

Health & National Animal Identification System

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Lesson 3

Developing a Herd Health Protocol

The health of cattle is most vulnerable during the period after arrival in a new environment. It is at this time that a combination of animal husbandry and animal science bring the greatest success. The Oklahoma fact sheet on stocker cattle referenced in this lesson and *Lesson 3* of the “*Health Management*” home study course, suggests that before ordering cattle, these three rules must be considered:

1. Don't receive cattle unless 14 straight days can be devoted to them.
2. Don't let the quantity exceed the capacity of the crew.
3. Be prepared to handle and work all calves.

When developing a protocol, it is important to evaluate the stress level of the animals which you will be handling. In the paper “Tailoring Receiving Health Programs to Feeder Cattle Origin,” developed by Dr. Trevor Ames (included with this lesson), the types of cattle are broken down into four categories depending on their risk level. In determining “risk”, there are several items to consider. These include things such as origin (sale barn vs. off-farm), co-mingled, travel distance, temperament, age, previous health program, weather, nutritional status, population density and competition, comfort, and handling.

Once the animals have been categorized, Dr. Ames also includes several potential protocols at the end of his report. These should be used only as examples. It is vital to take the time to sit down with a veterinarian in developing a specific protocol.

In addition to the typical arrival processing, it is also advised to treat sick animals (visually observed, and/or body temperature above 104° F). The objective of sick animal protocols is to treat the animal in an ordered sequence, trying several products if necessary, until the animal responds to the treatment. The sick animals should be sorted out to recuperate and avoid contamination of the rest of the group.

In nearly all cases, it is recommended to rest the animals 12-24 hours before handling them. Be sure to have all the necessary products on hand. **Always read the product labels and administer accordingly, with all injectables in the neck.**

Items to Address in Protocol

Respiratory Diseases

Viral

- (IBR) Infectious Bovine Rhinotrachuties
- (BVD) Bovine Viral Diarrhea virus
- (BRSV) Bovine Respiratory Syncytial virus
- (PI₃) Para Influenza₃ virus

Bacterial

- Pasteurella haemolytica
- Pasteurella multoecida
- Haemophilus sommus
- Mycoplasma

Clostridial Disease

Muscle

- Blackleg
- Malignant edema
- Sord

Liver

- Black disease
- Red waler

Intestinal

- Overeating disease (entrotaxemia)
- Purple gut
- Cl. sordellii

Parasites

- Grub control
- Lice control
- Coccidia
- Round worms
- Liver flukes
- Tape worms
- Biting and non-biting flies

Other Diseases

- Leptospirosis
- Diarrhea
- Achidosis
- Bloat
- Foot rot
- Pinkeye
- Calf diphtheria
- Implanting
- Dehorning

Bovine Respiratory Disease

Bovine respiratory disease (BRD) is the most common and costly problem encountered in stocker or feedlot calves. BRD, also called “shipping fever”, also accounts for major economic losses to the producer by reducing average daily gain, feed efficiency, and overall performance of beef calves. The primary objective of this chapter is to further explain the mechanisms, clinical signs, and treatment of BRD. More importantly, prevention of BRD as the primary objective in a herd health management plan will be emphasized.

What is BRD?

BRD is a respiratory disease complex that occurs most often within 14 days after calves have been weaned. The weaning process is the most stressful time for calves. At that time, calves are usually castrated, extensively handled, commingled, and shipped to other locations. During this period of time, calves will have tremendous exposure to the many infectious agents that cause BRD. Stress will also have a negative impact on the immune system of calves causing them to be even more vulnerable to “shipping fever”. Other factors which increase their level of risk to BRD is movement thru sale yards, poor body condition, and transport over long distances. On arrival at final destinations, calves are often dehydrated, exhausted, and have a reduction in appetite. Many calves are vulnerable to being in the early stages of BRD. As a result, it is not uncommon for many calves to develop severe bronchopneumonia and even die from “shipping fever”.

What Infectious Agents are Involved with BRD?

There are several types of infectious agents involved causing the calf to become vulnerable to this complex respiratory disease. Fortunately, many of these agents can now be prevented through vaccination programs. The most common viruses involved with BRD include Bovine Viral Diarrhea (BVD), Infectious Bovine Rhinotracheitis (IBR), Bovine Respiratory Syncytial Virus (BRSV), and Parainfluenza Type-3 Virus (PI-3). Exposure to these virus can cause severe damage to the airways (respiratory tract) of calves creating opportunities for bacteria to then settle in the lungs.

The most common bacteria found in the lungs of calves with BRD include Mannheimia haemolytica and Pasteurella multocida. Haemophilus somnus may also be involved and often causes severe damage to the heart muscles. Vaccines are also available for these bacteria. Another bacteria-type organism that is being found more often in the past few years is Mycoplasma bovis. This organism not only causes severe pneumonia but also swollen, painful joints in calves. Unfortunately, there is not an effective vaccine or treatment available. It is not uncommon to find sick calves that have Mycoplasma bovis and are persistently infected (PI) with BVD.

What are the Clinical Signs of BRD?

Symptoms of BRD usually develop within 14 days after the weaning process. Signs can be variable since there may be one or more viruses and bacteria involved in this disease complex. Early clinical signs usually include: depression, anorexia, and dull eyes. These calves should be immediately pulled and checked for fever. Temperatures over 104 degrees indicate early signs of BRD! Clinical signs later in the course of the disease include: rapid/labored breathing, droopy ears, coughing, diarrhea, sudden death, staggering, and nasal discharge. The onset of BRD should be expected after the weaning process, so producers should closely monitor every calf twice daily for the first few weeks after the weaning process. The onset of BRD can be rapid but most often appears with early clinical signs. Left untreated, calves with severe BRD will die from asphyxiation.

