Understanding beef bull management in Alberta and predicting health and siring capacity using remote monitoring technology

Reproductive health plays a crucial role in the profitability of cow-calf operations. Bulls must be healthy, fertile and have the desire to breed cows to sire calves. Benchmarking management factors and disease incidence of beef bulls is needed to establish production parameters and to understand where management factors may influence herd production. Furthermore, investigating factors that impact bull health and siring capacity are critical to the success of cow-calf operations. Social and behavioural factors influence bull health and siring capacity and may be critical to the success of cow-calf operations. However, very few studies have investigated bull behaviour or social interactions under commercial ranch conditions and their effect on bull health and fertility. This project is using remote monitoring devices to track bull health, behaviour and breeding activity and relate these behaviours with injury or illness, and siring capacity. The results will provide valuable benchmarking information on bull management and health outcomes as well as the efficacy of smart technologies to improve the health and reproductive efficiency of bulls in cow-calf operations.

Photo credit: Dr. Maria Ceballos Betancourt

FUNDING DETAILS

RECIPIENT:

University of Calgary
PI: Dr. Jennifer Pearson

PARTNERS:

Anderson-Chisholm Chair in Animal Care and Welfare

TOTAL BUDGET:
$265,840

AI FUNDING:
$160,360

PROJECT DATES:
March 2021 – March 2024

PROJECT TRL:
Start: 4
End: 7

APPLICATION

The information gathered from this project will provide evidence-based bull management practices for seedstock and commercial producers to select bulls for greater siring capacity and for early detection of injury or illness. It will help to improve bull management practices and decrease production losses on cow-calf operations.

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PROJECT GOALS

- Develop tools for producers to improve health and reproductive efficiency in their cow-calf operations.
- Benchmark beef bull management and prevalence of disease and injury.
- Describe changes in bull behaviour and health status throughout management periods.
- Monitor bull movement and interactions with other bulls and cows to associate behaviours predictive of siring capacity and negative health events.

BENEFITS TO ALBERTA

- Benchmarking bull management practices and disease and injury incidence will provide useful information to develop a more thorough understanding of standards in the cow-calf industry.
- The application of remote monitoring technologies to assess behaviour and social interactions will improve the profitability of Alberta cow-calf operations by identifying bulls with behaviours associated with greater siring capacity and detecting sick or injured animals earlier in the management system.
- Application of these technologies will also facilitate the development of more efficient methods to manage bulls, such as selecting for more profitable bulls with greater siring capacity and increasing bull longevity.

4 Publications

4 Students Trained

CURRENT STATUS

November 2021

A part-time master's student has been hired and is actively working on developing a survey for cow-calf producers to benchmark bull management strategies. A full-time PhD student will start in January and begin validating collar data with video recordings of bulls and analyzing two years of pre-breeding bull behaviour to associate with siring capacity.