

LAMENESS SCORING AND THE HERD MOBILITY INDEX – THE FUTURE

The industry recognises that the level of lameness on farms within the UK continues to be at consistent, but excessive levels, with little improvement over the past 20-30 years e.g. Liverpool and Bristol University studies. The situation in the UK does appear to be worse than many European countries – largely due to the high use of North American Holstein genetics. In fact in Sweden the incidence of lameness is considered to be less than a quarter of that in the UK.

The causes of lameness are well known as are the costs. The main stumbling block in the control of this problem appears to be related to the lack of awareness of the lameness level on farm by both herdsman and the veterinary profession. There is evidence that veterinary surgeons underestimate the level of cattle lameness more than herdsman. This is thought to be a result of familiarity and only seeing the more severe cases, thereby ignoring the milder forms of lameness. It is acknowledged within the industry that if intervention policies are applied to the milder forms of lameness, i.e. earlier identification, most severe cases would be prevented. Not only will this improve the health and welfare of dairy cows it will also increase the profitability of the farming enterprise. This would then release funds for investment in housing, buildings and underfoot conditions; allowing further improvements to be made.

There is now an industry consensus on how to define and measure lameness in dairy cattle. This follows a meeting last autumn of representatives from within the dairy industry at the University of Nottingham, hosted by DairyCo (formerly the MDC). Locomotion scoring has been used in research for many years, with Manson and Leaver describing the first scale (Manson and Leaver 1988) and a modified system, developed by the University of Bristol, was promoted in the Defra campaign on Reducing Injuries to Dairy Cattle in 2004 and the 2007 campaign on Reducing Lameness in Dairy Cows.

However, in the late 1990's locomotion was introduced as a linear trait for breeding purposes by Holstein UK. This has meant many farmers now recognise locomotion scoring as a breeding tool and not for identifying cows likely to benefit from treatment. There has, therefore, been a confusing picture of the same name being used for two different purposes. This leads to significant confusion with herds/cows being marked good for locomotion as a breeding trait but poor from a herd/cow lameness aspect.

At the autumn 2007 meeting the term lameness scoring was adopted to eliminate this confusion. There was unanimous support for a lameness score to be based on a 0-3 scale – broadly similar to the original Bristol/Defra locomotion score. The meeting also felt that farmers had to take a more positive approach to herd lameness scoring and it was agreed that benchmarking of herds could best be developed by using the individual data to calculate a herd mobility index – this would be based on the percentage of cows in the herd with obvious signs of lameness, i.e. scores 2 and 3. Thus a key outcome of the meeting in Nottingham was to obtain an industry agreement on terminology: a herd level mobility index based on a cow level lameness score.

Lameness and mobility - monitoring lameness on farm

Over time there has been an increase in the uptake of lameness scoring on dairy farms. Some has been purely done to satisfy a quality assurance scheme. But pro-active businesses have used it, usually in their Herd Health Plans, as a management tool to systematically and proactively prioritise cows for treatment and for monitoring the impact of foot care programmes. Scoring carries undoubted welfare and financial benefits.

Lameness and mobility – terminology for farmers

The descriptors, formulated by experts in this field following the DairyCo hosted meeting, are shown in Table 1. These descriptors are continually being tested, but have been formulated using studies on repeatability and predictive value using observed foot lesions.

Table 1 Lameness scores and descriptions

Category of score	Score	Description of cow behaviour	Suggested action
Good mobility	0	Walks with a flat back; even weight bearing and rhythm on all four feet. Long, fluid strides possible.	No action needed but may benefit from routine (preventative) claw trimming.
Imperfect mobility	1	Steps uneven (rhythm or weight bearing) OR strides shortened; <i>affected limb or limbs not immediately identifiable.</i>	May benefit from further observation and routine (preventative) claw trimming.
Impaired mobility	2	Uneven weight bearing on a limb that is immediately identifiable AND/OR obviously shortened strides (usually with an arch to the centre of the back, that may increase as the cow begins to move).	Lame and likely to benefit from treatment.
Severely impaired mobility	3	Unable to walk as fast as a brisk human pace (cannot keep up with the healthy herd) AND signs of score 2.	Very lame and likely to require immediate attention; nursing and probably further professional advice, possibly even culling.

As with any scoring system, both training and on-going use is a necessity to ensure consistent recognition and recording of the signs of uneven weight bearing (dew claws do not drop to ground evenly on both left and right limbs, the rhythm of limb swing is uneven and/or a head nod is present) and obviously shortened strides (tender footed cows with an arched back). Recent repeatability data suggests agreement is poorest for score 0 but near 100% for score 3.

