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	0.0	0.0
Actual	4.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	300	10000	100	500
2008	268	16000	115	900

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	1	
2008	2	1	3

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Number of individuals receiving training and education

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	250	268

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Land owners and managers who have noxious weed infestation. The noxious weeds reduce the feed value for livestock production and ecological stability of the range and pastureland.

What has been done

Development of educational material and workshop for educational training.

Results

Over 250 people were trained on noxious weed identification and management options presented within the educational materials and workshops. This training will have a direct impact on over 100,000 acres of land per year.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Number of individuals demonstrating increase in subject knowledge and skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	100	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Land owners and managers who have noxious weed infestation on public land. The noxious weeds reduce the feed value for livestock production and ecological stability of the range and pastureland.

What has been done

Development of educational material and workshop for educational training.

Results

Fifty-five land managers of public land were offered an educational opportunity for managing public land with noxious weeds. These managers have a direct impact on over 1.5 million acres of rangelands in North Dakota.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Number of producers implementing recommended actions or practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Noxious weeds have a direct economic impact of livestock production for producers.

What has been done

Educational training field tours were conducted on lands owner/managed for livestock production.

Results

Over 13,000 acres of private land were controlled for noxious weeds.

4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	55	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock producers with noxious weeds that impact livestock production in need of assistant for program success.

What has been done

Meetings with livestock producers interested cost-share.

Results

Plans were developed for cost-share programs to impact the rangeland, approximately 10,000 acres.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants

Outcome #5

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:
Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7	11

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Noxious weeds have a direct economic impact of livestock production for producers.

What has been done

Educational training field tours were conducted on lands owner/managed for livestock production.

Results

Land owners incorporated biological control techniques using insects and management techniques using sheep grazing to eliminate herbicide costs saving biocontrol operators $14/ac and sheep grazers $9/ac.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	3	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Land owners and managers who have noxious weed infestation. The noxious weeds reduce the feed value for livestock production and ecological stability of the range and pastureland.

What has been done

Development of educational material and workshop for educational training and field tours, and ranch visits.

Results

Surveys were completed to show approximately 5% reduction of noxious weeds on rangeland and pastureland.

4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems
215	Biological Control of Pests Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

No external factors occurred in 2008 to affect outcomes

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

1. Evaluation Studies Planned

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

Evaluation Results

Surveys using GPS records by weed board members and land owner surveys showed a 5% reduction in noxious weeds in 2008 versus 2007.

Key Items of Evaluation

Acres controlled and costs savings using alternative techniques.

Program #17

V(A). Planned Program (Summary)

1. Name of the Planned Program

Fusarium head blight of wheat

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	2.0	0.0
Actual	1.5	0.0	2.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
42000	0	68000	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
63000	0	100000	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

•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. Brief description of the target audience

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

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1000	2000	0	0
2008	5000	15000	0	0

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	1	
2008	0	1	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. Outcome Measures

Percent of acres planted to resistant varieties

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	45	46

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

ND wheat and barley producers care because resistant varieties reduce yield and quality losses to FHB.

What has been done

Recommendations made via wheat schools, wheat shows, news releases, and assorted Extension publications including Crop and Pest Reports.

Results

Producers planted substantial acreage to resistant wheat varieties, including Glenn wheat, which was the most widely-grown variety in the state.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #2

1. Outcome Measures

Percent of acres treated with fungicides

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	16	15

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

ND wheat and barley producers care because timely application of fungicides may reduce yield and quality losses to FHB.

What has been done

Experiments performed to show efficacy of fungicide applications for reducing disease severity, yild losses, and quality losses. Results of experiments and recommendations presented at various venues and media including wheat schools, wheat shows, and assorted Extension publications, including Crop and Pest Reports.

Results

Fungides applied to approximately 1 million acres. Depending on variables (variety treated, timing of application, and so forth), yield increased 20 - 30%, DON decreased up to 50% and disease severity decreased from 20 - 60%.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #3

1. Outcome Measures

Economic losses to disease ($)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	130000000	25000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

ND wheat and barley producers care because disease reduces economic value of their crop produced.

What has been done

Recommendations made to plant resistant varieties and, if conditions warranted, for timely application of fungicides.

