Bovine Leukemia Virus

Helio Rezende
Global Technical Service Tool Manager

Despite of being one of the oldest bovine diseases, reported for the first time in the 1870s, Bovine Leukosis is still present in a very high percentage of herds (especially dairy) around the world. Despite the incredible amount of research devoted to the Bovine Leukemia Virus (BLV), it keeps causing huge economic losses.

BLV is present in more than 87% of dairy herds around the world. On average, these herds have more than 30% of animals infected. One of the main reasons for this very high prevalence is the low presentation of specific clinical cases (Lymphosarcoma). Other opportunistic diseases can appear due to the presence of the virus, though no clinical signals are present.

There are several negative impacts associated with the viral presence and “size” of reaction on ELISA among them:

- Decreased milk yield – The higher the ELISA reaction, the higher decrease in yield
- Decreased longevity – Higher ELISA reaction cows tend to have a shorter life
- Older cows show higher prevalence
The higher the reaction, the higher the damage

<table>
<thead>
<tr>
<th>ELISA OD</th>
<th>Likelihood of leaving the herd*</th>
<th>Milk Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEG: OD &lt; 0,1</td>
<td>-</td>
<td>LOW vs. Negative - 0.4%</td>
</tr>
<tr>
<td>LOW: ≤ 0,1 OD &lt; 0,25</td>
<td>8%</td>
<td>HIGH vs. Negative – 3.1%</td>
</tr>
<tr>
<td>MED: ≤ 0,25 OD &lt; 0,5</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>HIGH: OD ≥ 0,5</td>
<td>40%</td>
<td></td>
</tr>
</tbody>
</table>

BLV Impact
- Loss of milk production
- Decreased longevity
- Decreased immune response and health of persistently infected (PL) animals.
  - Immune dysfunction, especially in lymphocytes.
  - Probable impact on host defenses for opportunistic pathogens
  - Possible cause for decreased milk production and cow longevity

Controlling Transmission
Once the virus is in an unstable environment, good sanitary practices can significantly decrease the transmission of virus between farms and animals. The main sources of transmission are blood, milk and colostrum.

- Determine the prevalence of BLV in your herd
- Build a solid plan to reduce the transmission factors
- Re-check prevalence in 12 months

Reduce Transmission Risk Factors
- Don’t share needles
- Single use palpation gloves (high risk), see table below

<table>
<thead>
<tr>
<th>Percent of Positive Occult blood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Third Cow in line</td>
</tr>
<tr>
<td>First Cow</td>
</tr>
<tr>
<td>First Heifer</td>
</tr>
</tbody>
</table>

- If there is a cleanup bull, test it yearly
- Improve cleaning procedures on handling devices (dehorning, hoof trimming, etc.)
- Thermal treatment of colostrum and milk (freeze or heat) to feed calves
- Fly control
- Buy only animals that test negative