

Bovine Leukosis Virus

Here's how you can dodge the bullet.

by Boyd Kidwell

Bovine leukosis virus (BLV) is one of those insidious diseases that can kill cattle and reduce overall productivity of a beef herd, even when there are no obvious signs of infection. In less than 5% of infected cattle, BLV causes malignant lymphoma that leads to cancerous tumors (lymphosarcoma) and death. Most animals don't die of the disease, but the virus can never be eliminated, and BLV-positive cattle remain a source of infection for other animals. Fortunately, there is no evidence that BLV is transmissible to humans.

"BLV is on the rise in Kansas, and producers are becoming much more aware of the problem," says Kansas Extension Veterinarian Larry Hollis. "BLV is a disease that will nickel and dime you into serious losses. Often, it shows up as an occasional premature death loss. A single cow will suddenly start going downhill and die in a few days or weeks. It's unusual for more than a few animals to die, but I've seen producers lose six cows in one year, and I've seen purebred operators liquidate their herds because of BLV."

In addition to death losses, BLV can reduce milk production and result in loss of carcass value when cattle with tumors

are condemned at harvest. BLV is especially detrimental to purebred operations because most bull studs now require negative BLV tests. As awareness of the disease increases, many beef producers will insist on buying replacement females that are guaranteed free of BLV.

BLV is transmitted through white blood cells, and very small amounts of blood can transfer the virus. Several routine management practices — such as dehorning, giving injections without changing needles, ear tagging and performing multiple rectal examinations with the same obstetrical sleeve — can transmit

BLV. Infection can also occur from blood transferred during natural breeding, and BLV can cross a placenta to infect the fetus.

"Unfortunately, producers that use recommended herd management practices often run into the most problems with BLV spreading," Hollis says. "Any practice that involves blood can transmit the virus from one animal to another. Biting flies are another potential way of transmitting BLV."

Signs of trouble

The first signs of BLV in a herd may be

tumors near the lymph nodes of infected animals. Tumors are often found near the uterus, heart, fourth stomach and spinal cord, where they are associated with downer cows. If these cattle test positive for BLV, you will need to make a judgment call as to whether it will pay to test the whole herd. Lab costs vary, but BLV tests cost approximately \$6 per head, plus fees for veterinary services.

"From our experience with dairies, producers may not need to cull all of the cows that test positive for BLV, but you will want to form a plan for preventing the spread of the disease," says Craig Payne, beef veterinary Extension specialist at the University of Missouri.

If you decide to eliminate the disease from your herd, the first step is serologic (blood serum) testing of all animals older than 6 to 8 months of age for BLV antibodies. Calves younger than 6 months of age are not tested because they can receive BLV antibodies through colostrum but not actually be infected. Using test results, seropositive animals can be culled, or you may retain seropositive animals and use management practices to prevent transfer of the virus to healthy cattle.

"If you have a high percentage of seropositive animals and it's not feasible to cull that many cows, you can form a 'clean herd' and a 'dirty herd.' Over time, you want



Fig. 1: Beef '97 study regions for bovine leukosis virus (BLV) analysis



Fast facts

- ▶ BLV causes tumors and death in less than 5% of infected animals.
- ▶ There is no cure or treatment for BLV.
- ▶ Infected cattle remain productive but can potentially spread the virus to other animals.
- ▶ BLV is transmitted through blood, most often during management practices (injections, dehorning, tattooing, tagging, pregnancy-checking, etc.).
- ▶ Approximately 89% of dairy operations and 44% of dairy cows tested positive for BLV in a 1996 survey. In a 1997 survey, 39% of beef operations and 10% of beef cows tested positive for BLV.

Ten tips for prevention

Warren Bohnhoff has seen an increase in the spread of bovine leukosis virus (BLV). The veterinarian from Morrison, Ill., offers these recommendations:

- ▶ Test all incoming cattle and isolate these animals 45-60 days. Retest at the end of the isolation period before adding the cattle to your herd.
- ▶ Use disposable needles for injections and discard after each use.
- ▶ Ask your veterinarian to use a new obstetrical sleeve for examining each animal.
- ▶ Develop a control program for biting insects.
- ▶ Implement annual testing for all animals.

- ▶ Use artificial insemination (AI) and test cleanup bulls.
- ▶ Do not use colostrum or milk from BLV-positive cows to feed calves.
- ▶ Do not use BLV-positive cows as recipients for embryo transfer.
- ▶ Thoroughly clean and disinfect dehorning equipment, tattoo pliers, taggers and surgical instruments that come in contact with blood.
- ▶ Perform veterinary procedures on BLV-positive cows last.

For a list of laboratories approved for BLV testing by the Animal and Plant Health Inspection Service (APHIS), see: www.aphis.usda.gov/animal_health/lab_info_services/downloads/ApprovedLabs_BLV.pdf.

to gradually eliminate the dirty herd and build up the clean herd," Hollis says.

Using a new disposable needle for each injection, control of biting insects and disinfecting equipment that comes in contact with blood are keys to preventing the spread of BLV. To avoid introduction of BLV, all animals brought into an operation should be tested and isolated for 30-60 days and then test negative again before entering a herd.

