

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

**Statutory Authority**

North Dakota Century Code Chapter 4-05.1.

**Agency Description**

Dickinson Research Extension Center (DREC)

The NDSU Dickinson Research Extension Center has an established record of service to the people in the 13-county region south and west of the Missouri River. The DREC operates 4,916 acres of owned land within the region as well as annual land leases needed to accommodate ongoing projects. The land base provides opportunities for a broad perspective in evaluating various agricultural systems that can serve as engines for economic development. This is a continuation of what has taken place for over 100 years. Currently, the DREC assists agricultural producers in solving production problems with agronomy, animal science and range science, while integrating new developments. Five major areas are served: agronomy, beef management, bio-security, range management, and sustainable agricultural practices. Faculty and staff are committed to engaging people of the region and to the identification of current economic opportunities, while sustaining natural resources for future generations as directed by the mission statement and Advisory Board. Research data and producer ideas are continually considered so the DREC can leverage the latest knowledge to best benefit the people of North Dakota.

Central Grasslands Research Extension Center (CGREC)

The CGREC conducts research for the Coteau region of North Dakota, an area bounded by the Missouri River on the west and the James River on the east and extends from Divide and Burke counties in northwestern North Dakota in a southeasterly direction through Dickey County. CGREC is located between two counties which rank in the top 10 counties for the production of livestock and forages. The area served by CGREC contains 5.0 million acres (44 percent) of the state's rangeland where 42 percent of the state's livestock is raised on 38 percent of the state's farms.

Research objectives must increase the range-carrying capacity of native range emphasizing conservation and preservation, stabilize grass production to compensate for the vagaries of the weather and precipitation as it influences forage production in the dryland agriculture, identify the impact of different management systems upon beef production in the central region and explore the increased use of crop residues and byproducts for the maintenance of the cow herd. CGREC's primary focus is management of grassland acreage which occupies about one-third of the agricultural land in the state and aims to improve production and increase returns to cattle producers.

Hettinger Research Extension Center (HREC)

The HREC is a semi-arid site located in southwest North Dakota, providing the most southerly NDSU location in the non-glaciated portion of North Dakota as a site for its agronomy research program. The HREC also is located at the center of the North Dakota sheep industry, the focus of one of its animal research programs, and in an area of rapidly growing livestock feeding ventures, another focus of animal research at the HREC. Additionally, the HREC is located in a region where much of the land base is in the Conservation Reserve Program, which has resulted in additional research evaluating potential changes in the CRP program and how these changes may affect upland native and game bird populations. A new research program evaluating low-cost rangeland monitoring strategies on U.S. Forest Service lands and wildlife/livestock interactions has resulted in a significant increase in the quantity of rangeland research conducted at the HREC throughout the western Dakotas. Research at HREC involves the disciplines of animal science, range science, wildlife science, agronomy, and agri-business and applied economics. Collaboration is with Main Station scientists, Branch Station scientists, U.S. Forest Service, grazing associations, university scientists from WY, SD, and MT, and USDA research entities in these research disciplines to improve productivity of livestock, grazing, and cropping systems, and to improve economic development of the region.

Langdon Research Extension Center (LREC)

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

The Langdon Research Extension Center (LREC) is located one mile east of Langdon on US highway five. The agricultural land base at the station consists of 389 owned acres and an additional 320 acres under lease agreement. The LREC serves a nine-county region located in northeast North Dakota and has North Dakota's highest precipitation rates, coolest temperatures, and richest productive soils. The climate creates high levels of diverse crop production and recurring disease problems.

The LREC has a strong tradition of assisting the region's producers to meet agricultural production challenges throughout the course of its existence. In 1993, the LREC redirected much of its research programming to focus on the significant increase of disease and insect pressure associated with its climate. This redirected applied research programming has provided producers with proven cultural practices and advances in chemical applications that minimize disease and insect pressures in all regions of North Dakota.

Since 2001, the LREC has significantly enhanced its overall agricultural research programming with the addition of a crop protection scientist, a director that also serves the region with an emphasis in rural economic/community development, increased foundation seed stocks program and a farm business management instructor. In addition, a full service agricultural based learning center was constructed in 2004 that greatly enhances outreach and extension efforts delivered to the regions agricultural industry. Finally, additional programming has been created that is working to employ LREC resources as an engine for rural community and economic development in partnership with the region's economic developers.

#### North Central Research Extension Center (NCREC)

The NCREC was established in 1945 and is located one mile south of Minot on Highway 83. The 1,200-acre center specializes in crop research and extension education activities and foundation seed production. Approximately 1,500 owned, rented, and contracted acres are planted for foundation seed production each year. The NCREC evaluates conventional and new crops for production in the region and explores weed management and cropping systems to improve the economic potential of crop production in the north central region. The NCREC is a leader in North Dakota on production and disease research of canola, pea, lentil, and chickpea crops, in addition to the conventional crops of hard red spring and durum wheat, barley, flax, sunflower, and oats. The NCREC works closely with business and economic development leaders in the region to improve the economic vitality of north central North Dakota.

#### Williston Research Extension Center (WREC)

The Williston Research Extension Center, established in 1907 and relocated to the present site in 1954, is an 800-acre rain-fed farm located in northwest North Dakota near the city of Williston. In 2001, an additional 160 acres were purchased in the Nesson Valley and an irrigated research and development project was established. WREC research studies are conducted on crop variety evaluation, herbicide performance and other cultural management research, cropping systems and soil and water conservation practices. The main dryland crops are spring wheat and durum. Barley, oats, safflower, pea, lentil, chickpea, canola, flax, alfalfa and other alternative crops are also grown as cash crops or for livestock feed.

WREC research is intended to increase the producer's net profit, support crop diversification and encourage more intensive cropping and irrigation development. Research on soil and crop management systems for sprinkler irrigation, on alternative irrigated high value and value-added crops and on western malting barley programs are conducted for the MonDak region, in cooperation with the Montana State University Eastern Agricultural Research Center (MSU EARC), Sidney. WREC also conducts variety development research on safflower, winter wheat, and durum and variety evaluations in cooperation with MSU and NDSU Main Station scientists. WREC produces and supplies foundation seed to area farmers of new and old varieties adapted to the region. Formal cooperation between the NDSU WREC and the MSU EARC was established in January 1994, with a single director responsible to coordinate, broaden, and enhance research programs, and educational delivery systems for the MonDak region.

#### Carrington Research Extension Center (CREC)

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

The Carrington Research Extension Center was established in 1960. CREC operates on a land base of around 1,700 acres and has infrastructure to irrigate about 260 acres with center-pivot systems and 120 acres by surface methods. The balance of the acreage is managed as traditional dryland and is utilized primarily for dryland field crop research activities.

The research effort at CREC focuses on these general program areas: traditional crop variety evaluation, crop production and management, plant disease management, alternative crop development, cropping systems, irrigation, integration of crop and livestock production, intensive cow/calf production, beef cattle feeding, feedlot management, livestock waste and nutrient management, foundation seedstocks production, and development of new agricultural enterprises. Through these efforts, the CREC research program has gained a national reputation for its involvement in agriculturally-based economic development and study of a wide range of crops and cropping systems.

CREC maintains a strong Extension program as five extension specialists base their educational programming from the center. The extension program emphasis areas addressed by these specialists include: agronomy, plant pathology, irrigation, livestock, and livestock waste - nutrient management.

**Agency Mission Statement**

Dickinson Research Extension Center (DREC)

The Dickinson Research Center must be located at or near Dickinson in Stark County. The Center shall conduct research on increasing the carrying capacity of native rangeland, with emphasis on conservation and preservation for future generations. The Center shall conduct research on grass production to determine how to best compensate for the vagaries of the weather as it influences forage production in the dry land agriculture of western North Dakota. The Center shall conduct research at the ranch location in Dunn County with beef cattle breeding, feeding, management and disease control for the benefit of livestock producers of western North Dakota and the entire state. The Center shall conduct research designed to increase productivity of all agricultural products of the soil by maintaining or improving the soil resource base in the dry land agricultural region of southwestern North Dakota by the identification of adapted crop species and superior crop cultivars; propagation and distribution of selected seed stock; and development of profitable cropping systems that achieve the necessary balance between profitability and conservation of all natural resources. The Center shall disseminate research results and information for the benefit of this state.

Central Grasslands Research Extension Center (CGREC)

The legislated mission of the CGREC is as follows: "The CGREC shall conduct research designed to fulfill needs within an area bounded by the Missouri River on the west and the James River on the east with research objectives as follows:

1. To increase the range-carrying capacity of native range with emphasis on conservation.
2. Stabilization of grass production to determine how to best compensate for the variability of the weather as it influences forage production.
3. Identification of different management systems on beef production in the central region of the state.
4. Exploration of increased use of crop residues and by-products for the maintenance of the cow herd.
5. To disseminate research results and information for the benefit of the state of North Dakota.

