

Lameness in farm cattle: data collection and communication

OF all the clinical areas in dairy cow farming, lameness goes largely underestimated, if not unrecognised.

Appraising the latest mobility scoring results with one dairy client, he complained that during the scoring, "things were going well, until the last few cows came in. Then the score deteriorated". Of course, if there are any lame cows in the herd, they are likely to be the last ones to come in.

Unlike somatic cell counts and mastitis, where dairy farms are penalised for not complying with prescribed limits, improvement in lame-

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looks at roles of the mobility scorer, professional foot trimmer and vet in investigating this condition, and how the services combined could reduce levels of it

ness is very much more subjective. If there was a way to regularly stream independently verified data to the vet and foot trimmer, it would allow us to get an idea of the extent of the problem. We need to be able to distinguish between fact and fiction, otherwise "cows

are not lame; they are just hobbling on three feet".

The mobility scorer, the professional foot trimmer and the vet all aim to offer an excellent service to the dairy farmer. Of course, these three roles don't have to be separate, as they often overlap. If we are able to coordinate these proponents then we should be able to reduce the levels of lameness on a farm over time.

Mobility scorer

The mobility scorer is the first component in this equation. His or her regular visits, biannually or, ideally, more often, can give us a constant stream of information on the lameness status of a herd. Also, bearing in mind lameness incidence does not remain constant throughout the year, a minimum of twice-yearly visits would allow observation of this seasonal change.

The mobility scorer must be able to identify the affected limb and use an approved scoring scale (zero for sound and three for very lame).

Professional foot trimmer

The second component of our equation is where the professional foot trimmer

then attends to the cows the mobility scorer has just identified. The scorer's list provides us with a hit list of cows to treat and puts the focus on emergency treatments as, very often, owners are too busy to identify offending cows themselves.

Severe cases, such as vertical fissures, septic arthritis and complicated solar or toe ulcers, can be referred to the vet. These emergency visits should be combined with routine foot trimming at drying off or at 100 days in milk.

The role of the foot trimmer, whether professional or farm-based, is invaluable because his or her observations on foot lesions can picture a story. Most professional foot trimmers are now equipped with electronic recording systems that monitor not only cow ID and affected limb, but also the disease that causes lameness.

Organisations such as DairyCo have produced superb atlases on diseases of the foot, as shown in Figure 1. Being able to analyse and quantify the diseases the lameness causes on a farm would point us to whether the cause of lameness is infectious or structural damage to the foot.

Risk areas

The third and final component of this equation is to identify the risk areas responsible for causing lameness in the first place. What is the point in draining the overflowing water in the flooded tub if we don't turn the tap off as

well? The "taking a step back and observing" can be done by any of the three stakeholders in this exercise.

We, as vets, are carrying out a number of these and it appears no farm is a "textbook case". The causes of lameness in each herd very much depends on individual circumstances – not just farming, but domestic issues have an impact while drawing up the lameness prevention plan. The areas that predispose in lameness have to be identified. The risk assessment inspection comprises of visiting all the areas on the farm that cows would frequent – cubicles, feed troughs, passageways, foot bathing facilities, collecting yard (before and after the milking parlour) and grazing footpaths.

Availability and number of facilities (cubicles, water and feed troughs), their comfort (cubicle acceptance, presence of sharp concrete and narrow and sharp turns) and drainage of infectious material (scraping method, foot bathing dilution and leg cleanliness) need to be measured.

Prevention plan

Integrating the three levels of information we have collected so far – mobility score, foot disease incidence and lameness risk assessment – would allow us to next draw up an effective lameness prevention plan.

Such a plan would look into the four constitutional areas of lameness: low infection pressure, optimal horn quality and foot posture, cow comfort and, finally, early detection and treatment. By far the most common areas in causing lameness in dairy cattle are exposure to infectious material and structural damage to the horn through prolonged standing.

When infectious exposure is prevalent, digital dermatitis and foul in the foot are the predominant diseases. The number of lame cows affected is high and, with prompt treatment, the disease can be cured quickly and effectively.

