

Respiratory Outbreaks & Value of Vaccinating

Every fall, when temperatures drop and fluctuate widely, herds with poorly implemented vaccination programs, or worse still, no vaccination program at all, are highly susceptible to outbreaks of pneumonia. The result is sick or dead animals, lost milk production and the associated drug costs to control the outbreak.

Cause & Risk Factors

Viruses are usually the initial agent in a case of pneumonia. Those viruses include *Parainfluenza-3 Virus (PI3)*, *Bovine Respiratory Syncytial Virus (BRSV)*, *Infectious Bovine Rhinotracheitis (IBR)* and *Bovine Viral Diarrhea Virus (BVD)*. Viruses colonize the lungs, damage them and their defense mechanisms, making the animal more susceptible to secondary infection by bacteria such as *Pasteurella multocida*, *Mannheimia haemolytica*, and *Mycoplasma bovis*.

Risk factors for respiratory outbreaks include inadequate ventilation or poor ventilation control, rapidly fluctuating weather (typical in spring and fall), a lack of or poor vaccination programs (and subsequent immunity), overcrowding, mixing of cattle from multiple farms, or any factor that causes additional stress on the animals. Younger animals (calves and heifers) are more susceptible because their immune systems are more naive than the immune system in cows.

Clinical Signs

In the early stages of viral pneumonia, animals exhibit a fever (greater than 39.5°C or 103.5°F), cough, eye and/or nose discharge, as well as an increased breathing rate, but are often still bright and alert. Later signs include depression, decreased feed intake, laboured breathing that, when severe, results in open-mouth breathing, flared nostrils, and excessive salivation. These later signs are most characteristic of bacterial pneumonia. If left untreated or not appropriately treated, bacterial pneumonia can result in death or severe and permanent lung damage leading to chronic ill thrift.

Diagnosis & Treatment

Diagnosis is made based on clinical signs. To identify the virus(es), take nasal swabs or blood samples from a recently ill animal. If the animal has died, a post-mortem is very useful, and samples can be taken from the lung and respiratory tract.

Treatment protocols, which may include NSAIDs, antibiotics, and potentially steroids, are designed to reduce fever and inflammation and eliminate the bacteria involved. “Apparently healthy” animals in the face of an outbreak should be vaccinated with at least an intranasal viral vaccine. Intranasal vaccines provide immunity quickly and are the most effective form of vaccine in the event of an outbreak. Intranasal vaccines that contain both viral and bacterial components are also available.

Prevention

Prevention is built upon three main pillars: 1. Ventilation; 2. Vaccination; 3. Nutrition.

1. Ventilation

A properly functioning and adequate ventilation system is essential for pneumonia prevention.

2. Vaccination

A comprehensive vaccination program is critical. Whether it is a *modified live or killed vaccine*, making sure every animal receives their vaccinations and boosters on time (as per the veterinary-directed vaccination protocol for all ages and classes of cattle) is critical to ensure the herd maintains a high level of immunity.

The best vaccination schedule is one that can be managed and kept up to date. Veterinarians highly recommend using **Modified Live Vaccines** (MLV) as they confer better and longer-lasting immunity. MLVs cannot be given to pregnant heifers or cows **UNLESS** they have been previously vaccinated with the MLV vaccine. **Killed** vaccines can be safely given at any time during an animal’s life cycle but confer less robust and shorter-duration immunity. The benefits of vaccines become apparent when compared to the cost of a

respiratory outbreak.

For example, if heifers from 6-12 months of age are valued at \$900.00 and 1 died from virus-induced pneumonia, the value of that heifer would have bought enough vaccines to immunize 15 animals for more than 11 years effectively. Springing heifers are presently valued at \$4000. IF 1 died, the value of that lost heifer would have bought vaccines to cover 15 animals for **50 years!**

Overall, the cost of a vaccine is minimal compared to the potential costs of a respiratory outbreak.

3. Nutrition

A sound nutrition program is necessary for all ages of livestock to enhance vigour and health. It is also important to avoid overstocking. No ventilation, vaccination and nutrition programs can compensate for overcrowding.

If you have any questions or concerns regarding your current vaccination protocol, please speak with your veterinary advisor.

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