Hettinger Research Extension Center (HREC)

The Hettinger Research Extension Center, an outreach of North Dakota State University, provides applied research and education in agriculture and environmental sciences that will enrich the lives of North Dakotans and support economic development.

Langdon Research Extension Center (LREC)

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

The Langdon Research Extension Center will conduct applied agricultural research that enhances the quality of life for the regions citizens with a responsive, flexible and accessible overall agricultural based research program. This programming will combine the concepts of agricultural research, information technology and community/ economic development while conserving the regions natural resources.

**North Central Research Extension Center (NCREC)**

The North Central Research Extension Center conducts research to increase agricultural productivity in north central North Dakota. The center serves agricultural producers in a 12- county region surrounding Minot through crop research, foundation seed production and dissemination, and extension education programs in crop and livestock production. Studies at the center focus on crop variety and new germplasm evaluation, weed control, cropping systems, crop pest management, reduced tillage, and soil fertility. Research is conducted on cereal grains, oilseeds, legumes, forages, and new specialty crops.

**Williston Research Extension Center (WREC)**

The Williston Research Extension Center conducts research to increase agricultural productivity in the semi-arid region for northwestern North Dakota while achieving a necessary balance between profitability and conservation of natural resources.

Research on soil and crop management systems for sprinkler irrigation and alternative irrigated high-value/value-added crop production at the Nesson Valley site are conducted in cooperation with the Montana State University Eastern Agricultural Research Center at the USDA-ARS Northern Plains Agricultural Research Laboratory in Sidney, Montana and other cooperating NDSU and University of Minnesota scientists.

**Carrington Research Extension Center (CREC)**

The Carrington Research Extension Center conducts research that will lead to the enhancement of agriculture and improve the quality of life across the central region of North Dakota. Specifically, the Carrington Center conducts research on both dryland and irrigated crop production methods and systems, improved crop cultivars, feeding of beef cattle, cow/calf nutrition, sustainable agricultural production, and produces foundation seedstocks. The objective is to discover the balance between farm enterprise profitability and conservation of the natural resource base. The results of these studies are disseminated to the entire state through an on-going extension educational program.

**Agency Performance Measures**

Per North Dakota Century Code 4-05.1-19 the State Board of Agricultural Research and Extension (SBARE) presents a status report to the budget section of the legislative council. SBARE's most recent presentation to the budget section was on March 11, 2010. The report they gave and provided in written form included the status of the North Dakota Agricultural Experiment Station and the NDSU Extension Service. A copy of the information is on file in the legislative council office.

**Major Accomplishments****Dickinson Research Extension Center (DREC)**

1. Continued work in five major areas: agronomy, beef management, bio-security, range management, and sustainable agricultural practices.
2. Submitted a new beef systems project with a soil health component for review with the full support of the DREC advisory board. The project will research the potential advantages of integrated crop and beef cattle agro-ecosystems that maximize the use of livestock harvesting.
3. Collaborated with NDSU breeders to evaluate new lines of small grains and peas under conventional management at several locations.
4. Documented the state of the industry in regard to animal identification and the relatively low success rate for trace forward (only one out of five animals) as part of the CREC biosecurity project.

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

## Central Grasslands Research Extension Center (CGREC)

1. Obtained funding for a forage agronomy program in 2009. Hired forage agronomist and reached full implementation of the program in the summer of 2010.
2. Awarded a grant to coordinate and develop a biomass for ethanol study at six sites across North Dakota.
3. Developed a whole ranch management system and range monitoring program.
4. Completed a two-year investigation (funded in part by Sweetpro) on the use of ethanol by-products in first-calf heifer and steer finishing rations.
5. Initiated a new cooperative research study with Main Station scientists evaluating swath grazing of three forage species on beef cow performance.
6. Cooperated on a research study on vaccine interference with Main Station scientists and the Pfizer Company.

## Hettinger Research Extension Center (HREC)

1. Distributed foundation seed produced at NDSU research centers, making new varieties available to southwest North Dakota producers.
2. Conducted crop trials and pesticide trials as well as off-station variety testing at Regent, Scranton, New Leipzig, Selfridge, Reeder, Glen Ullin, Bison, Ralph, and Mandan.
3. Evaluated new varieties and technologies for growing drought tolerant corn and wheat.
4. Initiated a new research project, "Habitat Factors for Sharp-tailed Grouse on the Grand River National Grasslands," with the USDA-Forest Service.
5. Conducted two producer ram tests each year.
6. Initiated a research project, which will evaluate land transfer patterns in the Northern Great Plains across the past 20 years.

## Langdon Research Extension Center (LREC)

1. Provided dependable research results concerning crop production issues that impact the region's producers.
2. Formed strong research partnerships with chemical, seed and other companies that provide inputs to the region's producers.
3. Added \$300,000 in grant research projects in 2009.
4. Developed new partnerships and continue to pursue value added opportunities with local economic development groups.
5. Hosted approximately 300 educational sessions serving over 5,000 citizens during 2009 in the Vic Sturlaugson Learning Center.
6. Increased fusarium headblight disease research by constructing new uniform scab nurseries for the hard red spring, durum and winter wheat breeding programs.

## North Central Research Extension Center (NCREC)

1. Produced, conditioned and distributed foundation seed of newer varieties including Pinnacle and Rasmusson barley; Dylan and Troy chickpea; Barlow, Faller, Brick, and RB07 hard red spring wheat; Souris oat; and Tioga durum.
2. Conducted a unique long-term crop rotation study which has demonstrated that crop sequence will affect Sclerotinia and blackleg diseases levels in canola.
3. Researched new crop protection products for minor crops such as sunflower, safflower, dry pea, lentil, chickpea, canola, mustard, flax, and triticale.
4. Researched new products for controlling noxious weeds in non-cropland areas.
5. Conducted residue trials with the USDA IR-4 that will lead to registration of new pesticides for controlling weeds and insects in canola, sunflower, flax, dry bean, dry pea, lentil, wheat, barley, and millet.
6. Increased all the highest oil, high-yielding canola lines in the United States for the oilseed development project Center of Excellence for AgBiotechnology.

## Williston Research Extension Center (WREC)

1. Evaluated the performance and adaptation of new and established crop cultivars and crop cultural practices to improve productivity of agricultural products and reduce inputs.

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

2. Conducted research and demonstration projects on potatoes, malting barley, safflower and durum and winter wheat variety developments, safflower weed control, pulse crop production and variety selection, horticultural crops, sprinkler irrigation, water and crop management.
3. Conducted bioenergy crop research on barley for ethanol and biomass production from switchgrass and other perennial herbaceous crops.
4. Utilized a 160-acre irrigated site in the Nesson Valley Irrigation District for an irrigated research and development project on sustainable irrigated cropping systems to increase irrigation profitability and support food processing industries in North Dakota.

**Carrington Research Extension Center (CREC)**

1. Established research and demonstration studies at three on-farm sites to determine crop tolerance to saline soils.
2. Initiated a study of cow/calf production systems.
3. Served as lead department for the establishment of regional sugarbeet trials to determine sugarbeet productivity and viability as a feedstock for biofuel production.
4. Implemented 12 different misting systems covering 10 acres to successfully investigate genetic resistance and fungicide efficacy toward disease management in wheat, sunflower, soybean, dry bean, canola, and field pea.
5. Collaborated with the HREC's beef research programs to evaluate mitigation of high sulfur levels of distiller grains in feedlot diets.
6. Expanded research to evaluate the use of cover crops within cropping systems.

**Future Critical Issues****Dickinson Research Extension Center (DREC)**

The DREC needs to continue to resolve lost income dollars from oil revenue. The last two legislative sessions have included funding from the permanent oil tax trust fund for DREC operating expenses. The estimated income shortfall during the last session was estimated at \$925,000 and \$925,000 from the permanent oil tax trust fund was included in Center funding. This funding was available for defraying the costs of operations for the biennium beginning July 1, 2009, and ending June 30, 2011. Similar funding needs to continue if the Center is to maintain operation.

The Dickinson Research Extension Center Advisory Board submitted two initiatives to the State Board of Agricultural Research Education for this legislative session. The first is related to soil health for production agriculture. The DREC has initiated original research to help determine the most cost effective ways to increase soil health in order to obtain the greatest benefits. The DREC has dedicated land to demonstrate diverse species cover cropping and crop rotations with managed grazing in a no-till cropping system. General goals are as follows: increase water harvest and soil fertility by increasing organic matter, prevent soil erosion, overcome salinity issues, find better crop varieties and rotations, and obtain the best possible returns.

