

Lameness

Information document



Lameness in dairy cattle

refers to any painful condition which causes a cow* to change the way she walks in order to limit the amount of weight that affected limbs have to bear. It is a serious and costly welfare issue for dairy cattle and for farmers.

**The use of the word cow in this document includes first calf heifers.*

Why is it important?

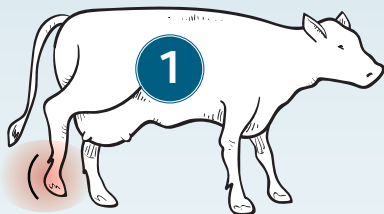
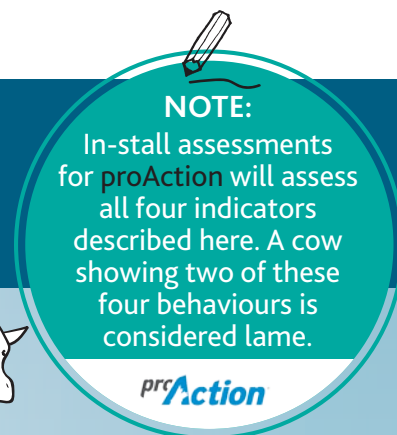
Lameness decreases mobility and dry matter intake, causes a drop in production and impairs reproduction. Preventing lameness will:

- optimize production
- improve conception rates
- reduce cow treatment costs
- lower cow and farmer stress
- improve the health of cows

Identifying lameness in tie-stall barns - 1

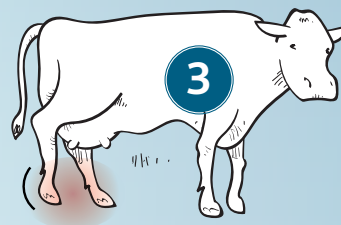
Stall lameness assessments

are done for tie-stall herds. Look for these 4 indicators of lameness:



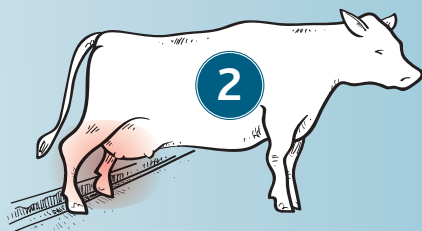
Repeated shifting of weight

Cows will have regular, repeated shifting of weight from one foot to another, defined as lifting each hind foot completely off the ground at least twice (L-R-L-R, or vice versa). The foot has to be lifted and returned to the same location and does not include stepping forward or backward.



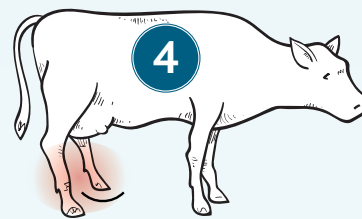
Uneven weight

Cows will favour resting on one foot more than the other, indicated by the cow raising a part or the entire foot off the ground. Raising the foot to lick it or kick is considered normal.



Standing on edge

Cows place one or more rear hooves on the edge of the stall back while standing stationary. This does not include times when both hind feet are in the gutter or when the cow briefly places her foot on the edge during a movement or step.



Uneven movement

With a light push to the side on the right hip followed by a light push on the left hip, the cow hesitates or is reticent to move. She may favour one side more than the other by moving more rapidly.



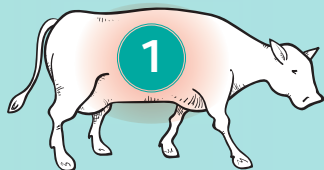
Early identification of lameness leads to more effective, early treatment.

The 'gait scoring protocol' is the most accurate and preferred method for detecting lameness in dairy cattle. Assessments for proAction will accept either form of scoring. (proAction Animal Care Validation Requirement 15; Dairy Cattle Code of Practice sections 3.5; 4.9)



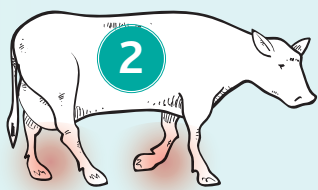
Gait or locomotion scoring for free stall herds

Look for these 7 indicators of lameness:



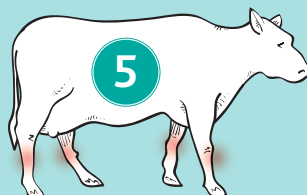
Reluctance to bear weight

Cows redistribute weight to prevent weight bearing on the painful limb, resulting in a limp.



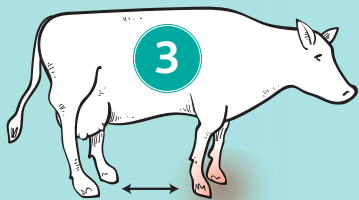
Asymmetric/irregular stepping

Non-lame cows have a regular pattern and rhythm when walking; lame cows may have an uneven rhythm as they spend less time using a painful limb.



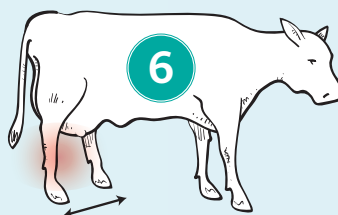
Joint stiffness

Limb and back movement of non-lame cows is smooth and fluid, with good joint flexion and extension.