The odds of detecting a lesion

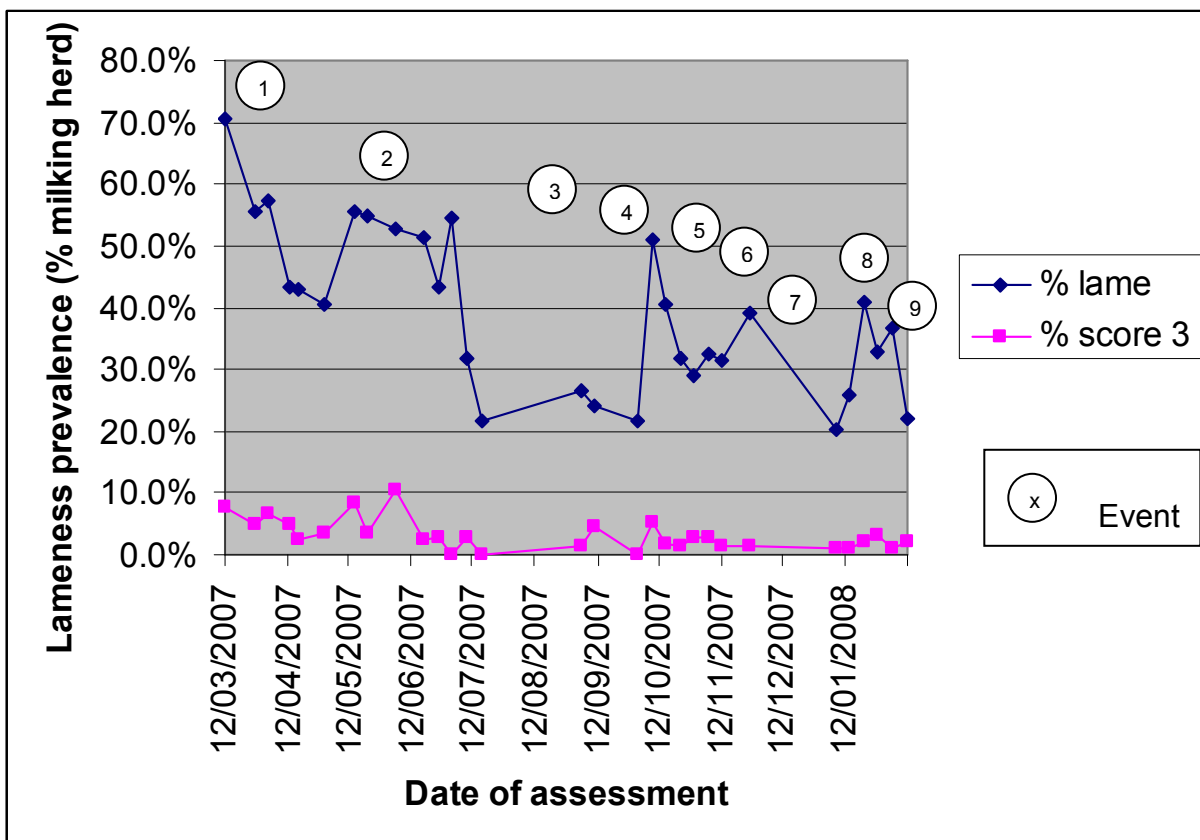
Lameness scoring of herds is fraught with difficulties that make it appear to be more of an art than a science. Research suggests 90% of lameness is due to pathology within the foot. However, early claw horn lesions may not be immediately apparent when foot trimming a hoof, but these cows will usually derive benefit from treatment before the lesions are obviously visible. Studies indicate that the odds of finding a lesion increase almost linearly with increasing lameness score. Scoring on a clean, level concrete walkway is essential for reliability. Repeated lameness scoring will add confidence to an individual cow's score as does more careful individual examination of the cow's gait.

Screening herds for lameness – principles into practice

Traditionally “screening” herds for lameness has occurred at herding, during the milking routine and during bulling checks. Generally this fails to detect all except the very lame (score 3) cows or those with grossly visible disorders, and misses the earlier stages of lameness (score 2, and possibly score 1) when lesions are more responsive to treatment and are more likely to resolve completely following treatment.

Does lameness scoring work? Without doubt YES. When done regularly changes in the overall level of lameness can readily be associated with beneficial changes in management or when things go wrong – as the following example from a 100 cow herd demonstrates. The graph below illustrates the events that led to the farm moving from the bottom quartile for score 2 & 3 lameness prevalence (48.9-79.2%) to the top quartile (0-22.2%) and the key role that lameness monitoring had in driving forward improvement.

