

LAMENESS SCORING FOR DAIRY CATTLE

1. PURPOSE

Lameness can lead to other animal welfare concerns, such as low body condition score, as well as poor production performance. This SOP describes the methods to evaluate lameness in Dairy Cattle based on the visual assessment.

2. RESPONSIBILITY

- 2.1 Trained staff are responsible for assessing lameness.
- 2.2 The veterinarian is responsible for the assessment, diagnosis, and treatment of lameness.

3. GENERAL

- 3.1 Lameness is a serious welfare issue for dairy cattle.
- 3.2 Lameness 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.
- 3.3 Lameness results in reduced mobility, dry matter intake, milk production, as well as impaired reproduction and early culling.

Preventing lameness will:

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

- 3.4 Causes of lameness:

- a. Non-infectious

- *Sole ulcers*: Painful sole defect that exposes sensitive tissue. Mainly internal surface of the lateral claw of the hind foot.
- *White line lesion*: Weakness of the junction of the foot wall and sole causing hemorrhage, separation, and infection.
- *Injury*: Acute or chronic trauma of feet or legs resulting in fractures, pulled or torn ligaments.
- *Laminitis*: Inflammation of the tissue (laminae) that joins the hoof horn and soft tissues of the foot.

- b. Infectious:

- *Digital dermatitis (Strawberry Foot, Mortellaro)*: Bacterial infection, mainly of the interdigital space in the heel area.
- *Interdigital dermatitis (heel erosion)*: Mixed bacterial infection of the superficial skin between claws and heel bulb.
- *Interdigital Phlegmon (pasture foot rot)*: Bacterial infection of the soft tissue between and
- above the claws, originating from the environment.

*** NOTE**

Animals must be regularly observed for signs of lameness, or leg injury to diagnose and treat them quickly.

- 3.4.1 Euthanasia should be considered for any lame animal that is not responding to treatment.

4. PROCEDURE

4.1 METHOD 1: GAIT SCORING

- Gait scoring is the most accurate and preferred method for detecting lameness in cattle and should be encouraged over SLS (In-stall scoring) and conducted during daily outdoor access.
- If walking and observation of cattle is not practical, the in-stall score system should be used.

Note

Any cows that will be scored using this method must be approved on a day-to-day basis by the Herd Manager or Technician.

4.1.1 Establish a suitable location:

4.1.2 Often the easiest location is the transfer alley between the parlour and the pen.

4.1.3 Criteria for choosing a location:

- Distance allows observation of cattle walking for four strides.
- Surface is smooth/flat.
- Avoid slatted concrete surfaces if possible.
- Avoid sloped flooring (downward or upward) or alleys with steps.

4.1.4 Record the identification of the animal.

4.1.5 If cattle have been released from tie-stalls, habituate them to walking by walking up and down a passageway in a calm manner until the cattle walk in a straight line at a steady pace.

4.1.6 Observe at least four strides for each animal and record the degree of limping on the Cattle Assessment Record.

4.1.7 Assign a Score (1- 5) to your observation according to the [Table 2: Gait Scoring Scale](#) and [Table 3: Gait Scoring for free stall herds: 7 Indicators of Lameness](#)

4.1.8 Determine the appropriate category (A, M, or R) for the action required for this animal as per [Table 1: Action Category](#) below.

Table 1: Action Category:

Scores of 1 and 2	Score A	Acceptable for no limp present
Score 3	Score M	Monitor for mild or moderate limp present. <ul style="list-style-type: none">▪ Record results in the treatment log sheet and DSA▪ Consult with a veterinarian.
Scores of 4 and 5	Score R	Requires corrective action for an obvious or severe limp present. <ul style="list-style-type: none">▪ Record results in the treatment log sheet and DSA▪ Consult with a veterinarian.

4.1.9 Record the results of the assessment in the [Herd Health Scoring Record \(Appendix DC-A-6A\)](#) or the [DC-A-6C Lameness Scoring Record for Dairy Cows \(Appendix DC-A-6C\)](#).

4.1.10 Cattle are considered lame at a gait score of 3 or higher using the Gait Scoring Tool (Table 1). Consult with the herd veterinarian.

