

Clean Resources

Smart Agriculture and Food

FUNDING DETAILS

Development and Validation of Remote Early Disease Identification (REDI) System for Field Application in Commercial Beef Feedlot and Backgrounding Operations

Bovine respiratory disease (BRD) is one of the largest health challenges facing post-weaned beef calves. BRD accounts for ~75% of feedlot morbidity and 50-70% of feedlot deaths. The disease is a complex, multi-factorial syndrome that is triggered by bacterial and viral infections combined with stress. Early and accurate diagnosis is essential to ensure effective treatment. The Remote Early Disease Identification (REDI) system monitors calves for changes in behaviours, including reduced appetite or social isolation, associated to BRD with higher diagnostic accuracy compared to visual observers. The purpose of this project is to define, refine, and validate hardware systems for deployment with REDI in commercial feeding operations. Results from this project will enable widespread adoption of the REDI system for monitoring cattle behaviour and promoting accurate disease diagnosis.



RECIPIENT:

Precision Animal Solutions, LLC

PI: Dr. Brad White



TOTAL BUDGET:

\$538,480



PROJECT DATES:

**March 2021 –
May 2022**



PARTNERS:

Feedlot Health Management Services



AI FUNDING:

\$402,490



PROJECT TRL:

**Start: 4
End: 7**

APPLICATION

The primary target market for the innovation is beef feedlot producers in Alberta and North America. REDI can be used in a variety of production systems and geographic regions, with the initial market opportunity being feedlot systems in Alberta, Canada, the US, and Mexico. Secondary markets for the REDI technology could include other animal agriculture sectors (e.g., dairy cattle and other food animals).

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PROJECT GOALS

- Identify the technical specifications and constraints for employing a hardware system for the remote collection of real-time animal location data in commercial cattle feeding environments.
- Create a hardware system supporting the REDI system designed specifically for cattle, based on the required technical specifications previously identified.
- Evaluate the newly created hardware system through small-scale and medium-scale field tests, including validation of the scalability of the system and hardware through stress testing.

BENEFITS TO ALBERTA

- Reductions in the direct/indirect costs associated with BRD for commercial beef producers located in Alberta who adopt the technology.
- Improvements in cattle welfare and reductions in antibiotics usage in commercial beef cattle operations. This could translate to improvements in the image of Alberta-based commercial beef cattle operations and increase demand for Alberta beef around the globe (i.e., “ethically produced” beef).
- Indirect positive economic benefits on surrounding Alberta communities resulting from improved profitability of commercial beef cattle operations (i.e., increased need for supporting community infrastructure for those who work at commercial operations).
- Creation of jobs for highly qualified and skilled personnel to support the REDI system in Alberta and abroad.



2 Publications



1 New
Product/Service



1 Patent



2 Project Jobs



10 Future Jobs

CURRENT STATUS

May 2021

Since April 2021, the team has been procuring supplies to build ear tag prototypes customized for large-scale commercial cattle feeding settings. Tags will have the ability to capture data related to calves' location and behavior in outdoor environments and transfer the data to a collection system.