
AGENCY OVERVIEW

628 BRANCH RESEARCH CENTERS

Date: 12/13/2006

Time: 06:55:30

STATUTORY AUTHORITY

North Dakota Century Code Chapter 4-05.1

AGENCY DESCRIPTION

Dickinson Research Extension Center (DREC)

Located on the prairie biome, the Dickinson Research Extension Center has created a relationship of harmony and trust with the people in the 13-county region south and west of the Missouri River. In the first century of service (1905-2005), the DREC assisted agricultural producers in solving production problems with agronomy, animal science and range science while implementing changes in technology.

The DREC has pioneered work in eight major areas: agronomy, beef management, bio-security, cropping systems, horticulture, range management, sustainable agricultural practices, and waste management. The uniqueness of each research discipline has been evident. Faculty and staff have committed to engaging people of the region in a self-empowerment process, which identifies current economic opportunities and preserves the natural resources for future generations. Research data and producer ideas are continually compared so the DREC can leverage the latest knowledge to benefit the people of North Dakota.

The DREC operates 4,916 acres of owned land within the region as well annual land leases needed to accommodate on going 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 was taken place for 100 years.

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.

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 dry land 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.

The CGREC is surrounded by numerous small towns and communities many of which are thriving and prosperous. In addition the CGREC is located between two counties which rank in the top 10 counties for the production of livestock and forages. This area served by CGREC contains 5 million acres (44%) of the state's rangeland where 42% of the state's livestock is raised on 38% of the state's farms.

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 appropriately located at the center of the North Dakota sheep industry, which is 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 game bird populations. Research at HREC involves the disciplines of animal science, range science, agronomy, and agri-business and applied economics. Collaboration is with Main Station scientists, Branch Station scientists, and USDA research entities in these research disciplines to improve productivity of livestock and cropping systems and economic development of the region.

Langdon Research Extension Center (LREC)

The 100 year old (2007) Langdon Research Extension Center (LREC) is located one mile east of Langdon, ND 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 (ND) and has ND's highest precipitation rates, coolest temperatures and richest productive soils. The environment creates high levels of diverse crop production and recurring disease problems.

The LREC has a strong tradition of assisting the regions producers 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 ND.

Some very positive changes have occurred with the start of the 21st century. 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. The farm business management instructor is employed through a partnership with Lake Region State College and currently serves over 40 farm families. 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 regions 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 1200-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, in addition to the conventional crops of HRS and durum wheat, barley, flax, sunflower, and oat. 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 rainfed farm located in northwest North Dakota near the city of Williston. In 2001, an additional 157 acres were purchased in Nesson Valley to develop an irrigated research and development project. Studies at the WREC are conducted on crop variety evaluation, herbicide performance and other cultural management research, cropping systems and soil and water conservation practices. The main dry land crops are spring wheat and durum. Barley, oats, safflower, annual pulse crops, 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. Soil and crop management systems for sprinkler irrigation and alternative irrigated high value and value-added crop research studies, including the Western Malting Barley program, are also conducted in the MonDak Region, in cooperation with the Montana State University (MSU) Eastern Agricultural Research Center (EARC), Sidney. The Center also conducts safflower, winter wheat, and durum breeding research and variety evaluations, in cooperation with MSU and NDSU Main Station scientists. WREC produces and supplies area farmer's foundation seed of cultivars 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)

The Carrington Research Extension Center was established in 1960. The initial focus of the program was an irrigation research effort to support the Garrison Diversion Project plan to divert Missouri River water for irrigation. The Center's scope expanded significantly in the mid 1960's with responsibilities for dry land crop production research for central and south-central North Dakota and again in 1972 to include livestock research. The central location of the Carrington Center is important in that the research program can address crops and issues that represent a significant part of agriculture in North Dakota.

The research effort at the Carrington Center focuses on these general program areas: traditional crop variety evaluation, crop production and management, alternative crop development, cropping systems, irrigation, integration of crop and livestock production, intensive cow/calf production, beef cattle feeding, feedlot management, bison nutrition, aquaculture, foundation seed stocks production, and development of new agricultural enterprises. Through these efforts the Center's 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.

