

The importance of locomotion

■ Locomotion scoring can help dairy producers monitor cow mobility and provide an index of lameness prevalence and effectiveness of intervention.

by JoDee Sattler

If a cow can't walk or stand correctly, she most likely isn't producing to her potential – in more ways than one. Cows experiencing lameness eat less, don't produce as much milk, have more reproductive problems (more ovarian cysts, more days open and lower conception rates) and incur increased labor costs as the dairy's personnel spend more time moving and treating them.

Dr. Chuck Guard, with the Cornell University Ambulatory and Production Medicine Clinic, estimated that each lameness case costs a dairy producer \$302. And, lameness is the primary reason why 15% of cows are culled for slaughter. While 15% is not a huge figure, lameness contributes to reproductive failure and reproductive culls. The 1996 National Animal Health Monitoring System survey determined that 26.7% of cows culled were due to reproductive failure.

"Don't blame delayed breeding and/or BST usage for faltering reproductive performance," reported Mike Socha, research nutritionist, Zinpro Corporation. DHI records processed at Provo, Utah, showed that days to first service from 1990 to 2000 increased by only three days. Yet days open went from 130 to 153. Research has shown that lame cows have between 11 and 28 more days open than cows that are not lame.

Hampers reproduction

A study (Hernandez et al., 2000) found that the type of claw disorder may affect lameness's impact on fertility. Cows with abscesses/sole ulcers had 63 more days open than healthy cows, while cows with two or more claw disorders had 76 more days open, compared to cows without claw disorders. Furthermore, a lower percentage of cows with abscesses/sole ulcers were pregnant at the end of lactation, compared to healthy cows.

According to a University of Florida study (Melendez et al., 2002), lameness may also im-



Establish a hoof maintenance program to help prevent claw disorders and correct lameness.

pair fertility by lowering first service conception rates and incidence of ovarian cysts. Cows that were clinically lame due to a claw disorder in the first 30 days postpartum had a 58.9% drop in first service conception rates, a 125% increase in ovarian cysts and an 8.2% decrease in pregnancy rate at 480 days postpartum.

Early lactation lameness created significant concern. More than 30% of the cows that were lame during the first 30 days postpartum were culled before recording any reproductive event, compared to 5.4% of the control cows.

Why is locomotion scoring important?

- **Locomotion scoring** is fast and easy, and a relatively accurate means of detecting subclinical lameness within the herd.
- **Scoring allows trimmers**, nutritionists, veterinarians and dairy producers to give a degree of lameness in a herd a value.
- **Assigning a herd lameness** value allows producers to track the impact of management, environmental and nutritional changes on incidence and severity.

Evaluating lameness

Without a systematic evaluation tool, dairy producers generally don't have a good handle on the level of lameness in their herds. Michigan State University researchers (Sprecher et al., 1997) developed a locomotion scoring system to determine the prevalence and severity of lameness in a herd. Fast and relatively accurate, the five-point system allows producers to benchmark and track herd lameness.

According to Socha, an individual evaluates a cow's gait (locomotion), with special emphasis placed on back posture. The visual assessment ranks

Please turn to page 34

FYI

■ Request a copy of the "2002 Hoof Health Conference Proceedings" by contacting Gail Oss, Hoof Trimmers Association executive director, at 866-615-4663 or g_oss@yahoo.com.

■ Contact **Peter Robinson**, University of California-Davis Cooperative Extension specialist responsible for dairy cattle nutrition and nutritional management, at 530-754-7565 or pbrobinson@ucdavis.edu.

■ View the "Hoof Health & Dairy Herd Profitability" video, available from Roche Vitamins.

■ Visit www.zinpro.com or call 800-445-6145 to learn more about dairy cattle locomotion scoring. Click "Contact Us" on the Zinpro web site to request a free dairy cattle locomotion poster.

■ **Michael Socha**, research nutritionist, Zinpro Corporation, phone: 952-983-3840, e-mail mike.socha@zinpro.com.