The second initiative involved animal health and disease management. The DREC, in cooperation with the NDSU Veterinary Diagnostic Lab and the ND State Veterinarian, provides important service and support to producers in their efforts to enhance health and productivity of herds, and in managing disease outbreaks when they occur. The DREC is the Rapid Response Team "home" and would be the base for field investigation, herd health support, and veterinary support. The mobile diagnostic lab currently housed at the DREC would be available for regular herd use, and then rapid, field deployment as needed. Educational and service opportunities would also exist for various services in beef marketing that foster additional economic growth.

The Center would be appreciative of enhancing funding that supports the efforts of SBARE through the North Dakota Agricultural Experiment Station and NDSU Extension Service.

**Central Grasslands Research Extension Center (CGREC)**

The CGREC administers over 5,000 acres of native rangeland, tame pastures, and crop acreages. Currently, the Center has a commercial herd of 400 cow/calf pairs and 100 yearling heifers. The CGREC has the capability to become a major player in the growth and enhancement of the livestock industry; however, lack of technical staff is a critical hindrance to the growth and development of this Center's potential.

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

The funding of a forage agronomist by the 2009 legislature and the redirection of funding to hire an animal scientist has opened up new opportunities for the Center to partner with main station scientists as well as work with other agencies and funding sources to provide added assistance to producers in the Coteau region. The agronomist will also assist the director with the demands of the new state-wide Biofuel study which was implemented Spring 2006.

New opportunities are developing in the area of Sustainable Alternative Value-Added Beef Markets. The CGREC must be able to partner with local and regional producers in areas which will include whole systems management of organic, natural, grass-fed, and conventional beef raising systems. Livestock numbers in all segments need to grow to better utilize available resources, including the opportunities presented by new emerging industries (e. g. ethanol). The CGREC must have the necessary staff to be able to serve the Coteau Region as a leader in the Livestock Industry.

The Medina and Tappen areas, both within 17 miles of the center, have emerged as centers for sustainable and organic crop and livestock production. The Central Grasslands REC is working closely with the Foundation for Agricultural and Rural Resources Management and Sustainability (FARRMS) Board to partner with them to increase sustainable and organic crop production in the area.

The most critical limitation to the accomplishment of the above goals is the workforce at the center. We remain critically short-handed. The costs to continue have depleted our funds for hiring seasonal help and in paying overtime.

#### Hettinger Research Extension Center (HREC)

Increases in fuel, fertilizer, equipment, and animal and personal safety compliance necessitate an increase in Equipment and Operating Pool.

Additional state funding for the core program at the HREC is needed to adequately support and conduct our baseline research programs, specifically weed science, rangeland and wildlife science, and animal science.

Facilities are in need of deferred maintenance funding. Specifically, fencing, frontage road, water/well maintenance, ventilation in barns, and general office and bunkhouse maintenance.

New facility construction and expansion of existing facilities is needed (agronomy lab, lambing barn, lamb feedlot).

#### Langdon Research Extension Center (LREC)

Acquiring and maintaining adequate resources that allow the LREC to remain proactive and responsive to agricultural production problems and challenges for producers is a critical issue. Increases in crop disease and agronomic research programming have signaled a critical need to construct a new agronomy and pathology lab on station. The current area used as an agronomic and pathology lab is placing limits on the research currently needed.

In 1962 a seed cleaning plant was constructed to support the foundation seed stocks (FSS) program. This effort supplies area producers and seedsman with high quality foundation seed. The LREC seed cleaning plant still uses the same facility and equipment that was employed in 1962. The facility is in need of renovation after 48 years of use. In addition, numerous safety violations have been identified that can only be resolved with a renovation.

Local producers, many commodity groups and other ag agencies have identified soil quality as a major issue in ND. The region served by the LREC has been identified as having one of the most significant soils quality problems in ND. Saline soils in this region are robbing producers of higher yields and quality in the crops they grow. Soil scientists are needed to begin addressing this problem.

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

The newly constructed Vic Sturlaugson Learning Center has afforded faculty and staff a new office headquarters as well as meeting room facilities for educational events. The LREC is now in a position to implement an active extension outreach program for producers and families in northeast ND. Providing an Extension area specialist to the LREC will bring to clients an active outreach program based out of the LREC.

**North Central Research Extension Center (NCREC)**

- Construct a foundation seed conditioning plant adequate to handle peas, lentils, beans, and chickpeas (in addition to small grains and oilseeds) for the growing pulse crop industry and new NDSU breeding programs. Cost \$3,000,000.
- Need an Extension soils position to address the saline and sodic soils problems causing decreased productivity.
- Base funding for personnel to address the research and extension needs for canola, pulse crops, and cereal grains to meet the needs of growers and the increase of processing plants in the Minot area.
- Construct a building to house small plot research equipment.
- Increased operational costs.
- Removal of old seedhouse.
- Tile drain yard.
- Encroachment from City of Minot.

**Williston Research Extension Center (WREC)**

Pea and lentil acreage has increased by 500,000 acres since 1995 and there has also been a significant increase in production of other broadleaf alternative crops. The switch to a more intensive and diversified cropping system has resulted in a corresponding 1,000,000 acre decrease in summerfallow acres during that same time period and has increased net profit per acre.

With the reduction of fallow acres and more intensive management of traditional crops under dryland conditions, no-till crop production management recommendations are limited by the lack of technical support/research for crop production systems, land management and soil health in the direct seeding system approach to crop production. Technical support at the WREC is a critical need for this research.

Developing superior varieties is a sustainable form of rural economic development. Farmers in the MonDak region are able to grow more than 25 different crops. There is an urgent need for additional technical support for variety testing in each of the crops in the dryland and irrigated cropping systems. There is a critical need for a plant pathologist to evaluate and research crop disease impacts in MonDak region. There is also a need for a new seed plant at the WREC to condition Foundation seed. It would replace the current seed conditioning plant that was built in 1954. Efficiency would be significantly increased.

**Carrington Research Extension Center (CREC)**

A secure (owned or long-term leases) land base is critical to sustain the current and future research mission of the Carrington Center. The CREC attains a significant portion of necessary land base from annual rental agreements. The acreage of land that is owned by the state relative to the total land base required to implement the current programs at Carrington is about 50%. For many years, the Carrington REC has operated on a land base of around 1,700 acres. Of this total, just over 850 acres are secured through annual rental arrangements with multiple landlords. This heavy reliance upon a willing group of land owners to annually rent significant acreage to the CREC is risky at best. If any one parcel of rented land were not made available in a given year, the CREC would be forced to significantly reduce or eliminate program contributions that are basic to our department mission.

---

**AGENCY OVERVIEW****628 Branch Research Centers**

---

**Date:** 01/13/2011**Time:** 10:57:10

Additional staffing is needed to sustain the overall level of agronomy (crops and soils) and livestock (beef) research that farmers, ranchers, commodity groups and agricultural industry expect from the Carrington Center. Scientist-level faculty are needed to sustain the level of agronomy (crops and soils) research that farmers, commodity groups and the agricultural industry expect from the Carrington Center. These high expectations will only increase as the center is viewed by industry as effectively representing the crop diversity, farm integration, and problematic issues facing agriculture in the state. A scientist-level researcher in soil science and support staff across all department programs represent the most critical needs.

An Agronomy Laboratory is a critical facility need at the Carrington Center. The Agronomy Laboratory is required to support what is considered one of the largest and most diverse agronomy field research programs in the upper Midwest. The Carrington Center conducts 300 to 350 field research experiments annually including trials on all crops (> 30) grown in North Dakota. The seeds, plants, soils, and other samples associated with these experiments are all processed in an old 1962 potato warehouse representing 2,400 square feet of space. This current laboratory has limited space for experiment preparation and processing, sample cleaning, dryers, and field sample storage, and lacks appropriate temperature controlled seed storage. Additionally, the present facility is not designed to accommodate appropriate worker protection features including dust handling and air exchange requirements. The innovative and proactive research efforts of CREC agronomists and plant pathologist are compromised as the current facility has zero laboratory space for plant pathology equipment, growth chambers, and adaptation of new technologies for seed, soil, and plant research processes. Additionally, the present facility has limited dryer capacity, inadequate sample storage, no cold storage for germplasm, and no capacity to accommodate a greenhouse. Finally, it must be noted that the current laboratory lacks modern worker safety and protection features.

Construction of a Feedlot Research Support Center at the CREC's livestock unit is another critical facility need. The proposed Feedlot Research Support Center would address a combination of department shortfalls toward support of the beef research program. The envisioned facility would have combined functions of: dispensary for processing and storage of pharmaceuticals and animal health supplies; laboratory space for feeds, blood, and tissue processing; office space for technical staff with computer friendly environment and records storage; inside tempered storage for daily use feeding equipment; and shop area for tools, equipment and space for equipment maintenance and minor repairs. The Feedlot Research Support Center would improve feedlot research operational capability, assist in sustaining IAUAC compliance, attain worker protection standards, and reduce maintenance costs for equipment. The current facilities are very inadequate to support the widely recognized beef feedlot research program at the NDSU CREC.

