

Preventing and Controlling Infection in Beef Cattle

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Bacteria**

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Preventing and Controlling Infection in Beef Cattle

- Controlling **infection**? Maybe, to some degree.
- Primary concern is prevention, control/treatment of **disease**
- Which disease process involving an infectious process?

Actinobacillus	Poplar stomatitis	Listeriosis
Anaplasmosis	Polioencephalomalacia	Infectious pododermatitis
Anthrax	Pseudo rabies	Infectious bovine rhinotracheitis
Bacillary hemoglobinuria	Rabies	Parainfluenza
Brucellosis	Thromboembolic meningeal encephalomyelitis	Adenovirus
Blackleg	Rickettsia	Reovirus
Blue tongue	Salmonellosis	Enterovirus
Infectious keratoconjunctivitis	Bovine respiratory disease complex	Corona virus
Bovine viral diarrhea	Mannheimia haemolytica	Bovine respiratory syncytial virus
Diphtheria	Pasteurella multocida	Lump jaw
Clostridial diseases	Histophilus somni	Wooden tongue
Coccidiosis	Mycoplasma spp.	Otitis media
Encephalomyelitis	Chlamydia spp.	

- “What” disease are we going to talk about?

For this discussion we will focus on Bovine Respiratory Disease Syndrome / Complex

- Industry wide (cow calf, stocker, backgrounder, **feedyard**)
 - responsible for 31% of cattle/calf mortality
- Feedyard
 - 69% to 79% of morbidity
 - 44% to 72% mortality

where? - relative to the feedyard

Bovine Respiratory Disease Syndrome

- Multifactorial causation, some or all factors may come into play
 - Stress
 - Viral insult
 - Compromised immune system
 - Bacterial infection

Balance between - immunocompetence and infectious pressure

- Complex allows “commensal” **bacteria** access from upper respiratory tract to lower respiratory tract.
- End result is ***bronchopneumonia***

Bovine Respiratory Disease Syndrome

A. Prevention

- Immunization
- Maturation
- Acclimation

B. Control/treatment

- Treatment - individuals
- Control - groups

Bovine Respiratory Disease Syndrome

A. Prevention

1. Immunization – vaccination

- efficacious vaccine
- appropriate timing
- appropriate administration

2. Maturation

- immunological maturation
- Allow adequate time for vaccine to induce immunization under more advantageous situation

Bovine Respiratory Disease Syndrome

A. Prevention

3. Acclimation

- Husbandry, stockmanship
- Adequate preparation for feedyard environment
- Avoid long term stressors with too many factors to adapt to
 - weaning
 - transit/travel
 - herd mates, social structure
 - exposure/infection with new microbes
 - new environment
 - diet, feed source
 - water source
 - climate, altitude

Bovine Respiratory Disease Syndrome

B. Control / Treatment

1. Treatment – individual animals

- Case definition – cannot use “textbook” criteria, obviously ill appearing cattle, well into the course of BRD pneumonia, unfavorable response to treatment
- Behavior, attitude, response, nasal character, eyes, respiration, fill, rectal temperature, weight loss (or gain) – determine if BRD or other cause for clinical appearance.
- If febrile or signs indicate BRD, antimicrobial (antibiotic) therapy is indicated

Bovine Respiratory Disease Syndrome

B. Control / Treatment

1. Treatment – individual animals,

- Use case definition to determine herd status, BRD status
- As long as morbidity and subsequent mortality are deemed “manageable” or untroublesome, continue to identify and treat individual cases
- If cattle are being identified but determine not to be suffering from BRD, look for other causes of the clinical appearance

2. Control – group/population

- If morbidity and subsequent mortality (post mortem diagnosis) are such that care takers cannot physically keep up with the outbreak – group treatment of cattle with antibiotics

Bovine Respiratory Disease Syndrome

B. Control / Treatment

2. Control – group/population

- If morbidity and subsequent mortality (post mortem diagnosis) are such that care takers cannot physically keep up with the outbreak – group treatment of cattle with antibiotics
- If cattle arrive with several animals in the group showing advanced signs of BRDC, with several others in the early stages - metaphylactic /group treatment with antibiotics.
- If cattle arrive from a source or situation where the outcome is highly probable that subsequent morbidity and mortality will be excessive - metaphylactic /group treatment with antibiotics.

Bovine Respiratory Disease Syndrome

- Prevention & control of infection – while possible, not probable
 - Prevention and **control** of disease
 - Immunization
 - Maturation
 - Acclimation
 - **Control** and treatment of disease
 - Case definition
 - Antibiotic intervention