

# Dairy Newsletter

A Blast from the Past:

Bovine Leukemia Virus



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We find when we bring up Bovine Leukemia Virus (BLV), leukosis, lymphoma, or lymphosarcoma on-farm, it sparks far-off memories of testing export cattle back in the day. Decades ago, when Canadian cattle were exported around the world for breeding on a fairly regular basis, a negative test for BLV was a requirement to enter many countries. This is still the case, with many countries having completely eradicated BLV from their dairy herds. However, most of our producers are no longer exporting cattle internationally like they once were, putting BLV in the back of their minds.

The alarming thing is that BLV should always be on our radar, whether we are exporting cattle internationally or not. Several American and Canadian studies have found that over 90% of dairy herds have at least one cow positive for BLV. Additionally, those herds



that have BLV positive cows have on average 30-40% of the herd infected, and in some herds, almost every cow carries the virus.

So, with such high rates of the virus existing in North American dairy herds, why is this not something we talk more about, or diagnose more cases of?

This is where the biology of the virus comes in. This virus replicates slowly and hides in a type of white blood cell called a lymphocyte. These two characteristics allow the virus to evade the immune system, meaning that the cow does not mount an effective immune response against BLV and goes on carrying the virus for their entire life. The virus is transmitted cow to cow through blood mostly, but can also be transmitted to calves during pregnancy or through colostrum. The following are recommended management practices to decrease BLV transmission:

1. Single use needles
2. Single use rectal sleeves (conflicting studies exist on this point)
3. Control of biting flies
4. Freezing or pasteurizing colostrum and milk before feeding to calves
5. Avoiding natural breeding
6. Cleaning processing/treatment equipment between each cow; hoof knives, dehorner, tattooing equipment, balling guns
7. Maintaining a closed herd and not buying in cattle



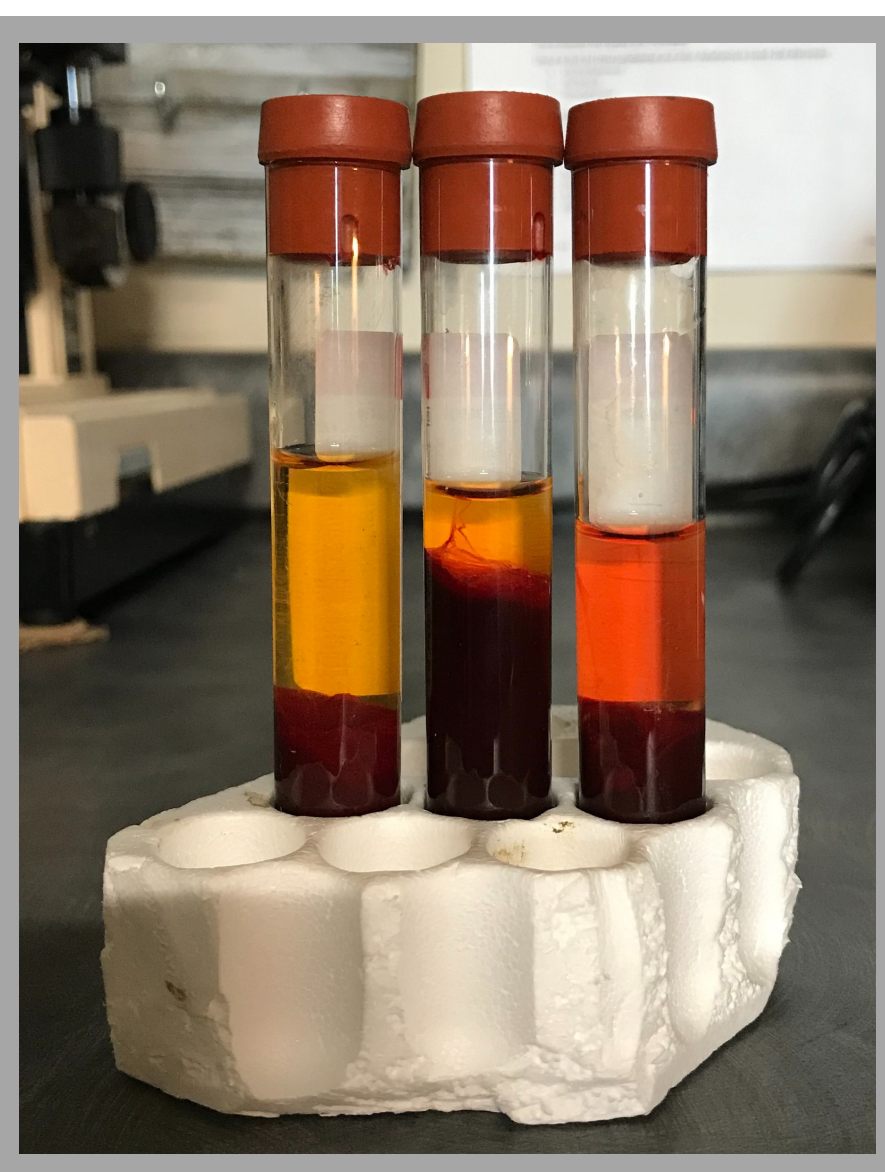
We tend not to diagnose many clinical cases of BLV because only 1-5% of BLV positive cows go on to actually develop cancer. As an example, if you have a 50-cow milking herd with a 40% prevalence of BLV positive cows, and only 1% of these cows ever go on to develop cancer, you might only see a cow with BLV-associated cancer once every 5 years. This number may not seem high, but in the United States meat plant reports indicate that BLV-related cancer is the



