RESEARCH

"A multi-site surveillance of the prevalence, associated antimicrobial resistance and antimicrobial use in beef cattle from six weeks of age to pre-slaughter"

TRACKING ANTIMICROBIAL RESISTANCE

PROJECT NO.: ANH.05.16
LEAD RESEARCHER: Dr. Craig Dorin (Veterinary Agri-Health Services)
COLLABORATORS: Michael Jelinski, Cody Creelman (Veterinary Agri-Health Services); Tim McAllister, Cassidy Klima (Agriculture and Agri-Food Canada); Kim Stanford (Alberta Agriculture and Forestry); Michele Anholt (Prairie Oyster Ventures)

Background: Bovine respiratory disease (BRD) is a complex and multifactorial issue that is the leading cause of morbidity and mortality in the feedlot. Involving bacteria (*Mannheimia haemolytica, Histophilus somni, Pasturella multocida and Mycoplasma bovis*) as well as viruses, individual animal characteristics and environmental influences, treatment and prevention of BRD continues to rely heavily on antimicrobials. Given increasing public scrutiny on beef production, including antimicrobial use (AMU), a better understanding of the factors affecting the development of BRD and how BRD pathogens acquire antimicrobial resistance (AMR) as calves move through the value chain is critical to our ability to manage this disease in the future.

Objectives: The objectives of this study are to:

- Measure the frequency of BRD pathogens and prevalence of AMR in those pathogens from six weeks of age through to the end of the feeding period
- Investigate associations between AMR profile of BRD pathogens, AMU, and morbidity/mortality
- Analyze risk factors for BRD development, such as vaccination history, season of arrival to the feedlot, transport time, weight, commingling, etc.

Implications of the Research: Previous research has identified the main pathogens associated with BRD, and characterized some of the mechanisms by which AMR develops. However, the bulk of this research has occurred primarily in feedlot settings. This project will be unique in that it intends to follow calves from about six weeks of age until slaughter, allowing for the quantification of lifetime prevalence and changes in patterns of AMR in BRD pathogens, and providing more information on AMU at the cow-calf and feedlot levels.

This project is also supported by Alberta Agriculture and Forestry.

SINCE 1969 Alberta Beef Producers

www.albertabeef.org