The Carrington Center maintains a strong Extension program as three area extension specialists base their educational programming from the Center. The extension program emphasis areas addressed by these specialists include Agronomy (Crop Production and Crop Pest Management), Livestock (Livestock Systems), and Livestock (Waste Management). The Extension specialists develop educational programs that are delivered to regional county extension staff, individual producers and agri-businesses. Through their efforts the latest research results and refined crop and livestock management guidelines are shared with all agricultural constituencies as their needs and concerns are identified.

The Carrington Center operates on a land base of around 1,450 acres. Of this total, about 700 acres are leased or rented to supplement the research, seed and forage production needs of the Center. The Carrington Center 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 dry land and is utilized primarily for dry land field crop research activities.

Carrington Center facilities include the headquarters unit with buildings and equipment for processing and storage of foundation seed stocks, equipment maintenance and storage, research laboratory and a residence. The headquarters building has offices for research and extension staff and large meeting rooms for university, community, and industry educational meetings. The livestock unit includes research facilities that can accommodate around 500 head. It includes feed and forage storage, feed mill, pole barns, equipment storage, a residence and extensive pens and feedlots.

AGENCY MISSION

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 and swine 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)

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 are also conducted in cooperation with the Montana State University Eastern Agricultural research Center at Sidney, MT.

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 dry land and irrigated crop production methods and systems, improved crop cultivars, feeding of beef cattle, cow/calf nutrition, sustainable agricultural production, and produces foundation seed stocks. 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 NDCC 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 June 14, 2006. 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)

Conducted annual and perennial plant growth research which lead to a cropping systems view incorporating plant and animal growth that harmoniously impact each other. This view allows producers and researchers to review management options that optimize resource usage and preserve environmental quality for future economic opportunity and quality of life for citizens of the region.

Conducted research in the following eight major areas: agronomy, beef management, bio-security, cropping systems, horticulture, range management, sustainable agriculture and waste management.

Central Grasslands Research Extension Center (CGREC)

Received legislative approval for \$350,000 for new addition to the CGREC office building. The addition is expected to be completed by January 1, 2007.

Awarded a grant to coordinate and develop a biomass for ethanol study at six sites across North Dakota. All sites were seeded Spring 2006.

Developed a Whole Ranch Management System and Range Monitoring Program.

Completed a 2-year investigation (funded in part by *Sweetpro*) on the use of ethanol by-products in first-calf heifer and steer finishing rations.

Initiated a new cooperative research study with Main Station Scientists evaluating swath grazing of three forage species on beef cow performance.

Cooperated on a research study on Vaccine Interference with Main Station Scientists and Pfizer Co.

Renewed the memorandum of understanding with the Chinese Academy of Science, Institute of Botany, for a scholar exchange program.

Hettinger Research Extension Center (HREC)

Initiated a new research project, Evaluating Environmental and Economic Consequences of Multiple-Use Management of Agricultural Lands in the Northern Great Plains. Acquired grant funds in excess of \$65,500 to continue the “Value Added Animal Production” research program which is focused on calf backgrounding and lamb finishing. Handled and distributed 1,100 bushels of foundation seed produced at NDSU research centers, making new varieties available to southwest North Dakota producers. Conducted 41 crop variety trials, 7 weed control trials, and 3 fertilizer trials. Continued “Expanding Ruminant Livestock Production in the Northern Great Plains: An Assessment of Resources, Opportunities and Constraints” Continued “Uncertainty in the Northern Great Plains”, as well as collaboration with HREC scientists on various research projects. Continued support of the HREC Video Conference Facility, computer desktop support in SW North Dakota, and 21st Century Learning Centers.

Langdon Research Extension Center (LREC)

Provided successful results researching plant diseases that negatively impact the region’s producers. Producers have used this research to identify the most effective fungicides, proper timing, and spray technologies that provide the best plant coverage. Formed strong partnerships with chemical, seed and machinery companies that provide the regions producers with their inputs. Added \$275,000 in grant research projects in 2005 alone to address unexpected production problems. Continued evolving into a full service educational outreach center for agricultural as well as non-agricultural outreach. Developed new partnerships with regional economic development groups. Conducted approximately 200 educational sessions serving 3,560 citizens during 2005.