An expansion in the number of beef feedlot pens and associated waste containment is required to satisfy the many projects related to utilizing the diverse feeds of North Dakota and beef feedlot management. The addition of sixteen pens would allow the CREC to conduct one additional experiment per feedout period. A development of a full set of an additional 32 pens would maximize the unit's research capability. Pen expansion must include the associated waste containment facilities to remain compliant with state law.

Another important facility need at the CREC is a new or expanded foundation seedstocks Seed Conditioning Plant. The current seed plant was constructed in 1963 and is seriously out of date. The present building is too small to retro-fit with larger capacity and modern era seed conditioning equipment. Another major deficiency is the current plant is not designed to readily accommodate air exchange and dust control features to address worker safety concerns. The Carrington seedstocks program typically processes 25 to 30 varieties representing six to eight crops annually. The CREC must rely heavily upon the use of a mobile mill to condition the majority of the seed products produced and solely managed within this program.

Base funding is needed to support technical and operational expenses associated with cooperating with the high number of collaborating NDSU faculty who utilize the Carrington site to conduct their research. The location and environment represented by the CREC make the site highly desirable among scientists who conduct field research. This department has a strong history of assisting scientists who wish to utilize this important research site. However, without additional resources we cannot sustain, much less expand upon, our desire to provide assistance to fellow researchers.

The rapid escalation in operating and equipment costs is of significant concern to this department. The Carrington Center's program diversity with both crops and livestock research has many positives for impacting agriculture in the state. However, this diversity requires a large investment in equipment and associated operating

---

**AGENCY OVERVIEW****Date:** 01/13/2011**628 Branch Research Centers****Time:** 10:57:10

---

costs. A major portion of Carrington's operating and equipment budget is currently secured through funds generated from competitive research grant opportunities. Purchasing equipment with grant based funding has become a limited option as very few agencies allow for this category of cost.

The department has a series of building projects or physical plant improvements beyond those previously mentioned. Examples of other important facility needs include a combination shop and equipment storage building for large-scale equipment, bulk feed storage shed, and numerous deferred maintenance projects. Physical plant improvement priorities include renovation of existing feedlot pens, improved animal working facilities, parking lot and driveway paving, residence modernization, and furnace replacements.

**REQUEST SUMMARY**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
<b>By Major Program</b>					
Dickinson Research Center	4,687,438	6,287,580	44,391	6,331,971	0
Central Grasslands Research Center	1,984,332	2,560,602	265,791	2,826,393	0
Hettinger Research Center	2,883,164	2,995,155	356,091	3,351,246	0
Langdon Research Center	2,039,293	2,091,572	401,158	2,492,730	0
North Central Research Center	4,252,469	3,973,952	480,650	4,454,602	0
Williston Research Center	2,381,834	2,922,183	562,660	3,484,843	0
Carrington Research Center	5,584,398	6,727,962	752,158	7,480,120	0
<b>Total Major Program</b>	<b>23,812,928</b>	<b>27,559,006</b>	<b>2,862,899</b>	<b>30,421,905</b>	<b>0</b>
<b>By Line Item</b>					
Dickinson Research Center	4,687,438	6,287,580	44,391	6,331,971	0
Central Grasslands Research Center	1,984,332	2,560,602	265,791	2,826,393	0
Hettinger Research Center	2,883,164	2,995,155	356,091	3,351,246	0
Langdon Research Center	2,039,293	2,091,572	401,158	2,492,730	0
North Central Research Center	4,252,469	3,973,952	480,650	4,454,602	0
Williston Research Center	2,381,834	2,922,183	562,660	3,484,843	0
Carrington Research Center	5,584,398	6,727,962	752,158	7,480,120	0
<b>Total Line Items</b>	<b>23,812,928</b>	<b>27,559,006</b>	<b>2,862,899</b>	<b>30,421,905</b>	<b>0</b>
<b>By Funding Source</b>					
General Fund	11,401,845	12,367,190	3,287,897	15,655,087	0
Federal Funds					
Special Funds	12,411,083	15,191,816	(424,998)	14,766,818	0
<b>Total Funding Source</b>	<b>23,812,928</b>	<b>27,559,006</b>	<b>2,862,899</b>	<b>30,421,905</b>	<b>0</b>
<b>Total FTE</b>	<b>95.56</b>	<b>95.49</b>	<b>18.00</b>	<b>113.49</b>	<b>0.00</b>

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
<b>Dickinson Research Center</b>					
Salaries - Permanent	1,659,850	1,934,413	522,983	2,457,396	0
Temporary Salaries	200,349	227,745	460,049	687,794	0
Overtime	47,387	77,749	(77,749)	0	0
Fringe Benefits	607,160	822,454	370,780	1,193,234	0
Travel	194,837	205,755	(75,847)	129,908	0
Supplies - IT Software	14,981	40,019	(16,416)	23,603	0
Supply/Material-Professional	2,183	9,933	13,030	22,963	0
Food and Clothing	18,681	31,932	(13,098)	18,834	0
Bldg, Ground, Maintenance	98,212	133,226	(54,649)	78,577	0
Miscellaneous Supplies	510,662	599,830	(216,991)	382,839	0
Office Supplies	9,536	35,097	(14,397)	20,700	0
Postage	3,785	9,944	(2,369)	7,575	0
Printing	24,344	23,552	(7,095)	16,457	0
IT Equip Under \$5,000	14,728	15,380	(6,309)	9,071	0
Other Equip Under \$5,000	74,821	106,372	(36,791)	69,581	0
Utilities	124,577	162,829	0	162,829	0
Insurance	26,112	49,313	(20,228)	29,085	0
Rentals/Leases-Equip & Other	42,678	68,971	(28,292)	40,679	0
Rentals/Leases - Bldg/Land	22,739	58,865	(24,146)	34,719	0
Repairs	70,064	128,216	(52,593)	75,623	0
IT - Communications	39,693	57,330	(23,516)	33,814	0
Professional Development	2,845	4,371	(1,793)	2,578	0
Operating Fees and Services	335,401	466,102	(175,799)	290,303	0
Fees - Professional Services	44,374	62,806	(23,197)	39,609	0
Medical, Dental and Optical	2,180	2,870	(1,177)	1,693	0
Interest Expense	0	144	0	144	0
Land and Buildings	465,420	350,000	(350,000)	0	0
Equipment Over \$5000	29,839	602,362	(99,999)	502,363	0
<b>Total</b>	<b>4,687,438</b>	<b>6,287,580</b>	<b>44,391</b>	<b>6,331,971</b>	<b>0</b>
<b>Dickinson Research Center</b>					
General Fund	2,000,936	2,353,771	769,391	3,123,162	0
Federal Funds	0	0	0	0	0
Special Funds	2,686,502	3,933,809	(725,000)	3,208,809	0
<b>Total</b>	<b>4,687,438</b>	<b>6,287,580</b>	<b>44,391</b>	<b>6,331,971</b>	<b>0</b>
<b>Central Grasslands Research Center</b>					
Salaries - Permanent	690,255	888,301	78,853	967,154	0
Salaries - Other	34,635	14,092	(14,092)	0	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Temporary Salaries	149,196	71,445	96,701	168,146	0
Overtime	46,162	40,355	(40,355)	0	0
Fringe Benefits	254,609	346,387	112,196	458,583	0
Travel	104,686	118,949	0	118,949	0
Supplies - IT Software	2,977	7,507	0	7,507	0
Supply/Material-Professional	3,277	1,203	0	1,203	0
Food and Clothing	4,803	4,388	0	4,388	0
Bldg, Ground, Maintenance	66,923	61,379	0	61,379	0
Miscellaneous Supplies	168,990	535,192	0	535,192	0
Office Supplies	11,866	5,796	0	5,796	0
Postage	2,629	3,379	0	3,379	0
Printing	21,167	12,354	0	12,354	0
IT Equip Under \$5,000	3,086	8,179	0	8,179	0
Other Equip Under \$5,000	29,973	0	0	0	0
Utilities	48,889	63,415	0	63,415	0
Insurance	15,589	24,125	0	24,125	0
Rentals/Leases-Equip & Other	18,173	28,276	0	28,276	0
Repairs	86,665	72,616	0	72,616	0
IT - Communications	17,640	19,831	0	19,831	0
Operating Fees and Services	60,084	60,569	0	60,569	0
Fees - Professional Services	5,720	5,956	0	5,956	0
Other Capital Payments	13,560	56,908	(13)	56,895	0
Equipment Over \$5000	122,778	110,000	32,501	142,501	0
<b>Total</b>	<b>1,984,332</b>	<b>2,560,602</b>	<b>265,791</b>	<b>2,826,393</b>	<b>0</b>

