

# Raising Heifers With Healthy Hooves<sup>1</sup>

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## ■ Take Home Messages

- ▶ Raising heifers in larger groups requires more management to prevent lameness.
- ▶ Stress compromises hoof integrity, causing lameness. Minimize stress whenever possible.
- ▶ Manage environment and feeding, and provide a prefresh functional hoof trim to prevent corkscrew claw, a permanent claw disorder.
- ▶ Quality feed delivered consistently grows strong, healthy heifers and prevents lameness.
- ▶ A clean, dry environment is essential to prevent infectious diseases.
- ▶ Heifers with acute footwarts (digital dermatitis) become cows prone to repeated acute DD lesions throughout their productive life.
- ▶ Prepare heifers for the milking herd by introducing them to concrete and mature cows at 7-months pregnant, and providing them with a functional hoof trim 8 weeks to 4 weeks before calving.

## ■ Introduction

As dairy herds become larger, producers are realizing that raising larger groups of replacement heifers is not as simple as it is on smaller farms, and it requires different management. Lameness in heifers is only an occasional concern on smaller farms, but currently challenges large heifer-raising operations.

Smaller dairies raise calves in hutches and move them into small groups of future herd mates at weaning, often using outbuildings until heifers enter the milking facility. Commonly, heifers grow well on lush pastures. The foremost concern is consistent weight gain sometimes due to feed availability, but there is little competition because the groups are small. The competition typical in

larger groups contributes to lameness.

Regardless of size, you must intentionally manage hoof health to ensure heifers' feet are healthy and will sustain them through their milking years. Here are practices to minimize hoof problems and raise healthier heifers that become more productive dairy cows.

## ■ **Minimize Stress**

Any time an animal of any age gets sick or experiences a significant change, the stress compromises the hoof's integrity. If a hardship groove is visible on the hoof wall, a stressful event occurred two to five months ago that interrupted healthy horn production. A prime example is when a calf scours severely. Another is when you move a calf from an individual hutch to a group at weaning. This new, competitive environment is stressful.

Gradually introduce calves into larger groups to allow them to socially adjust. Be more attentive during transitions to reduce their stress. Also, follow transition procedures to keep calves strong so their feet stay healthy, minimizing future hoof problems.

## ■ **Environment and Management Matter to Heifers**

Heifers are as susceptible to their environment and how you manage them as cows. Larger heifer groups exasperate any weaknesses in management and housing conditions.

Overcrowding creates competition, especially at the feedbunk. Heifers push to compete for bunk space and feed, which creates concussion in the claws. This kind of mechanical insult interrupts healthy horn production and leads to lameness.

### **Prevent Corkscrew Claws**

Corkscrew claw is a permanent hoof disorder where the pedal bone rotates from its normal position, usually caused by environmental and physiological conditions. You want to make a concerted effort to prevent corkscrew claws so heifers do not become costly, chronically lame cows that require a high-maintenance trimming schedule.

Corkscrew claws are common in crowded heifer lots and where heifers are in barns with slippery floors. Heifers that push each other to fight for bunk space and push forward to reach feed develop sole and wall overgrowth, making

them more susceptible to developing corkscrew claws.

Corkscrew claw can also develop during first calving. Hormones and enzymes that loosen ligaments for calving also loosen all ligaments in the body. Research shows hormone and enzyme levels are highest in first-calf heifers.

Stretched ligaments in the hoof allow the pedal bone to rotate slightly, irritating the bone. Bone spurs develop in the space under the stretched ligaments. The bone spurs trigger extra horn production, causing the hoof wall to grow faster, which creates the curly claw.

Herds that provide heifers with a maintenance hoof trim before calving rarely have corkscrew claws. A balanced hoof with flat soles allows the pedal bone to sit squarely in the claw so the ligaments cannot stretch.

Prevent corkscrew claws by giving heifers a maintenance hoof trim 8 weeks to 4 weeks before calving. Also, don't crowd pens. Ensure each heifer has space at the feedbunk and keep feed pushed up. Properly grooving or texturing concrete will prevent slipping, which causes mechanical insults that contribute to corkscrew claws.

## **Meet Nutritional Demands and Manage Feed Access**

A healthy, well-grown heifer by calving requires a good rate-of-gain per day. Feed quality and feed management are the tools to achieve this goal.

Some feeding practices may negatively affect hoof development in growing heifers and cause them to be susceptible to lameness in the future.

- ▶ It is not acceptable to use moldy or spoiled forages in heifer rations. You must feed high-quality forages during a heifer's first 15 months.
- ▶ Too often grain is used to replace poor forage. Slug feeding grain causes acidosis.
- ▶ Limited feeding, where dry matter intake is reduced to 15% to 30%, to compensate for high-quality feed, and slug feeding bred heifers are the two major causes of acidosis that result in laminitis. Moreover, restricting access to feed to only 8 hours to 10 hours a day can be especially dangerous if there is not enough bunk space. Heifers push and fight for feed, causing mechanical insults in the hoof that lead to severe claw overgrowth.

