

NDSU Central Grasslands Research Extension Center

Enhancing Livestock Production while Improving Ecosystem
Services and Conservation of Grasslands



Our Mission

- ◆ Conduct research and provide Extension programming to enhance the economic return of grazing lands and forages while promoting ecosystem services and land conservation
- ◆ **North Dakota's #1 commodity is Range and Pasture at 9.46 million acres** (USDA, FSA 2024)
 - ◆ Mixed forages #5 (2.9 million acres). Wheat #2, soybeans #3, and corn #4 ranking
- ◆ Our goal is:
 - ◆ Develop grazing management strategies and identifying best forage options that enhance the lives of the ranching community while revitalizing rural communities
 - ◆ Study integrated grazing management strategies on range and cropland that regenerates our natural resources (increase carbon capture, increase bio-diversity, reduce water pollutants, and improve soil biology)
 - ◆ Develop best grazing management practices that enhance ecosystem services and livestock production
 - ◆ Assess impacts of management of beef cattle on reproduction and fetal development
 - ◆ Train our Extension agents, land managers, decision makers, and industry leaders

Thank you to the 67th and 68th Legislative Assembly for their support of Central Grasslands REC

- ◆ **Capital projects: completed the livestock research facility and will complete the director's residency in 2025**
- ◆ **Generous compensation and equity adjustment package, and continued support for deferred maintenance and equipment from the 68th Assembly**

Needs for 2025-2027:

- ◆ **We support SBARE Priority Initiative #4 for the NDAES on increasing the operating budget. CGREC operating costs increase by 34% (+\$119,000/year) from 2020 to 2024.**
- ◆ **We support the NDAES Capital Improvement Request #3: Storage Sheds**

Selected Impacts and Private/Public Values

1. Regenerative grazing using rotational grazing with variable grazing intensities

- ◆ Increased harvest efficiency by cattle of 37.6 percent (4-year average).
 - ◆ **Creates added value to the land by 21 lb of beef per acre. At \$3/lb calf prices, this equates to \$63 in added value per acre**
- ◆ USDA, NRCS showed an adoption rate for rotational grazing at 47 percent for the Northern Plains in 2023
 - ◆ **If only 10% of these ranchers adopted this grazing strategy, we would see an increased revenue by these ranchers of ~ \$59.4 million annually in North Dakota.**
- ◆ Temporally heavy grazing increased all soil microbiome complexities, with any grazing level enhancing soil storage of total and organic carbon.
 - ◆ **Grazing can create healthier soils, better nutrient cycling, and cleaner water**
- ◆ Enhanced conservation of the land

2. Patch-burn grazing

- ◆ Increased forage quality by 25% and mineral concentration by 50 to 100%.
 - ◆ **Creating an increased calf performance by 0.14 lb/day (4-year average), equating to an increase of \$14.28/acre in gross revenue**
- ◆ Created the greatest conservation in bird diversity and pollinator habitat.

3. Precision Agriculture (Virtual Fencing)

- ◆ Central Grasslands REC was the first to bring the technology to North Dakota in 2022
 - ◆ **We are leaders in the nation testing this technology. We've collaborated with the School of Natural Resource Sciences and Animal Sciences, as well as the Carrington REC, Dickinson REC, Hettinger REC, and 2 private ranches using 23 herds and almost 3,300 acres. We expect 15 to 20 producers to adopt the technology in 2025.**
- ◆ Classic model of research development > Extension programming > Delivery > Adoption

4. Extension Programming

- ◆ Extension programming tied to CGREC had 4,333 direct contacts at 89 events, with an indirect reach of 1,319,105 people.
 - ◆ **The state's BQA program is led by our Livestock specialist (Lisa Pederson). This program certified over 300 producers and 15,000 head of cattle in 2024, adding over \$1.5 million in added value to those North Dakota producers.**

5. Workforce Development

- ◆ Will graduated 32 PhD and MS graduate students since 2019
- ◆ Trained over 100 undergraduate students by providing summer technician positions