



## SHEEP & GOATS

Resistant pathogens that impact small ruminant health can result in mastitis, including sub-clinical and severe presentations. Resistant pathogens may also be associated with abortion events. Both mastitis and abortion affect sheep and goat health and production and can result in significant economic loss. Because there are no approved susceptibility breakpoints for sheep and goats for any bacterial pathogens or antimicrobials, resistance may not be immediately recognized. Resistant infections can be more difficult to treat and may only be recognized as non-responsive infections. This may then lead to additional rounds of treatment or retreatment with an alternative antimicrobial drug, which can result in significant production loss in affected herds.

### **PATHOGEN OF CONCERN:**

- *Staphylococcus* spp.
  - *S. aureus*
  - Coagulase-negative
- *Campylobacter jejuni*

Antimicrobial-resistant infections affect sheep and goats. Preventing infections through good milking practices, vaccine use—when available—and using diagnostic testing to rapidly identify pathogens affecting herd health are crucial to preventing all infections, including resistant infections.

### What you need to know

- The prevalence of resistant mastitis pathogens in sheep and goats is largely unknown. Additional information and studies are needed to learn more about how often resistant mastitis infections occur and impact animal health. The prevalence of tetracycline resistance in *C. jejuni*-associated abortions is extremely high, and the organism should be considered resistant until proven otherwise.
- Resistant infections can be difficult to treat with antimicrobials.
- Antimicrobial stewardship helps to prevent development of antimicrobial resistant bacteria.

### **WHAT VETERINARIANS CAN DO:**

- Use antimicrobials only when needed.
- For *Staphylococcus*
  - Use diagnostic testing to inform treatment decisions related to mastitis.
  - Work with producers to implement best practices for milking of small ruminants including principles associated with mastitis prevention.
- For *Campylobacter*
  - Make sure that sheep and goat clients follow up with veterinarians to submit fetuses and placentas to a diagnostic laboratory when abortions occur.
  - Veterinarians can make sure that *Campylobacter* isolates are typed, and if *C. jejuni* is isolated, assure that antimicrobial susceptibility patterns are determined before using antimicrobials in the flock. Discourage the use of antimicrobials in the feed when infection has not been diagnosed, particularly tetracyclines, as this may encourage selection of antimicrobial resistant organisms.