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The first 90 days of a calf's life are crucial to growth and future potential, and a BRD infection can knock it down in an instant. Affected calves can experience decreased weight gains immediately — as much as a third of a pound a day — compared with calves not infected.

Photo courtesy of Zoetis.

BRD caused by *Mycoplasma bovis*: It's more common than you'd expect

Mycoplasma bovis might seem harmless, but its presence increases a calf's chance of contracting BRD by 74%. Farms

should focus on calf care and diagnostic and treatment protocols to develop a plan to minimize its impact.

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While several pathogens and environmental conditions are implicated in bovine respiratory disease (BRD), or calfhood pneumonia, there's one specific pathogen producers need to watch for: *Mycoplasma bovis* (*M. bovis*).

Described as a “cunning chameleon,” *M. bovis* has vague symptoms with an insidious onset. It is difficult to diagnose, and treat, and producers may not even realize it is on their operation. Some calves will present with classic signs, such as ear or joint infections, while others appear to have a typical case of calf pneumonia. By the time symptoms are noticed, it can be a chronic BRD case, leading to economic losses and animal welfare hardships. It is argued to be an emerging disease in the dairy industry.

What makes *M. bovis* different?

Although there is limited data on the prevalence of *M. bovis*, a recent study showed that the pathogen was isolated in 67% of calves with clinical signs of BRD. Furthermore, the presence of *M. bovis* in calves increased the odds of BRD by 74%.

It is difficult to diagnose *M. bovis* on dairies. This is due to *M. bovis* being accompanied by other BRD pathogens and inconsistent signs of illness. Furthermore, detecting *M. bovis* through diagnostic testing can become tricky because veterinarians and producers must specifically request to test submitted lab cultures for *M. bovis*. Due to the pathogen needing CO₂ to grow, labs will not detect *M. bovis* with a routine nasal swab or lung culture test; therefore, special media and growing conditions are needed.

Having worked with many producers over the years who battle BRD cases on their dairies, many don't think they have a *M. bovis* problem. However, after we run diagnostic testing, *M. bovis* is a key bacteria identified. It is clear that this pathogen is more common than producers think.

Lastly, *M. bovis* is not only hard to detect, but it is hard to treat. These bacteria do not have a cell wall, meaning antibiotics that attack cell walls, like penicillin and other beta-lactam antibiotics, are rendered ineffective.

These factors combined make the perfect storm for BRD to thrive and threaten dairy calves when they are most vulnerable.

What is the impact of *M. bovis* on the dairy industry?

Although there is limited data that show the economic impact of *M. bovis*, dairy producers know the consequences of chronic BRD cases and what calfhood disease can mean for future productivity and profitability.

The first 90 days of a calf's life are crucial to growth and future potential, and a BRD infection can knock it down in an instant. Affected calves can experience decreased weight gains immediately – as much as a third of a pound a day – compared with calves not infected. Furthermore, calves that experience pneumonia in the first three months of life are more likely to experience delays in calving, breeding and milk production. A study conducted by the University of Wisconsin – Madison found cows that acquired lung damage from calfhood respiratory infections produced 1,155 fewer pounds of milk in their first lactation.

BRD caused by *M. bovis* is a threat to dairy calves and, ultimately, a dairy's bottom line. It is of utmost importance that producers and farm teams work together to apply management protocols that promote a healthy environment and help minimize the impact of calf pneumonia.

How can you protect calves now?

To help prevent respiratory disease caused by *M. bovis* and other BRD pathogens, producers should work closely with their veterinarians and focus on calf care, as well as diagnostic and treatment protocols to determine what is best for their herd.

Five key tips to consider

- 1. Nail down the basics.** Superb colostrum management, adequate nutrition, comprehensive vaccination protocols and ensuring a clean environment are just a few calf care basics that work together to help build immunity in young dairy calves. Ensure that farm teams are not overlooking the basics of calf care and are helping minimize potential disease risk.
- 2. Know how it may spread.** Data on how *M. bovis* spreads are limited. However, dairies often see increased transmission rates when milk or colostrum infected by *M. bovis* is ingested by young calves or post-weaning when calves are moved to group housing. Other studies suggest that dairy cows may be carriers of *M. bovis* for life and expose calves in the maternity pen.
- 3. Know the signs.** Respiratory disease caused by *M. bovis* may be difficult to identify early because of vague or inconsistent symptoms. Calves are good at hiding symptoms of disease. Feeding time is a good opportunity for farm teams to look for the following telltale signs:
 - Head tilt with drooping ears (*M. bovis* causes ear infections, known as otitis)

- Lameness (*M. bovis* causes swollen joints and arthritis)
- Poor appetite and weight gain
- Respiratory signs such as rapid breathing, coughing, fever and nasal discharge

4. Ensure a comprehensive vaccination protocol. Consider introducing a modified-live bacterial vaccine to a vaccination protocol. A recent study conducted by Zoetis found that a modified-live vaccine demonstrated effective protection against respiratory disease caused by *M. bovis*. The study found death loss in high-risk Holstein steer calves that were vaccinated with Protivity was reduced by 33%, compared to calves that were not vaccinated. This vaccine can provide an efficacious prevention tactic for dairies to help protect their calves.

5. Outline diagnosis criteria and treatment protocols, and ensure calf care teams are trained on how to spot calfhood disease and know what comes next. Consult with your herd veterinarian to confirm guidelines on disease identification, when calves should be treated and what antibiotic therapy to use and for how long. *M. bovis* can linger in calves for weeks, so a longer duration of antibiotics may be recommended.

*References omitted but are available upon request by sending an email to the **editor** (<mailto:editor@progressivedairy.com>).*