Surprisingly common

BLV is common in dairy herds, as 89% of all operations and 44% of all cattle tested positive in the Dairy '96 study by the U.S. Department of Agriculture (USDA) National Animal Health Monitoring System (NAHMS). Since culling a high percentage of seropositive cows isn't feasible, many dairymen accept a relatively small loss of milk production and manage their herds to prevent the spread of BLV.

In the Beef '97 Study by NAHMS, 39% of the beef herds had cattle that tested positive for BLV, but the number of operations tested (2,713 operations in 23 states) was insufficient to provide a national estimate for BLV infection in beef herds (see Fig. 2). BLV was more prevalent in the Southern and Southern Plains regions and less common in the Western Region (see Fig 3).

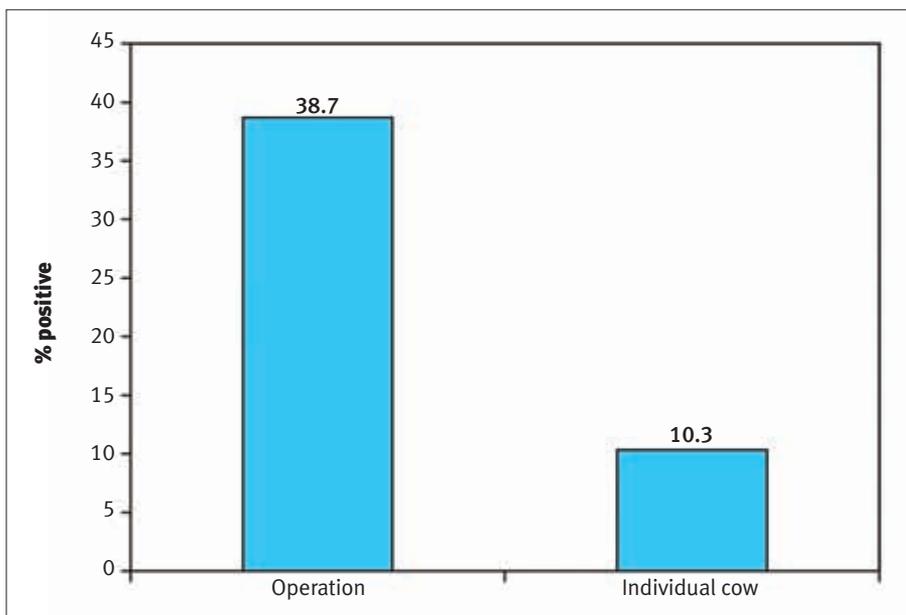
"If your herd is free of BLV, it would be worthwhile to prevent the introduction of this disease. It's a long-term process to eliminate BLV from a herd," says veterinarian Paul Virkler of the College of Veterinary Medicine at Cornell University in Ithaca, N.Y.

While finding BLV-positive cattle doesn't mean complete disaster for a beef operation, this is a serious disease that deserves a plan for prevention.

"If I were a seedstock producer, I would test my herd for BLV every year," Hollis says.

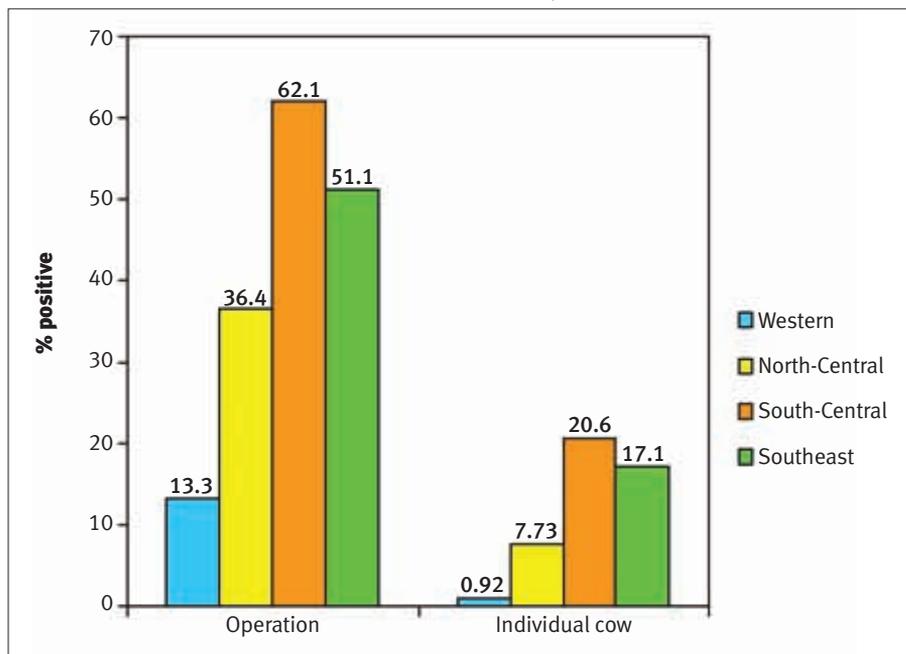


Fig. 2: BLV infection in beef cattle, operation and individual cow prevalence



Source: Beef '97 Study, USDA-NAHMS.

Fig. 3: BLV infection in beef cattle, prevalence by geographic region



Source: Beef '97 Study, USDA-NAHMS.