**Central Grasslands Research Center**

General Fund	1,208,411	1,486,428	265,789	1,752,217	0
Federal Funds	0	0	0	0	0
Special Funds	775,921	1,074,174	2	1,074,176	0
<b>Total</b>	<b>1,984,332</b>	<b>2,560,602</b>	<b>265,791</b>	<b>2,826,393</b>	<b>0</b>

**Hettinger Research Center**

Salaries - Permanent	856,425	979,107	277,791	1,256,898	0
Salaries - Other	48,616	142,373	(142,373)	0	0
Temporary Salaries	83,072	65,638	2,239	67,877	0
Overtime	36,384	39,955	(39,955)	0	0
Fringe Benefits	335,605	439,781	119,105	558,886	0
Travel	136,162	154,743	7,500	162,243	0
Supplies - IT Software	8,052	3,964	0	3,964	0
Supply/Material-Professional	2,232	16,089	15,000	31,089	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Food and Clothing	5,890	11,682	0	11,682	0
Bldg, Ground, Maintenance	46,209	38,861	0	38,861	0
Miscellaneous Supplies	524,398	337,465	117,687	455,152	0
Office Supplies	1,831	1,468	0	1,468	0
Postage	3,507	3,266	1,500	4,766	0
Printing	6,186	5,149	2,250	7,399	0
IT Equip Under \$5,000	14,005	5,106	0	5,106	0
Other Equip Under \$5,000	76,916	30,804	65,861	96,665	0
Utilities	56,813	61,087	8,979	70,066	0
Insurance	14,620	26,735	0	26,735	0
Rentals/Leases-Equip & Other	31,233	33,831	0	33,831	0
Rentals/Leases - Bldg/Land	42,262	77,199	0	77,199	0
Repairs	30,933	40,120	0	40,120	0
IT - Communications	15,900	18,056	0	18,056	0
Professional Development	920	733	0	733	0
Operating Fees and Services	100,235	77,698	118,257	195,955	0
Fees - Professional Services	112,089	84,245	2,250	86,495	0
Equipment Over \$5000	270,945	300,000	(200,000)	100,000	0
IT Equip/Sftware Over \$5000	21,724	0	0	0	0
<b>Total</b>	<b>2,883,164</b>	<b>2,995,155</b>	<b>356,091</b>	<b>3,351,246</b>	<b>0</b>

**Hettinger Research Center**

General Fund	1,236,334	1,349,649	306,091	1,655,740	0
Federal Funds	0	0	0	0	0
Special Funds	1,646,830	1,645,506	50,000	1,695,506	0
<b>Total</b>	<b>2,883,164</b>	<b>2,995,155</b>	<b>356,091</b>	<b>3,351,246</b>	<b>0</b>

**Langdon Research Center**

Salaries - Permanent	860,505	868,630	46,911	915,541	0
Salaries - Other	105	0	0	0	0
Temporary Salaries	63,256	83,897	(51,451)	32,446	0
Overtime	8,495	10,627	(10,627)	0	0
Fringe Benefits	309,688	365,058	33,851	398,909	0
Travel	46,968	54,743	3,500	58,243	0
Supplies - IT Software	2,619	204	0	204	0
Supply/Material-Professional	3,954	2,826	7,000	9,826	0
Food and Clothing	2,513	3,169	0	3,169	0
Bldg, Ground, Maintenance	65,974	57,931	0	57,931	0
Miscellaneous Supplies	140,189	132,246	170,998	303,244	0
Office Supplies	3,850	4,149	0	4,149	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Postage	1,417	1,362	700	2,062	0
Printing	7,158	4,261	1,050	5,311	0
IT Equip Under \$5,000	6,639	18,408	0	18,408	0
Other Equip Under \$5,000	31,110	38,619	94,033	132,652	0
Utilities	52,226	58,324	(16,000)	42,324	0
Insurance	10,124	16,266	0	16,266	0
Rentals/Leases-Equip & Other	284	2,557	0	2,557	0
Rentals/Leases - Bldg/Land	31,188	35,338	0	35,338	0
Repairs	67,621	66,581	0	66,581	0
IT - Communications	31,378	33,721	0	33,721	0
Professional Development	420	499	0	499	0
Operating Fees and Services	56,635	44,009	179,643	223,652	0
Fees - Professional Services	20,313	3,619	1,050	4,669	0
Interest Expense	31	28	0	28	0
Other Capital Payments	56	0	0	0	0
Equipment Over \$5000	214,577	184,500	(59,500)	125,000	0
<b>Total</b>	<b>2,039,293</b>	<b>2,091,572</b>	<b>401,158</b>	<b>2,492,730</b>	<b>0</b>

**Langdon Research Center**

General Fund	1,211,001	1,217,179	301,157	1,518,336	0
Federal Funds	0	0	0	0	0
Special Funds	828,292	874,393	100,001	974,394	0
<b>Total</b>	<b>2,039,293</b>	<b>2,091,572</b>	<b>401,158</b>	<b>2,492,730</b>	<b>0</b>

**North Central Research Center**

Salaries - Permanent	997,690	1,218,243	135,351	1,353,594	0
Salaries - Other	85	0	0	0	0
Temporary Salaries	204,838	196,643	38,956	235,599	0
Overtime	19,636	23,612	(23,612)	0	0
Fringe Benefits	355,094	494,117	118,416	612,533	0
Travel	132,567	129,740	4,000	133,740	0
Supplies - IT Software	5,489	6,543	0	6,543	0
Supply/Material-Professional	5,843	15,768	8,000	23,768	0
Food and Clothing	7,559	7,425	0	7,425	0
Bldg, Ground, Maintenance	45,197	87,953	0	87,953	0
Miscellaneous Supplies	467,282	227,740	288,835	516,575	0
Office Supplies	6,295	10,646	0	10,646	0
Postage	4,748	3,040	800	3,840	0
Printing	9,243	9,635	1,200	10,835	0
IT Equip Under \$5,000	15,467	96,801	0	96,801	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Other Equip Under \$5,000	108,509	60,177	145,119	205,296	0
Utilities	71,700	108,607	21,288	129,895	0
Insurance	58,592	86,088	0	86,088	0
Rentals/Leases-Equip & Other	31,871	2,915	0	2,915	0
Rentals/Leases - Bldg/Land	50,287	52,239	0	52,239	0
Repairs	177,799	133,167	0	133,167	0
IT - Communications	17,127	22,295	0	22,295	0
Professional Development	2,129	2,162	0	2,162	0
Operating Fees and Services	130,760	238,209	255,558	493,767	0
Fees - Professional Services	3,251	2,999	1,200	4,199	0
Interest Expense	138	22	0	22	0
Land and Buildings	907,011	0	0	0	0
Other Capital Payments	22,094	92,726	(21)	92,705	0
Equipment Over \$5000	385,812	644,440	(514,440)	130,000	0
IT Equip/Sftware Over \$5000	8,356	0	0	0	0
<b>Total</b>	<b>4,252,469</b>	<b>3,973,952</b>	<b>480,650</b>	<b>4,454,602</b>	<b>0</b>

**North Central Research Center**

General Fund	2,090,260	1,486,111	380,651	1,866,762	0
Federal Funds	0	0	0	0	0
Special Funds	2,162,209	2,487,841	99,999	2,587,840	0
<b>Total</b>	<b>4,252,469</b>	<b>3,973,952</b>	<b>480,650</b>	<b>4,454,602</b>	<b>0</b>

**Williston Research Center**

Salaries - Permanent	816,698	1,006,921	316,410	1,323,331	0
Temporary Salaries	196,554	254,942	16,630	271,572	0
Overtime	19,897	19,355	(2,555)	16,800	0
Fringe Benefits	299,935	435,008	172,163	607,171	0
Travel	110,664	110,733	4,000	114,733	0
Supplies - IT Software	651	744	0	744	0
Supply/Material-Professional	3,477	2,255	8,000	10,255	0
Food and Clothing	11,784	16,818	0	16,818	0
Bldg, Ground, Maintenance	80,762	79,820	0	79,820	0
Miscellaneous Supplies	120,168	189,155	14,400	203,555	0
Office Supplies	6,194	4,243	0	4,243	0
Postage	677	0	800	800	0
Printing	4,463	4,571	1,200	5,771	0
IT Equip Under \$5,000	6,377	3,950	0	3,950	0
Other Equip Under \$5,000	36,752	26,594	3,200	29,794	0
Utilities	65,160	74,819	0	74,819	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Insurance	17,715	31,959	0	31,959	0
Rentals/Leases-Equip & Other	41,489	26,970	0	26,970	0
Rentals/Leases - Bldg/Land	14,175	14,972	0	14,972	0
Repairs	80,926	42,940	0	42,940	0
IT - Communications	31,564	28,668	0	28,668	0
Professional Development	7,675	17,796	0	17,796	0
Operating Fees and Services	189,628	192,603	7,200	199,803	0
Fees - Professional Services	63,879	54,945	1,200	56,145	0
Medical, Dental and Optical	271	335	0	335	0
Miscellaneous Expenses	205	0	0	0	0
Interest Expense	41	1,067	0	1,067	0
Cost of Good Sold	16	0	0	0	0
Equipment Over \$5000	154,037	280,000	20,012	300,012	0
<b>Total</b>	<b>2,381,834</b>	<b>2,922,183</b>	<b>562,660</b>	<b>3,484,843</b>	<b>0</b>