North Central Research Extension Center (NCREC)

Produced, conditioned and distributed foundation seed of several new NDSU varieties including Glenn hard red spring wheat, Howard hard red spring wheat, Divide durum, Grenora durum and Sierra chickpea. Continued research of straight combining of canola using a desiccant and potentially reduce green seed count. Conducted a unique long-term crop rotation study which has demonstrated that crop sequence will affect Sclerotinia and blackleg diseases levels in canola. Researched new crop protection products for minor crops such as sunflower, dry pea, lentil, chickpea, canola and flax. Conducted residue trials with the USDA IR-4 that will lead to registration of new herbicides for controlling weeds and insects in ND crops such as canola, sunflower, flax, dry bean, dry pea, lentil, wheat, barley and millet. Conducted extension outreach programs such as crop pest clinics, field tours, meetings and workshops that teach producers, agricultural industry leaders, private crop consultants and others about new alternative crops and their best production systems.

Williston Research Extension Center (WREC)

Evaluated the performance and adaptation of new and established crop cultivars and crop cultural practices to improve productivity of agricultural products and reduce inputs in partnership with the MSU Eastern Agricultural Research Center (EARC) Sidney, MT. Conducted research and demonstration projects on potatoes for the french fry industry, on malting barley in partnership with Anheuser Busch, on identity preserved wheat, and on value added safflower and durum. Initiated a new research project on barley for ethanol that has the potential to promote and utilize rejected malt barley (feed barley, estimated 5-6 million bushels) for ethanol at an estimated 50-60 cents per bushel higher than feed barley prices. Began new bio-energy crop research in 2006 to assess the production of biomass from switchgrass and other perennial herbaceous crops. Planned for utilization of a 160-acre irrigated site in the Nesson Valley Irrigation District for research and development in 2006-2007 on sustainable irrigated cropping systems to increase irrigation profitability and support food processing industries in North Dakota.

Carrington Research Extension Center (CREC)

Continued as the only site across the nation where sclerotinia disease control is investigated on all crops (sunflower, canola, dry bean, soybean, and dry peas). Conducted over 30 different field trials in recent years that have focused specifically on plant disease management and another 30 trials that have collected data on crop variety reaction to diseases.

Established a series of research projects designed to investigate the effectiveness of non-traditional crop inputs and provide growers with an unbiased assessment of impact on crop performance.

Completed the twentieth year of a long-term cropping systems research project.

Completed 19 beef feedlot studies in the past three years using 2438 head.

Continued experiments with various bedding materials and wind-fences, including trees, that have determined good management can mitigate severe weather.

FUTURE CRITICAL ISSUES

Dickinson

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$677,191.

Central Grasslands

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$110,000.

05-07 Major Capital Project=\$350,000 (\$270,000 State Bonds, \$80,000 Special Funds)

Hettinger

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$30,000.

Langdon

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$20,000.

North Central

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$130,000.

05-07 Major Capital Project=\$1,690,000 (\$440,000 State Bonds, \$1,250,000 Special Funds)

Williston

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$238,334.

05-07 Extraordinary Repairs (Special Funds)=\$35,837

Carrington

Adjustments for Costs to Continue include the following:

05-07 EQUIPMENT>\$5,000= \$369,545.

