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Mycoplasma Bovis

Mycoplasma bovis plays a part in BRDC; prevention is key.

by **Troy Smith**, field editor

Some beef cattle folk may think of mycoplasma infection as a disease challenge for dairies and veal-calf ranches, and it is. But mycoplasma isn't picky. The causative organism can be carried by infected animals already in a herd, or brought in by newly introduced infected animals. When conditions are right, outbreaks occur in beef cattle operations, too. Mycoplasma can spread rather quickly and there is no easy fix. Successful treatment usually depends on early diagnosis, but that's not easy, either.

Mycoplasma is the name applied to a large family of organisms similar to bacteria, but lacking a cell wall. There are many species of mycoplasma and more than 20 different species have been isolated from cattle. Many of those are not pathogenic, but *Mycoplasma bovis* is a real troublemaker.

According to Amelia Woolums, veterinarian and professor at the University of Georgia College of Veterinary Medicine, *M. bovis* is considered one of the more pathogenic species. While some others are thought to play secondary roles in bovine respiratory disease, *M. bovis* can do it alone. It can cause pneumonia, middle-ear infections and arthritis, affecting mostly young animals. Mastitis and infections causing reproductive problems also have been attributed to *M. bovis*, particularly among dairy cows, but occasionally in beef females. For the purposes of this article, the term "mycoplasma" shall refer specifically to *M. bovis*.

A complex issue

"It is part of the bovine respiratory disease complex (BRDC)," explains Woolums. "Among

beef cattle, mycoplasma outbreaks probably occur most commonly in stocker operations. Outbreaks occur in feedlots, too, and it can be a problem in unweaned beef calves."

While it can cause respiratory disease by itself, Woolums says mycoplasma more often plays the opportunist, striking when an animal's immune function has been weakened by other factors, including stress and pre-existing disease. It is believed to happen most often following infections by one or more of the other viral and bacterial agents associated with BRDC.

Mycoplasma is almost always present, even in healthy cattle. It's considered part of the normal flora in a bovine beast's upper respiratory tract. It becomes a problem when it gains the opportunity to colonize the lower respiratory tract — usually seven to 14 days after animals have begun to develop BRDC due to a different bug. Once attached to the mucosal surfaces of the lungs, mycoplasma releases toxins that cause lung tissue damage and may cause abscesses. Mycoplasma can further suppress immune function and exacerbate disease caused by other BRDC pathogens.

"We think there are differences in the virulence of different strains of mycoplasma, because it can be very serious in some cattle but much less serious in similar cattle that have been handled in a similar way," adds Woolums. "Mycoplasma infection often does not respond well to treatment with antibiotics and may require long-term therapy."

Mycoplasma can move through the bloodstream to other tissues. Infection of the middle ear may result, with one drooping ear being the typical symptom. However, the most common targets of subsequent infection are joints and tendon sheaths. Woolums says respiratory disease followed by lameness is a significant clue that mycoplasma is at work.

"Joint infections are difficult to clear up and next to impossible if they advance to septic arthritis," states Woolums. "Early diagnosis and prolonged treatment are keys to successful treatment, but producers really need to consult a veterinarian for confirmation of mycoplasma and treatment advice."

As a partner and professional-services veterinarian at Feedlot Health Management Services Ltd., Kent Fenton sees mycoplasma infection frequently among feedlot cattle in Canada and the United States. Feedlot cattle comprise about 98% of the work performed by the firm, located near Calgary, at Okotoks, Alta. Feedlot clients collectively represent fed

cattle throughput of more than 2 million head annually.

“The incidence of mycoplasma infection varies among feedlots and can vary for different populations within a feedlot. Most typically affected are young, lightweight cattle that are most susceptible to stress. Infections generally develop early in the feeding period,” explains Fenton. “Most mycoplasma infections we see are part of BRDC. Mycoplasma is a common cause, whether primary or secondary, of BRDC.”

“In beef breeds and northern cattle in particular, we don’t see a lot of ear infections. We do see arthritis, but less than 10 years ago,” Fenton adds, noting that, in his experience, the incidence of mycoplasma arthritis infections is stable or slightly reduced. “When we see arthritis caused by mycoplasma, it’s usually in an outbreak. I don’t know why.”

Prevention is key

Fenton agrees that early diagnosis and treatment are particularly important when dealing with mycoplasma. Better still, take steps to minimize the risk of infection.

“Prevention is the key,” states veterinarian Dale Grotelueschen, director of the University of Nebraska Great Plains Veterinary Educational Center. “That means good management of nutrition, preventative health care that includes an adequate immunization program, and minimizing stress.”

According to Grotelueschen, mycoplasma vaccines are available, but data regarding their efficacy in minimizing risk is limited. However, an immunization program that addresses other BRDC pathogens can help lower the risk of opening a door to mycoplasma disease. Commingling of cattle from different herds also presents increased risk.

“Biosecurity is an important preventative step,” adds Grotelueschen, advising producers to adopt and follow a strict biosecurity protocol that best applies to their type of operation.

“If producers suspect their cattle may be infected with mycoplasma, they should work with a veterinarian to get a definitive diagnosis. Their veterinarian can prescribe the most appropriate antimicrobial treatment for their individual situation,” advises Grotelueschen.



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“Response to treatment is variable and less than satisfactory in many cases, but starting early can make a big difference.”



Editor’s Note: Troy Smith is a freelancer and cattleman from Sargent, Neb.