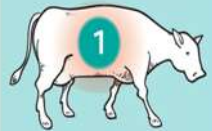
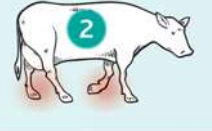

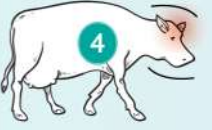
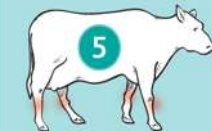
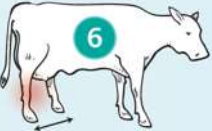
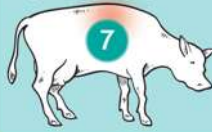
TABLE 2: Gait Scoring Scale

Adapted from National Farm Animal Care Council. Appendix E, Code of Practice for the Care and Handling of

Score	Description	Behavioural Criteria
1 Sound	Smooth and fluid movement	<ul style="list-style-type: none"> Flat back when standing and walking. All legs bear weight equally. Joints flex freely. Head carriage remains steady as the animal moves
2	Ability to move freely not diminished	<ul style="list-style-type: none"> Flat or mildly arched back when standing and walking All legs bear weight equally. Joints slightly stiff Head carriage remains steady
3	Capable of locomotion but ability to move freely is compromised	<ul style="list-style-type: none"> Flat or mildly arched back when standing, but obviously arched when walking. Slight limp can be discerned in one limb. Joints show signs of stiffness but do not impede freedom of movement. Head carriage remains steady.
4	Ability to move freely is obviously diminished	<ul style="list-style-type: none"> Obvious arched back when standing and walking. Reluctant to bear weight on at least one limb but still uses that limb in locomotion. Strides are hesitant and deliberate and joints are stiff. Head bobs slightly as animal moves in accordance with the sore hoof making contact with the ground
5 Severely Lame	Ability to move is severely restricted. Must be vigorously encouraged to stand and move.	<ul style="list-style-type: none"> Extreme arched back when standing and walking. Inability to bear weight on one or more limbs. Obvious joint stiffness characterized by lack of joint flexion with very hesitant and deliberate strides. One or more strides obviously shortened. Head obviously bobs as sore hoof makes contact with the ground.

TABLE 3: Gait Scoring for free stall herds: 7 Indicators of Lameness

Adapted from Pro Action. "Tips for Addressing Lameness on your Farm"

 <p>1 Reluctance to bear weight Cows redistribute weight to prevent weight bearing on the painful limb, resulting in a limp.</p>	 <p>2 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.</p>
 <p>3 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.</p>	 <p>4 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.</p>
 <p>5 Joint stiffness Limb and back movement of non-lame cows is smooth and fluid, with good joint flexion and extension.</p>	 <p>6 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.</p>
 <p>7 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.</p>	

4.2 METHOD 2: IN- STALL PROTOCOL:

- 4.2.1 Encourage the cow to stand. The cow must be standing for at least 3 minutes before the assessment begins (allows for urination/defecation and recovery of balance).
- 4.2.2 If the sample size means that you need to score adjacent animals, do not score them immediately after each other, as the scoring of the first animal may affect the second one. Move to the next animal to be scored and then return to the skipped animal once she has had at least 3 minutes of standing undisturbed.
- 4.2.3 Record the identification of the animal.
- 4.2.4 Observe the animal:
 - If the animal urinates or defecates during the assessment, stop scoring and return to assess her later, or ignore the behaviours just before and during urination or defecation, and continue scoring once the animal has returned to normal resting posture.

The assessment consists of two parts:

4.2.4.1 Animal Standing in Stall

- 4.2.4.1.1 Stand about one meter behind the animal slightly to one side for a good view of both front and hind feet.
- 4.2.4.1.2 Observe the animal's feet for a full 60 seconds.
- 4.2.4.1.3 Record the presence of EDGE, WEIGHT SHIFT and REST (UNEVEN WEIGHT) indicators for each position for all four feet on the [Lameness Scoring Record for Dairy Cattle \(SOP Appendix DC-A-6C\)](#), except for EDGE which can only be assessed on the hind feet. [See Table 4 and Table 5 for descriptions of each indicator.](#)

4.2.4.2 Animal moved from side to side:

- 4.2.4.2.1 For this step, it is advisable to have two individuals involved. Moving the animal and obtaining an adequate view for scoring can be challenging to accomplish single-handedly.
- 4.2.4.2.2 Person 1 stands behind the animal to have a clear view of both the front and hind feet.
- 4.2.4.2.3 Person 2 facilitates the animal's movement by shifting her from side to side. This can be done by walking from one side to the other behind the animal or by gently tapping its hipbone to encourage it to move over a few times. This movement is necessary to complete the assessment.
- 4.2.4.2.4 Observe how the animal shifts weight from hind foot to hind foot. Observe if UNEVEN MOVEMENT indication (Table 3) is present.

