Clayton Livestock Research Center

Research Snapshot

COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

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Agricultural science research is a global investment in protecting the future of our state. Agriculture in New Mexico accounts for approximately $4 billion in direct sales and 42,000 jobs. Challenges to growers and ranchers are constant and evolving. Invasive pests, a decline in species diversity, pollinator health, resistance to pesticides, and limited water are needs that are being addressed by New Mexico State University's Agricultural Sciences Centers. The wide diversity of both growing conditions and cultures means solutions must be developed locally in conditions that reflect those faced by New Mexicans.

CLAYTON LIVESTOCK RESEARCH CENTER

Scientists at the Clayton Livestock Research Center (CLRC) are researching shipping protocols for cattle, particularly evaluating the health and performance of newly received cattle and nutrition and management from entry to slaughter. Other research involves irrigated pastures and native grasslands, including grazing and stocking densities on locoweed-infested pastures. Several management decisions in the feedlot industry and recommendations in the Nutrient Requirements of Beef Cattle are a result of research conducted at the CLRC.

UNDERSTANDING THE NEED FOR RESEARCH

The CLRC has concentrated efforts on health and performance of newly received cattle since opening in 1978. A meta-analysis of the data for the 40 years has shown a decrease in morbidity from 46.6% to 29.9% using metaphylaxis (mass medication programs). With the decreased used of antibiotics being a subject of debate over the last decade, the CLRC is evaluating alternatives to antibiotic use to improve the health and performance of newly received beef cattle. The overall goal of the center is to enhance the capacity of beef production systems in the Western United States to improve water use efficiency, minimize losses associated to climate change, sustain rangeland biodiversity and soil carbon, and enhance socioeconomic resilience of rural communities where ranching and/or large feeding operations are key elements of rural communities.

HISTORY OF RESEARCH

A focus of research at the CLRC has been to improve performance of cattle during the finishing period and to improve carcass characteristics. One study used an organic iodine formula applied as a fog to newly received cattle. The cattle were received from the southeastern United States, processed and fogged for 10 minutes while controls were held in a trailer for the same amount of time. No differences were noted in performance or health of the cattle from this study; however, it was a novel attempt to decrease sickness in cattle. Cattle in the northeastern New Mexico region are received from auction markets, private treaty, video auction or retained ownership. Cattle are purchased at a premium if they have been subjected to a preconditioning program. However, producers are relying on unverified information from the producer at the time of purchase and a premium is often paid.

Several finishing studies are in various stages of progress at the CLRC, including looking at implants to enhance feed efficiency and growth rate, grain processing methods to increase starch utilization and alternatives to commingling steers and spayed heifers. After cattle finish growing programs in the state, virtually all are finished in feedlots. These cattle are either sold or ownership is retained by producers during finishing. Cattle producers in New Mexico will benefit from research evaluating management programs during the finishing phase.

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RESEARCH IMPACTS:

- The Clayton Livestock Research Center has focused on the health and performance of newly received beef cattle which costs the industry 2 to 3 billion dollars annually. A meta-analysis of data for the last 40 years will be conducted with Texas Tech University. A study was initiated with the collaboration of the National Animal Disease Center to evaluate preconditioning programs on performance of cattle received on wheat pasture and analysis of nasal samples for *Mannheimia haemolytica* and *Pasteurella multocida*. Data will help to identify management factors that had the greatest impact at reducing sickness of newly received beef cattle both in the feedlot and on irrigated wheat pasture.

- Use of growth-promoting technologies, such as beta-adrenergic agonists and anabolic implants, in the cattle feeding industry as a means to increase production efficiency results in economic returns of approximately $200 million annually. Research at the CLRC continues to evaluate dietary nutrient requirements when growth-promoting technologies are used in feedlot finishing cattle diets.

UNIQUE CHARACTERISTICS:

- The Clayton Livestock Research Center is the only feedlot research facility in the western US with a focus on animal health of ranch cattle.

- Graduate students that conducted research are some of the most influential in the beef cattle industry. All projects are a collaboration with faculty and students from NMSU main campus. Besides the role in university student education, collaboration with industry and other university faculty elevates this station beyond others as is evident from producer support, pharmaceutical company sponsorship, collaboration with regional universities, and international recognition. These graduate students are in positions of influence in most livestock industries and win many academic awards.

- The CLRC has the capability to feed 960 animals at a time and has a functional feed-mill that allows diets to be mixed that align with industry standards. This is also the only feedlot facility that has an irrigated wheat pasture - allowing research to be conducted from growing to finishing.

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