



Cattle Producer's Handbook

Animal Health Section

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Bovine Respiratory Disease

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Disease of the respiratory tract is a major problem for cattle that continues to cause serious economic losses for producers. Bovine respiratory disease (BRD) causes increased death losses as well as medication costs, labor, and lost production. Many different infectious agents may cause similar clinical signs. Multiple agents are often involved in the development of BRD.

Disease Conditions (or Syndromes)

The respiratory diseases of cattle can be divided into three main categories:

1. Upper Respiratory Tract Infections

These infections cause inflammation of the nostrils, throat (pharynx) and windpipe (trachea). The clinical signs are usually mild and involve coughing, nasal discharge, fever, and a decreased appetite.

2. Diphtheria

This infection involves the larynx (voice box) and may occur alone or along with other respiratory infections. There are often loud noises during breathing. The swelling may severely restrict the air flow, causing death.

3. Pneumonia (Lower Respiratory Tract Infection)

An infection of the lungs is often due to an extension of infection from the upper respiratory tract (#1) or a failure of the mechanisms that are designed to protect the lungs. This is much more serious and causes more severe signs than does an upper respiratory infection. Shipping fever is one form of lower respiratory tract disease. It derives its name from the fact that it usually occurs shortly after shipment of the cattle.

Causes and Development of Disease

The causes of BRD are multiple and complex, but the three factors of stress, viral infection, and bacterial infection are almost always involved in cases of severe disease. A wide variety of different stressors and agents may be involved in the disease process.

| <u>Stress factors</u> | <u>Viral agents</u> | <u>Bacteria</u> |
|--------------------------|---------------------|-----------------|
| Heat | PI ₃ | Pasteurella |
| Cold | IBR | Hemophilus |
| Dust | BVD | Other |
| Dampness | BRSV | |
| Injury | Adenovirus | |
| Fatigue | Rhinovirus | |
| Dehydration | Herpesvirus IV | |
| Hunger | Enterovirus | |
| Anxiety | MCF | |
| Irritant gases | Reovirus | |
| Nutritional deficiencies | | |
| Surgery | | |

Some of the viral agents produce only mild clinical signs by themselves, but they may cause severe signs and death when combined with other viral or bacterial agents and stress. Many normal cattle carry one or more of the bacterial and viral agents in their upper respiratory system with no ill effects. These often enter the lungs but are usually expelled or inactivated. However, under stress, the animal's defense mechanisms may be overcome, and the infection established, resulting in BRD. The mixing of cattle from different sources and wide environmental temperature fluctuations have been identified as major factors in the initiation of disease outbreaks in feedlots.