Virginia Cooperative Extension

PUBLICATION 400-008

Recognition and Treatment of Bovine Respiratory Disease Complex

John Currin, Extension Specialist and Professor, Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech
W. Dee Whittier, Extension Specialist and Professor, Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech

The recognition and treatment of Bovine Respiratory Disease Complex (BRDC) is vital to the economic well-being of the stocker cattle producer. This disease is also known as shipping fever, or simply pneumonia. BRDC is a very complex, multifactoral disease that involves several instigating factors. These factors include marketing, weaning, shipping, mixing cattle from multiple sources, weather, nutrition, and the respiratory viruses (IBR, BVD,PI3, BRSV). All of these causes can result in a calf developing pneumonia. These calves usually develop a bacterial pneumonia most often caused by *Pasteurella Haemolitica*. *Pasteurella Multicida* and *Haemophilus Somnus* are also known to cause pneumonia.

Calves most often become sick following stressful situations such as weaning or marketing. The clinical signs are usually seen 7-21 days after the calves are bought, but can occur anywhere from 2-30 days after purchase. Less frequently, calves that have not been marketed or weaned can develop pneumonia, usually related to weather changes or other stressors.

The most common and earliest recognizable clinical sign of pneumonia is depression. Calves exhibiting depression will have drooping ears, an extended head, a bowed back and/or often isolate themselves from other cattle. As these calves get progressively sicker, they will go off feed and will exhibit an increased respiratory rate. Increased lung sounds can be heard with the aid of a stethoscope. A thermometer is another useful tool in the diagnosis of pneumonia. Most sick calves will have a fever of 104°-108°F. However, temperatures can be falsely elevated in the afternoon due to increased outside temperatures. In order to obtain the most accurate temperature reading for an animal that is suspected to be sick, the calf's temperature should be taken before 10:00 am.

Developing a Treatment Protocol

There are four primary questions to be answered when developing a treatment protocol:

When do I treat the calf?

Early treatment of calves is the most important aspect of a successful treatment program. Therefore, calves should be observed often and when any of the clinical signs listed previously are detected, the animal's temperature and breathing sounds should be analyzed.

What antibiotic should I use?

Today there is a new generation of antibiotics which combine effectiveness with the benefit of less frequent or even one time treatments. These include Micotil®, Nuflor®, and Baytril 100®. All of these antibiotics offer subcutaneous dosing and are usually effective against the organisms that cause BRDC. Naxcel®, Excenel®, and Adspec® are also commonly used antibiotics that have short slaughter withdrawal periods or no withdrawal periods at all. While they must be given everyday, they should be effective in most cases.

www.ext.vt.edu

Produced by Communications and Marketing, College of Agriculture and Life Sciences, Virginia Polytechnic Institute and State University, 2009

VirginiaTech 1872 Invent the Future

VIRGINIA STATE UNIVERSITY

What other drugs may help?

(It is important to note that these drugs may be used in addition to, not in place of, antibiotics.)

Banamine® is an anti-inflammatory drug which helps reduce fever and damage to the lungs, and therefore may help sick calves get back on feed quicker.

Providing calves with 1 gallon of warm water and **electrolytes** per 100 lbs. of body weight causes a stimulation of appetite and corrects the dehydration a calf usually suffers if sick for more than 24 hours.

Vitamin B and Probiotics can be used to help stimulate appetite.

What else will help this calf?

Sick calves should be given excellent quality hay and grain. Grass and/or rye are also good feedstuffs as sick calves will often eat these when they will not eat anything else. Unless the weather is severe, calves often benefit from sunlight and being outside as opposed to being in a barn with poor ventilation.

Switching Antibiotics

Individual Calf- A sick calf's temperature, appetite, and attitude should be monitored after treatment. If the calf shows no improvement over 24-48 hours, consideration may be given to switching antibiotics.

Herd - A producer should consult a veterinarian when deciding whether or not to change antibiotics for the entire herd. In order for the veterinarian to make a good recommendation, he/she will need to know the case fatality rate (the number of treated calves which have died) and whether or not these animals died less than 48 hours or greater than 48 hours after treatment. For this reason, it is important to keep accurate treatment records.

Mass Medication

Mass Medication, also called Metaphylaxis, is the treatment upon arrival of an entire group of calves at high risk for respiratory disease. There is little data on the economics of using mass medication in Virginia stocker calves. In order for the process to be economical, a producer would need to expect greater than 30% of the calves will get sick. Some factors to consider when deciding to mass medicate are:

Season - Calves are more likely to get sick in the fall than any other time of the year.

