

Texas Dairy Matters

Higher Education Supporting the Industry



Intramammary Infections: A challenging issue for organic dairy farmers

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Organic milk production overview

The interest in organic products has been increasing, and North America is one of the largest markets for organic milk, which generates more than \$9 billion in revenue per year. Results from a survey conducted by the U.S. Department of Agriculture (USDA) in 2019 showed the U.S. had 3,134 certified organic dairy farms an increase from 2,559 in the last survey in 2016. As a result, sales in this sector increased 14% from 2016 to 2019¹. Texas is the second largest producer of organic milk, only behind California; therefore, organic dairy farming has a substantial impact on both the national and local economies.

For a dairy farm to be certified organic, it must comply with USDA-approved methods of production. Some important requirements include that cows must graze for at least 120 days/year and 30% of the dry matter intake needs to come from pasture. Also, there are restrictions on the use of some medications like antibiotics. For welfare reasons, cows that require a more intense treatment can receive antibiotics, but their products cannot be sold as organic.

The importance of intramammary infections for the dairy industry

Intramammary infections (IMI) are caused by pathogens that will cause inflammation of the udder (i.e., mastitis). Sometimes this inflammation can be detected through clinical signs such as abnormal milk and swelling and redness in the udder (i.e., clinical mastitis). However, some IMIs are “silent,” also known as subclinical mastitis, and can only be diagnosed through laboratory tests that can detect increased somatic cell counts (immune response cells) in milk. Regardless of its presentation, IMIs cause losses in productivity and increased culling rate in dairy herds, leading to significant economic losses to the dairy producer².

What do we know about intramammary infections in organic herds?

Generally, the same pathogens that cause IMI in conventional herds are also the cause of IMI in organic dairies. Conventional producers are very familiar with the impacts

they can have on their herds: decreased milk production², impaired fertility³ and increased risk of culling⁴. In addition to best milking and hygiene practices, most conventional dairies use antibiotics to control IMI, but this strategy cannot be applied to cows producing organic milk. Even though IMI affects at least the same proportion of cows in organic systems compared with conventional systems, not much information is available on how IMIs can impact the performance of cows raised in a system where the use of antibiotics is restricted.

We recently published an epidemiological analysis of IMIs in two USDA-certified organic herds located in the High Plains⁵. We utilized farm records from 1,511 cows for our analysis, and we defined IMI based on the somatic cell counts from milk collected in the first month of lactation. We observed that greater somatic cell counts (a measure of IMI) from cows diagnosed with postpartum IMI remained elevated throughout the entire lactation and were even greater in the previous lactation (**Figure 1**). This observation suggests a chronic aspect of IMI in organic herds, probably due to the lack of use of antibiotics to prevent or treat IMI. Additionally, IMI caused losses in milk production throughout the entire lactation and increased the proportion of cows that left the herd. However, IMI did not seem to impact reproductive outcomes in organic dairies in our study. Hence, we can conclude that organic cows are affected by IMI in a similar way as conventional cows, and alternative strategies to treat and prevent IMI in cows managed under organic systems are needed to reduce economic losses caused by the

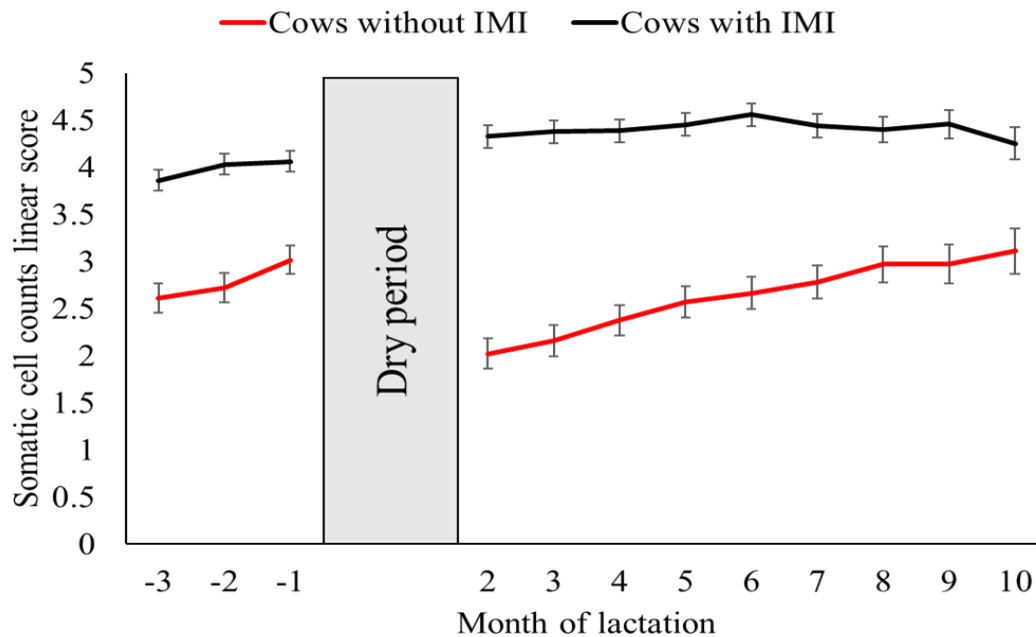


Figure 1: Somatic cell counts linear score by postpartum intramammary infection (IMI) status. Cows with IMI in the first month of lactation had elevated somatic cell counts throughout the entire lactation, and in the end of the previous lactation, suggesting chronicity of IMI in cows under organic management. (Adapted from Fernandes et al., 2021⁵)

disease. Some strategies to control IMI such as drying off affected quarters, homeopathy, and botanical products are used by organic producers, but there is a lack of evidence on

the effectiveness of these strategies⁶. Further research is needed to help organic producers find new and efficient tools to prevent and treat mastitis that are alternative to antibiotics.

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