Locomotion scoring tips

- **Score on flat**, even surface that provides adequate traction.
- **Score cows** in the same location to reduce variation. (Cows scored on grass will typically score one point better than those scored on concrete.)
- **Have the same person** do the locomotion scoring, to reduce variability.
- **If you're scoring a subsample**, score at least 25% of the herd. Score a random sample of cows in a pen as they leave the parlor, for example. Score cows in the first third, middle third and last third of a group.

cows from one (normal) to five (very lame). "Locomotion scores of two or three indicate hidden/subclinical lameness," he stated. Identifying these animals allows for early intervention and correction before lameness becomes more severe and costly.

If a cow scores a two or three, examine and trim her hooves. This should

How much does lameness cost?

| Management level | **Annual lost revenue, due to lameness |
|------------------|--|
| Very good | \$60,122 |
| Average | \$132,674 |
| Poor | \$204,113 |

- **Very good** = Excellent cow comfort. All cows' hooves trimmed at least twice yearly. Aggressive heat abatement practices utilized.
- **Average** = All cows' hooves trimmed at least once annually.
- **Poor** = Hoof trimming only done on lame cows. Heat abatement and nutritional challenges.

*Only accounts for milk losses, not reproductive losses.

**Assumes \$12/cwt. milk price; cows averaging 75 pounds of milk per day.

Scoring locomotion

| Score | Clinical description | Description | Back posture standing | Back posture walking |
|-------|----------------------|--|-----------------------|----------------------|
| 1 | Normal | Stands and walks normally. All feet placed with purpose. | Flat | Flat |
| 2 | Mildly lame | Stands with flat back, but arches when walks. Gait is slightly abnormal. | Flat | Arched |
| 3 | Moderately lame | Stands and walks with an arched back. Short strides with one or more legs. | Arched | Arched |
| 4 | Lame | Arched back, standing and walking. One or more limbs favored, but at least partially weight bearing. | Arched | Arched |
| 5 | Severely lame | Arched back, refuses to bear weight on one limb. May refuse or have great difficulty moving from lying position. | Arched | Arched |

prevent more serious problems. Socha said it's important to utilize a competent hoof trimmer. The goal is to return a cow's claw(s) to functional weight bearing and conformation.

Milk production declines

University of California Davis research (Robinson, 2001) compared milked production losses among locomotion-scored cows. Cows scoring three, compared to cows scoring one, produced 5.1% less milk. If cows scored four, average milk loss was 17%, while cows scoring five experienced, on average, a 36% milk loss.

Basically, the reduced milk production is due to lower dry matter intake. Simply stated, lame cows eat less. The energy consumed is used to maintain body tissues, according to Peter Robinson, University of California-Davis Cooperative Extension specialist. There is a negative correlation between locomotion scores and body condition scores, with body condition scores decreasing as body locomotion scores increase.

Michigan State research (Sprecher et al., 1997) found that, compared to cows scoring one or two, cows scoring three or greater were nearly three times more likely to have increased services per conception, 15.6 times more likely to have more days open and nine times more likely to have increased services per conception. Additionally, these cows were eight times

more likely to be culled.

Use locomotion scores of individual cows to select for hoof examination and assess the reason for a higher locomotion score before they become clinically lame. Intervene early. Robinson said cows with a score of three were four times more likely to score a four or five than a two in 30 days, if no intervention occurred within one month.

Track average locomotion scores regularly. Robinson suggests monthly locomotion scoring. "This provides a running index of the extent of lameness on a dairy, or in a string within a dairy," he explained. "It also provides criteria to assess when to intervene, as well as to assess the impact of any intervention designed to alleviate lameness." ■

Locomotion score goals

* Percent of herd

| Score | Goal* |
|-------|-------|
| 1 | 75% |
| 2 | 15% |
| 3 | 9% |
| 4 | 0.5% |
| 5 | 0.5% |

(Developed by Steve Berry, University of California-Davis)