REQUEST SUMMARY

Date: 12/13/2006

628 BRANCH RESEARCH CENTERS

Bill#: HB 1020

Time: 06:55:30

Biennium: 2007-2009

Description	Expenditures 2003-2005 Biennium	Present Budget 2005-2007	Budget Request Change	Requested Budget 2007-2009 Biennium	Optional Budget Request
BY MAJOR PROGRAM					
DICKINSON RESEARCH CENTER	4,173,872	5,575,870	217,614	5,793,484	155,816
CENTRAL GRASSLANDS RESEARCH CENTER	1,734,399	2,347,297	-269,967	2,077,330	219,478
HETTINGER RESEARCH CENTER	1,708,667	1,821,657	417,393	2,239,050	219,479
LANGDON RESEARCH CENTER	1,649,584	1,348,094	136,216	1,484,310	238,479
NORTH CENTRAL RESEARCH CENTER	2,315,929	3,942,540	-1,336,923	2,605,617	516,816
WILLISTON RESEARCH CENTER	2,138,645	2,283,878	429,164	2,713,042	481,816
CARRINGTON RESEARCH CENTER	3,901,197	4,270,340	920,952	5,191,292	450,816
TOTAL MAJOR PROGRAMS	17,622,293	21,589,676	514,449	22,104,125	2,282,700
BY LINE ITEM					
DICKINSON RESEARCH CENTER	4,173,872	5,575,870	217,614	5,793,484	155,816
CENTRAL GRASSLANDS RESEARCH CENTER	1,734,399	2,347,297	-269,967	2,077,330	219,478
HETTINGER RESEARCH CENTER	1,708,667	1,821,657	417,393	2,239,050	219,479
LANGDON RESEARCH CENTER	1,649,584	1,348,094	136,216	1,484,310	238,479
NORTH CENTRAL RESEARCH CENTER	2,315,929	3,942,540	-1,336,923	2,605,617	516,816
WILLISTON RESEARCH CENTER	2,138,645	2,283,878	429,164	2,713,042	481,816
CARRINGTON RESEARCH CENTER	3,901,197	4,270,340	920,952	5,191,292	450,816
TOTAL LINE ITEMS	17,622,293	21,589,676	514,449	22,104,125	2,282,700
BY FUNDING SOURCE					
GENERAL FUND	7,705,087	8,470,309	116,793	8,587,102	2,282,700
FEDERAL FUNDS	0	0	0	0	0
SPECIAL FUNDS	9,917,206	13,119,367	397,656	13,517,023	0
TOTAL FUNDING SOURCE	17,622,293	21,589,676	514,449	22,104,125	2,282,700
TOTAL FTE	73.65	87.26	.00	87.26	17.10

REQUEST DETAIL

Date: 12/13/2006

628 BRANCH RESEARCH CENTERS

Bill#: HB 1020

Time: 06:55:30

Biennium: 2007-2009

Description	Expenditures 2003-2005 Biennium	Present Budget 2005-2007	Budget Request Change	Requested Budget 2007-2009 Biennium	Optional Budget Request
OPERATING EXPENSES					
OPERATING EXPENSES					
GENERAL FUND	0	0	0	0	0
FEDERAL FUNDS	0	0	0	0	0
SPECIAL FUNDS	0	0	0	0	0
TOTAL	0	0	0	0	0
SPECIAL LINES					
DICKINSON RESEARCH CENTER	4,173,872	5,575,870	217,614	5,793,484	155,816
CENTRAL GRASSLANDS RESEARCH CENTER	1,734,399	2,347,297	-269,967	2,077,330	219,478
HETTINGER RESEARCH CENTER	1,708,667	1,821,657	417,393	2,239,050	219,479
LANGDON RESEARCH CENTER	1,649,584	1,348,094	136,216	1,484,310	238,479
NORTH CENTRAL RESEARCH CENTER	2,315,929	3,942,540	-1,336,923	2,605,617	516,816
WILLISTON RESEARCH CENTER	2,138,645	2,283,878	429,164	2,713,042	481,816
CARRINGTON RESEARCH CENTER	3,901,197	4,270,340	920,952	5,191,292	450,816
TOTAL	17,622,293	21,589,676	-685,551	22,104,125	2,282,700
SPECIAL LINES					
GENERAL FUND	7,705,087	8,470,309	116,793	8,587,102	2,282,700
FEDERAL FUNDS	0	0	0	0	0
SPECIAL FUNDS	9,917,206	13,119,367	397,656	13,517,023	0
TOTAL	17,622,293	21,589,676	514,449	22,104,125	2,282,700
FUNDING SOURCES					
GENERAL FUND	7,705,087	8,470,309	116,793	8,587,102	2,282,700
FEDERAL FUNDS	0	0	0	0	0
SPECIAL FUNDS	9,917,206	13,119,367	397,656	13,517,023	0
TOTAL FUNDING SOURCES	17,622,293	21,589,676	514,449	22,104,125	2,282,700

CHANGE PACKAGE SUMMARY
628 BRANCH RESEARCH CENTERS
Biennium: 2007-2009

Bill#: HB 1020

Date: 12/13/2006

Time: 06:55:30

Description	FTE	General Fund	Federal Funds	Special Funds	Total Funds
AGENCY BUDGET CHANGES					
Cost To Continue	.00	-148,207	0	-2,875,128	-3,023,335
1 OTHER REV	.00	0	0	1,200,000	1,200,000
2 OPERATING INCREASES	.00	0	0	0	0
3 2007-09 MAJ CAP PROJ	.00	0	0	701,000	701,000
4 REVOLVING EQUIP FUND	.00	265,000	0	0	265,000
5 BASE EQUIPMENT OVER 5000	.00	0	0	1,371,784	1,371,784
Agency Total	.00	116,793	0	397,656	514,449
OPTIONAL REQUEST					
10 OPT 15 PCT INCR	17.10	2,282,700	0	0	2,282,700
Optional Total	17.10	2,282,700	0	0	2,282,700

BUDGET CHANGES NARRATIVE

628 BRANCH RESEARCH CENTERS

Date: 12/13/2006

Time: 06:55:30

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

Increase/decrease in other revenue OR portion of additional 2007-09 costs that will be funded through additional revenues, other than tuition.