Growing heifers must have access to a balanced ration 24 hours per day that is delivered consistently every day. If you have to restrict feed access, you must manage feeding more carefully to prevent permanent hoof damage.

- ▶ Provide a well-balanced ration.

- ▶ Make sure there is enough bunk space so all heifers can eat at once — absolutely no overcrowding at feeding time.
- ▶ Push feed up continuously until the feed is gone to prevent heifers from reaching and pushing, which causes claw disorders.
- ▶ Consider providing a feed with less quality or no value so heifers have something to nibble on all day. If they are extremely hungry when the high-quality feed arrives, it provokes more pushing.

### **Clean and Dry Environment Prevents Disease**

Providing a clean, dry environment with adequate space for exercise is essential for healthy hoof development. Heifers also need a dry place to lie down. When these criteria are met, you can almost eliminate lameness in heifers. It requires additional expense, including labor, to keep heifer pens clean and dry. But the extra management input usually outweighs potential losses from early-onset lameness and permanent hoof damage.

**Infectious Diseases and Biosecurity.** Controlling infectious diseases in heifers is rarely a problem on single farms. But for a heifer grower raising animals from multiple farms together, there is no such thing as biosecurity. It is extremely difficult to prevent transmitting diseases from one farm to another when mingling animals from different farms for rearing, especially with a disease like digital dermatitis (DD, footwarts). DD outbreaks are common for heifer growers.

A clean and dry hoof environment makes it nearly impossible for digital dermatitis to develop. When an outbreak occurs, use a footbath to treat clinically active lesions. The footbath must be placed correctly, be long enough and filled with an effective solution. Also, clean the lots daily to keep footwarts under control. Farms with cleaner feet have fewer footwarts. It's that simple.

Drs. Nigel Cook and Dorte Doepfer at the University of Wisconsin Madison have been following 1,969 heifers on one farm for four years. This ongoing research trial has revealed that heifers with acute DD lesions before or at first calving are more prone to repeated acute DD lesions during their productive life. Hoof trimmers are noticing in herds where heifers have a low incidence of footwarts, the disease is much less of an issue for cows. If heifers experience repeated, acute DD lesions, the disease will stick with them their entire life.

Foot rot in heifers is always associated with wet, muddy conditions. Proper hygiene can nearly eliminate it. A prevention footbath is not necessary if the environment is clean and dry.

## ■ Hoof Trimming

Evaluate growing heifers regularly to determine if they need any trimming. Trim all heifers with abnormal or overgrown hoofs using functional hoof trimming techniques. Then provide all springing heifers with a maintenance hoof trim 8 weeks to 4 weeks before calving.

If you find a lame heifer, treat her immediately! Response time is critical because the longer the lameness episode lasts the more likely permanent damage will develop.

## ■ Prepare Springing Heifers For The Milking Herd

Experience dictates that springing heifers need an 8-week to 6-week biosecurity and environmental adjustment before calving. This will minimize early-lactation lameness and potential production losses, and can prevent first-lactation culling.

A 2006 University of Minnesota lameness prevalence study that examined 5,600 cows in 53 freestall barns found the rate of lameness among first-lactation cows was 12.8 percent (M. I. Endres 2006). First-lactation lameness should be less than two percent! Herds in my practice that provide heifers with these three opportunities achieve this lameness goal.

- Introduce all springing heifers at 7-months pregnant, which is 8 weeks before calving, to the dry-cow pen or mature cows. At this time heifers learn to socialize with cows and get used to a routine similar to what they will experience during lactation. If your heifers come into a heifer prefresh pen and you keep them separate from cows during their first lactation, this social adjustment is less critical.
- For heifers raised on dry lots or pastures, it is absolutely essential to introduce them to concrete, a non-yielding surface, 8 weeks, but no less than 6 weeks before calving. This transition gives the corium time to adjust to the concussion concrete causes.
- Assess and functionally trim all springing heifers 8 weeks to 4 weeks before calving. Learning to walk with an udder, calving, and adjusting to milking equipment and a new environment tremendously stress first-calf heifers. A proper, functional hoof trim gives her the best possible claw shape during this major change and improves weight bearing and weight distribution on the claws, reducing mechanical insults to the already vulnerable corium. It also increases foot angle, which keeps claws more upright and lifts heels out of manure, reducing digital dermatitis (footwarts). This prefresh trim is also necessary to prevent corkscrew

claws from the loosening ligaments that occur from fluctuating enzymes and hormones at calving.

Lameness is too common on today's dairies, is extremely expensive and causes premature culling, especially for first-calf heifers. But lameness is preventable if you manage cattle with hoof health in mind. Invest in quality heifer rearing that creates healthy hooves to reap bigger dividends from mature cows.

Following these management practices will help you raise healthy heifers that are prepared to meet all the challenges of today's high-producing, intensely managed herds.

## ■ References

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