Understanding and Preventing Non-Infectious Claw Lesions

This issue of Dairy Now details non-infectious lesions, following up on our discussion of infectious lesion in the last issue. There are many more types of non-infectious lesions, and, as a result, many more possible causes and remedies.

**Causes**
Non-infectious lesions occur for a variety of reasons. However, some of the most cited causes include trauma, environment, nutritional problems such as sub-acute ruminal acidosis (SARA), and changes that occur in the heifer or cow at calving time. All these triggers result in similar lesions at the sole surface, such as sole ulcers and white line lesions.

**Location**
Non-infectious lesions predominantly occur in the outer claw of the hind feet due to overloading of this claw. They are sometimes mistakenly grouped together and referred to as laminitis. However, non-infectious lesions are merely clinical signs, seen on the surface of the sole, which reflect disease processes that alter the structure of the claw. Thus, a sole ulcer, for example, may potentially be caused by more than one trigger factor.

**Control**
Control of non-infectious lesions can be accomplished by reducing trauma, paying attention to walkways, improving cow comfort, improving hoof-trimming technique, reducing the effects on the claw around calving time (especially in heifers), and reducing the risk of SARA and other nutritional changes.

**Non-infectious lesions**
- White line lesion (W)
- Sole ulcer (U)
- Sole hemorrhage (H)
- Toe ulcer (T)
- Corkscrew claw (C)
- Horizontal fissure or hardship groove (G)
- Vertical fissure (V)
- Axial fissure (X)
- Interdigital hyperplasia (K)
- Thin sole (Z)

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Preventing and Treating Non-Infectious Lesions

Identifying Non-Infectious Lesions

Heifers Fed Availa®4 Experienced Fewer Claw Lesions
Preventing and Treating Non-Infectious Lesions

Prevention of non-infectious lesions often involves changes in management practices and ensuring that cows have proper nutrition.

Assess the risk of trauma

Trauma to a cow’s hoof often arises from excessive hoof wear or removal of the sole at hoof trimming that leads to fissures developing at the white line junction - especially in the toe. Some common factors to assess that may result in trauma include:

- Making cows walk down a slope with an inclination greater than 2-4%; long transfer lanes made of concrete between the free stall or dirt lot pens and the milking center; or standing for long periods of time in overcrowded, excessively sloped holding areas.
- Poor hoof trimming that fails to balance the inner and outer claw or removes too much of the sole.
- Pushing cows to move quickly on rough cow tracks between the pasture and the milking center may result in sole penetration by a rock, a white line lesion or axial wall crack.

What's the affect of time budget?

If your cows don’t get enough rest, they are more susceptible to developing lesions. It’s pretty simple when you think about it. If you’re on your feet all day, odds are that you are more likely to develop foot problems.

To understand whether your cows are getting adequate rest, you should first understand that grazing cows have different needs when compared with confined cows.

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- Use of stand off pads will also impact lying times. Where these pads are made of concrete or other firm uncomfortable surfaces, cows will stand idle and refuse to lie down.

Proper hoof trimming

Hoof trimming is an essential component of hoof health management in dairy herds. However, it must be done correctly to avoid damage to the hoof. (Watch for the next issue of Dairy Now for extensive details on proper hoof trimming.)

While free stall housed dairy cattle eat for around 4.5 hrs/day and rest for an average of 12 hrs/day, the time budget for grazing cattle is markedly different.

Research indicates that grazing cattle spend about 8 hours per day feeding at pasture and lying times ranging from 7 to 11 hrs/day.

Whether your cows are confined or on pasture there are some good rules of thumb to follow:

- Any management system for dairy cattle should maximize the opportunity for rest.
- Consider splitting groups for milking in order to reduce the impact of this forced standing on the cow’s time budget.

New Time Budget Calculator Available

Zinpro has developed a new calculator to help determine how a herd is doing where time budget is concerned. You can assess either grazing or confined cattle with this new tool.

For more information about this new calculator, contact your Zinpro Representative.
Identifying Non-Infectious Lesions

The Dairy Claw Lesion Identification Guide from Zinpro is a useful tool when identifying common claw lesions. Click on the name below to see more information on identifying the three most common non-infectious lesions.

- White Line Lesion (W)
- Sole Ulcer (U)
- Toe Ulcer (T)

Results of this study indicate that even mild claw lesions during the rearing phase can substantially increase the incidence and severity of claw lesions during lactation. This confirms previous research that cows with claw lesions are more prone to developing claw lesions later in life.

Feeding Availa-4 to heifers did not decrease incidence and severity of claw lesions during the rearing phase. However, feeding Availa-4 to heifers during the rearing phase did decrease the index for incidence and severity of claw lesions at two months postpartum and helped alleviate the effects of claw lesions on lactation performance.

Growing Heifers Fed Availa®4 Experienced Fewer Claw Lesions After Calving

- Availa®4 provided daily per heifer an additional 360 mg Zn from Availa®Zn zinc amino acid complex, 200mg Mn from Availa®Mn manganese amino acid complex, 125 mg Cu from Availa®Cu copper amino acid complex and 12 mg Co from COPRO® cobalt glucoheptonate
- Heifers received treatments from 12 months of age through one month prepartum; all heifers were returned to the source dairy at one month prepartum and received similar diets with respect to the source dairy
- Calculated using the following formula: Number of zones affected per animal X average severity score X 10; severity score ranged from 1 (minor) to 3 (severe)
- Within a phase, LS means lacking a common superscript letter differ, P ≤ 0.15

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Control
Availa-4

Overall Claw Lesions

CLIS Index

0 2 4 6 8

1 Month Prepartum
2 Months Postpartum

3.8
4.8

6.6
5.5

3.8
4.8

6.6
5.5

Availa-4

Control

Read Full Research Text >
A Cow-Side Investigation Into The Lameness Mystery

As featured in the January 2011 issue of Eastern DairyBusiness magazine.

My cell phone rang early one hot and humid summer morning. On the other end of the line was “Jim,” whose dirt lot facility I’d visited several times. It had been more than two years since we’d implemented a claw health (hoof trimming) record-keeping protocol to help Jim’s team measure the effectiveness of their lameness prevention and management practices.

“We’ve recently experienced a significant spike in lameness incidence, and production levels have dropped,” Jim explained. “We need your help to determine what is causing the lameness and identify what needs to be done to get the herd back on track.”

Availa®4 Benefits Dairy Operations

From improved lactation performance, udder health, reproduction and overall hoof condition, Availa-4 is backed by multiple research studies showing proven responses and a strong return on investment.

Manganese for joints, tendons and bone density.