Hettinger

Hettinger requests and increase in authorization for the 2007-2009 bienium for HREC. As we grow the "Southwest Feeders" project and start evaluating our post program use of CRP lands this will involve in the increased sales of livestock.

Carrington

The requested increase in authorization for the Carrington Research Extension Center is a result of the department's expanded beef feedlot research program. The CREC continues to increase the number of beef feedlot research trials conducted each year. Each trial requires a significant amount of resources for research operational expenses in addition to the need to purchase cattle for selected trials.

Williston

The Williston Research Extension Center requests an increase in funding authorization for operating costs, to reflect anticipated increases in gifts, grants, contracts and agricultural product sales. We anticipate agricultural product sales to increase from Foundation seed due to increased pure seed production of peas, lentils, safflower and flax in addition to small grains pure seed production and expected increased income from the MonDak Irrigation Research and Development Project land in Nesson Valley (four 40-acre linear irrigation systems). We also anticipate an increase in gifts and grants because of the irrigation research that will be conducted in the MonDak Irrigation Research and Development Project, and research support for malt barley development, durum variety development, pulse crop research and other crop research for the MonDak region.

Change Group: A	Change Type: A	Change No: 2	Priority: 1
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OPERATING INCREASES -

This change package was not used.

Change Group: A	Change Type: A	Change No: 3	Priority: 1
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2007-09 MAJ CAP PROJ -

All details of the major capital projects are included in the Capital Assets subschedule.

Change Group: A	Change Type: A	Change No: 4	Priority: 1
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REVOLVING EQUIP FUND -

The NDSU Research Extension Centers have a total of \$265,000 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 2007-09 and 2005-07:

To:
2007-09
Hettinger \$88,334
Streeter \$88,333
Langdon \$88,333

From:
2005-07 Note: The following changes are included in the "cost to continue" adjustments, rather than this change pkg.
Dickinson (88,333)
Williston (\$88,334)
Carrington (\$88,333)

Change Group: A	Change Type: A	Change No: 5	Priority: 1
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BASE EQUIPMENT OVER 5000 -

Equipment over \$5,000 that is included in the base budget request.

Change Group: A	Change Type: A	Change No: 100	Priority:
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OMB Equipment and Operating Pool -

The executive recommendation authorizes \$384,900 general funds to establish an equipment pool and operating pool for use by the Research Extension Centers.

Equipment Pool – A revolving fund for equipment purchases allows the Research Extension Centers to maintain their equipment base. Establishment of this fund has allowed each REC to purchase expensive research equipment on a timely basis, with a degree of regularity. In order to effectively purchase both field and laboratory equipment, which is extremely difficult using competitive grant funds, reasonable resources are needed for the Main Station and REC’s to utilize the funds successfully.

Operating funds – A formula of \$6,100 per scientist year (SY) has been used for allocating operating funds to departments on the Main Station. The costs associated with conducting research important to the state continues to increase. An increase in the formula funding to \$10,000 per SY is needed to stay in line with inflation and should be sufficient for several years. In addition, increased operating funds for the REC’s are needed to offset increases in fixed operating costs, including energy.

Change Group: A	Change Type: A	Change No: 101	Priority:
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OMB Research Extension Center Support Staff -

The executive recommendation authorizes 7.0 FTE and \$462,800 general funds for the following:

Research Extension Centers have a need for additional office support staff to deal with the changing and increasing demands of today’s workplace. Decentralization and an increase in record keeping for compliance issues, regulation, scheduling, accountability, data management, and other facets of the ever-changing technologies place extreme pressure on a reduced workforce to remain current. This was ranked #2 on the SBARE priority list.

