Agricultural Experiment Station

Clayton Livestock Research Center

claytonsc.nmsu.edu | 575-374-2566

The center was established in the mid-1970s on 320 acres of Kiowa National Grassland, Cibola National Forest, and is located 7 miles east of Clayton, NM on Highway 56/64/412. The CLRC was built to simulate real-world production at a commercial feedlot. The research focus at the CLRC Center has historically been to improve the health of newly received lightweight calves and improve health and performance for backgrounding and finishing cattle.

The research center also provides professionally managed, specialized cattle feeding research contracts to the livestock industry for product development and research trials to get FDA approval for developed products to reach out to the producers. Up until 2020, the CLRC was the largest feedlot research center in the country.

VISION

Inspiring the future of beef through livestock health and climate-smart production.

MISSION

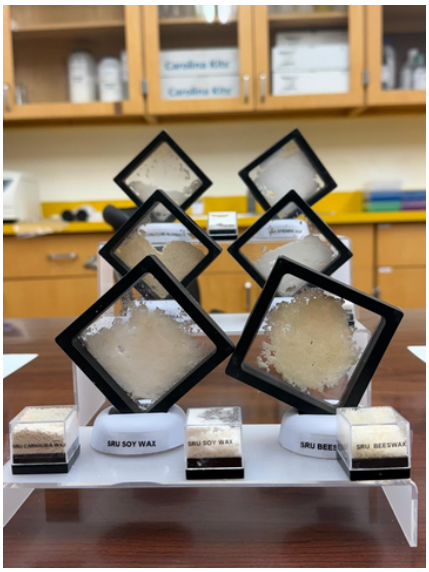
The mission of the Clayton Livestock Research Center is to improve livestock health, well-being, nutrition, and performance through the development of innovative diet formulation, health protocols, and livestock management systems that support healthy communities, a sustainable environment, and a robust industry.

VALUE ADDED TO NEW MEXICO

- Food animal research
- Climate- conscious beef cattle production
- Livestock health
- Sustainable managerial intervention

ONGOING RESEARCH

Scientists at the CLRC conduct research on stress-inducing protocols for cattle (e.g.: shipping, smoke inhalation, receiving), particularly evaluating the health and performance of newly received cattle and nutrition and management from birth to slaughter. They also conduct research that involves irrigated pastures, native grasslands use, and natural resource mitigation use. Additional research projects include a focus on three areas: Climate change and water usage by cattle, environmental stress on epigenetic regulation of production outcomes, and nutrient availability at the time of need. Collaborative efforts with Brazilian scientists at the Universidade Federal de Campina Grande and Universidade Federal do Piauí have launched an investigation into microencapsulation of nutrients and biopolymers for improving the use of water resources under the Ogallala Aquifer.



The College of Agricultural, Consumer, and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research and Extension programs.

claytonsc.nmsu.edu
Research Director: Mozart Fonseca|mozart@nmsu.edu

RECENT IMPACTS

- With increasing scrutiny on freshwater availability, CLRC research has focused on understanding and optimizing water usage in cattle production. Current research is developing the Water Evaluation System (WES), a mechanistic model to accurately assess water requirements for livestock, factoring in environmental extremes and diet composition. These studies are critical for ensuring sustainable water use in regions reliant on the Ogallala Aquifer, such as Northeastern New Mexico. By monitoring water consumption and developing predictive tools, researchers aim to minimize water footprints while maintaining productivity.

- Recent wildfires in the Texas Panhandle have highlighted the need for understanding how environmental stressors like wildfire smoke affect cattle health and performance. Work at CLRC is exploring the epigenetic mechanisms, specifically DNA methylation, which may link environmental stress to long-term production outcomes. These insights are essential for mitigating the economic impact of environmental variability, particularly in newly received calves. The Center is also investigating how these stress-induced changes affect feed efficiency and health outcomes.

- Advancements in microencapsulation technologies at CLRC are optimizing nutrient delivery, particularly for nonprotein nitrogen, fats, and amino acids. Research shows that slow-release urea and protected fats enhance feed efficiency and improve health outcomes. Additionally, the Center is studying the impacts of nutrient protection on reducing inflammation and improving long-term animal performance, which holds significant promise for enhancing cattle resilience to fluctuating nutrient availability and environmental stresses.

COMMUNITY OUTREACH

The CLRC's community outreach focuses on sustainable cattle production, addressing challenges in water usage, environmental stress, and nutrient management. By sharing research findings on the Water Evaluation System (WES) for efficient water use, and the effects of environmental stress on livestock health, the center provides valuable insights to local producers. Outreach efforts also highlight the benefits of advanced nutrient delivery technologies, such as microencapsulation, to improve animal performance and health. Additionally, CLRC staff actively engage with the regional community through educational workshops, local organizations, and service projects, ensuring that research translates into practical benefits for New Mexico's agricultural industry.