**Williston Research Center**

General Fund	1,601,646	1,922,183	512,660	2,434,843	0
Federal Funds	0	0	0	0	0
Special Funds	780,188	1,000,000	50,000	1,050,000	0
<b>Total</b>	<b>2,381,834</b>	<b>2,922,183</b>	<b>562,660</b>	<b>3,484,843</b>	<b>0</b>

**Carrington Research Center**

Salaries - Permanent	1,754,440	1,966,818	617,682	2,584,500	0
Salaries - Other	120	0	0	0	0
Temporary Salaries	165,880	142,115	(74,561)	67,554	0
Overtime	145,938	82,703	(82,703)	0	0
Fringe Benefits	691,689	821,324	349,172	1,170,496	0
Travel	186,938	195,476	14,000	209,476	0
Supplies - IT Software	1,213	27,674	0	27,674	0
Supply/Material-Professional	101,431	148,887	28,000	176,887	0
Food and Clothing	7,176	13,039	0	13,039	0
Bldg, Ground, Maintenance	187,071	182,854	0	182,854	0
Miscellaneous Supplies	855,548	1,060,202	(4,394)	1,055,808	0
Office Supplies	12,476	10,424	0	10,424	0
Postage	9,882	11,712	2,800	14,512	0
Printing	13,022	16,494	4,200	20,694	0
IT Equip Under \$5,000	14,347	14,537	0	14,537	0
Other Equip Under \$5,000	97,344	129,647	11,200	140,847	0
Utilities	118,267	128,074	0	128,074	0
Insurance	57,308	63,961	0	63,961	0

**REQUEST DETAIL**628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Expenditures 2007-2009 Biennium	Present Budget 2009-2011	Budget Request Change	Requested Budget 2011-2013 Biennium	Optional Budget Request
Rentals/Leases-Equip & Other	36,446	43,702	0	43,702	0
Rentals/Leases - Bldg/Land	91,813	82,736	0	82,736	0
Repairs	287,415	463,441	0	463,441	0
IT - Communications	30,767	29,764	0	29,764	0
Professional Development	1,312	6,367	0	6,367	0
Operating Fees and Services	106,999	138,792	25,200	163,992	0
Fees - Professional Services	156,698	210,885	4,200	215,085	0
Medical, Dental and Optical	59	0	0	0	0
Land and Buildings	3,458	0	0	0	0
Equipment Over \$5000	414,403	736,334	(142,638)	593,696	0
IT Equip/Sftware Over \$5000	34,938	0	0	0	0
<b>Total</b>	<b>5,584,398</b>	<b>6,727,962</b>	<b>752,158</b>	<b>7,480,120</b>	<b>0</b>
<b>Carrington Research Center</b>					
General Fund	2,053,257	2,551,869	752,158	3,304,027	0
Federal Funds	0	0	0	0	0
Special Funds	3,531,141	4,176,093	0	4,176,093	0
<b>Total</b>	<b>5,584,398</b>	<b>6,727,962</b>	<b>752,158</b>	<b>7,480,120</b>	<b>0</b>
<b>Funding Sources</b>					
General Fund	11,401,845	12,367,190	3,287,897	15,655,087	0
Federal Funds	0	0	0	0	0
Special Funds	12,411,083	15,191,816	(424,998)	14,766,818	0
<b>Total Funding Sources</b>	<b>23,812,928</b>	<b>27,559,006</b>	<b>2,862,899</b>	<b>30,421,905</b>	<b>0</b>

**CHANGE PACKAGE SUMMARY**

628 Branch Research Centers  
Biennium: 2011-2013

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Description	Priority	FTE	General Fund	Federal Funds	Special Funds	Total Funds
<b>Base Budget Changes</b>						
<b>One Time Budget Changes</b>						
A-E 3 Remove Capital Projects		0.00	0	0	(350,000)	(350,000)
A-E 4 Remove Other One Time Funding		0.00	0	0	(925,000)	(925,000)
<b>Total One Time Budget Changes</b>		<b>0.00</b>	<b>0</b>	<b>0</b>	<b>(1,275,000)</b>	<b>(1,275,000)</b>
<b>Ongoing Budget Changes</b>						
A-A 1 SBARE Priorities		18.00	3,085,000	0	0	3,085,000
A-A 3 Base Funding for Equipment over 5,000		0.00	400,000	0	1,393,572	1,793,572
A-A 4 Other Revenue Change		0.00	(103,409)	0	1,404,200	1,300,791
A-A 5 Capital Bond Payments		0.00	149,600	0	0	149,600
A-F 3 Remove Base Funding Equip over 5,000		0.00	(400,000)	0	(2,457,636)	(2,857,636)
A-F 4 Remove Funding Cap Bond Pmts		0.00	(149,634)	0	0	(149,634)
Base Payroll Change		0.00	306,340	0	509,866	816,206
<b>Total Ongoing Budget Changes</b>		<b>18.00</b>	<b>3,287,897</b>	<b>0</b>	<b>850,002</b>	<b>4,137,899</b>
<b>Total Base Budget Changes</b>		<b>18.00</b>	<b>3,287,897</b>	<b>0</b>	<b>(424,998)</b>	<b>2,862,899</b>

**BUDGET CHANGES NARRATIVE**

628 Branch Research Centers

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Change Group: A	Change Type: A	Change No: 1	Priority: 1
-----------------	----------------	--------------	-------------

SBARE Priorities - 3,085,000

**An increase of \$9,933,622 over the 2009-11 general fund base, would provide funds to address the following priorities of the State Board of Agricultural Research and Education and related needs of North Dakota agriculture. Of the total, \$6,848,622 is included in the request for the Main Station, and \$3,085,000 is included in the request for the Branch Stations. The initiatives (with their SBARE ranking) that are listed below include a partial or full component for the Branch Stations. The Main Station component is also included and designated in the descriptions.**

**In addition to Cost to continue FY 11 salary increases plus 2011-13 salary and health insurance increases [*Branch REC cost to continue FY11 salary increases = \$202,932 GF; 2011-13 salary and health insurance increases to be determined*], SBARE identified the following priorities:**

**2. Enhancing Soil Productivity and Land Management for Future North Dakotans - \$1,410,000 Total General Fund Increase**

\$570,000 salary and fringe benefits 1.0 FTE, Main Station – SNRS and 2.0 FTE research scientists (HREC, CREC)

\$120,000 Operating

\$720,000 salary and fringe benefits, 6.0 FTE, research support staff (HREC, CREC, WREC, CGREC, SNRS, ABEN)

North Dakota is blessed with many natural resources. Of these resources, our productive soils are one of the most important, and one that can be impacted positively to serve future North Dakotans. Managing soils has changed dramatically over the last 30 years. Efforts to reduce wind erosion brought about adoption of minimum tillage techniques that proved highly successful by retaining crop residue on the surface and reducing erosion. More recently, no-till systems have become very popular in many areas of the state. However, several areas of soil management have been neglected, resulting in the expansion of saline and sodic soils and declining soil fertility. Obtaining a better understanding of the soil microbial populations that impact (both positively and negatively) plant productivity is critically important to the farmers and ranchers in the state. Saline soils account for approximately 10.25 million acres in North Dakota, with sodicity affecting an additional 3.4 million acres. These affected soils reduce plant growth (both crop and range plants) by 25% even if symptoms are not evident. Lost productivity in the Red River Valley alone is estimated to range from \$10-20 million annually; similar estimates exist for lost productivity in other areas of the state. What has not been estimated is the lost productivity of livestock production when pastures and rangeland are affected. Identifying ways to better manage lands for recreation, wildlife, grazing, and farming represents new opportunities for land-owners and managers to be successful. Better management practices that improve both productivity and overall economic activity are critical to allowing our state to remain competitive in this global economy.

