

# Prepare Cows' Feet In May and June For Summer's Heat

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*Give all cows that need it a proper maintenance hoof trim in May and June to prevent lameness from the extra standing during summer's heat.*

As temperatures warm in spring, you may check fans and the sprinkler system so they work for the hot, sticky days of summer. Maybe now you are making sure water tanks are clean and full of cool water, and thinking about feeding cows earlier in the morning or later in the afternoon. But, have you prepared cows' feet for heat stress?

Cows' feet suffer during summer's heat because cows stand more often and for longer periods to cool themselves, and this causes lameness. Once the heat arrives, you have missed the opportunity to prepare cows' feet to handle this extra standing.

Be more aggressive in May and June with your maintenance hoof-trimming efforts to prepare cows for stressful periods than any other time of the year. If hoofs are properly trimmed and balanced before the high temperatures arrive, cows will better handle the increased standing than if their claws are long, overgrown and imbalanced.

## Lameness Peaks After Heat

Across the country lameness always peaks two months after the hottest days of the year. That is how long it takes for lameness to emerge. It appears the quality of hoof horn cows produce during the additional standing from heat stress is significantly compromised. When horn quality is diminished, lesions develop.

Another heat-stress reaction that causes lameness is eating more sporadically. Cows make fewer trips to the feed bunk, avoiding eating during the hottest parts of the day. So they eat fewer but larger meals. But cows thrive on rations that are mixed, delivered and consumed consistently. Even one day of irregular consumption may disrupt rumen

health, which interferes with horn production, contributing to hoof lesions.

Let's look at why standing more causes problems for cows.

Confinement housing does a poor job replicating the cow's natural environment, grass pasture. We put cows on abrasive or slippery concrete, which doesn't yield, in a confined space that forces them to stand more than nature intended. Cows and their feet are designed to move as they eat. If you watch, grazing cows don't stand. They either lie down or take a step on the yielding turf with each bite. This keeps hooves healthy. But confined cows have to stand while they eat.

We have also learned that cows will stand more than usual during heat stress, before and after calving (transition time), after pens moves, when pens are overcrowded and when cows are lame.

## Forced Standing Causes Lameness

In 2003, veterinary researcher Dr. Nigel Cook from the University of Wisconsin-Madison began a series of studies that monitored cow behavior in confinement barns with video recordings. When he analyzed cows' lying and standing times from June through September, he found during the heat of summer standing in alleys and stalls increased, which decreased lying time.

On the hottest days cows stood up to three hours longer per day, Cook measured. The graph on page 3 shows how horn lesions peak about two months after average temperature peaks.

Similarly, a 1994 study by Dr. Jan Cermak, United Kingdom, found cows that lie down 14

hours a day compared to 8 hours per day have four times fewer hoof lesions.

### **Dairy Cow's Daily Time Budget**

Here are goals for managing your cows' time. Cook compared the cows' behavior recorded in the videos with production and health records and calculated the ideal daily time budget.

- 4.5 hours eating (9–14 meals per day)
- 12 hours lying/resting
- 3 hours milking
- 2.5 hours socializing in alleys
- 2 hours standing in a stall (including perching)

Anything you can do to reduce the amount of time a cow stands and maximize lying time will reduce lameness because it lessens the trauma to the hoof.

Cows are picky about their stall surface—preferring soft, flexible beds, like a pasture—so bedding type affects lying time and lameness rates, and of course, milk production. For example, cows in sand-bedded stalls lie down 12 percent more than cows in mattress-bedded stalls, Cook determined in a 2001 video trial. Additional research by Cook and others since 2003 showed lameness rates are 42 percent lower in sand-bedded herds than mattress-bedded.

It is more painful to rise from mattress beds than surfaces that flex more like sand, manure-solids, compost or deep straw, so cows choose to stand.

Likewise, lame cows end up standing more because it hurts too much to lie down and get back up, especially if they are on mattresses. A vicious cycle develops: standing causes lameness, lame cows stand more because it hurts to get up from lying down, then lameness worsens and lasts longer.

Farms with mattresses need to more vigilantly manage all other areas of the cows' environment to prevent lameness, and deal with lameness even more promptly.

### **Keep Feet Trimmed To Prevent Lameness**

Most important to prevent lameness, keep cows' feet trimmed and balanced properly with a maintenance hoof-trimming schedule by a qualified trimmer. Maintaining ideal toe length, foot angle and balance between the claws ensures the claws function mechanically as correctly as possible.

As claws overgrow, and the udder fills with milk, a cow adjusts her gait and stance to be more comfortable. She will stand with her rear feet behind her and farther out to the sides. As she walks she will swing her feet farther sideways, changing the way the inside and outside claws impact the ground.

