



Bayou BEEF TIPS



Understanding The Virus Complex

Andrew Granger, LSU AgCenter

Introduction

Confusion, apathy and misunderstanding are the usual responses by cattle producers when the topic of viral diseases of cattle is discussed. And it is no wonder. IBR, BVD, BRSV and PI₃, it appears like they picked the names out of alphabet soup. The full names are even worse, Infectious Bovine Rhinotracheitis, Bovine Viral Diarrhea, Bovine Respiratory Syncytial Virus and Parainfluenza-3. Does anyone out there know how to pronounce syncytial? This was all much easier to handle when it was called shipping fever. When cattle were moved from one place to another they got sick. If it turned into pneumonia we treated them with an antibiotic and some lived and some didn't. However, we now know that we can limit losses by vaccinating cattle against the causes of shipping fever. So I guess we should understand these viral diseases, the best ways to manage them and that they cause abortions in addition to shipping fever.

Infectious Bovine Rhinotracheitis

IBR (Infectious Bovine Rhinotracheitis) is a complex of diseases occurring throughout the United States. It is also known as red nose. Symptoms include respiratory, eye infections and abortions. The respiratory form usually affects concentrated groups of cattle such as in feedlots. The first

signs of the disease (rapid and labored respiration, nasal discharge, fever, loss of appetite) appear about a week after infection. Fifteen to one hundred percent of the group may become ill with a death rate of 0-5%.

The IBR virus is one of the most common causes of bovine abortion. Often abortion is preceded by other symptoms of IBR. The abortion may occur at any stage of pregnancy but usually in the second half. Up to 75% of the herd may abort in severe outbreaks. There is a slight chance of abortion with some modified live IBR vaccines. However, some are safe if label directions are followed. Calves may be born infected with IBR. They have diarrhea, are weak and have difficulty nursing. The pinkeye form of IBR causes reddened swollen eyes with clear, watery discharge and sometimes ulcers on the eye.

Bovine Viral Diarrhea

BVD (Bovine Viral Diarrhea) can be one of the most devastating diseases cattle encounter and one of the hardest to get rid of when it attacks a herd. It is a sneaky disease because over 95% of infected cattle do not show clinical signs. There are two types, Type 1 and Type 2, with the difference being that the Type 2 BVD causes more severe outbreaks. Some forms of the disease can be passed from mother to fetus without any detectible signs of disease. Persistently infected calves

(PIs) are how the virus stays in a herd from year to year. The PI calf sheds very high levels of virus in all bodily secretions. When breeding starts again, the PI calf exposes cows to BVD, which can lead to infertility, abortions, stillbirths, weak or deformed calves and also more PI calves (next year's problem).

Acute BVD is characterized by a fever, nasal discharge and diarrhea which can contain mucus and blood. Acutely infected animals have suppressed immune systems lowering their resistance to all diseases, especially shipping fever pneumonia. If antibiotics are used most animals survive. The BVD virus passes easily from mother to fetus which is especially vulnerable to BVD during the first six months of pregnancy. Death of the fetus is common during the first 120 days of pregnancy. Resorption, mummification or abortion of the dead fetus will result. However, some do not die and result in a persistently infected calf that if kept in the herd spreads BVD virus to other animals in the herd.

Bovine Respiratory Syncytial Virus

BRSV (Bovine Respiratory Syncytial Virus) is a common respiratory disease of cattle. Studies have shown that from 40-75% of beef herds have a presence of BRSV. Like other viruses that attack the respiratory tract, BRSV makes

animals susceptible to secondary lung infections (pneumonia). BRSV occurs in cattle of all ages but most adult cattle show no symptoms. However, calves can become severely ill. There are two types of disease syndromes of calves infected by BRSV, early and late. The early syndrome occurs in spring born calves during the summer while they are still nursing. Coughing, nasal discharge and fever are the only signs noticed. Deaths are few and usually due to secondary infection. The late syndrome occurs in ranches which hold calves after weaning. Early symptoms include high pitched dry cough and clear discharge from nose and eyes. As the disease progresses, high fever, swollen eyes, jaw and throat, labored breathing, decreased feed and water consumption are noticeable. Death rates are generally higher in the late syndrome.

Parainfluenza-3 Virus

PI₃ (Parainfluenza-3 Virus) is common in cattle and is found worldwide. Affected animals exhibit watery to yellow colored discharges from eyes and nose, labored breathing and fever. Death from PI₃ infections alone is rare; however, it works in combination with other respiratory virus and bacterial infections. The combinations are more dangerous because PI₃ can enhance the damage of other disease organisms. PI₃ vaccines are almost always combined with IBR, BVD and BRSV vaccines.

Disease Control

Control of these diseases involves herd biosecurity and vaccination. Most outbreaks of these viruses can be traced to introduction of purchased animals, contact of neighboring animals from unknown background and commingling of animals from different herds. Here are some herd biosecurity measures you should follow:

- Purchase only open females that are known to be BVD negative (a test is available)
- Test all new additions, including bulls
- Isolate any new additions for 30 days
- Vaccinate for viruses twice during the isolation period
- Prevent contact (two fences between) with neighboring cattle
- Prevent mixing of animal groups immediately before breeding and during the first trimester of pregnancy.

There are numerous vaccines available for these viruses and most are in combination with each other. The thing that is confusing is the use of modified live and killed products.

- A single dose of Modified Live Vaccine results in long term immunity. So if the situation allows, use the Modified Live Vaccine. A group of open heifers which are isolated from the cow herd might be a good situation for Modified Live vaccine use
- Modified Live IBR vaccines carry a slight risk of causing abortion so should not be used in pregnant cows or in any animal exposed to pregnant cows, such as nursing calves vaccinated animals can shed the virus and possibly infect pregnant cows unless the product is specifically labeled for use in or around pregnant animals and if label directions are followed (vaccinated at least once with the product in the past year)
- Most killed vaccines are safe to use in all cattle
- To get a high level of resistance two doses of killed product must be used about 28 days apart
- Make sure that BVD vaccines contain Type 1 and Type 2 BVD virus
- All BRSV vaccines (modified live or killed) can be given to calves and pregnant cows. Most BRSV vaccines, even modified live, require two doses about 28 days apart to produce good immunity.

Make sure you follow the label instructions when using these vaccines.

Other vaccination practices include:

- The cow herd should be boosted every year before calving to stimulate antibodies in the colostrum which then provide immunity to calves.
- Properly vaccinate all new additions before introduction to the herd
- Properly vaccinate bulls before turnout
- Initiate vaccination of calves at 5-6 months of age. If using a killed product, make sure to give a booster according to the label. If using a modified live product, make sure coes were vaccinated previously to prevent abortions. Complete the virus vaccinations 30 days before weaning.

Understanding the virus complex is not easy but because it causes significant disease problems, abortion and shipping fever, it is best we understand what all the letters mean and how to best deal with them.