Water and fertility issues also affect soil health and land management. Developing improved waste management systems and utilizing animal waste both play a major role in improving both soil fertility and soil tilth, but, if managed improperly, will affect both ground and surface water. Identifying better ways to manage livestock waste that enhances soil health is of critical importance to conserve and improve our soils and maintain productivity. Using appropriate crops or other plant species concurrently is being identified as a way to improve soil health in the region. Much of this information is anecdotal; appropriate research is needed to understand the mechanisms that may benefit our soils throughout the state.

**3. Infrastructure (equipment, operating, graduate students, and office support staff) - \$1,880,000 Total General Fund Increase**

\$100,000 equipment, Main Station Revolving Equipment Fund

\$100,000 equipment, REC Revolving Equipment Fund (\$25,000 ea. NCREC, LREC, CGREC, WREC)

**BUDGET CHANGES NARRATIVE****628 Branch Research Centers****Bill#: HB1020****Date:** 01/13/2011**Time:** 10:57:10

\$410,000 Main Station operating funds allocation per SY

\$720,000, 10.0 FTE, graduate research stipends (each ½ time) as pool, with preference given to ND students

\$550,000, 5.0 FTE, Main Station office support staff

Revolving Equipment fund – In the 2007-09 Legislative Session, funds were made available to enhance the REC Revolving Equipment fund to \$400,000/biennium and also provided \$350,000 /biennium to establish a Revolving Equipment Fund for the Main Station departments. As research equipment costs continue to increase, and as additional requests are made to scientists for specific research activities, the ability of current funds to deal with the equipment needs and replacement is not possible. Equipment sharing exists, resulting in year-round use by many individuals. Equipment literally wears out, often before it becomes obsolete (which can occur in molecular genetics research in a few years).

Operating funds of \$8,000/SY were provided in the 2005-07 Legislative session. Despite relatively low rates of inflation, research costs escalate at a much more rapid pace. Additional funds are requested to better allow our scientists to achieve their research objectives.

Graduate research assistantships are critical to research programs. The ability of students to focus research activities on projects important to the state results in enhanced efficiencies to each program. This is the least expensive labor pool that can be provided by the state to research programs; yet, students are highly intelligent and very motivated to carry out both the research and their studies. Also, graduate training is where students learn to be scientists – we are literally training the next generation of scientists that will be so important to our state and society.

Office support staff at the Main Station is critical to the function of department missions. The ability of each department (and the Main Station) to deal with ever-increasing compliance issues, grant proposals, and other budgetary issues greatly affects the opportunity of scientists to perform efficiently and effectively. Too often, scientists are forced to complete tasks that should be carried out by competent, skilled office staff simply because office staff cannot carry out additional tasks. Many departments have ratios approaching 7 faculty:1 office staff employee, a ratio that is not indicative of efficiency.

***4. Improving the State's Economy by Enhancing Crop Development Efforts - \$2,700,000 Total General Fund Increase***

\$300,000 1.0 FTE, research technician and operating for NDAWN;

\$1,320,000 11.0 FTE, technical support staff : barley, corn, pulse, soybean, HRS wheat, winter wheat, cereal diseases, pulse diseases (Main Station), crop pathology (CREC), variety testing (WREC, LREC);

\$490,000 3.0 FTE (breeder and technician, Main Station) and specialist at NCREC;

\$410,000 Operating support

\$180,000 1.0 FTE plant pathologist (WREC)

Agriculture is the leading sector of the State's economy. Cash "farm-gate" receipts of crop and livestock commodities account for 25% of the state's economy. Further, additional agricultural activities including, but not limited to, sale of products, manufacturing, transportation of commodities, professional services, and processing increases the percentage of this important component to more than 40%.

Developing improved crop varieties is fundamental to continued competitive success and profitability of farmers in the state. North Dakota has an extremely diverse crop mix; farmers grow more than 42 different crops in the state, and lead the nation in the production of more than 14 crop commodities. To accommodate the demand, the

**BUDGET CHANGES NARRATIVE****628 Branch Research Centers****Bill#: HB1020****Date:** 01/13/2011**Time:** 10:57:10

NDAES has developed over 13 plant breeding programs, with additional research programs that significantly aid in the development of improved varieties. When new varieties are released, they provide an immediate level of new wealth to farmers in the state. The release of the varieties Glenn, Faller, Steele-ND, and Howard Hard Red Spring wheat, generated more than \$75 million (farm-gate income) in 2009, due to higher yield potential over existing varieties and improved quality characteristics. Glenn, when first released in 2006, had an overall economic impact of more than \$350 million in its first year alone, due to its combination of high yield potential, very good scab resistance, and excellent quality characteristics. In addition, 90% of the ND durum wheat acreage is sown to NDSU varieties; the three most recent releases combined provided an additional \$8 million in new wealth to the state in 2009. Other examples exist. In general, \$1 invested in variety development generates over \$200 in return to the state.

Protecting yield is critical to economic success of the state's farmers. Each commodity has disease and insect pests associated with the crop; high levels of disease incidence or insect presence adversely affects yield. Research to protect yield of all of the commodities is critical a critical component of the AES mission. Efforts to reduce scab infection in wheat and barley have saved hundreds of millions of dollars since the release of resistant varieties. Similarly, efforts to monitor disease development using NDAWN result in a savings of more than \$30 million annually (either protecting the crop using timely pesticide application or not needing to apply pesticide). Also, estimates of wheat stem sawfly damage in western ND total more than \$100 million, due to the continued expansion of this insect pest into wheat production regions of North Dakota. While western North Dakota appears to have fewer disease problems than other areas of the state, that appearance is very deceiving. Increased incidences of a number of important crop diseases have occurred with the rapid adoption of no-till farming practices and the ever-increasing acreage of irrigated crop production. These cultural practices radically impact the ability of many diseases to overwinter successfully and modify the micro-climate to enhance disease infection.

North Dakota leads the nation in the production of canola, with over 90% of the canola acreage, more than one million acres, found in this state. Canola is an excellent source of omega-3 oil, which has been shown to reduce cholesterol when consumed regularly. Canola oil also has been identified as an excellent source for bio-diesel production. The properties that make canola oil healthy for human consumption also enhances cold-flow properties of bio-diesel. The canola industry in North Dakota has a need for an improvement program focusing on high yield potential, reduced shattering, improved disease resistance, high percent oil, and high oil/acre to meet the demands of both the human food industry and the bio-energy sector. A dedicated breeding program would work with existing plant pathology and quality personnel to address these important issues.

Crop development efforts are hampered primarily by lack of technical support; many programs have technical support, but the support is insufficient given the large number of issues plant breeders, plant pathologists, and other scientists need to address in this improvement effort. Also, several programs do not have technical support staff – in order for these programs to be efficient and successful, technical support is critically needed.

**5. Improving Animal Productivity and Livestock Stewardship for Increased Profitability in the North Dakota Livestock Industry - \$810,000 Total General Fund Request**

\$480,000 4.0 FTE, Technical support (3) in Animal Science and one (1) at CREC;

\$120,000 Operating

\$210,000 1.0 FTE, animal scientist (Main Station)

North Dakota livestock producers are committed to ethical animal husbandry that assures their livelihood through good stockmanship. However, livestock production is under increasing scrutiny, and producers face many challenges including rising production costs, increased accountability in the area of animal welfare/animal rights and the environment (e.g. greenhouse gas emissions) and changing consumer expectations of the products they produce. NDSU Animal Sciences and RECs across the state must be equipped to help producers respond to these challenges through an integrated extension and research approach.

**BUDGET CHANGES NARRATIVE****628 Branch Research Centers****Bill#: HB1020****Date:** 01/13/2011**Time:** 10:57:10

Expanded Beef Cattle Finishing Research. The resources are in place to grow beef feedlot enterprises in North Dakota. Opportunities for new market outlets and international trade, as well as the large variety of available feedstuffs, should enhance the opportunity for expansion. Systems which can provide a stable, year-round finished cattle supply for processors and enhanced carcass quality for specialty markets, along with mitigating environmental stress, improving environmental sustainability, and improved animal care and husbandry are priorities for research.

Environmental Interactions. Regulations related to carbon emissions and nutrient management have the potential to reduce profitability of livestock operations. Research in this area will enhance opportunities to improve efficiency of production while simultaneously reducing any negative effects that livestock operations may have on the environment. Research approaches tailored to North Dakota conditions which emphasize efficiency of production and a smaller environmental impact are needed to improve the competitive advantage of livestock producers and equip them with the tools to deal with an increased regulatory burden.

**7. Animal Health Initiative - \$1,010,000 Total General Fund Request**

\$330,000 2.0 FTE, Diagnostic microbiologist and technician (Main Station)

\$560,000 4.0 FTE, Two technical support staff and two livestock specialists (DREC)

\$120,000 Operating

Animal agriculture requires access to qualified animal health care. Qualified and available care is important to the North Dakota agricultural industry. Enhanced collaboration with the NDAES Vet Diagnostic Lab, the DREC, and the ND Dept. of Agriculture Board of Animal Health is necessary to identify, confine, and manage disease outbreaks when they occur.