Figure 1.



Key to events on Farm for figure 1

1. Introduction of a footbath strategy. Cows also turned out by day in early April and out by day and night by late April.
2. Score 2 policy formalised. Examination and treatment of as many score 2 cows as possible (30 treated in June). Cows with more than two consecutive scores of 2 were prioritised. The records from these treatments were important in confirming the major cause of lameness. Permanent foot bath installed by mid-June.
3. Cows no longer waiting in gateways to cross a major road.
4. Winter housing and autumn calving. Loss of herdsman meant staff shortage and footbathing became sporadic.
5. Extra layer of rubber inserted under rubber cubicle mats to improve lying comfort. Mat installed on turn out at the parlour exit. Antibiotic footbath used.
6. Footbath out of action for 3 weeks.
7. Footbathing re-instated.
8. Drains blocked preventing footbathing.
9. Footbathing re-instated.

The regular screening of the herd has been extremely useful for monitoring the impact of interventions and confirming that regular footbathing has been the most important feature in controlling lameness. The treatment drive prompted the discovery of more sustainable preventative measures. It also generated action lists for the early detection and treatment of lameness, the most likely reason for the percentage of score 3 cows being consistently below average from mid-October, and occasionally in the best quartile, having been in the worst quartile in March. Several cows in the herd have been identified as being vulnerable to sole bruising by virtue of thin soles and standing times are being actively managed. In the words of the farm manager, "finding the time to treat scores 2 cows has prevented the score 3s".

At this farm a policy is now in place whereby all cows with score 2 or 3 are treated at once as the total level of lameness has been brought to below 10%. Cows that remain score 3 are referred to the vet for a treatment and prognosis.

Opportunities to watch cows walk

A key barrier to lameness scoring by the farmer is the lack opportunity to watch the whole herd walk unobstructed in single file apart from at milking and the lack of spare labour capacity on farm. Scoring from the milking pit is ineffective. Approaches that have been successfully adopted on the more progressive farms include:

- Identifying score 2 and 3 cows as they walk in single file on the way to the collecting yard or as cows are moved at other times, such as on their return to grazing.
- Scoring cows as they loaf or move between lying area and feed barrier. However, unless performed systematically, some cows are likely to be overlooked.
- The veterinary surgeon scoring at TB testing or at PD. However, only cows in the first half of lactation are observed.
- Asking the foot trimmer to score a group of cows. Foot trimmers are in short supply and they may not be willing to sacrifice time for scoring.

- Milk recorders, linear assessors and other trained assessors may be available to independently score herds as part of the services they offer. As they are not involved with the daily management of the herd, this means that scoring is generally not put off.

Many farms that have regular foot trimmer visits have realised the value of monthly screening to identify the milder score 2 cows for attention rather than targeting the severe score 2 cows and score 3 cows that has traditionally occurred. The severe score 2 and 3 cows generally benefit from more than a foot trim and a block i.e. careful and repeated trimming; nursing and possibly referral to a veterinary surgeon.

Standardisation of scoring

Lameness scoring without standardisation is prone to poor repeatability. Lameness score training materials are currently available online (www.cattle-lameness.org.uk) and through DairyCo.

Benchmarking and following trends

As with any subjective scoring there is scope for inter-observer variation, so if the data is to be used for benchmarking, the same person should score over time whenever possible. Benchmark standards vary according to which score is used. Data from the Healthy Feet Project would suggest there are large variations in lameness prevalence between and within farms, but as a guide, the following figures have been derived from a representative sample 227 farms (Table 2).

Table 2 Lameness score benchmark data from 227 farms

	Acceptable mobility (score 0 + 1 - considered not lame)	Impaired mobility (score 2 – lame)	Severely impaired mobility (score 3 - very lame)
Worst UK farm	20.8%	58.2%	31.2%
Worst 25% UK farms	51.1%	40.6%	7.8%
Median	64.0%	31.0%	3.3%
Best 25% UK farms	77.8%	20.7%	1.00%
Best UK farm	100.0%	0.0%	0.0%

As with any benchmarking exercise, results need to be handled sensitively. Studies have demonstrated that many farmers/herdspersons, and some veterinary surgeons, are unaware of the milder signs of lameness and mobility indices will often come as an unpleasant surprise to many who have not realised the proportion of the herd exhibiting signs of score 2 lameness. But where action has been taken – after the realisation that lameness was worse than ever imagined, the benefits have been substantial.