What are Treatment Options for BRD?

Early recognition and treatment of calves with BRD usually improves their outcome and overall performance. Treatment options can vary but most involve the use of antibiotics specifically designed to treat calves with pneumonia. Most producers now use antibiotics which are effective against the bacteria most commonly found in the lung tissue. These new antibiotics are also long acting, can be given under the skin (SQ), and very effective against BRD. In addition, some producers and veterinarians will also administer anti-inflammatory drugs for fever or vitamins. Response to therapy is usually observed within 24 hours and a successful outcome is closely related to early recognition of BRD clinical signs.

Diagnosis of BRD is usually made by clinical signs and response to treatment. However, necropsy is recommended on all dead calves to confirm the diagnosis of BRD and to find out which viruses and bacteria are involved. Necropsy can also provide answers on the nutritional status of the calf and which antibiotics may be most appropriate for treatment.

What are Prevention Strategies to Reduce BRD?

Prevention of BRD requires advanced planning and careful attention to herd health management. Decreasing the risks of BRD include good nutrition before weaning, reducing stresses related to handling and shipping, purchasing source-verified cattle from herds with a known health history, and vaccinating calves pre-weaning followed by booster vaccinations at weaning. Castrating and weaning calves while giving them time to acclimate to eating from a bunk prior to shipment is also a good idea. At processing, all calves should be properly vaccinated for BRD, ear tagged, implanted, weighed, and dewormed. In addition, any calves that appear sick or febrile should be treated with antibiotics during processing.

Mass medication (metaphylaxis) with long acting antibiotics given to all calves, on arrival, is another prevention strategy that has become more common. Extensive research has indicated that the number of BRD cases in treated calves, on arrival, is greatly reduced. In addition, treated calves will have improved average daily gain, feed efficiency, and overall performance. These factors support the use of metaphylaxis and have proven to be cost effective.

Parasite Control

Another important health concern involves parasite control. The grazing of animals, including stockers, requires additional health management in that of a parasite control program. Research has shown that without proper management or control, stockers may experience a 40-60 lb reduction in weight gain. In observing a 600 -700 lb animal, it can be difficult to notice this weight difference from an infected to an uninfected animal. This can turn into an additional \$50.00 per head (minus the cost of treatment) if properly controlled. Realize that only about 5 percent of the worm population is expressed within the animal. The other 95 percent is on the pasture. Therefore a control program should be implemented where the goal is to strategically eliminate the parasites in the animal as well as reduce the number of parasitic eggs deposited in the pasture.

Two management strategies can be used. One would be to optimize animal health before exposing to pasture and then manage the grazing system. The other is to treat upon initial control of the animals and manage thereafter. Parasitic loads are typically higher in the spring and fall of the year. Reducing exposure or treating at these times can be most beneficial to the health of your animal and your pocket book. Treating parasites does not come without cost. Therefore using the proper product at the proper time is very important.

There are several products currently available for treating many of the major internal parasites. Some of the products are in the form of pour-ons, injectables, boluses, feed additives and others. The products also vary in the parasites they control as well as persistence and duration of effectiveness. Some products do not provide control beyond the treatment date. Therefore timing is important to the effectiveness of the overall program.

The following table illustrates some of the products parasitic control and their effective duration.

Persistent Duration of Each Product

Provided by Dr. Larry Smith DVM

	Stomach worms		Small intestine worms	Lung worms
	<i>H. placei</i> <i>Ostertagia</i>		Cooperia	D.viviparus
Cydectin Pour-on	14 days	28 days	0 days	42 days
Dectomax Injectable	14 days	21 days	14 days	28 days
Eprinex Injectable	No claims on label			21 days
Ivomec Injectable	14 days	21 days	14 days	28 days
Safeguard or Panacur	0 days	0 days	0 days	0 days
Levasole or Triamsole	0 days	0 days limited efficacy for immature larvae	0 days limited efficacy for immature	0 days

In reviewing the chart above a typical deworming schedule for stockers would be to treat at turnout, day 35 and day 70 using Cydectin, Dectomax, Eprinex, or Ivomec. If you were going to use Panacure, Safeguard or Levasole, you would treat at turnout, day 28 and day 56.

The previous table is helpful in summarizing many of the products available, but it does not provide all the information to fully base your selection on. This should be done by reviewing and understanding what each product's label states. Some of the products may control the adults or immature worms or both. Many of the products control other parasites and will list the proper dosage rates and restrictions if they apply. Therefore consult your veterinarian to assist with selection of a product that fits your management style and health protocol.

Summary

Herd health protocols are an important component to backgrounding or raising stocker cattle. Prevention, rather than treatment, of BRD is the primary objective of a herd health management plan for stocker calves. Reduction in stress at weaning, good nutrition, close monitoring, vaccination, and metaphylactic treatment with long antibiotics will help reduce the number of BRD cases in weaned calves. With reduction in BRD cases, calves will perform better and the producer will be personally and financially rewarded. When controlling parasites, it is important to match the parasites with the product and the proper timing of treatment.

References

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Health Supplemental Reading

1. Tailoring Receiving Health Programs to Feeder Cattle Origin
2. Feedlot Deworming Programs