Change Group: A	Change Type: A	Change No: 102	Priority:
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OMB Scab / NDAWN -

The executive recommendation authorizes \$75,000 general funds to address the following issue:

Increased operating funds for breeding/genetics, plant pathology, cereal quality, and entomology research programs to enhance efforts on Scab resistance, pest management, improved quality, and NDAWN support / field scouting. Scab / NDAWN was ranked number 3 on the SBARE priority list.

Change Group: A	Change Type: A	Change No: 103	Priority:
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OMB Pulse Improvement -

The executive recommendation dedicates \$190,000 general funds and 1 additional FTE to enhance the Pulse Improvement program. A new assistant breeder/agronomist position to be located at the North Central Research Extension Center will aid the effort to develop improved varieties and evaluate appropriate production techniques. Pulse Improvement was ranked number 3 on the SBARE priority list.

Change Group: A	Change Type: A	Change No: 104	Priority:
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OMB North Central Exp. Station Laboratory Project -

The executive recommendation approves \$400,000 general funds (one-time payment) to complete the laboratory project authorized by the 2005 Legislative Assembly at the North Central Research Extension Center.

Change Group: O	Change Type: A	Change No: 10	Priority: 10
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OPT 15 PCT INCR -

An increase of \$8,295,600 or 15 percent over the 2005-07 general fund base, would provide funds to address priorities of the State Board of Agricultural Research and Education and related needs of North Dakota agriculture. The Branch Research Centers are including \$2,282,700 (of the \$8,295,600) in their optional package.

SBARE ranked all of the projects for Extension, Main Station, and Branch Stations together since a lot of the projects are joint efforts. Please refer to the ranked projects by reviewing the narrative in all of the agencies.

SBARE Ranking Branch REC's-\$2,282,700 (NDSU Main Research Center - \$2,777,100.)

#1 ranked: AES Equipment and operating pool
 \$940,000 Total General Fund Increase
 (\$490,000 equipment and \$450,000 operating)
 Main Station \$355,000 equipment
 Hettinger \$11,666 equipment
 Streeter \$11,667 equipment
 Langdon \$11,667 equipment
 North Central \$100,000 equipment

Main Station \$200,100 operating
Dickinson \$35,700
Central Grasslands \$35,700
Hettinger \$35,700
Langdon \$35,700
North Central \$35,700
Williston \$35,700
Carrington \$35,700

Equipment Pool – A revolving fund for equipment purchases has been extremely successful for the Research Extension Centers to maintain their equipment base. Establishment of this fund has allowed each REC to purchase expensive research equipment on a timely basis, with a degree of regularity. In the 2005-07 Legislative session, a small amount of funding (\$50,000 to the Main Station for equipment) was used to establish a similar revolving fund for the research departments on the Main Station. In order to effectively purchase both field and laboratory equipment, which is extremely difficult using competitive grant funds, reasonable resources are needed for the Main Station and REC's to utilize the funds successfully.

Operating funds – A formula of \$6,100 per scientist year (SY) has been used for allocating operating funds to departments on the Main Station. The costs associated with conducting research important to the state continues to increase. An increase in the formula funding to \$10,000 per SY is needed to stay in line with inflation and should be sufficient for several years. In addition, increased operating funds for the REC's are needed to offset increases in fixed operating costs, including energy.

#2 ranked: REC support staff
\$462,800 Total General Fund Increase
(\$462,800 Salary and Fringe benefits, 7.0 new FTE - (1 FTE at each Branch Station)

Support Staff (7) – Research Extension Centers have a desperate need for additional office support staff to deal with the changing and increasing demands of today's workplace. Decentralization and an increase in record keeping for compliance issues, regulation, scheduling, accountability, data management, and other facets of the ever-changing technologies place extreme pressure on a reduced workforce to remain current.

#2 ranked: Bio-products/bio-energy development
\$400,000 Total General Fund Increase
(\$120,000 salary and fringe benefits, .6 new FTE) – Engineering Faculty Main Station
(\$100,000 salary and fringe benefits, 1.0 new FTE) – Research Specialist Main Station
(\$80,000 salary and fringe benefits, .4 new FTE) – Economics Faculty Main Station
(\$100,000 Main Station operating funds)

Engineering faculty position (60% research:40% Extension) Focus in biomass-based systems which hold great potential for becoming the preferred sources for liquid fuels. Needed research will focus on harvest, collection, and transport systems for raw products including crops, crop residues, animal production co-products, by-products from food processing, etc. Additional work will focus on conversion systems (engines, gasifiers, etc.) that will improve efficiency of conversion of cellulosic and other materials to liquid fuel and other products.