Weaned vs. Unweaned - Calves that are not weaned when marketed are much more likely to get sick.

Weight - Calves weighing less than 450 lbs. are more likely to get sick and the expense of mass medication will be less as well, due to the smaller body weight.

Sex - Calves that must be castrated after marketing are more likely to contract BRDC.

Weather - Adverse weather probably plays the single largest role in the likelihood of a large number of calves becoming sick. It is often difficult, however, to predict weather patterns for the first two weeks after the calves are purchased.

History of Disease - The past history of the source of the calves as well as that of your own farm should be considered.

Goals of the Operation - If the producer's goal is to treat and lose as few cattle as possible, then mass medication may be the best, though perhaps not the most economical, method.

Table 1. Injectable antibiotics approved for use in beef cattle.

Antibiotic	Concentration	Trade Name(s) (examples)	Over the Counter/ Prescription	Dosage/ route (if not IM)	Indications	Approx. cost for 500lb for 3 days	Slaughter Withdrawals
Penicillin (Procaine)	300,000 IU / ml	Pfi-Pen G, Agricillin, Procaine Pen G	OTC	1ml/100 lbs. * Once a day	Bacterial pneumonia, Organisms susceptible	$ 0.90	10 days
Penicillin (Procaine/ Benzathine)	150,000 + 150,000 IU/ml	Durpen, Benzapen, Pen BP-48	OTC	2ml/150 lbs.* Every other day	Bacterial pneumonia, Upper respiratory disease, Blackleg	$ 0.90	30 days
Oxytetracycline	100 mg/ml	Terramycin, Agrimycin-100, Oxy-Tet 100	OTC	5ml/100 lbs. Sub Q (Status SQ)	Organisms susceptible to oxytetracycline	$1.50	18days (Status SQ)
Oxytetracycline	200 mg/ml	Liquamycin LA-200, Procure 200, Biocor 200	OTC	5ml/100 lbs. Every other day	Bacterial pneumonia, foot rot, Pinkeye	$2.10-2.50	28 days
Erythromycin	200 mg/ml	Erythro-200, Erythromycin-200, Gallimycin-200	OTC	.5 - 1 ml/100 lbs.* Once a day	Pneumonia, mastitis, metritis, foot rot, wt. loss prevention	$.75-$1.50	14 days
Tylosin	200 mg/ml	Tylan 200, Tylosin Injection	OTC	4 ml/100 lbs.* Once a day	Respiratory disease, foot rot, calf diphtheria	$1.40	21 days
Sulfadimethoxine	400 mg/ml	Albon Inj. 40%, Sulfadadinj	OTC	31.2 ml/500 lbs., 15.6 ml/500 lbs. **Intravenous**	Respiratory disease, foot rot, calf diphtheria	$5.25	5 days
Amoxicillin	250 mg/ml	Amoxi-Inject	Prescription	1.5 -2 ml/100 lbs. IM or Sub Q	Respiratory disease, foot rot	$7.50-$10.00	25 days
Ampicillin	400 mg/ml	Polyflex	Prescription	.75 -1.25 ml /100 lbs.	Respiratory disease	$8.10 - $13.35	6 days
Ceftiofur Sodium	50 mg/ml	Naxcel	Prescription	1-2 ml/100 lbs.	Respiratory disease, foot rot	$7.50-$15.00	None
Tilmicosin	300 mg/ml	Micotil 300 Injection	Prescription	1.5 ml / 100 lbs. once SQ	Respiratory disease Metaphaylaxis	$11.25	28 days
Florfenicol	300 mg/ml	Nuflor Injectable Solution	Prescription	3.0ml/ 100 lbs. repeat in 48 hr; 6 ml/ 100 lbs. SQ once	Respiratory disease, High Risk cattle	$ 14.00	28 days; 38 days
Ceftiofur Hydrocloride	50 mg/ml	Excenel	Prescription	1-2 ml daily to every other day	Respiratory disease	$8 -$11.25	2 days
Sulfamethazine Cow	42 gms/Bolus	Sustain III Sulfamax	OTC	1 Bolus per 200lbs.	Susceptible bacterial infection	$7.50	12 days
Sulfamethazine Calf	8 gm /bolus	Sustain III Sulfamax	OTC	1 Bolus/50 lbs.	Susceptible bacterial infection	$2.50	12 days
Enrofloxacin	100mg/ml	Baytril	Prescription	3.5 – 5.5 ml / 100 lbs. once; 1.1-2.3 ml/ 100 lbs. Daily for 3 days SQ	Respiratory disease	$12- $23	28 days

* = labeled dose may not be effective