

# Antimicrobial Sensitivity of *Mycoplasma Bovis* Isolates From Western Canadian Feedlot Cattle

## Background

*Mycoplasma bovis* may be routinely recovered from the lungs of cattle with chronic bovine respiratory disease (BRD). Chronic caseonecrotic bronchopneumonia can be considered pathognomonic for *M. bovis* infection. When septic arthritis is also present, the condition is referred to as chronic pneumonia and polyarthritis syndrome (CPPS).

Myoplasmas are inherently resistant to  $\beta$ -lactams and potentiated sulfonamides. Due to the chronic nature of mycoplasmosis affected animals often receive extensive antimicrobial therapy.

## Methods

- The study included clinical samples from healthy, diseased, and dead cattle, from various anatomic sites of sampling (nasopharynxes, lungs and joints), representing **40** cohorts of cattle from **31** feedlots and spanning the years 2006 to 2008<sup>1</sup>.
- Susceptibility to **9** antimicrobials with activity to *M. bovis* and commonly used in feedlots (enrofloxacin, gamithromycin, tulathromycin, tidipirosin, tilmicosin, tylosin, florfenicol, oxytetracycline and chlortetracycline) was investigated.

## Results

### i. Sample description:

211 *M. bovis* isolates were recovered from **159** head, **111** of which yielded one isolate, **36** yielded pairs from lung and joint, **8 pairs** from lung and NP, and **4** yielding lung, NP, and joint isolates.

- **43** isolates were from NP of healthy cattle; **25** of these were sampled on-arrival
- **149** isolates came from **97** animals that died of pneumonia, ranging from **9** to **217** days on feed (DOF), with median **42** DOF.

### ii. Antimicrobial resistance findings:

- *M. bovis* isolate Minimal Inhibitory Concentrations (MICs) were lower if originating from healthy cattle versus dead cattle.
- MICs increased over the study period (2006–2018) in diseased or dead cattle, but did not change significantly in healthy cattle.
- From 2016 on, most isolates were resistant to all macrolides studied. MIC distributions of the macrolides were highly correlated except for **tilmicosin**, for which resistance was high during the entire study period.
- *M. bovis* Isolates from healthy cattle showed resistance to several AMs, including **gamithromycin** (60.5%), **tilmicosin** (100%), **tildipirosin** (100%), and **tylosin** (76.7%).

<sup>1</sup> *Microorganisms* 2020 Jan 16;8(1):124. doi: 10.3390/microorganisms8010124.