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The Untreatables: *Confronting Mycoplasma, Prototheca Mastitis*

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As a dairy producer, you are likely no stranger to standard mastitis pathogens like *E. coli* or *Strep sp.* You catch them, you treat them according to your herd protocol, and most of the time, the cow recovers. However, there are two high-consequence mastitis pathogens that completely break this rulebook:

Mycoplasma (specifically *Mycoplasma bovis*) and Prototheca (specifically *Prototheca bovis*). These two organisms can have a tremendous impact on your dairy's profitability.

What makes these two so dangerous? **They are completely untreatable with standard antibiotics.** Once they establish a foothold in an udder, there is no cure. Leaving them undetected can quickly turn a few isolated cases into a catastrophic, herd-wide breakout. Here is what you need to know to identify, manage, and keep these two 'untreatables' off your dairy.

Pathogen #1: Mycoplasma — The Contagious Speedster

Mycoplasma is a highly contagious, fast-spreading bacterium. Because it entirely lacks a cell wall, standard beta-lactam antibiotics (like penicillin) have absolutely zero effect on it.

- **The Tell-Tale Signs:** *Mycoplasma* often strikes multiple quarters simultaneously. The milk rapidly drops in volume and takes on a distinct, brown, sandy, or flaky sediment. You might also notice a sudden spike in your bulk tank somatic cell count (SCC).

- **The Stealth Factor:** An outbreak in the milking parlor is frequently preceded by an uptick in respiratory disease, swollen joints, or ear infections in calves or heifers on the farm.

- **How It Spreads:** It behaves like a true contagious pathogen, hitching a ride from cow to cow during milking via contaminated milker hands, wash towels, or malfunctioning milking units.

Pathogen #2: Prototheca — The Environmental Alga

Unlike *Mycoplasma*, *Prototheca* is not a bacterium at all. It is a colorless, microscopic alga that thrives in wet, warm organic matter.

- **The Tell-Tale Signs:** *Prototheca* is a master of disguise. It primarily causes subclinical mastitis, meaning a cow might look perfectly fine. However, her individual SCC will linger stubbornly between 200,000 and 400,000 cells/mL (or higher) for multiple lactations while her milk production slowly slips away. When it does go clinical, the milk appears watery with mild flakes or garget.

- **The Stealth Factor:** Because it forms a protective 'biofilm,' it is highly resistant to both antibiotics and standard dairy sanitizers.

- **How It Spreads:** It loves damp environments—muddy lots, stagnant water, poorly managed bedding, and contaminated wash water. Once it enters a cow's udder, it can also behave contagiously, spreading unit-to-unit in the parlor.

CRITICAL DIAGNOSTIC WARNING: Standard on-farm or commercial blood agar culture plates **WILL NOT** grow these pathogens. If your vet clinic or lab runs a standard 24-hour routine mastitis culture, both *Mycoplasma* and *Prototheca* will return a false 'No Growth' result. To find them, you must explicitly request specific, specialized culture media (like Hayflick's media for *Mycoplasma*) and longer incubation periods, or switch to DNA-based testing.

The No-Treatment Protocol: Action Steps for Your Farm

Because you cannot treat your way out of a *Mycoplasma* or *Prototheca* outbreak, your entire strategy must revolve around aggressive biosecurity, rapid identification and strict segregation.

1. Implement a 'Test and Segregate/Cull'

Routine: Make it a strict policy to culture all fresh cows and newly calved heifers before they commingle with the main lactating herd. Utilize a California Mastitis Test (CMT) protocol on fresh animals to catch anomalies early. Do not wait on clinical cases; any cow showing signs of resistance to standard therapy should be sampled. Since traditional cultures require unique media and up to 7-10 days to grow, utilizing modern PCR DNA detection options can offer rapid, highly accurate answers in just hours.

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2. Tighten Your Parlor Hygiene: Milkers must wear clean gloves and sanitize them frequently between cows. Never reuse a towel between animals; ensure teats are completely clean and bone-dry before attaching units. Ensure 100% coverage with high-quality germicidal dips. If a positive or suspect cow is milked, the unit must be back-flushed or sanitized—ideally using an intermediate disinfectant like peracetic acid—before hitting the next cow.

3. Bulletproof Your Environment & Infusion Cleanliness: To fight *Prototheca*, eliminate mud holes, standing water, and organic buildup in lanes. Ensure stalls are groomed daily to remove wet, soiled bedding. A common way these pathogens are forced into the udder is during dry-cow therapy or treatment; always scrub the teat end vigorously with a fresh alcohol wipe until it comes away completely clean before introducing a tube.

4. Close Your Herd Gates: The highest risk for introducing *Mycoplasma* is buying someone else's problem. If purchasing replacements, demand to see bulk tank milk culture records from the herd of origin. Quarantine all purchased animals and test them individually before they step foot into your main milking line.

The Bottom Line

When it comes to *Mycoplasma* and *Prototheca*, prevention is the only cure. Work closely with your veterinarian to establish a routine bulk tank monitoring program (ideally testing twice a month) so you can catch these pathogens before they catch you.

Teenage Years with a Bright Yellow Ford Galaxy

By Dr. Mark Sosalla

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I recently attended the funeral of my cousin Barry. Barry was a year older than me and lived on a farm a mile from ours. Barry was 6 feet 6 inches tall and was a very good basketball player. While I was at his funeral I thought of a couple of amusing stories that involved his car.

When I was in high school, most farm kids were given a car when they turned 16 so they could work later in the mornings before school and could get home earlier after school to help on the farm. Barry's dad bought Barry a bright yellow Ford Galaxy 500.

Everyone in my hometown recognized Barry's car. One day while my dad and I were working on some machinery, Barry's dad pulled up by us driving Barry's car. He had an exasperated look on his face.

He got out of the car and told us that he had been at a stop sign in town when a car drove by honking its horn and somebody stuck their bare ass out the window at him. My dad and Barry's dad talked for at least 15 minutes trying to figure out why someone would do such a thing. I continued to work with a smirk on my face wondering which idiot friends of mine had mistakenly mooned Barry's dad instead of Barry.

Another story about that car involved a girl named Nancy who was the prettiest girl in town. Barry and I were very similar in that we were very shy around girls. One day after basketball practice a couple of us teammates were riding in Barry's car. Somebody came up with the bright idea that we should drive by Nancy's house. Barry agreed and preceded to drive by her



house. Nancy lived on a dead-end street and had the last house on the road. As Barry was turning around one of the guys yelled, "duck". We all ducked and someone started honking the horn and another person kept pulling the shifting level into neutral. Barry turned about 5 shades of red as Nancy looked out the window to see Barry's car.

About 3 weeks later we were riding in Barry's car, and someone suggested we drive by Nancy's house again. Barry said he wouldn't because he thought we would pull the same thing again. We all promised we wouldn't, so Barry went by her house again. Of course we did the same thing. This time both Nancy and her mom looked out to see Barry trying to turn his bright yellow car around.

I probably laughed the most at Barry, but he got the last laugh because he ended up taking Nancy to the prom and as usual, I had no date.