Research specialist to assist faculty position.

Economics faculty position (40% research:60% Extension) focus in determining production costs, logistics, and market analysis for bio-based products. Working closely with colleagues throughout the university system, research would lead to the development of efficient processes for supply chain management and for efficient processing strategies.

#3 ranked: Scab (operating, NDAWN, etc.)

\$625,000 Total General Fund Increase
((\$425,000 operating scab)
Main Station Operating \$350,000
Langdon Operating \$25,000
Carrington Operating \$25,000
North Central \$25,000

(\$200,000 operating NDAWN)
Main Station Operating \$200,000

Operating for breeding/genetics, plant pathology, cereal quality, and entomology research programs to enhance efforts on Scab resistance, pest management, and improved quality. Enhanced support of these programs is essential to maintain an advantage over the pest's ability to change and cause major economic losses to the state's farmers, as evidenced by the disastrous outbreaks of scab the last several years.

NDAWN support and field scouting – One research specialist will work on the NDAWN weather network to aid in the development of predictive models for disease development and to distribute timely weather information needed by producers to determine timing of pesticide application. Crop scouts located throughout the state will aid in identifying development of scab in various production regions in the state. Disease development will be monitored and compared to predictive crop models – these highly successful forecasting models continue to be improved as additional information is added to the model.

#3 ranked: Pulse improvement

\$470,000 Total General Fund Increase
(\$200,000 salary and fringe benefits, 1.0 new FTE Faculty) - Main Station
(\$150,000 salary and fringe benefits, 1.0 new FTE assistant breeder) - NCREC
(\$120,000 operating funds for pulse program)
Main Station operating \$80,000
North Central operating \$40,000

Pulse improvement program – North Dakota has experienced rapid growth and continued interest in the pulse industry. Acreages of pea, lentil, and chickpea have increased dramatically, particularly in the central and western regions of North Dakota. North Dakota leads the nation in pea production and acreage will continue to increase as demand continues. Pea production provides many benefits to the soil and environment and is an excellent protein source for livestock feed. A faculty position at the Main Station is needed to develop improved varieties of pea, lentil, and chickpea that are adapted to the northern Great Plains. Assistant breeder/agronomist to be located at NCREC will aid the effort to develop improved varieties and evaluate appropriate production techniques.

#4 ranked: Waste management

\$280,000 Total General Fund Increase
(\$160,000 salary and fringe benefits, .8 new FTE) Main Station
(\$84,000 salary and fringe benefits, .6 new FTE) Carrington
(\$36,000 operating funds)
Main Station \$24,000 operating
Carrington \$12,000 operating

Engineering (80% research:20% Extension). A faculty member in Ag and Bio-systems Engineering will focus on development of innovative waste management systems with an emphasis on developing uses and products from wastes that can generate revenue for the enterprise, innovative facilities that will minimize odors, and reduce costs for production.

Waste management specialist (60% research: 40% Extension) located at Carrington. To work with animal production, feedlot, engineering colleagues, and livestock producers in developing economical and efficient systems.

#5 ranked: Host resistance and pest research

\$700,000 Total General Fund Increase

(\$700,000 salary and fringe benefits, 7.0 new Research Specialists FTE @ \$100,000 each)

2 FTE Main Station, 2 FTE Williston, 1 FTE Carrington, 1 FTE North Central, 1 FTE Langdon

Host resistance and pest biology – research specialists (7) will enhance ongoing efforts to more rapidly develop varieties with improved resistance to wheat and barley scab and other diseases affecting major crops in the state and to understand the biology of the pathogens important to the cropping systems present in the state. Two specialists will be located at Fargo(Main Station), two at Williston REC (one to focus on barley improvement with supervision from Main Station scientists), one each at CREC, NCREC, and LREC.

#6 ranked: Swine specialist

\$100,000 Total General Fund Increase

(\$80,000 salary and fringe benefits, .4 new FTE) - Main Station

(\$20,000 operating) - Main Station

Swine specialist – At one point in time, North Dakota produced over 500,000 market hogs per year and had more than 2000 producers. Presently North Dakota produces 160,000 market hogs and has 450 producers. However, because of its economic impact, interest in increasing swine production in the state has grown recently. Each dollar of return from pigs marketed turns over 3.49 times for feed, labor trucking, vet service, utilities, etc. This industry needs technical expertise, management assistance and an unbiased resource that can help the state develop its hog industry. A swine specialist that is 60% Extension: 40% research is needed to fill this role.

