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BEEF CATTLE RESEARCH COUNCIL
RESEARCH & TECHNOLOGY DEVELOPMENT FOR THE CANADIAN BEEF INDUSTRY

IN PROGRESS

What can we learn from good feedlot pen checkers?

Project Title:		Project Code:	ANH.19.18
Characterization of visual cues linked to the health status of beef cattle to optimize the identification and treatment of sick animals		**Completed:**	*In Progress. Results expected in May 2021.*
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Background

The accuracy and timeliness of BRD diagnosis determines the likelihood of treatment success. Efforts have been made to develop systems to automatically detect sick feeder cattle, but feedlots continue to rely on pen checkers. Some pen checkers are very effective (and have lower re-pull and death rates) while others may require more experience or training to accurately identify truly ill cattle and improve cattle health outcomes. This project will examine what makes pen checkers successful.

Objectives

Identify human and animal factors that influence the correct identification and decision making of feedlot cattle with BRD.

1. Characterize pen checking methodologies of effective pen riders based on different performance parameters.

2. Develop a video-based survey to evaluate how a broader sample of pen riders prioritize different animal-based factors when identifying and pulling sick cattle.

3. Evaluate differences in the decision-making process and success rate pen riders based on years of experience, pen riding technique, and how they prioritize clinical signs of disease.

4. Develop and validate training material to standardize BRD diagnosis based on pen riding techniques and observation of clinical signs highly associated with an accurate diagnosis and successful animal health outcome.

What they will do

Phase 1: 10 top pen checkers from several feedlots will be fitted with a GoPro camera and GPS to track their movement patterns as they check pens. Detailed treatment records and biomarkers, temperatures and Whisper stethoscope readings will be collected from animals pulled for treatment (relative to visibly healthy animals that were pulled for comparison). Physiological measurements will be linked to checkers' observations and the clinical signs noted on the video. Their value for predicting the severity, treatment response, retreatment and death rates will be assessed.

Phase 2: the videos will be shown to pen checkers varying in age, gender, experience, technique (horse, walk, quad, etc.). They'll be shown video clips of animals showing obvious signs of disease, subtle signs (that later got pulled), subtle signs (that never got pulled), and no signs, and be asked which would you pull and why?

Phase 3: BRD diagnosis criteria will be standardized based on the most successful pen-checking techniques and clinical signs associated with positive health outcomes. Training material will be developed and validated using students who will either be conventionally trained or trained with the new tool, check pens for a month and identify, pulled, temp, scope, and sample calves they think are sick. Retreat and mortality rates and hot:cold ratio will be compared between students trained using the new tool or traditional methods.

Implications

Training more pen checkers to accurately find and treat sick cattle in the early stage of illness will improve treatment outcomes, reduce (re)treatment rates, and antimicrobial use in Canada's beef industry.

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