Results

Economic losses were reduced through the used of better varieties and through the use of fungicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #4

1. Outcome Measures

Number of individuals demonstrating increased knowledge and skills

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12000	10000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

ND wheat and barley producers care because increased knowledge and skills may increase farm profitability by reducing impact of disease.

What has been done

Educational materials and recommendations were presented at wheat schools, wheat shows, and through various media including news releases and assorted Extension publications, including Crop and Pest Reports.

Results

Thousands of people received information. Producers demonstrated more knowledge by planting more resistant varieties and through timely application of funcides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #5

1. Outcome Measures
Number of individuals implementing recommended action or practice

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:
Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	12000	9000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

North Dakota wheat and barley producers care because implementing recommended actions and practices may increase farm profitability by reducing impact of disease.

What has been done

Recommendations were made at wheat schools and shows. Surveys were taken to ask producers what their plans were for the growing season and for what they learned.

Results

Producers increased acreage of better varieties and made better applications of fungicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #6

1. Outcome Measures

Economic losses to Fusarium head blight ($)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	130000000	25000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

North Dakota wheat and barley producers care because disese reduces economic value of their crop produced.

What has been done

Recommendations made to plant resistant varieties and, if conditions warranted, for timely application of fungicides.

Results

Economic losses were reduced through the use of better varieties and through use of fungicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #7

1. Outcome Measures

Estimated dollar value of adopted best management practices ($)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	60000000	45000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

North Dakota wheat and barley producers care because disease reduces economic value of their crop produced.

What has been done

Gave recommendations to plant resistant varieties and, if conditions warranted, for timely application of fungicides.

Results

Economic losses were reduced through the use of better varieties and through the effective use of fungicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

Outcome #8

1. Outcome Measures

Stable export market unaffected by quality issues ($)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	520000000	180000000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

North Dakota wheat and barley producers care because export market increases value of crop and gives producers place to sell their commodity.

What has been done

Recommendations made to plant resistant varieties and, if conditions warranted, for timely application of fungicides.

Results

Quality of wheat produced was better by planting better varieties and through effective use of fungicides.

4. Associated Knowledge Areas

KA Code	Knowledge Area
212	Pathogens and Nematodes Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation

Program #18

V(A). Planned Program (Summary)

1. Name of the Planned Program

Family Meals

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual	3.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
84000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
126000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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. Brief description of the target audience

Parents and family caregivers

4-H youth and other youth

Child care programs, caregivers

School system personnel

Government agency personnel

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	1500	3500	800	1500
2008	450	2500	300	800

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	0	0	
2008	6	0	6

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Percent of participating individuals demonstrating increase in subject knowledge and skills

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	65	89

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Parents and other adults need increased knowledge on key issues related to family meals.

What has been done

An educational lesson was developed on the importance of family meals. The educational lesson was delivered throughout the state to parents and other adults by extension staff.

Results

Eighty-nine percent of the participants in the educational program indicated they had learned something new on key issues related to family meals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #2

1. Outcome Measures

Percent of individuals implementing recommended actions or practices

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	87

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Parents and other adults need to take increased steps related to healthy practices regarding family meals.

What has been done

An educational lesson was developed on the importance of family meals. The educational lesson was delivered throughout the state to parents and other adults by extension staff.

Results

Eighty-seven percent of participants in the educational program indicated they were implementing specific steps related to healthy practices and family meals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #3

1. Outcome Measures

Percent of individuals indicating a change in frequency of family meals

Not reporting on this Outcome for this Annual Report

Outcome #4

1. Outcome Measures

Percent of individuals indicating a change in other quality indicators of the family meal experience

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	90

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Parents and other adults need to develop new ideas and skills regarding family meal practices in the home.

What has been done

An educational lesson was developed on the importance of family meals. The educational lesson was delivered throughout the state to parents and other adults by extension staff.

Results

Ninety percent of participants in the educational program indicated they were developing new ideas and skills regarding family meal practices in the home.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #5

1. Outcome Measures

Percent of individuals showing an improvement in measures of family connection and well-being

Not reporting on this Outcome for this Annual Report

Outcome #6

1. Outcome Measures

Percent of individuals showing an improvement in family nutritional wellness

Not reporting on this Outcome for this Annual Report

Outcome #7

1. Outcome Measures

Number of individuals receiving information through materials or training

2. Associated Institution Types

•1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	7500	4050

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Parents, caregivers, youth and other citizens need increased information and understanding about the benefits of family meals and practices to promote family meals.

