Corona Range and Livestock Research Center

Research Snapshot

COLLEGE OF AGRICULTURAL, CONSUMER AND ENVIRONMENTAL SCIENCES

NM STATE

BE BOLD. Shape the Future.

New Mexico State University

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.

CORONA RANGE AND LIVESTOCK RESEARCH CENTER

The Corona Range and Livestock Research Center (CRLRC) was established in 1988 with a mission to provide a living laboratory for NMSU researchers to investigate methodologies to enhance livestock production, minimize invasive woody shrub species with livestock grazing, and study hydrology events.

UNDERSTANDING THE NEED FOR RESEARCH

Over the years the CRLRC has evolved into a multi-million dollar world-class range livestock research center. The CRLRC located in central NM is representative of 70% of NM lands and 70% of the western states and other rangelands across the world. This gives CRLRC research a global impact on livestock producers and land managers worldwide.

HISTORY OF RESEARCH

Since 1988, Research at CRLRC follows a central theme of low input sustainable livestock production. Areas of emphasis include land management, animal behavior, brush control, rangeland ecology, ruminant nutrition, reproductive physiology, ruminal microbiome development, animal health, and breeding.

Range Management

Research has evolved into quantifying the effects of supplementation, animal genetics, and control of invasive plant species on individual animal behavior with NMSU becoming one of the leading institutions in the use of GPS, VLSA and satellite technology. Data has been collected to determine the economic value of using juniper shrubs, which are considered an aggressive invasive shrub, as a renewable livestock feed component and alternative energy source. Efforts are also dedicated to cataloging and preserving inventories of plant species to determine the impact of drought and climate change on plant species survivability and removal of undesirable noxious or toxic plants to developing holistic ways of changing the species or reclamation of land disturbed during renewable energy development.

Animal Breeding

Projects focused on genetics that perform consistently for NM producers led to the development of a leading Angus herd in birth weight and lower cost of production with a majority of the Angus ranked nationally in the top 1%. In addition, there has been a need for dual-purpose sheep herd that yields a rapidly growing lamb while also producing a high-quality wool fleece, CRLRC imported genetics from South Africa, which led to the development of a crossbred sheep with the ability to increase gross income by 10%.

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HISTORY OF RESEARCH

Ruminant Nutrition and Reproduction

Experimentation has evolved from the determination of macro-nutrients on animal performance to measuring the effects of feeding specific amino acids and other bioactive molecules to elicit consistent and profitable responses for NM producers. Reproduction technology is very important to NM herd producers. Offspring production represents the income source for cattle and sheep producers. Reproductive physiology research now encompasses sophisticated research tools such as artificial insemination, estrus synchronization and the interaction between feeding regimens and calf health in utero.

RESEARCH IMPACTS:

- CRLRC commercial cows continue to lower the standard for body condition needed to conceive. NMSU researchers continue to investigate the mechanisms that tell the cow to initiate cyclicity.
- Ground juniper is a viable feedstuff for ruminants. In cooperation with Texas A&M University, work is being conducted to determine the optimal rate at which ground juniper can be added to ruminant.
- NMSU's Angus breeding program has developed seed stock at the leading edge of the lowest predicted calf birth weights, as well as measuring well outside the PAP score range.
- Leading-edge research in targeted specific bypass amino acid supplementation is developing worldwide, with much of the early investigative work conducted at Corona over the last 20 years.

UNIQUE CHARACTERISTICS

- A new area of research that is being linked to all facets of animal productivity including animal health and immune function. The CRLRC is the only research center that focuses on how the microbiome of the gut and the reproductive tract influences grazing animals.
- The CRLRC is a working ranch laboratory, meaning it is a functional, operational self-sustaining enterprise where research is conducted on a large-scale.
- Large elements of CRLRC are similar to up to 70% of New Mexico rangelands (and much of the Southwest US, Mexico and other arid areas worldwide) in forage type, rangeland sites, precipitation patterns, woodlands, etc. and can be utilized in various ways to ensure confidence in rangeland and range livestock production.

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