number one reason for whole carcass condemnation of dairy cattle. We do see enough clinical cases as veterinarians in this area that we feel it is important to raise awareness amongst our herds. Additionally, only recently have researchers discovered that developing cancer from the virus is only a small part of the losses associated with BLV.

Several recent studies have found that BLV substantially affects milk production, immunity, susceptibility to other diseases, culling rates, and death. An Alberta-based

study found that in the Canadian quota system a cow that is BLV negative generates a net revenue of \$8276 per year, where a BLV positive cow generates a net revenue of \$7641 per year; a difference of \$635/cow/year. The lost revenue in the BLV positive cows comes from decreased milk production, increased disease events, premature culling, and premature death. To further quantify the loss in milk production related to BLV another author reports that for every 10% increase in BLV prevalence in a herd there is a 95kg/cow/year milk loss. If we come back to our 50-cow herd example, if this herd went from 0% BLV prevalence to 10% prevalence they would lose 4750kg of milk per year. If this herd went from 0% BLV prevalence to 40% prevalence (the average on Canadian dairy herds) they would lose 19000kg of milk per year. I think the numbers speak for themselves in demonstrating the importance of controlling this virus in dairy herds.





There are several different control strategies for BLV. There is no “best strategy” as every farm requires a personalized plan. The first step in coming up with a BLV control strategy is to establish your herd’s BLV prevalence. For example, a herd that has only 5% BLV positive cows will benefit from a test and cull strategy where all positive cows are immediately culled. However, a herd with 60% BLV positive cows will be unlikely to be able to implement a test and cull strategy, as they would have no cows left to fill their quota! Establishing your herd’s BLV prevalence can be done via whole herd milk or blood sampling which will give a precise number of infected animals or monthly bulk tank samples (once a month for three months) which will provide a cost-effective estimate of herd prevalence. However, note that the bulk tank sampling is not common and it is difficult to find a laboratory that is licensed to do this testing. Regardless of your herd’s prevalence the management practices listed above should be implemented without question. There is even the additional benefit of reducing other common dairy cow diseases by following these practices.

If BLV detection, control, and reduction in your herd is something that you see value in please do not hesitate to contact the office to discuss your options with us.

**To set up a herd health  
appointment, please contact our  
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