What has been done

An educational lesson was developed on the importance of family meals. The educational lesson was delivered throughout the state to parents and other adults by extension staff. Also, a series of educational newsletters on family meals was developed and distribution was continued to different groups within the community.

Results

Awareness of the importance of family meals is increasing and participants in educational programs indicate positive responses to the content and materials.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- Retrospective (post program)

Evaluation Results

Key Items of Evaluation

Program #19

V(A). Planned Program (Summary)

1. Name of the Planned Program

Parent Education

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 (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2008	Extension		Research	
	1862	1890	1862	1890
Plan	6.0	0.0	1.0	0.0
Actual	6.0	0.0	1.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
168000	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
252000	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	84000	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Develop educational resources on effective co-parenting and divorce adjustment.

- 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. Brief description of the target audience

Parents and family members

Government agency personnel

Community workers and professionals

V(E). Planned Program (Outputs)

1. Standard output measures

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

Year	Direct Contacts Adults Target	Indirect Contacts Adults Target	Direct Contacts Youth Target	Indirect Contacts Youth Target
Plan	700	3500	300	500
2008	400	1200	0	800

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

Patent Applications Submitted

Year	Target
Plan:	0
2008 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan	4	1	
2008	1	0	1

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

Not reporting on this Output for this Annual Report

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

Percent of individuals demonstrating increase in subject knowledge and skills

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	70	53

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Divorcing adults need increased understanding of the divorce process and how to make healthy adjustments.

What has been done

An educational program was delivered to adults involved in or following the divorce process. The program is offered on a regular basis throughout the state to adults by extension staff.

Results

On average, 53 percent of participants in the educational program indicated substantive change in their knowledge about varying aspects of the divorce process.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #2

1. Outcome Measures

Percent of individuals implementing recommended actions or practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	49

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Divorcing adults need to take increased steps to manage the divorce process well for themselves and their children.

What has been done

An educational program was delivered to adults involved in or following the divorce process. The program is offered on a regular basis throughout the state to adults by extension staff.

Results

Forty-nine percent of participants in the educational program indicate they are taking specific steps to better manage the divorce process for themselves and their children.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #3

1. Outcome Measures

Percent of individuals indicating a change in frequency of specified parenting practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	50	71

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Divorcing adults need to communicate more effectively in managing the divorce process for themselves and their children.

What has been done

An educational program was delivered to adults involved in or following the divorce process. The program is offered on a regular basis throughout the state to adults by extension staff.

Results

Seventy-one percent of participants in the program indicate making improvements in effective communication practices.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

Outcome #4

1. Outcome Measures

Percent of individuals indicating a change in other quality indicators of parent-child relationships

Not reporting on this Outcome for this Annual Report

Outcome #5

1. Outcome Measures

Number of individuals receiving information through materials or training

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	4300	400

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Divorcing adults and those who work with them need increased understanding of the divorce process and how to make healthy adjustments.

What has been done

An educational program was delivered to adults involved in or following the divorce process. The program is offered on a regular basis throughout the state to adults by extension staff. Also, a series of seminars was offered to legal, judicial and other professionals on this program.

Results

Individuals dealing with the consequences of divorce are learning about the process and community professionals are learning how to support them in that process.

4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

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

1. Evaluation Studies Planned

- Retrospective (post program)

Evaluation Results

•Average mean scores of participants measuring knowledge of the divorce process increased from a mean of 3.73 (pre program score) to a mean of 4.56 (post program score), a statistically significant difference.

•Average mean scores of participants measuring understanding of how children are affected by divorce increased from a mean of 3.43 (pre program score) to a mean of 4.62 (post program score), a statistically significant difference.

•Average mean scores of participants measuring usage of effective communication strategies increased from a mean of 3.05 (pre program score) to a mean of 4.39 (post program score), a statistically significant difference.

•Average mean scores of participants measuring management of parenting concerns increased from a mean of 3.53 (pre program score) to a mean of 4.58 (post program score), a statistically significant difference.

Key Items of Evaluation

- 91 percent of participants in the educational program feel that the program was beneficial for them.
- 98 percent of participants in the educational program would recommend the program to someone else.