BOVINE RESPIRATORY DISEASE (BRD)

BRD IS THE MOST DEVASTATING DISEASE OF THE US CATTLE POPULATION.
BRD is a general term for respiratory disease in cattle caused by a range of factors, singly or in combination. A major cause of economic losses, BRD affects the lower respiratory tract / lungs (pneumonia) or upper respiratory tract (rhinitis, tracheitis, bronchitis).

- **Etiology**
  BRD is defined as a “disease complex”:
  - It usually is caused by a variety of pathogens, both viral (Bovine Respiratory Syncytial Virus (BRSV), Parainfluenza 3 (PI3), Adenovirus, Bovine Viral Diarrhea Virus (BVDV), and Infectious Bovine Rhinotracheitis (IBR)) and bacterial (*Pasteurella multocida*, *Mannheimia haemolytica*, *Histophilus somni*, *Mycoplasma bovis*).
  - Parasitic (lungworm) and fungal (*Aspergillus*) agents are also pathogens.
  - These pathogens interact with one another and the animal’s immune system to produce full-blown disease.
  - Bacterial pathogens apparently cause the acute syndrome by invading the bovine respiratory tract that has been compromised by viral infections, environmental conditions and/or other stress factors.

Contributing to the disease complex is stress. Stressors include weaning, changes of feed, variation in ambient temperature and humidity, and weather.

- **Symptoms**
  Clinical signs of BRD in cattle depend on many factors including the age of the animal, the causative organism(s) and the stage of the disease.
  General signs:
  - Fever - The connection between BRD and fever is extremely strong. BRD is one of the most common causes of fever - and fever is always one of the earliest signs of the BRD complex.
  - Depression.
  - Lack of appetite.
  - Dullness
  Respiratory signs:
  - Rapid, shallow breathing.
  - Coughing.
    - In early BRD cases, the lungs and airways are generally painful, so the animal will try to clear the airway with mild, tentative, soft coughing.
    - Loud, prominent coughing or “honking” indicates far more chronic, advanced cases, at which point treatment is difficult.
  - Serous (watery), then purulent (pussy), and/or bloody nasal and eye discharge.
  - Salivation.

- **Diagnosis**
  Diagnosis may be made on clinical signs and epidemiology, but additional examinations are often needed (e.g., tracheal washings, nasopharyngeal swabs, blood samples, post-mortem examinations).

- **Treatment**
  Treatment should always be specifically targeted to the disease and the symptoms (anti-infectious agents(Antibiotics and Sulfas), antiparasiticides, non steroidal anti-inflammatories, bronchodilators, mucolytics, oral rehydration fluids) in consultation with the attending veterinarian.

- **Prevention**
  The key to preventing respiratory disease is to reduce stress and to vaccinate against viruses and bacteria that cause disease.
  - Vaccination with biological products targeting the viral and bacterial pathogens.
  - Appropriate use of antibiotics labeled for control of BRD
• Good cattle handling and stress reduction
  • Minimize exposure to environmental conditions that contribute to disease, such as
dust, crowding, fumes (proper ventilation is a key - especially with dairy facilities).
  • Provide adequate rest, feed and water (especially after shipping).
  • Make sure animals receive adequate levels of essential nutrients such as vitamins
and minerals.
  • Nutritional soundness also helps prevent disease and improves immune function.
  • Handle animals with care. Use low stress handling techniques.
  • Reduce and/or minimize pen movements.
  • Make sure bedding is clean and dry.
  • Keep animals as clean and dry as possible.
  • Avoid overcrowding.
  • Maintain good housing and ventilation.
  • Minimize heat stress.
  • Make sure animals receive the right deworming program in areas affected by
lungworm.
  • Effective colostrum management

• Economic Impact
  • In the US beef industry, BRD continues to be the primary cause of morbidity and mortality
in feedlots contributing to losses in performance, carcass quality and health.
  • In the US dairy industry respiratory disease continues to play a major role in death losses
in weaned calves and morbidity due to BRD affects survivability and reduced dairy
performance later in life.
  • Economic losses include death loss, decreased weight gain, and additional labor and
treatment costs.

Article information:
https://www.zoetisus.com/conditions/dairy/bovine-respiratory-disease-_brd_.aspx