

The Central Grasslands Research Station: NDSU's Newest Branch Station

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The Central Grasslands Research Station (CGRS), located in Kidder and Stutsman counties, is the newest of the branch stations. The station is located in the physiographic region known as the Missouri Coteau. The Coteau, an area of glacial stagnation which separates the Missouri Plateau on the west from the Drift Prairie on the east, has the unique character of rocky soils and scattered potholes. While many areas of the Coteau have been converted to cropland, much of this area is best suited for grass production.

The force behind the establishment of the CGRS was the North Dakota livestock producers, particularly those situated in the Coteau area of North Dakota. In 1975, Senate Bill 2425 was introduced. Bill 2425 passed the Agricultural Committee of the Senate, but failed to pass the Appropriations Committee of that body. In 1976 Dr. K.A. Gilles, vice president for agriculture at North Dakota State University, requested a feasibility study. Details from this study were used to justify inclusion of facility and operating funds in the initial budget request prepared by the Agricultural Experiment Station for the 1977-79 biennium. This budget was recommended for approval by the Consultation Board, but the Board of Higher Education removed the facility and operating budget for the CGRS before approving the biennial budget for the Agricultural Experiment Station.

During the 1977 legislature, House Bill 1528 was introduced, passed, and ultimately signed into law. The features of this bill included the establishment of a committee to implement the bill. The guidelines developed to facilitate the selection process were that the station be located in Stutsman, Kidder or Logan counties with soils and topography representative of the area and that the site be accessible to the public. Acreage at the site was to be 50 to 60 percent native range and remainder suitable for cropland and tame hay production. Parcels of land would be considered from any willing seller.

Twenty-seven parcels of land were offered as potential sites. The quality of land ranged from undesirable to highly desirable. The suitability of buildings and the sellers' price represented a broad spectrum. On May 9, 1978, the committee reviewed the botany, soils, and appraisers' reports and selected a 5336-acre contiguous site in Kidder and Stutsman counties near Lake George (Salt Lake) in the vicinity of Streeter, North Dakota. On May 12, 1978, a verbal agreement in principle for the sale of the site was negotiated with the two owners and their representatives.

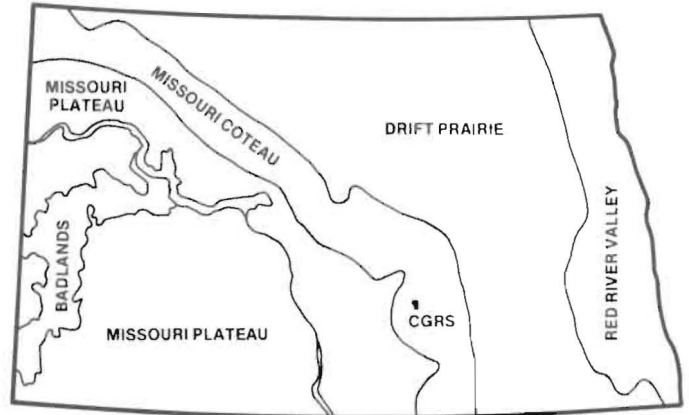


Figure 1. Major physiographic subdivisions of North Dakota.

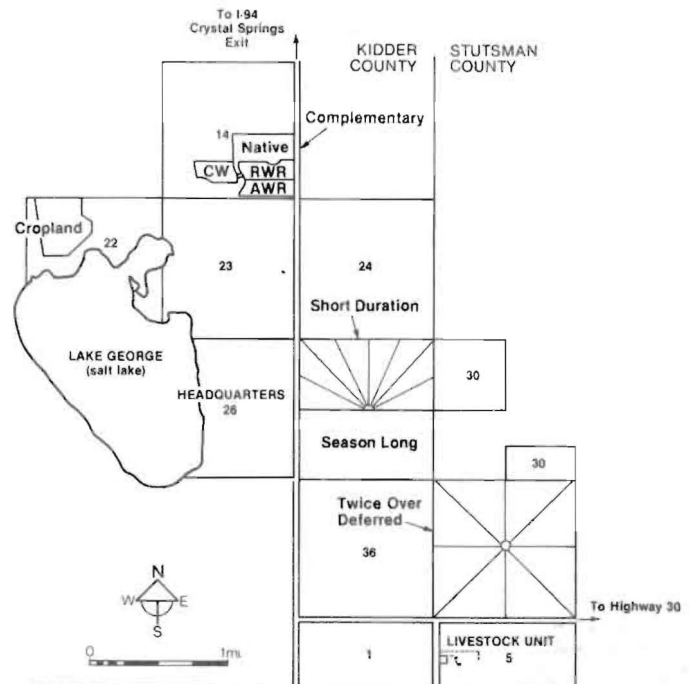


Figure 2. Map of the 5335 acre Central Grasslands Research Station, NDSU's newest branch station.

