

THE COST OF BOVINE RESPIRATORY DISEASE.

One of the costliest health problems facing the cattle industry is bovine respiratory disease, or BRD.

The disease is a progression with multiple causes. Assorted viruses, bacteria and stress all play a role in the BRD syndrome. Even a mild infection with one pathogen can set the stage for another by weakening the animal's immune system, making it more susceptible to serious infection.

BRD commonly occurs within a few weeks of weaning, and often goes undiagnosed and untreated.

- ***Histophilus somni (Haemophilus somnus)*** is a bacterium that causes a number of clinical syndromes including pneumonia. It is more prevalent in stress situations where cattle are closely grouped, such as in feedlots or backgrounding lots.

Clinical signs include:

- Sudden death
 - Depression
 - Fever
 - Rapid respiration
 - Difficulty breathing
 - Lameness and Stiffness
 - Abortion
 - Downers
- ***Mannheimia (Pasteurella) haemolytica*** is an important cause of BRD in freshly weaned calves.

Clinical signs include:

- Depression
- Difficulty breathing
- Nasal discharge
- Reduced feed intake
- Fever
- Rapid heart rate
- May cause death

BRD causes death losses, higher medication and labour costs, reduced carcass value and lost production.

The potential cost of BRD is much too high to ignore.

Dosage and Administration

Primary Vaccination: Administer a single 2 mL dose subcutaneously in the neck of healthy cattle. A single dose of the *M. haemolytica* subunit component of the vaccine is required to confer active immunity. A booster dose is recommended whenever subsequent exposure or stress is expected.

Booster: A booster vaccination for *H. somni* should be administered two to six weeks after the initial vaccination.

Revaccination: Annual revaccination of mature animals is recommended. Calves vaccinated prior to six months of age should be revaccinated after six months of age.

Feedlots: For calves destined for a feedlot, the greatest benefit is realized when the first dose is administered two to six weeks prior to feedlot entry.

Precautions: Store at 2°C to 7°C (35°F to 45°F). Do not freeze. Shake well before use. Use entire contents when opened.

In the event of anaphylaxis, administer epinephrine. Transient swelling may occur at the site of the injection.

Do not vaccinate animals within 60 days before slaughter. For use in animals only.

Presentation: 10 dose (20 mL) and 50 dose (100 mL) vials.

SOMNU-STAR Ph®

- FLEXIBLE
- SAFE
- EFFECTIVE



HELP NIP PNEUMONIA.

SOMNU-STAR Ph®



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BRD PREVENTION STARTS HERE.

Developed at the Vaccine and Infectious Disease Organization, University of Saskatchewan, SOMNU-STAR Ph® is a bacterial extract – subunit vaccine for cattle and calves that aids in the prevention of pneumonia caused by *H. somni* and *M. haemolytica*. The SOMNU-STAR Ph vaccine has three key components:

1. A bacteria-free suspension of outer membrane proteins extracted from growing cultures of *H. somni*.
2. Surface material extracted from growing cultures of *M. haemolytica*.
3. Genetically attenuated leukotoxin of *M. haemolytica* produced by recombinant DNA technology.

These components are combined with a proprietary adjuvant, VSA-3. Gentamycin is added as a preservative.

PROVEN FLEXIBLE, SAFE AND EFFECTIVE.

- SOMNU-STAR Ph can be used on cattle of any age.
- It can be safely used in pregnant cows to aid in the prevention of diseases caused by *H. somni* and *M. haemolytica* in baby calves.
- SOMNU-STAR Ph stimulates the formation of antibodies against the bacterial cells of *H. somni* and *M. haemolytica*, as well as antibodies which neutralize the leukotoxin of *M. haemolytica*.
- A single dose of the *M. haemolytica* subunit component of the vaccine is enough to confer immunity. A booster vaccination for *H. somni* should be administered two to six weeks after the initial vaccination.

HEALTHY CATTLE, HEALTHIER RETURNS.

According to an Oklahoma State Animal Science Research Report¹, steers with no respiratory lesions significantly outgained those with non-active or active lesions. In fact, total gain was reduced by 14.8 lbs for each day a steer was held in the hospital for treatment of BRD.

Cattle that have lung lesions suffer from loss of performance and poorer carcass traits. These results indicate that cattle recovering from BRD never compensate for lost performance.

Get to BRD before it gets to your cattle and your bottom line.

SOMNU-STAR Ph® TRIALS.

Newborn calves

Eighty calves born at the Western Beef Development Centre in Lanigan, Saskatchewan were vaccinated with one of four protocols². Group 1 was vaccinated within 24 hours of birth and boosted at weaning. Group 2 was vaccinated at spring turn-out and weaning. Group 3 was vaccinated three weeks pre-weaning and at weaning. Group 4 was vaccinated at weaning.

Blood samples were collected at birth, at turn-out, three weeks pre-weaning, weaning and three weeks post-weaning to determine the level of serum antibodies for *M. haemolytica* leukotoxin.

- The study found calves vaccinated at birth had significantly higher antibody levels against *M. haemolytica* leukotoxin at turn-out and three weeks pre-weaning.
- At weaning, calves vaccinated three weeks pre-weaning had significantly higher antibody titers than the other groups
- A single dose of the *M. haemolytica* subunit component of the vaccine is enough to confer immunity. Vaccinating at birth may provide some protection against summer pneumonia in calves on pasture. Vaccinating three weeks pre-weaning provides the best protection for calves entering the feedlot at weaning.

Week-old calves

Forty calves from the University of Saskatchewan dairy herd were randomly assigned to a vaccinated group or an unvaccinated group³.

Calves had high levels of passive antibodies at one week of age when the first vaccination was administered. Calves were revaccinated at three weeks of age.

Blood samples were collected at 1, 3, 5, 9, 13, 17, 21 and 25 weeks of age.

- Leukotoxin antibodies diminished to negligible levels in the unvaccinated calves.
- Calves vaccinated with SOMNU-STAR Ph had higher leukotoxin antibody levels throughout the study period.
- In vaccinated calves, *H. somni* titers did not fall following the initial vaccination and increased significantly following the second vaccination. These titers remained significantly higher in vaccinated calves for the duration of the trial.

Calves at turn-out

Three to four month old beef calves were vaccinated with SOMNU-STAR Ph once or twice depending upon the group they were assigned to⁴. Group 1 served as an unvaccinated control.

Group 2 was vaccinated three months after spring turn-out (15-18 weeks of age) and boosted at weaning. Group 3 was vaccinated four months after spring turn-out (19-22 weeks of age) and boosted at weaning. Group 4 received a single vaccination at weaning.

Blood samples were collected at the outset and then monthly for the trial duration.

- Protective leukotoxin antibody titers developed within seven to 10 days after the initial dose of SOMNU-STAR Ph and even more rapidly when the booster dose was given.
- Antibody titers remained above what are considered protective levels for up to 60 days.

1. Gardner et al., Health of finishing steers: Effects on performance, carcass traits and meat tenderness, Oklahoma State Animal Science Research Report, 1998 p. 37-45.
2. SOMNU-STAR Ph newborn calf vaccination protocols, Novartis Animal Health Trial Report, 2007.
3. Vaccination of week-old dairy calves with SOMNU-STAR Ph, Novartis Animal Health Trial Report, 2007.
4. Leukotoxin titers following vaccination of beef calves at different ages with SOMNU-STAR Ph, Novartis Animal Health Trial Report, 2007.