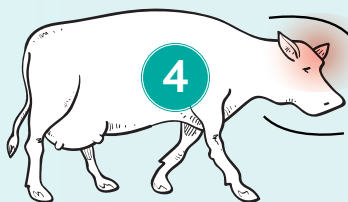
Poor tracking

Rear hooves of sound cows generally follow in the tracks of the front hooves; rear hooves of lame cows may not, as cows will be short-strided.



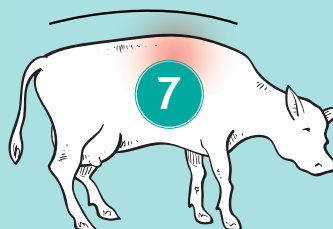
Rear leg lateral movement

Viewed from the rear, rear legs of lame cows will sometimes move out or in a semi-circular motion to avoid leg flexion or weight bearing on sore claws.



Jerky head movement

Sound cows have a steady head carriage and move their heads up and down slightly and consistently; lame cows may show jerky head motions as they use their head to reduce weight bearing on sore limbs or feet.



Arched back

Non-lame cows tend to walk with a straight and flexible back. Lame cows may have a fixed upward arch to their back.

NOTE:

Gait scoring assessments for proAction will focus on observing **four strides** and looking for the presence or absence of an obvious limp, which is associated with the 7 indicators described here.



proAction requires that you evaluate the milking herd for lameness, keep records of the results, and take corrective actions if herd scores are in the yellow or red zones.

(proAction Animal Care Validation Requirement 15; Dairy Cattle Code of Practice sections 3.5; 4.9)



What is causing lameness in your herd?

Lameness caused by **non-infectious** foot lesions

Sole Ulcers

DESCRIPTION: Painful sole defect that exposes sensitive tissue. Mainly internal surface of the lateral claw of the hind foot.

KEY RISK FACTORS: Weight loss in early lactation, prolonged standing on concrete.

TREATMENT: Corrective trimming. Application of a block to opposite claw to relieve pain. Administer pain medication as directed by the herd veterinarian.

PREVENTION: Improved transition period and early lactation management to ensure weight loss is minimized. Stall improvements to increase lying times. Other facility modifications to provide more relief from concrete.

White Line Lesion

DESCRIPTION: Weakness of the junction of the foot wall and sole causing hemorrhage, separation and infection.

KEY RISK FACTORS: Subclinical laminitis damaging foot horn, foot horn is too long, wet feet and movement-related foot trauma on hard surfaces instead of floors.

TREATMENT: Corrective trimming.

PREVENTION: Prevention of underlying conditions that damage foot horn. Facility modification to improve lying times. Preventive trimming at least twice annually. Move cattle gently and calmly.

Injury

DESCRIPTION: Acute or chronic trauma of feet or legs resulting in fractures, pulled or torn ligaments.

KEY RISK FACTORS: Inadequate environment such as bedding type, bedding management, flooring and stall design.

TREATMENT: Consult your veterinarian for a diagnosis.

PREVENTION: Based on recommendations made by the herd veterinarian.

Laminitis

DESCRIPTION: Inflammation of the tissue (laminae) that joins the hoof horn and soft tissues of the foot.

KEY RISK FACTORS: Lesions association with ruminal acidosis and/or the presence of other severe diseases (e.g. mastitis, metritis).

TREATMENT: Find and treat the cause. Control pain with pain medication as directed by the herd veterinarian.

PREVENTION: Adopt measures to prevent ruminal acidosis and other conditions associated with the transition period.

Lameness caused by **infectious** foot lesions

Digital Dermatitis (Strawberry Foot, Mortellaro)

DESCRIPTION: Bacterial infection, mainly of the interdigital space in the heel area.

KEY RISK FACTORS: Exposure to carrier cows via bacteria in manure.

TREATMENT: Clean area and treat topically according to herd veterinarian-directed protocol.

PREVENTION: Maintain a clean, dry environment for cows. On endemically affected farms, it is necessary to establish a prevention program such as effective foot-bathing, based on the recommendations of the herd veterinarian. Disinfect trimming equipment.

Interdigital Dermatitis (Heel Erosion)

DESCRIPTION: Mixed bacterial infection of the superficial skin between claws and heel bulb.

KEY RISK FACTORS: Excessive exposure to urine and manure resulting in skin damage (scalding).

TREATMENT: Corrective trimming of heels and feet. Topical application of disinfectants or antibiotics as directed by the herd veterinarian. Movement to a clean foot environment.

PREVENTION: Maintain a clean, dry environment for the feet of cows. Provide foot baths.

Interdigital Phlegmon (Pasture Foot Rot)

DESCRIPTION: Bacterial infection of the soft tissue between and above the claws, originating from the environment.

KEY RISK FACTORS: Excessive exposure of feet to humidity to be susceptible to abrasions (manure, mud, stones). Introduction of carrier cattle.

TREATMENT: Clean affected area well. Administration of systemic antibiotic as directed by the herd veterinarian.