**10. Organic/Sustainable Agriculture Systems - \$300,000 total General Fund Increase**

\$240,000 2.0 FTE, research technicians, (1) at CREC and (1) at DREC

\$60,000 Operating

North Dakota has one of the largest acreages of organic production in the nation, second only to California. However, research is lacking in organic farming systems for the northern Plains area. We typically hear that practices and crop varieties developed for conventional systems cannot be transferred successfully to organic systems approach. Efforts to address the issues of this constituency are requested.

<b>Change Group:</b> A	<b>Change Type:</b> A	<b>Change No:</b> 3	<b>Priority:</b> 2
------------------------	-----------------------	---------------------	--------------------

Base Funding for Equipment over 5,000

**BUDGET CHANGES NARRATIVE**

**628 Branch Research Centers**

**Bill#: HB1020**

**Date:** 01/13/2011

**Time:** 10:57:10

The Research Extension Centers have identified equipment needs (costing > \$5000) that total \$1,893,572 for the 2011-13 biennium. This consists of \$1,393,572 special funds (AA3), \$400,000 general fund revolving equipment (AA3), and \$100,000 general fund revolving equipment enhancement (AA1 – SBARE priority #4). Totals for the RECs are as follows;

- Dickinson \$502,363
- Central Grasslands \$142,501
- Hettinger \$100,000
- Langdon \$125,000
- North Central \$130,000
- Williston \$300,012
- Carrington \$593,696

The Research Extension Centers have a total of \$400,000 in a revolving equipment pool, that is allocated to different Centers each biennium. The change in this allocation is reflected in the following schedule, that lists the amount allocated to the different Centers in 2009-11 and 2011-13:

In 2009-11, the following REC’s received funds from the revolving equipment pool: Williston - \$100,000, Carrington - \$100,000 Dickinson - \$100,000 Hettinger - \$100,000 The 2011-13 adjustment (-\$400,000), to remove these allocations from the base, are included in “remove capital” budget change code AF3.

In 2011-13, the following REC’s will receive funds from the revolving equipment pool, and the \$400,000 allocation is included in “base changes” budget change code AA3. Central Grasslands - \$100,000, Langdon - \$100,000, North Central - \$100,000, Williston - \$100,000.

In addition, SBARE priority #4 includes a \$100,000 enhancement to the revolving equipment pool. This has been divided equally and would be an additional allocation of \$25,000 to the above RECs. These amounts are reflected in budget change code AA1 and included in the above equipment totals.

<b>Change Group:</b> A	<b>Change Type:</b> A	<b>Change No:</b> 4	<b>Priority:</b> 3
------------------------	-----------------------	---------------------	--------------------

Other Revenue Change

Hettinger -- Total special fund authority increased to \$1,695,506 due to increase in institutional collections. Favorable prices for lambs and high hay inventory are factors.

Langdon -- Total special fund authority increased to \$974,393 due to increase in seed sales and variety testing. Decrease of \$16,000 in utilities to reflect new geothermal system.

North Central -- Total special fund authority increased to \$2,587,841 due to increase in variety testing.

<b>Change Group:</b> A	<b>Change Type:</b> B	<b>Change No:</b> 1	<b>Priority:</b> 1
------------------------	-----------------------	---------------------	--------------------

Capital Bond Payments - 56,895 Central Grasslands; 92,705 North Central

2011-13 estimated bond payments of the Central Grasslands REC (\$56,895) and North Central REC (\$92,705), per OMB.

<b>Change Group:</b> A	<b>Change Type:</b> B	<b>Change No:</b> 2	<b>Priority:</b> 2
------------------------	-----------------------	---------------------	--------------------

Major Capital Projects

**BUDGET CHANGES NARRATIVE**

628 Branch Research Centers

Bill#: HB1020

Date: 01/13/2011

Time: 10:57:10

Remove special fund authorization for Dickinson Parking Lot and Landscaping

<b>Change Group:</b> A	<b>Change Type:</b> E	<b>Change No:</b> 3	<b>Priority:</b> 1
------------------------	-----------------------	---------------------	--------------------

Remove Capital Projects - (350,000) Dickinson

To remove \$350,000 authorized for a capital project at Dickinson for the 2009-11 biennium . We will report on the status of the individual projects to the appropriations committees of the sixty-second legislative assembly, as required.

\$350,000 - Dickinson REC Parking Lot and Landscaping (OF)

<b>Change Group:</b> A	<b>Change Type:</b> E	<b>Change No:</b> 4	<b>Priority:</b> 1
------------------------	-----------------------	---------------------	--------------------

Remove Other One Time Funding - (925,000) Dickinson

To remove \$925,000 one-time funding for operations from the permanent oil trust funds at Dickinson REC (SB2020-Section 10). The \$925,000 has been drawn and is being used to support operations at Dickinson REC.

<b>Change Group:</b> A	<b>Change Type:</b> F	<b>Change No:</b> 3	<b>Priority:</b> 1
------------------------	-----------------------	---------------------	--------------------

Remove Base Funding Equip over 5,000 - (400,000) General Fund; (2,457,636) Special

**To remove \$2,857,636 base funding for equipment > \$5,000. Change code AA3 reflects the amount requested for the 2011-13 biennium. (\$400,000 General Fund, \$2,457,636 Special)**

The Research Extension Centers requested \$2,6 for equipment > \$5,000 using change code AA3.

The following amounts represent the removal of base funding for equipment > \$5,000

\*Dickinson \$602,362

Central Grasslands \$110,000

\*Hettinger \$300,000

Langdon \$184,500

North Central \$644,440

\*Williston \$280,000

\*Carrington \$736,334

The Research Extension Centers have a total of \$400,000 in a revolving equipment pool, that is allocated to different Centers each biennium. The change in this allocation is reflected in the following schedule that lists the amount allocated to the different Centers in 2009-11 and 2011-13:

\*In 2009-11, the following REC's received funds from the revolving equipment pool: Williston - \$100,000, Carrington - \$100,000 Dickinson - \$100,000 Hettinger - \$100,000 The 2011-13 adjustment (-\$400,000), to remove these allocations from the base is included in the REC totals.

**BUDGET CHANGES NARRATIVE****628 Branch Research Centers****Bill#: HB1020****Date:** 01/13/2011**Time:** 10:57:10

In 2011-13, the following REC's will receive funds from the revolving equipment pool, and the \$400,000 allocation is included in "base changes" budget change code AA3.  
 Central Grasslands - \$100,000, Langdon - \$100,000, North Central - \$100,000, Williston - \$100,000.

In addition, SBARE priority #4 includes a \$100,000 enhancement to the revolving equipment pool. This has been divided equally and would be an additional allocation of \$25,000 to the above RECs. These amounts are reflected in budget change code AA1.

<b>Change Group:</b> A	<b>Change Type:</b> F	<b>Change No:</b> 4	<b>Priority:</b> 1
------------------------	-----------------------	---------------------	--------------------

Remove Funding Cap Bond Pmts - (56,908) Central Grasslands; (92,726) North Central

To remove 2009-11 bond payments for state general fund obligation bonds issued through the Industrial Commission at Central Grasslands REC (\$56,908) and North Central REC (\$92,726)

<b>Change Group:</b> R	<b>Change Type:</b> A	<b>Change No:</b> 1	<b>Priority:</b>
------------------------	-----------------------	---------------------	------------------

Retirement Rate Correction

This adjustment corrects the retirement rate for TIAA-CREF participants of the agency from the 16.4% used during budget submission to the actual rate of 10.4%.

<b>Change Group:</b> R	<b>Change Type:</b> A	<b>Change No:</b> 2	<b>Priority:</b>
------------------------	-----------------------	---------------------	------------------

SBARE Research Priorities

Recommends \$1,040,000 from the general fund for the top three research priorities as determined by the State Board for Agriculture Research and Extension and approved by the State Board of Higher Education. This adjustment reduces the funding level from the submitted needs-based budget to the Executive Recommendation level. Priorities funded at the Branch Research Centers are as follows:

Soil Productivity and Land Management - \$940,000

- Hettinger Research Extension Center - \$350,000
- Carrington Research Extension Center - \$350,000
- Williston Research Extension Center - \$120,000
- Central Grasslands Research Extension Center - \$120,000

Infrastructure Support - \$100,000

- Adds \$100,000 from the general fund for a revolving equipment fund, for a total budget of \$500,000 per biennium.
- The dollars will be split evenly between the North Central, Langdon, Central Grasslands and Williston Research Extension Centers.