#7 ranked: Livestock development

\$58,000 Total General Fund Increase

(\$40,000 salary and fringe benefits, .2 new FTE) - Main Station

(\$18,000 operating) - Main Station

Livestock industry specialist (80% Extension: 20% research). There are many driving forces including the desire of many ag producers to grow their existing enterprises and/or to diversify their operations, utilization of potential feedstuffs that presently are shipped to other states for their livestock operations, opportunities to enhance production of feedstuffs to service a growing ND industry, use of co-products emerging from the rapidly expanding bio-energy/bio-products enterprises as feedstuffs, utilization of grazing capacity in range and managed areas. A faculty position will continually work with colleagues and industry to evaluate opportunities and to provide information that can be used for timely decision making.

#7 ranked: Pest Management

\$128,000 Total General Fund Increase

(\$128,000 salary and fringe benefits, .8 new FTE) - Carrington

Area Pest Management Specialist – This 80% research: 20% Extension position is critically needed to provide information to area growers affected by crop diseases. The position will be located at the Carrington REC. The CREC is located in the center of great crop diversity, an area that has been greatly affected by severe outbreaks of many major diseases.

#8 ranked: Pest application research

\$90,000 Total General Fund Increase

(\$90,000 salary and fringe benefits, 1.0 new FTE, Research Specialist) - Main Station

Improving pesticide application efficiency – One research specialist is needed to continue efforts identifying best methods to apply pesticides effectively and efficiently to control scab.

#9 ranked: Livestock/range

\$322,000 Total General Fund Increase

(\$294,000 salary and fringe benefits, .7 for each of the 3 new FTE @ \$98,000 each)

3 FTE - 1 FTE Streeter, 1 FTE Hettinger, 1 FTE Main Station

(\$28,000 operating)

Main Station \$12,000

Central Grasslands \$8,000

Hettinger \$8,000

Three livestock/range specialists (70% research: 30% Extension) to compare whole systems management of organic, natural, grass-fed, and conventional beef production systems, as well as the relationship of these systems on the environment. Help determine market causes affecting cattle sales. Feedlot research will focus on evaluating co-product use for efficient livestock production. One specialist will focus on animal health issues. The specialists will be located at the Central Grasslands REC near Streeter, Hettinger REC, and the Main Station.

#10 ranked: Irrigation

\$180,000 Total General Fund Increase

(\$180,000 salary and fringe benefits, 1.0 new FTE, Research scientist) - Williston

Irrigated agriculture is becoming increasingly important in NW North Dakota, with high value crops evident in the region. One research scientist is needed to evaluate irrigated production practices in ND, stationed at WREC.

#11 ranked: Food industry

\$250,000 Total General Fund Increase

(\$120,000 salary and fringe benefits, .6 new FTE Faculty) - Main Station

(\$100,000 salary and fringe benefits, 1.0 new FTE Faculty) - Main Station

(\$30,000 operating funds) - Main Station

Faculty position (60% research:40% Extension) Position in enhanced processing of existing and new crops. Will have expertise in processing/engineering/plant operations. Will work in collaboration with colleagues throughout system to assure that supply chains as well as processing are optimized. Will work in close collaboration with business/marketing and technical associates in agricultural business development program above.

Research specialist to assist faculty position.

#12 ranked: Sustainable Agriculture

\$54,000 Total General Fund Increase

(\$54,000 salary and fringe benefits, .3 new FTE) - Dickinson

North Dakotans support current production agriculture, but also see a need to explore long term sustainability. The Dickinson REC is exploring new sustainable agricultural opportunities through research and Extension efforts, including coordination of the Professional Development Program sponsored by the USDA Sustainable Agriculture Research and Education Program. These research and Extension programs will help rural North Dakotans develop new sustainable systems to enhance the economic viability of rural areas and to meet their economic, social and environmental needs within a diversified agriculture. Additional support for these efforts is needed, as is a strong program of direct outreach to farmers and ranchers. One sustainable agricultural specialist (70% Extension:30% research) is needed at Dickinson to provide this support and outreach to southwestern North Dakota.