

## THE SOLUTION

Fly control programs start with the elimination of breeding areas such as:

- Fresh manure
- Spilled/refused silage
- Soiled bedding material
- Decaying plant material

### INTEGRATED PEST MANAGEMENT

A complete fly control program consists of multiple elements that all work together to keep fly populations manageable. Known as integrated pest management (IPM), effective programs consist of:

#### PLANNING

- Assess fly populations – where are they the highest?
- Set an action threshold – at what point do flies threaten profitability?

#### IMPLEMENTATION

- Sanitation and Physical Control – eliminate breeding areas
- Non-Insecticidal Controls – sticky, jug, and bag traps
- Traditional Chemical Controls – scatter baits, sprays, ear tags
- Biorational Control – ClariFly® Larvicide.

#### EVALUATION

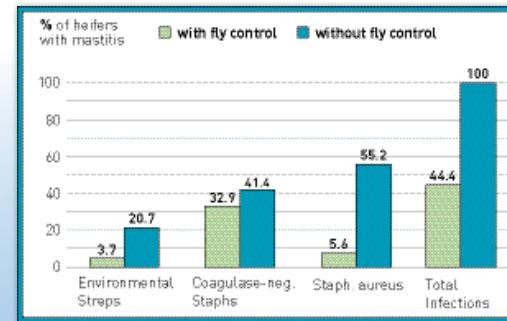
- Keep a written record of fly populations
- Monitor chemical control effectiveness to establish a rotation schedule

Incorporation and continuation of all these steps is key for controlling flies. For more information about fly traps, baits, or sprays visit [www.starbarproducts.com](http://www.starbarproducts.com).

## THE RESULT

Studies have shown that instituting a fly control program can help dairy operators to be more effective at controlling the spread of bacteria which cause mastitis.

A study performed at Louisiana State University, showed that the greatest reductions were in numbers of *Staphylococcus aureus* and the environmental streptococci, both major mastitis pathogens in adult cows. When bacteria were reduced via ClariFly® Larvicide, a feed-through fly control product, the incidence of mastitis decreased significantly.



Louisiana State University, 1999



## FIND OUT MORE

Learn more about controlling the flies that spread the bacteria that causes mastitis and irritates your dairy cattle at [centralflycontrol.com](http://centralflycontrol.com). There you will find information on interrupting the fly life cycle by incorporating a larvicide into your cattle's feed supplements.

#### A LARVICIDE WILL:

- Add biorational control of nuisance flies to areas populated by dairy cattle.
- Work as a feed-through, passing into manure where flies lay eggs.
- Be a valuable tool in fly control programs to help prevent mastitis.

This is cost-effective fly control that can help stop the spread of disease and improve your cattle's productivity. For more information contact your feed dealer or call 1.800.347.8272.



Fly Control Built by Science

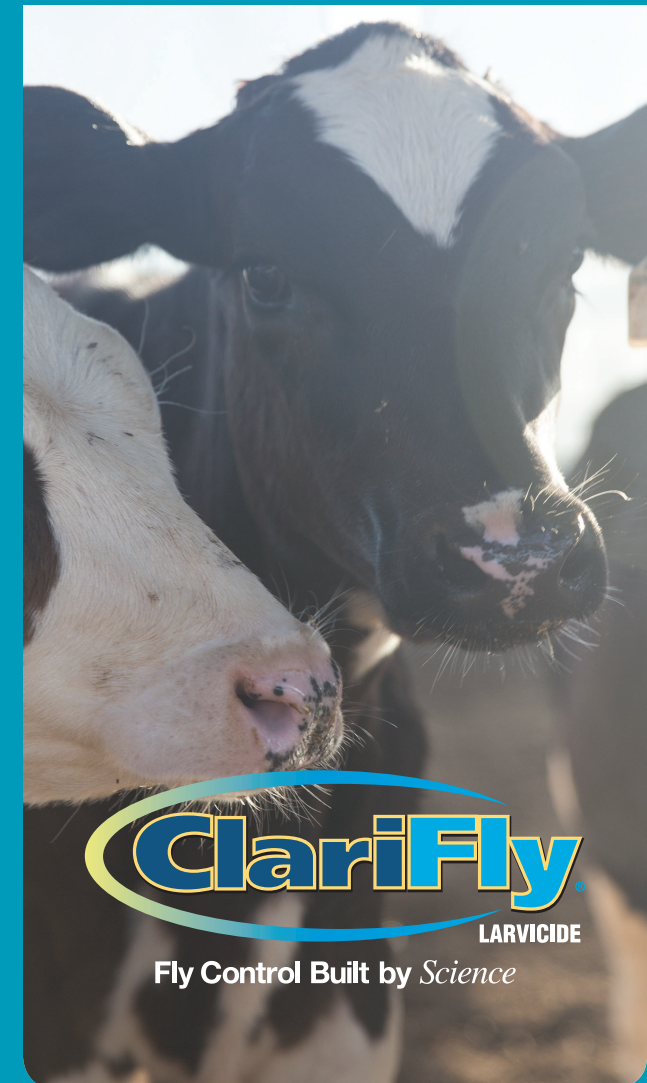
Special thanks to Dr. Stephen C. Nickerson from the University of Georgia for his support and collaboration on this project.

