

Staphylococcus aureus Mastitis

Staphylococcus aureus is an important bacteria responsible for causing contagious mastitis in dairy cows.



What's the Impact?

Staph. aureus is a very common¹⁻⁴ pathogen on Canadian dairy farms, and one that farmers must prioritize to effectively control.

Infection with this bacterium leads to significant consequences for infected cows, including⁵⁻⁸:



Reduced milk production



Increased number of cases of clinical mastitis



Elevated somatic cell count (SCC)



Increased risk of culling

What Does it Cost You?

Studies from Europe provide us with an idea of possible costs on a typical Canadian dairy farm. When solely evaluating milk production for each 305 day lactation, Finnish researchers reported costs of \$490 per cow infected with *Staphylococcus aureus* mastitis⁹. Estimates from Norway and Switzerland suggest between 6¹⁰-22%¹¹ of cows are infected within a herd. **This could cause financial losses between \$3,000-10,750 per year for the average Canadian dairy herd (assuming 100 milking cows).** All costs shown in Canadian dollars.

Prevention is Key

Infection of the udder of cows with *Staphylococcus aureus* is very difficult to eliminate⁶. Cows with mastitis caused by these bacteria respond poorly to treatment which allows the bacteria to persist within the infected quarter. It adheres to tissue within the quarter and causes infection, as well as causing significant tissue damage within the quarter, leading to long-lasting effects.

Biosecurity Between Farms

The main source of infection for *Staphylococcus aureus* is the skin of infected cows, so ensuring infected cows do not enter your farm is imperative. Maintaining a closed herd (no additions or animals returning from outside your herd) should be a goal of every biosecurity program.

If cows must be brought into the herd (due to lack of replacements, expansion, or genetic improvement), the best way to prevent entry of this pathogen is to consider the following purchasing strategy for cows¹²:



1. Purchase from herds with a consistent bulk tank SCC of < 200,000 cells/mL OR only purchase pregnant heifers



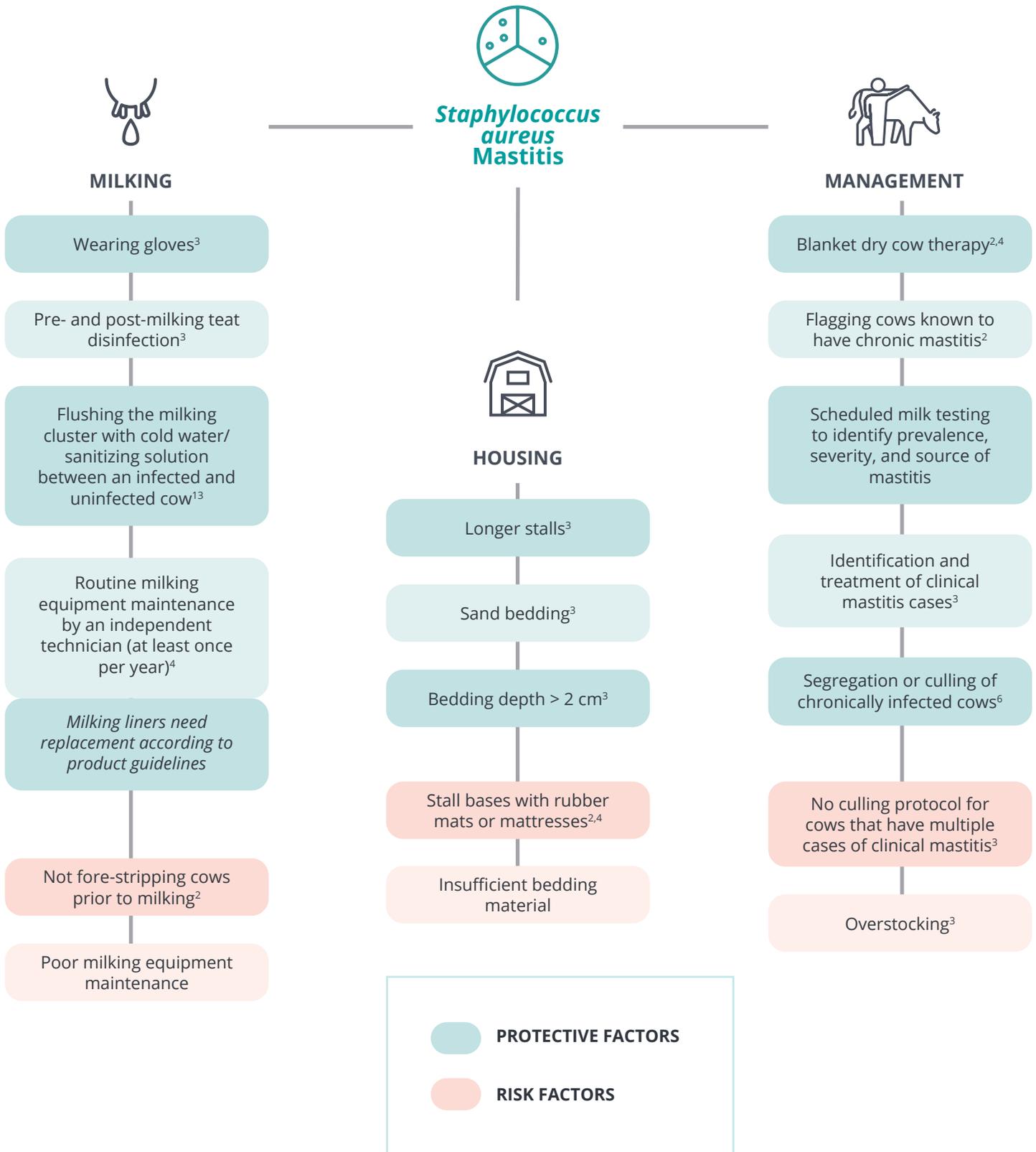
2. Ensure that each cow entering has a SCC of < 200,000 cells/mL over their entire lactation
 - To have greater certainty, use a cut off of < 100,000 cells/mL over their entire lactation



3. Culture quarter milk of cows as soon as possible following arrival, and consider animals as potentially infected (i.e. segregate and milk last) until results are available

Biosecurity Within Farms

Within a herd, most *Staphylococcus aureus* infections are predominantly spread during milking time, but it is important to consider changes in milking practices as well as housing. The figure below presents risk factors (practices associated with a higher risk of infection with *Staphylococcus aureus*) and protective factors (practices associated with a lower level of *Staphylococcus aureus*) identified in studies conducted in Canada:



Although all of these factors cannot be changed immediately, there are several recommendations surrounding milking time that can have an impact on preventing the spread of mastitis to new cows. Specifically, identifying infected cows and either milking last, segregating to another group of chronically infected cows, or flushing the milking cluster with cold water/sanitizing solution between an infected and uninfected cow¹³ can lead to a reduction in within-herd transmission. To reduce the risk of mastitis caused by this pathogen, a combination of these practices at milking time, changes in housing to ensure clean and dry lying areas, and identifying and culling cows with *Staphylococcus aureus* mastitis can be used.

Take Home Messages

Staphylococcus aureus mastitis is a major udder pathogen that can have significant economic impacts. To prevent these impacts, farms should strive to prevent the entry and spread of this mastitis-causing pathogen. For farms with this pathogen, a high priority should be placed on preventing transmission at milking time and identifying and culling infected cows.



Work with your veterinarian to develop a plan specific to your farm to eliminate or prevent entry of *Staphylococcus aureus* mastitis.

References for *Staphylococcus aureus* Mastitis

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