The Forty-Sixth Legislative Assembly appropriated the funds to complete the purchase of the 5335 acres of land. However, they did not appropriate money for operating the experiment station. Due to the lack of operating funds, the crop and rangeland was leased to the previous owner. Permission was granted by the Emergency Commission to use this income to support the preliminary investigations by the Botany, Soils, Animal Science, Agricultural Economics and Horticulture Departments at North Dakota State University. Finally, the Forty-Seventh Legislative Assembly appropriated an operating budget for the station. This included the hiring of three full-time personnel: a superintendent, one research scientist and one technician.

RESEARCH EMPHASIS AND DEVELOPMENT

In the fall and winter of 1981, a list of prioritized goals was established for the station. Selecting a foundation cow herd and developing research projects were the top priorities. Several research projects were established during this time. Fencing was started on Section 25 in preparation for the



Figure 3. Livestock sorting pens in the spring of 1983 before renovation work began.

short duration grazing system, Section 31 was set aside for the four-pasture twice-over grazing trial and plans were made for reseeding the areas which had been previously cropped. Section 14 was selected for the complementary grazing trial and plans were made to reseed the 90 acres of cropland in the SE 1/4 of that section.

Starting in mid-October, the CGRS began its search for a suitable set of bred females to be used as a foundation for establishing a commercial cow herd. Personnel at the CGRS, Animal and Range Science Department at North Dakota State University and at other branch stations established criteria to use in selecting the foundation herd.

The criteria recommended young cattle, North Dakota bred if possible, all yearling heifers or young cows of top quality if yearling heifers were not available. The plan was to buy cattle of one breed or breed-cross to obtain as much uniformity as possible and obtain cattle of the highest quality (while staying within budget constraints) with emphasis on performance. After careful consideration of the guidelines, 159 head of bred Hereford heifers were selected.

The second priority was the development of adequate livestock facilities. In January 1982 plans were presented to the Advisory Board for the new livestock facilities. This plan would develop the site on Section 6 as the livestock unit. The uniform exposure and slope coupled with better drainage made this site a logical choice. Funding for this project was allocated during the 1983-85 biennium.

The third priority concerned the need for personnel to complete the research and construction work planned. Additional funds were transferred to salaries to hire part-time staff allowing for better utilization of time and money. A request was included in the 1983-85 budget for two technicians and one professional.

CURRENT RESEARCH

The goal of the CGRS is to provide a field laboratory whose primary purpose is range and livestock research. Since its establishment, the station has cooperated on research projects with eight departments at North Dakota State University as well as two federal agencies. It has also

