MANAGEMENT

Vet Call

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Bovine leukosis virus

Veterinarians and producers are beginning to have a greater interest in bovine leukosis virus (BLV). Interest about this virus is probably increasing because many international trading partners require BLV-free cattle; and more and more farms and ranches in the United States are also requiring that purchased bulls and heifers be free of the virus.

Effects on cattle

BLV only infects cattle (humans and other animals cannot get the disease from cattle) and targets white blood cells, called lymphocytes. The virus is present in many dairy herds in the United States, but it is found in relatively few beef herds.

Many of the cattle infected with the virus show no negative symptoms during their lifetimes; however, between 1%-5% of BLV-infected cattle will eventually develop lymphosarcoma tumors that can affect various organs in the body. The disease has a long course between when an animal first is infected with the virus and when it shows signs of disease, which results in tumors usually not being detected until an animal is at least 4 years of age.

Guidelines for on-farm control of BLV:

- Use individual sterile needles for injections or blood collection.
- Disinfect tattoo equipment between animals.
- Use electric dehorners or disinfect dehorning equipment between animals.
- Replace examination gloves and sleeves between animals.
- Do not feed colostrum from cows with BLV, or from cows where the BLV status is not known, to calves.
- Use BLV-free recipients for embryo transfer (ET).
- Wash and rinse instruments in warm water, then submerge them in an appropriate disinfectant.

If a lymphosarcoma tumor invades the digestive tract, ulcers or blockages may occur, leading to reduced feed intake, weight loss and poor performance. If a tumor invades the spinal cord, affected cattle will appear uncoordinated or can be down and unable to rise.

Tumors can be present in the uterus, causing abortion and infertility. Tumors may also invade the heart, affecting heart function, or may be found in the area behind the eye, causing the eye to bulge from the socket. Carcasses with visible lymphosarcoma tumors are condemned and do not enter the food system.

Costs of BLV

The direct costs of BLV to cattlemen are associated with loss due to those cattle that actually develop lymphosarcoma tumors. Costs include: death loss, reduced production (growth and reproduction), and loss of carcass value because affected animals with tumors are condemned at slaughter. Veterinary expenses will be for diagnosis only, because the disease is not treatable. Cattle that are infected with the virus but do not have tumors do not contribute to direct losses because production generally is not affected in these animals.

Indirect losses from BLV are associated with lost or limited sales of seedstock, embryos, or semen to interstate or international markets. Many countries have restricted the entry of infected cattle and/or their products. In the future, countries free of the virus may require that the entire herd or bull stud of origin be free of the virus, as well as the individual animal.

In the United States, the market value of cattle with the virus will likely be reduced in coming years, as more producers participate in voluntary control or eradication programs that require replacement animals be free of the virus.

How BLV is transferred

Because BLV is primarily confined to blood cells, the virus can only be passed by the movement of blood cells from an infected animal to a susceptible animal. This transfer usually occurs in one of three ways:

1. Transfer of blood from procedures that use the same instruments and equipment for multiple animals, such as syringe needles, dehorners, tattoo pliers or palpation sleeves. Biting flies (horse flies and deer flies, for example) have also been studied as a source of transfer. Natural breeding and artificial insemination (AI) carry a very low risk of spreading the virus unless bleeding occurs.
2. Colostrum contains many blood cells, and the virus can be passed in colostrum from infected dams to their calves.
3. BLV can also cross from an infected cow to her fetus during pregnancy. About 10% of infected cows will infect their calves in this manner. As the percent of lymphocytes that are infected with the virus increases, the risk for transfer of the virus during pregnancy increases.

Once a cow or bull has the virus, it will have the virus for the rest of its life.

Laboratory tests of blood samples taken from cattle are able to detect an animal's response to BLV within 4-12 weeks after being infected. The tests are pretty accurate.

Voluntary control programs that utilize these laboratory tests have been developed to eradicate BLV infections from herds and to certify herds as BLV-free. Programs may

vary between states, but essentially all animals 6-8 months of age and older are tested, with follow-up tests approximately every 90 days.

Three consecutive negative whole-herd tests are required for the herd to be certified as BLV-free. Each year, all animals in the herd older than 18 months of age are re-tested and must be negative for the herd to remain certified-free.

In addition, herds that are certified free of BLV must also use individual disposable needles for all injections or testing procedures, disinfect equipment between animals, and use individual palpation sleeves. Because not all states have BLV control programs in place, and the details vary between states, be sure to contact your local veterinarian for more information for your specific area.

Control spread

In herds with the virus or in which the BLV status is not known, the spread of BLV can be controlled by instituting one of the following strategies:

1. Test all animals more than 6-8 months of age, cull all positive animals and repeat the procedure until no more animals are found to be positive for the virus or until another herd goal is met (level of infection in the herd). Smaller herds and herds with few positive animals may find this strategy simple to implement. Because the virus causes economic loss in very few of the animals it infects, herds that have a high percentage of positive animals will probably benefit from a strategy that allows them to keep infected, but normally producing animals.
2. Test all animals more than 6-8 months of age and separate the herd into positive and negative groups. Use strict management procedures to prevent the transfer of blood from the positive to the negative herd. The BLV-negative herd must be tested on a regular basis and any positives that are found must be moved to the positive herd.
3. Leave the herd as it is, and don't begin a testing schedule. Start using techniques that minimize the spread of the virus, and only allow replacements into the herd that do not have the virus. Over time, the percentage of the herd with BLV should decrease. The major advantages of this type of control program are that facilities do not have to be duplicated and genetically superior individuals are not lost to culling as a result of BLV status.

BLV will become an increasingly discussed problem in the beef cattle industry, particularly in the purebred and replacement breeding stock segments. Thinking about your options to minimize the direct and indirect costs of this disease on your farm or ranch now, rather than in a few years, is probably wise.

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