

MICHIGAN STATE UNIVERSITY

Dear Cooperator,

Thank you for participating in Leticia de Souza Ferreira's research on the prevalence of hemotropic mycoplasma in dairy calves and replacement heifers in Michigan. If you recall, the researchers visited your dairies on two occasions in 2022 and collected blood samples from cows at different life stages. On behalf of all researchers, including Steven Bolin, Angel Abuelo, and Bo Norby, we want to update you on what we have learned.

The study collected blood samples from cows, heifers, and calves at two points to identify the prevalence and dynamics of cows infected with *Mycoplasma wenyonii* and *Candidatus Mycoplasma haembos*. These bovine hemoplasmas are gram negative bacteria that infect blood cells.

Your willingness to participate in the project was vital to the success of the research. The generous gift of time, including meeting with the researchers on your farm, allowing blood draws, and completing a survey with additional herd demographic information was crucial to ensuring robust data collection. We appreciate your confidence in the scientific process in allowing the research team to analyze blood samples from your animals.

Included is a research summary using samples collected at your farm. If you have further questions, please contact the Antimicrobial Stewardship Lab or visit our website. The complete paper can be found [here](#).

As always, we value your data privacy. All information you have shared with us remains confidential and is anonymized when published. Your data is stored securely and has only been accessed by the research team.



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Again, thank you,
Dr. Pamela Ruegg

Research Summary for “Apparent prevalence of hemitropic mycoplasma in dairy calves and replacement heifers on Michigan farms.”

Key findings:

- Hemoplasma infections are usually subclinical and persistent over the life of the cow
- All farms had both *C.M. hembos* and *M. wenyonii* present. Some animals were infected with both bacteria
- About 7% of calves were infected by 6 months old, 30% by 8 months old, and almost 100% were infected by 17 months old with at least one bacterial species
- Clearance, or testing positive at the first visit and negative at the second, ranged between 0% and 40% for the 11 farms
- Co-infection, or testing positive for both hemoplasmas, was more common in older cows than in younger cows and calves

Considerations for future research:

What we know	Areas to study
Older cows are more likely to be co-infected	Are there different risk factors for infection with different species?
Most farms report re-using needles and/or rectal palpation sleeves. Re-use is associated with transmission of bovine leukemia virus	Is re-use associated with transmission of hemoplasmas as well?
Incidence of hemoplasmas is higher in late summer compared to other seasons	Are blood-sucking insects transmitting hemoplasmas? Does fly control decrease hemoplasma incidence?
Mycoplasmas can attach to and destroy red blood cells, causing anemia	While most infected animals are healthy, the research conflicts on hemoplasmas directly causing anemia
Infected animals had a higher concentration of eosinophils, a type of white blood cell	Do hemoplasmas stimulate the immune response in a consistent way, causing changes in white blood cells?

Citation: de Souza Ferreira, L., Bolin, S., Abuelo, A., Norby, B., Ruegg, P.L. Apparent prevalence of hemotropic mycoplasma in dairy calves and replacement heifers on Michigan farms. *J Dairy Sci.* 2024 107(7):4987-5000. doi.org/10.3168/jds.2023-24395.