

Are you ready for fly season?

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Mastitis control during hot summer months is important to the health of mammary glands and milk quality. In northern Europe, “summer mastitis” occurring during July, August, and September is associated with an increase in biting fly populations. This type of mastitis, caused by *Arcanobacterium pyogenes*, is typically controlled using insecticidal sprays. In the US, fly season begins as early as April and lasts through September or early October, especially in the Southeast. Following the “10-point plan” for mastitis control has led to a reduction in the level of intramammary infections; however, the importance of fly control in reducing cases of mastitis has been overlooked. Many producers do implement fly control techniques to reduce insect populations on the farm premises (barns, hutches, etc.) and on animals; however, insecticidal control techniques are not applied to specifically control mastitis among dairy cows and heifers.

With the temperatures and humidity steadily rising in recent months, numbers of blood-sucking horn flies (*Haematobia irritans*) will increase. This species is commonly found on the backs of dairy animals (Figure 1).



Figure 1. Horn flies on back of heifer.

However, flies will also attack the teats, leading to the development of mastitis, especially among dairy heifers. Research has identified a greater prevalence of mastitis caused by *Staphylococcus aureus* in dairy heifers that had teat ends covered in scabs caused the horn fly. Additionally, studies have shown a lower prevalence of mastitis caused by *Staph. aureus* among heifers in herds using fly control compared to herds not using a fly control program (Figure 2). Greatest reductions in mastitis prevalence among heifers from herds using fly control were seen in cases caused by *Staph. aureus*.

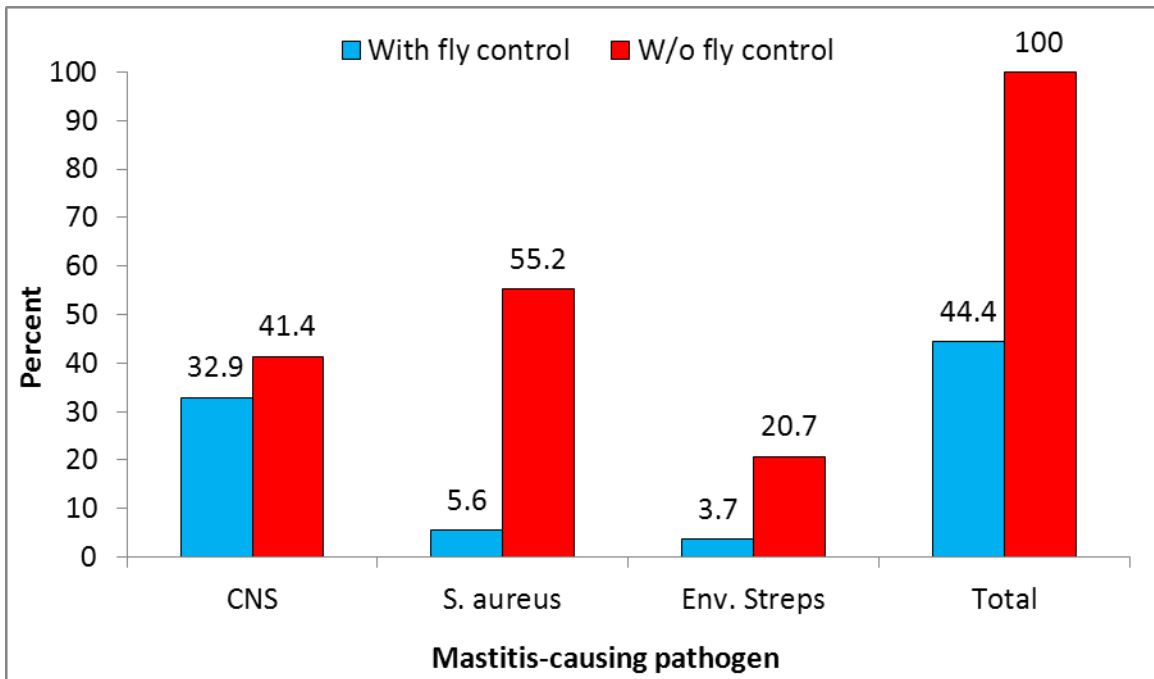


Figure 2. Effect of fly treatment administration among dairy heifers.

So, how is *Staph. aureus* spread from fly to animal and from animal to animal? Horn flies carrying *Staph. aureus* zero in on the teat ends of dairy heifers and suck blood from vessels below the teat skin, causing the formation of abscesses and scabs with their invasive mouth parts, subsequently depositing *Staph. aureus*. This places these bacteria in an opportune position to enter the teat canal and cause an intramammary infection. Flies then serve as vectors and carry the bacteria from animal to animal, resulting in an increased prevalence of *Staph. aureus* mastitis.

In an ongoing trial at UGA, teat ends of heifers were monitored before, during, and after fly season. At the beginning of fly season and before application of a control program, teats were populated with blood-sucking flies (Figure 3) and bloody scabs (Figure 4) associated with



Figure 3. Front teat ends covered in horn flies compared to rear teats.