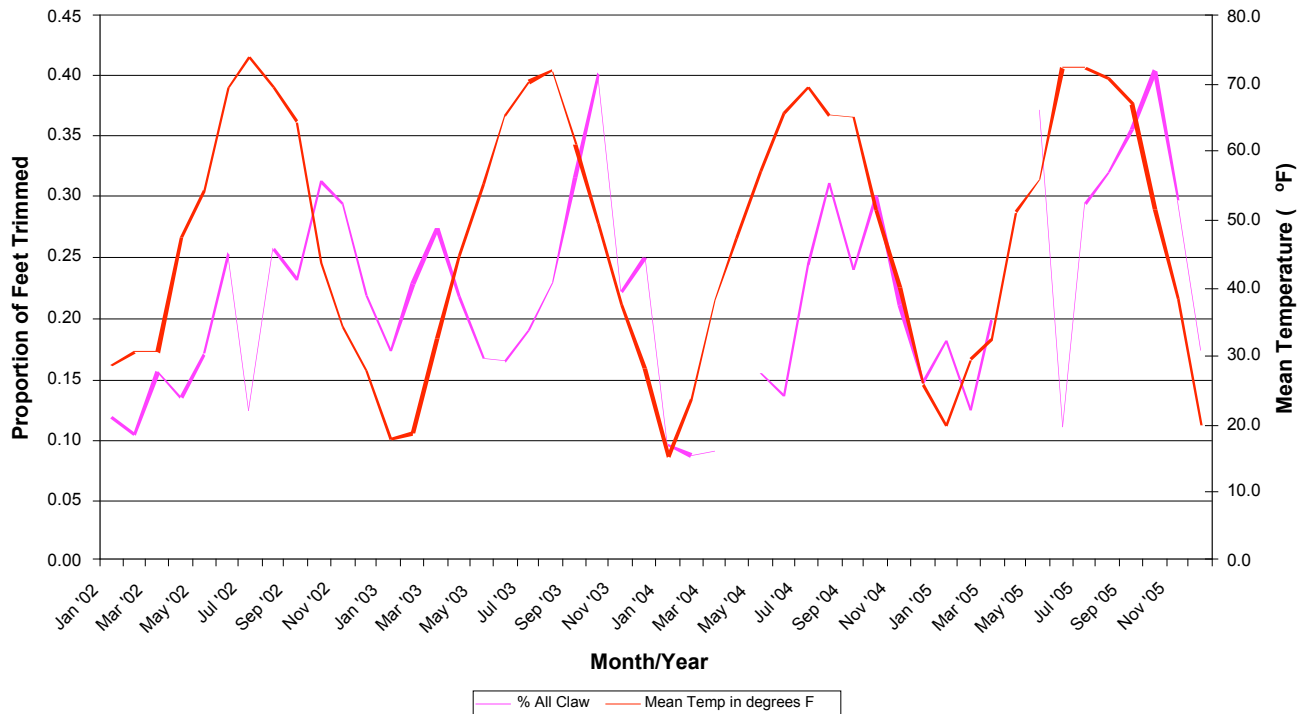
Lameness occurs 88 percent of the time in rear feet, and 85 percent of lesions occur in the outside claw. Walking on a concrete surface continually alters the normal growth and wear of the rear feet. The changes in gait and stance also alter growth and wear, causing the outside claw to overgrow. Once overgrown, the horn-producing tissue (corium) receives more concussion and cannot produce healthy horn, causing lesions to develop.

Putting hooves into their best form before high-stress periods—summer heat and calving—will allow them to better tolerate stresses and be less susceptible to lesions. An ounce of quality trimming prevention equals a pound of lameness cure. It's that simple.

### **Ways To Reduce Forced Standing**

1. Manage cows to achieve their ideal daily time budget. Specifically:
  - a. Keep cows as cool as possible, especially in holding pens. Heat stress in the holding pen is a legitimate problem because cows are bunched close together for a long time so there is little air circulation around each animal. Cooling cows in the holding pen is the most important cow cooling you can do on the farm.
  - b. Size parlors and pens to reduce time spent standing for the milking process.

- c. Stock pens at no more than 110 percent, and less than 90 percent for transition cows.
  - d. During herd health checks, ensure each cow has a headlock so exams move quickly and cows aren't forced to stand any longer than necessary.
2. Design facilities for maximum cow comfort to achieve cows' ideal daily time budget. Specifically:
- a. Design new or modify existing stalls and surfaces to make them as comfortable as possible so cows lie down 11 to 14 hours a day. Use the latest research by Drs. Cook and Nordlund at the University of Wisconsin-Madison on stall design. Small, cost-effective changes are often possible, and increase stall lying time significantly. Adding a cushiony bedding on top of the mattress daily will also make cows lie down more.
  - b. Selectively install rubber flooring. Optimum locations are parlor decks, return lanes and breezeways to reduce the wear on claws and to make the walking surfaces more comfortable. Rubber in feed alleys and pens is discouraged because if the stalls are uncomfortable, cows will stand more hours per day than they should.
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**Association between rate of claw horn lesions (all) and temperature (degrees Fahrenheit), by Dr. Nigel Cook, University of Wisconsin-Madison, 2003.**