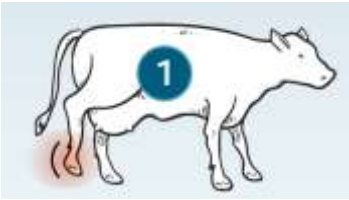
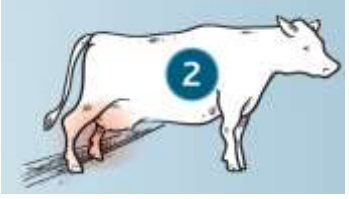
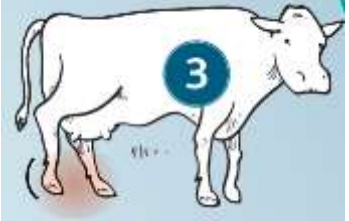
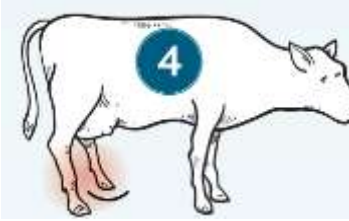
4.2.4.3 Determine the appropriate category (A or R) for the action required for this animal as per Table 4 below:

Table 4: SLS Action Category

Less than 2 indicators are present	Score A	Acceptable
2 or more indicators are present	Score R	Requires corrective action for an obvious or severe limp present. <ul style="list-style-type: none">▪ Record results in the treatment log sheet and DSA▪ Consult with a veterinarian.

- 4.2.4.4 Record the results of the assessment in the [Herd Health Scoring Record \(Appendix DC-A-6A\)](#) or the [Lameness Scoring Record for Dairy Cows \(Appendix DC-A-6C\)](#).
- 4.2.4.5 Cattle are considered when they have 2 or more signs of lameness using the Lameness Scoring Cows in Tie Stall Barns (Table 4). Consult with the herd veterinarian

TABLE 5 Lameness Scoring Cows in Tie Stall Barns

Behavior Indicator	Description	
Standing Post (voluntary movements)		
WEIGHT SHIFT	<p>Regular, repeated shifting of weight from one hoof to another. Repeated shifting is defined as lifting each hind hoof at least twice off the ground (L-R-L-R or vice versa).</p> <p>The hoof must be lifted and returned to the same location and does not include stepping forward or backward</p>	
EDGE	<p>Placement of one or more hooves on the edge of the stall while standing stationary.</p> <p>Standing on the edge of a step when stationary, typically to relieve pressure on one part of the claw (Figure 1). This does not refer to when both hind hooves are in the gutter or when cow briefly places her hoof on the edge during a movement/step.</p>	
UNEVEN WEIGHT (REST)	<p>Repeated resting of one foot more than the other as indicated by the cow raising a part or the entire hoof off the ground. This does NOT include raising of the hoof to lick or during kicking (Figure 2).</p>	
Cow moved from side to side		
UNEVEN MOVEMENT	<p>Uneven weight bearing between hooves when the cow was encouraged to move from side to side. This is demonstrated by greater rapid movement of one hoof relative to the other, or by an evident reluctance to bear weight on a particular foot.</p>	
<p>The Gait Scoring Scale is adapted from Appendix E, Code of Practice for the Care and Handling of Dairy Cattle, National Farm Animal Care Council.</p>		

5. REFERENCES

Dairy Farmers of Canada, proAction Animal Care Manual. July 2021. *Quick Guide to Mobility Scoring*. Retrieved from <https://www.dairyfarmers.ca/proaction/resources/animal-care>.

National Farm Animal Care Council. Code of Practice for the Care and Handling of Dairy Cattle, 2023. Retrieved from <https://www.nfacc.ca/codes-of-practice/dairy-cattle/code2023>.

Document Status and Revision History

DATE	NEW VERSION
7-Feb-2018	Version 01: Mac Campus FACC approved
8-Sept-2023	Version 02: Mac Campus FACC approved