Lymphatic fluid used to detect Johne’s

Researchers test lymphatic fluid to detect Johne’s bacterium earlier, faster and more accurately than current methods.

Paratuberculosis, also known as Johne’s disease, is a bovine disease caused by the bacterium Mycobacterium avium subspecies paratuberculosis (MAP). Calves become infected via exposure to the bacterium through contaminated feces or milk and can develop heavy diarrhea years later.

In order to recognize the disease before it manifests, researchers from the University of Veterinary Medicine, Vienna (Vetmeduni-Vienna), have employed, for the first time, a rapid test of the animals’ lymphatic fluid.

In a recent publication, the researchers described a promising method that could serve as the basis for early diagnosis of Johne’s disease.

Paratuberculosis mainly affects ruminants and causes treatment-resistant diarrhea and wasting among affected animals.

The disease can result in considerable economic losses for commercial farms because the animals produce less milk, exhibit fertility problems and are more susceptible to other conditions such as udder inflammation.

To date, there has been no treatment for paratuberculosis.

The disease usually manifests two to three years after the initial infection. In some cases, it can even take up to 18 years before the disease becomes apparent, Vetmeduni-Vienna noted. During this time, infected animals shed the bacteria, putting the animal’s macrophages. These immune cells then migrate through the lymphatic fluid into the lymph nodes, the blood and other organs.

Laboratory testing currently looks at the feces, milk and blood of animals suspected of being infected.

First study author Lorenz Khol with the Clinic for Ruminants at Vetmeduni-Vienna, in cooperation with the University of Florida College of Veterinary Medicine, developed a possible alternative method for early diagnosis of the infection.

For the test, Khol took fluid from the lymph vessels at the animals’ udders. Just a few milliliters are enough to detect MAP using polymerase chain reaction (PCR) in the lymph.

“Taking lymphatic fluid from cattle is not easy, but it can be performed effortlessly with some practice,” Khol said.

“The longitudinal vessels lie next to the veins under the skin of the udder and can only be punctured during lactation. As the macrophages can be found in the lymphatic fluid first, we believe that an infection can be diagnosed here substantially earlier and more quickly than with today’s usual methods.”

More positive results

The scientists tested a total of 86 cows from different farms exhibiting symptoms of diarrhea and weight loss.

They found that the lymph analysis yielded significantly more positive results than the analysis using feces, blood or milk.

“This is an indication of the higher sensitivity of our method,” Khol explained. “After one year, about 70% of all animals which were tested positive via lymph PCR had been culled from their herds. These animals had developed various diseases or a reduced performance that made it necessary to remove the animals from the farm. In comparison, cows with a negative lymph result showed a 27% culling rate after one year only.”

The results show that the method is a promising one,” he added. “We must still improve the technique, however, in order to increase the reliability of the results. The fact that there is no treatment for this disease makes comprehensive early diagnosis especially important.”


Cal-Maine subsidiary buys Egg-Land’s Best franchise

Cal-Maine Foods Inc. announced that Southwest Specialty Eggs LLC, its joint venture with Hickman’s Egg Ranch Inc., has acquired the Egg-Land’s Best Inc. franchise for the southern California markets, plus Clark County and Las Vegas, Nev.

As a result of this transaction, Southwest Specialty Eggs will have licensing agreements in this market region for the sale of Egg-Land’s Best and Land O’Lakes branded specialty eggs, as well as Grain, Farmhouse Eggs and other premium brands.

Sales of Egg-Land’s Best specialty eggs accounted for approximately 14.4% of Cal-Maine’s total shell egg sales in fiscal 2014.

Commenting on the announcement, Dolph Baker, chairman, president and chief executive officer of Cal-Maine, said, “As consumer demand for specialty eggs has continued to grow, we have focused our growth strategy on expanding our market reach for sales of specialty eggs. We offer a variety of healthy choices for our customers, and we look forward to participating in Southwest Specialty Eggs LLC’s marketing and distribution of these popular and well-respected brands in southern California and Nevada.”

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