Always read and follow label directions. ClariFly and ClariFly Larvicide with design are registered trademarks of Wellmark International. Central Life Sciences with design is a registered trademark of Central Garden & Pet Company.  
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## OPEN YOUR EYES TO BLIND QUARTERS

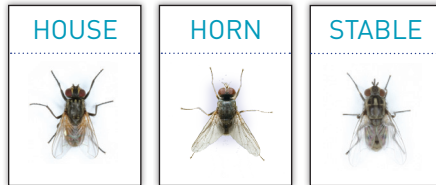
THE IMPACT OF FLIES ON DAIRY HEIFER MASTITIS



Fly Control Built by Science

## THE PROBLEM

All nuisance flies can spread mastitis bacteria, but it is often horn flies that cause the wounds where the bacteria can multiply.



- House flies spread bacteria with their mouthparts and their feet.
- Horn flies cause teat lesions and are vectors of *Staphylococcus aureus*.
- Stable flies are blood feeders that can be carriers of bacteria.



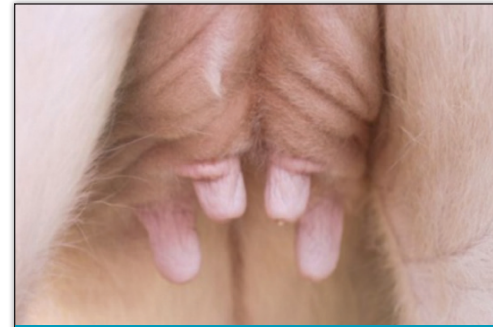
Horn flies pester heifers by feasting on blood drawn from the animals' backs.



They also suck blood from vessels in the teats, causing irritation where skin is thinnest.

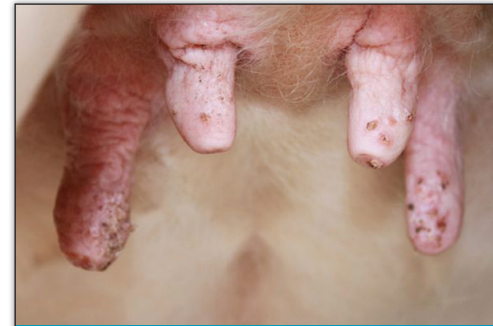
## THE DIFFERENCE

Many of the bacteria causing mastitis can be found in small numbers naturally populating healthy teat skin. The problem starts when horn fly feeding irritates the teat skin and transforms healthy teats into breeding grounds for bacteria.



HEALTHY UDDERS

Horn flies feeding on the teat leave bite lesions that deteriorate into chapping and scabs. Within those lesions, bacteria can manifest and multiply increasing the likelihood of mastitis.

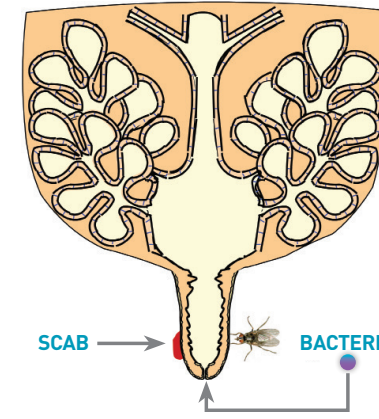


SCABBED UDDERS

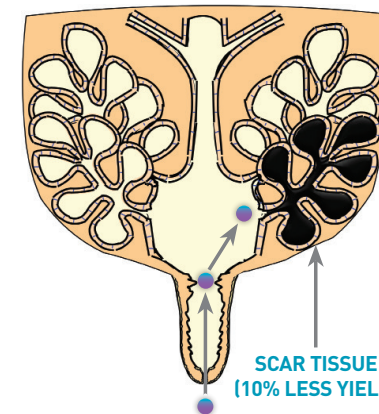
Once bacteria starts to multiply, nuisance flies can facilitate transmission into the udder and to other heifers in the herd.

## MASTITIS DEVELOPS

Bacteria experience significant growth rates in scabs and lesions and can be spread to the teat orifice by nuisance flies.



The bacteria move upward into the quarter, developing into mastitis that destroys milk-producing tissue and significantly reduces yield by as much as 50%.



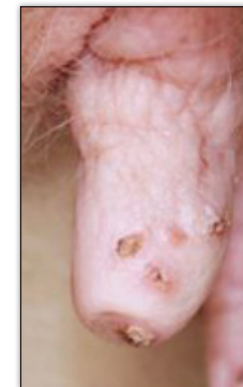
*Staphylococcus aureus* (a bacteria spread by nuisance flies) commonly infects all four glands leading to blind quarters. It is estimated that horn flies are responsible for 30-50% of heifer mastitis cases.

## MASTITIS SCORING



### SCORE 1

- Clean healthy udder
- Free of scabs, blood and incidence of mastitis



### SCORE 2

- Dry, crusty scabs on the teats
- Blood is not evident
- Some swelling is noticeable



### SCORE 3

- Blood is present on the teats
- Swelling of the teats
- Presence of both dry scabs and blood