



October 2020 DAIRY NEWSLETTER

Klebsiella Mastitis

Mastitis is one of the most costly diseases in Canadian dairy herds, causing financial losses due to decreases in production, discarded milk, treatment costs and culling. A wide range of management tools and strategies are available to help decrease the incidence of mastitis in your herd. Milking and stall hygiene, as well as dry-off management, can be used to reduce pathogen spread and contamination. The types of pathogen that cause mastitis vary from farm to farm, requiring farm-specific management strategies. Prevention for individual pathogens can be achieved with the use of vaccines. Recently, a new vaccine hit the Canadian market for the prevention of mastitis caused by the bacterium *Klebsiella pneumoniae*. The following is a little information on *Klebsiella* and the vaccine itself. If you have any further questions about *Klebsiella*, or any other mastitis pathogen, please talk to your herd veterinarian.

What is *Klebsiella*?

Klebsiella is an environmental coliform bacteria, similar to *E.coli*. This means that *Klebsiella* can live in the environment (as opposed to some pathogens, such as *Staph Aureus*, which can only live in the udder). Cows shed the bacteria in their manure, contaminating packs, stalls and alleyways. Chronic *Klebsiella* cows can also shed the bacteria in their milk, and it has been shown to be able to spread through milking equipment. However, milking equipment spread is not as common as the environmental pathogenesis. *Klebsiella* can be found on forest floors, making it a common pathogen in shavings and sawdust-based bedding material. Recycled bedding material can also have high levels of *klebsiella*, which survives in the manure through the recycling process.

What kind of mastitis does *Klebsiella* cause?

Klebsiella most commonly presents as an acute, toxic mastitis. Cows will be acutely off-feed, may have a fever and be dehydrated. The effected quarter will often be hot and hard, with “watery” milk. When we see a cow with toxic mastitis, we frequently assume that it was caused by *E.coli*, but recent data has shown that this is not always this case. The percentage of toxic mastitis caused by *klebsiella* varies widely from farm to farm, with some farms having up to 50% of their toxic mastitis being caused by *klebsiella*. The recovery rate is poor, with more than 50% of cases resulting in death or culling. After recovering from the acute disease, cows can become chronically infected, shedding high SCC and *klebsiella* in their milk. Milder forms of the disease can also be seen, causing a rise in SCC and a local infection in the quarter.



How do we diagnose it?

On visual inspection of milk there is no way to differentiate between mastitis pathogens. Milk cultures are necessary to determine what pathogens are causing mastitis on your herd. Milk cultures can be done in clinic or sent to the lab for a more specific pathogen identification. It is important to gather samples early in the disease process, and before treatment with antibiotics, to increase the odds of finding the causative pathogen. If you are having cases of toxic mastitis, culture is important to determine what bacteria is causing the mastitis, and therefore would best work as a preventative.

How well does the vaccine work?

The Klebsiella vaccine can be given at a herd level on a yearly basis, or during the dry period of individual cows. Each animal must receive 2 doses 3-4 weeks apart. An additional vaccine may be necessary as a booster during lactation, depending on the mastitis incidence in your herd. In the technical trial for the vaccine, cows that received the klebsiella vaccine reduced the rate of mastitis caused by klebsiella by 71% compared to the cows which received the placebo vaccine. In addition, vaccinated cows made on average 2 pounds more milk than their unvaccinated counterparts. What is very interesting about this particular vaccine is that the piece of the bacterium that is used to cause an immune response by the vaccine (the SRP), is very similar to the equivalent piece found in E-coli bacteria. The similarity of this structure on both bacteria allows the vaccine to offer some cross protection; cows vaccinated with the klebsiella vaccine also had a reduced rate of mastitis cause by E.coli.

Call Fee Adjustment

As the number of veterinary clinics servicing food animals decreases, our practice area continues to grow. In an attempt to optimize our efficiency on the road, we are offering a call fee discount for non-urgent cases called in between 8am and 10am Monday to Friday. This is the same discount you currently receive for any pre-scheduled herd health / appointment.

Non-urgent farm calls received after this time will receive a graduated call fee based on the time of day. This does not apply to emergencies and the call fee will not change for urgent cases. Thank you for letting us care for your livestock!