PREVENTION: Maintain a clean, dry environment for cows and avoid contact with infected areas.

There are a number of important factors to consider, especially with non-infectious lameness. A combination of good handling (i.e. not rushing cows), employing a qualified trimmer regularly, limiting slippery/wet floors, reducing holding times, maintaining good nutrition/diet to ensure proper body weight, ensuring a balanced ration, properly designed housing and appropriate stocking densities are all key to preventing lameness.

For more details and images of these conditions, please visit dairyresearch.ca.

PREVENTION, DETECTION & CONTROL

TYPE OF CORRECTIVE ACTION		DESCRIPTION (Relevant section of the Dairy Cattle Code of Practice)
MANAGEMENT	Monitoring	Learn the behavioural changes and early signs of lameness. This will help you target those who need special attention and treatment. Rapidly addressing lameness improves treatment response, helps lessen costs and maintains productivity. (Section 3.5).
	Foot baths	Provide adequately sized and situated footbaths. Obtain and use a protocol that is sufficient to control herd Digital Dermatitis problems.
	Handling	Encourage cows to move forward, but at their own pace. Slow and steady is always better in the long run. Eliminate fear and stress due to negative interactions; handle quietly and gently (Section 4.1).
	Technology	Technologies like force plate technology (looking at weight distribution by leg) or data loggers (i.e. pedometers) can help identify lame cows. These technologies will become more available and cost-effective and will become useful for early detection.
	Record keeping	Keep individual cow health records to help understand the pattern of lameness occurrence in your herd, the impact of lameness and whether you are meeting your goals. Tabulating which cows are lame and when, the type of treatment and response etc. will help you benchmark for continuous improvement (Section 3.5, 4.9).
	Milking	At milking, monitor your cows for signs of lameness. In milking parlours, feet can be cleaned and inspected for visible signs of infection or pain. Minimize holding times during milking to optimize lying time and feed intake.
SERVICES	Hoof trimmer	Employ a qualified hoof trimmer on a regular basis (no less than twice per year) to do preventive trimming. Lame cows need more frequent attention between herd trims. Provide an accessible and safe location for hoof trimming. Encourage your veterinarian and your hoof trimmer to work together on your herd lameness issues. (Section 4.9).
	Veterinarian	Consult your veterinarian to assess your herd issues with lameness and provide advice regarding risks associated with your facility's design and management. Your herd veterinarian can also set up preventive and control treatment protocols. Encourage your veterinarian and your hoof trimmer to work together on your herd lameness issues.
	Nutritionist	Talk to your nutritionist about ration formulation and feed delivery to lower your risk of non-infectious lameness.
	Staff	Communicate with your staff to make sure lame cows are a priority for attention and that the herd's protocols are being carried out consistently and accurately, (Section 3.9, 4.1).
HOUSING & ENVIRONMENT	Pasturing	Research shows that cows with some access to pasture have fewer feet and leg problems. Strategic access to pasture for some groups of cattle may be useful where there is a high risk for lameness and injury.
	Barn Flooring Type	Floors need to be soft to lessen impact and stress on cow's feet and legs. Mimicking conditions of pasture is the target, making rubber flooring and mats ideal, with adequate stall space. Insert rubber flooring in high traffic areas (cross-over alleys, holding areas, feed alleys) to help keep costs low and still provide adequate flooring in key areas. Importantly, concrete flooring should be surfaced in a way that minimizes slippage and excessive foot wear.
	Drainage & Scraping	Adequate drainage is essential to protect feet from wetness. Ensure your flooring has proper slopes, eliminate any standing water, and ensure scrapers, if applicable, are run often enough to reduce excessive manure accumulation.
	Traction	Concrete flooring should be surfaced in a way that minimizes slippage and excessive foot wear.
	Number of Stalls	Provide at least 1 stall per cow of lying space. Overcrowding is a significant contributor to lameness (Section 1.5).
	Stall Size	Measure adult cows (hip height and hip width) and design stalls to accommodate the cows you have.
	Bedding	Add sufficient bedding (at least 5 cm) to provide a clean, soft lying surface. Well-bedded stalls allow cows to lie more than 10 hours per day. Remove manure and urine and replace soiled bedding at least twice daily to keep the entire stall surface covered with 5 cm (2 inches) of bedding.
	Bunk Space	Allow enough bunk space for all cows to eat at once and continuously throughout the day.
NUTRITION	Ration Ingredients	Balance all rations to cow needs. Ensure consistent feed delivery and access. High concentrate, low fibre diets increase the risk of ruminal acidosis, predisposing cows to laminitis and other related foot issues. (Section 2.2.2)
	Ration Mix	Provide adequate, effective ration fibre. A ration too finely ground may not provide enough 'scratch factor', which doesn't stimulate enough cud chewing and prevents an ideal rumen ph. Larger sized particles can lead to sorting and nutritional imbalances. (Section 2.2.2)
	Housing	Ensure adequate bunk space so all cows can eat at once and continuously throughout the day.
GENETIC SELECTION		Select for cow traits that help with confirmation, proper weight distribution and locomotion. Select for these traits to help limit extent to which you will see abnormal claws and poor confirmation.