Figure 4. Teat end covered in bloody scabs caused by horn flies.

Staph. aureus intramammary infections. Less than 48 hours after pour-on insecticide administration, fly populations were drastically decreased, and less than 2 weeks later, teats were healed and free of scabs. However, the damage had been done and *Staph. aureus* infections were

established, which were subsequently cured with antibiotic therapy. Overall, the prevalence of *S. aureus* intramammary infections among quarters of dairy heifers was 30% (60% of heifers) (Figure 5). Interestingly, prevalence of mastitis caused by *Staph. aureus* was greater in front quarters compared to rear quarters. Horn flies are attracted to the navel area of the heifers, which is in close proximity to the front teats. Also, the tail switch may be more effective at repelling flies from biting the rear teats. Not only do these flies provide a vector for the spread of *Staph. aureus*, but are also a nuisance to the already stressed animals during hot weather.

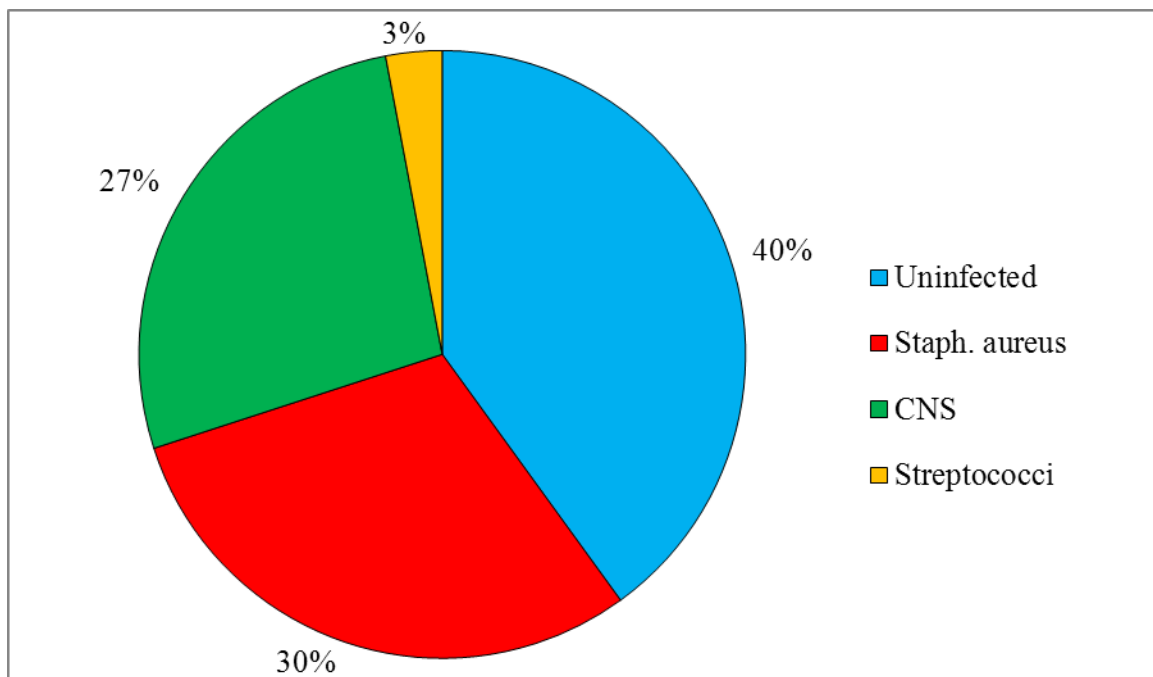


Figure 5. Prevalence of intramammary infections among quarters of bred dairy heifers.

What can you do to protect your heifers?

Sanitation is key in reducing the farm populations of different types of flies. Proper management of manure, water troughs, and left over feed and hay reduces fly numbers, and may reduce the mastitis cases caused by flies. However, maintaining a sanitary environment may not be effective at reducing all insect populations of concern to a desirable level. Several different fly control techniques exist such as aerosols, bait, strips, foggers, dust bags, traps, oilers, insecticidal ear tags, insecticidal pour-on solutions, and feed supplementation with insect growth regulators. The use of an insecticidal pour-on every 2 wk for 6 wk followed by placement of insecticidal ear tags was found to reduce fly populations and decrease the incidence of

new *Staph. aureus* in heifers by 83% in a 6-month efficacy trial at LSU. At UGA, the use of a pour-on every 2 to 4 weeks was found to drastically reduce fly populations, allowing teats to heal, and reducing two important sources of *S. aureus*: flies and scabs.

While there are no techniques that are 100% effective, the use of some type of fly control is important in reducing mastitis cases in dairy heifers, and in turn, decreasing SCC when they freshen. With the probable reduction in the SCC legal limit to 400,000/mL in the near future, all feasible methods that lead to improvements in milk quality are essential to consider. Don't let flies cost you money due to increased mastitis, elevated SCC, and loss of quality product premiums when your heifers enter the milking herd.