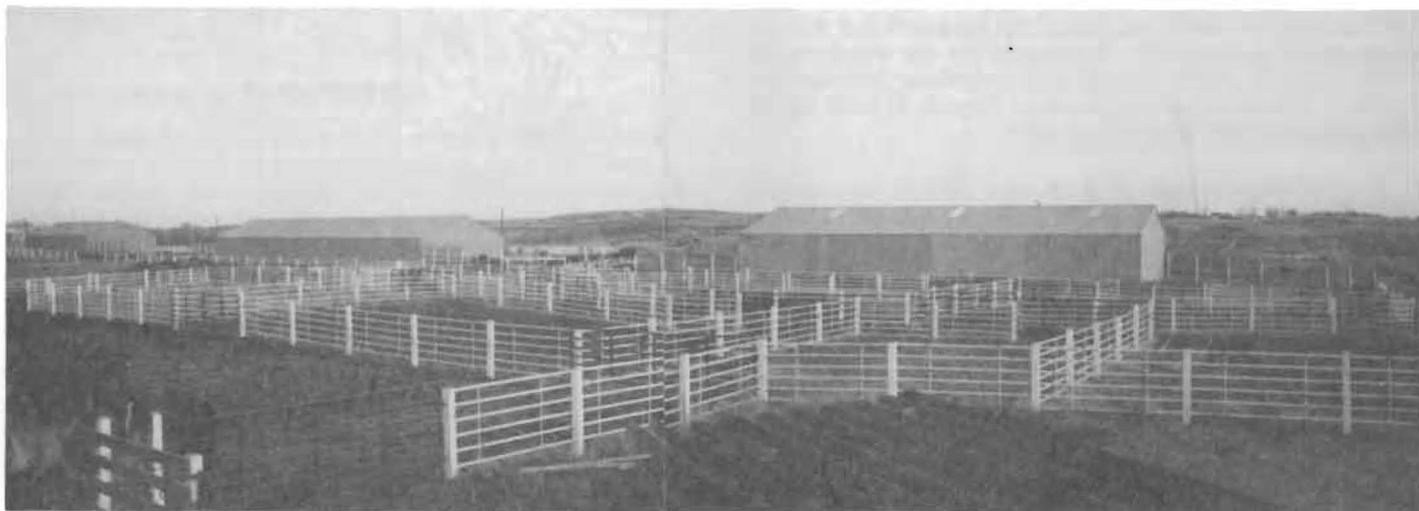


Figure 4. New livestock handling facilities and feeding pens at the CGRS.

received funding for research from the North Dakota Game and Fish Department and the North Dakota Beef Commission.

The primary research emphasis at the CGRS focuses on agricultural problems of interest to the producers in the Coteau area of North Dakota, although much of this information will be of considerable value to producers throughout North Dakota and the nation.

Rangeland and Pasture Management Research

Currently, the station is cooperating with the Animal and Range Science Department on three major grazing trials. These include the four-pasture twice-over, short duration and complementary grazing trials. These studies will examine, in depth, the animal and plant responses to the different grazing systems and compare them to a seasonlong grazing pasture. In addition to these studies, a two-pasture "switch back" grazing system trial was started in the spring of 1986.

In 1985 the CGRS began a new series of adaptation trials to compare the productivity of 57 varieties of grass and 36 varieties of alfalfa and will compare newly released varieties of grasses and legumes with older, more established varieties that are usually grown in the Coteau area. In addition, a row spacing research trial, including five grasses and two legumes, seeded in 6, 12, 24, 36, and 48-inch row spacings, was designed to evaluate the effect of row spacings on herbage production and quality of seeded grasses and alfalfa's.

During the summer of 1985, extensive denuded areas were noted at the CGRS and surrounding area resulting from an infestation of June bug larvae (*Phyllophaga* spp.). A survey was conducted on 720 acres of native range to determine the extent of the infestation at the station. The results of the survey revealed that 14.2 percent of the surveyed area had been damaged by the insects. A study is now underway to assess changes in the production and composition of the affected plant community.

In recent years there has been an increased interest among producers concerning the cost and returns of each segment of their ranch operation. Some producers have questioned whether Class IV and VI land would be more profitable as cultivated land or seeded to a perennial forage harvested by domestic livestock. To answer these questions, an economic comparison trial is now in progress and will compare two areas of similar soils and topography: one continuously cropped in a small grain rotation, while the other supports introduced and native grasses grazed in a complementary system.

Livestock Research

A study to evaluate a natural growth promotant for steers began in the spring of 1985 to compare the use of testicular tissue implants, alone and in combination, with Compudose in castrated calves.

The entire 1983 steer calf crop was randomly sorted into four treatment groups across all grazing trials for the 1985 grazing season according to birth date, age and breed of dam, and sire.

The four groups were: Group I - control, no implant; Group II - Compudose implant; Group III - Compudose and testicular implant, and Group IV - testicular implant.

Wildlife Habitat and Nesting Studies

Two wildlife habitat and nesting studies are being conducted to compare habitat and nesting success within different grazing systems.

Other research investigations at the CGRS include the evaluation of the survival and performance of 123 varieties of poplar seeded in a single row and 6 varieties of conifers seeded in a nine-row shelterbelt. Studies to determine the amount of stored soil moisture accumulated throughout the year are also in progress.

LOOKING AHEAD

Future research at the CGRS will continue to emphasize the forage base and the effect its management has on the cow-calf unit. Livestock research will concentrate on cow herd management and studies involving the calf crop to give practical solutions to problems of interest to local producers. Future research projects will concentrate on improving the efficiency of the total ranch operation. Greater emphasis will also be placed on studies to evaluate methods of stabilizing forage production through dry years and build more flexibility into the livestock program.

The research program at the CGRS will remain as flexible as possible to accommodate new problem areas which, at this writing, have yet to be defined. We must, however, address current problems and design research projects to find practical solutions.

The CGRS publishes an annual report each year. Included in this document is a summary of each research trial under investigation. These can be obtained by writing to the CGRS, Box 21, Streeter, North Dakota 58483 or by contacting your local county extension agent. In addition, the CGRS holds an annual field tour on the last Wednesday of June.