Prevention is focused on improving slurry drainage and paying particular attention in volumes, dilution and frequency of foot bath used. In cases of structural damage of the sole and white line abscesses are seen. The prognosis of these cases is poor, as any damage to the horn takes four to six weeks to recover.

Prevention of structural damage to the horn requires carefully thought through

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changes in farm management (segregation and grouping of cows, installation of more cubicles, feed and water troughs) that owners are not always receptive to.

The key variable in devising our strategy here is standing time, as ruminants require an average of 14 hours daily recumbent to chew the cud. This leaves us with 10 hours daily that the remaining farm tasks have to be carried out (eating, drinking, walking and milking).

From our experience in problem farms, cows will stand either before or after milking for up to four to six hours daily. This prolonged standing puts immense pressure on the hooves and exceeds the recommended maximum of 2.5 hours total daily or 1.25 hours at a time.

Should this carefully choreographed coordination take place, we then see improvements in lameness incidence and, in turn, this brings an array of gains. There is, of course, the economic benefit from saving an average of £100 per case of digital dermatitis, £400 per case of solar ulcers and £600 per case of septic arthritis.

The welfare benefit to the animal need not be elaborated. Improvements in milk yields, as losses during lameness have been estimated between 10 per cent to 50 per cent.

More interestingly, with fertility, as a lame cow bred to give copious amounts of milk will continue milking relatively well while lame, but will not be getting in calf in the meantime.

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qualified in 1994 from the Aristotle University of Thessaloniki School of Veterinary Medicine in Greece. From early on his main interest was farm animals, so he pursued his first job – a predominately cattle post in west Devon. Sotirios joined Shepton Vets in 1998 and became a partner in 2001. His main interests are cattle fertility, reproductive and abdominal surgery including laparoscopy, semen and bull testing, foot trimming and pathology.

DairyCo Mobility Score

healthyfeet **D.**

Example: 100 cows in total, 20 cows in Group 1, 30 cows in Group 2, 40 cows in Group 3, 10 cows in Group 4. This means 20% of cows are in Group 1, 30% in Group 2, 40% in Group 3, and 10% in Group 4.

Group	number of cows	%	Group	number of cows	%	Group	number of cows	%
Group 1			Group 1			Group 1		
Group 2			Group 2			Group 2		
Group 3			Group 3			Group 3		
Group 4			Group 4			Group 4		
Total			Total			Total		

4% of cows as an overall total of the herd scoring 0 and 1

Figure 1. Documentation on diseases of the foot by DairyCo, detailing a mobility score (above) and foot lesion picture card.

D. Foot lesion picture card

Non-infectious

- Interdigital granuloma**
 - A very red lesion, the sole (distal) is a yellow to purple
 - More severe is red to purple
 - Caused by damage to the sensitive laminae, leading to bacterial invasion and local tissue overgrowth
 - Sometimes the sole is too hard
- Foul in the foot**
 - A persistent sore between the toes of the sole leading to poor horn formation and swelling in the sole
 - Flush the sensitive laminae through the sole
 - When present, this is often on the inner side of the hoof
- White line disease**
 - In addition, the wall separates from the sole, sometimes with blood staining
 - There are some cases because of fungal infection
 - The sole may be too hard or too soft
- Digital dermatitis**
 - An infection of the sole caused by a type of bacteria
 - Also, infected lesions of the sole commonly show the hoof wall
 - It can also be found on the inner side of the hoof
 - Chronic lesions have a yellow, hard appearance from the lesion
- Sole ulcers**
 - Caused by pressure produced by the sensitive laminae which irritate the sole of the hoof
 - A lesion which can lead to chronic lameness
 - A thick, weight-bearing surface of the hoof is lost and the sensitive sole can be seen in the sole cup

Infectious

- Foot rot**
 - The whole foot is swollen
 - Characteristic smell
 - Caused by bacteria which enter through breaks in the sensitive laminae
 - A very aggressive form is called 'cannon foot'
- White line**
 - May start on the inner or outer wall with white staining
 - Digital dermatitis lesions may be associated, infecting the sensitive laminae and preventing healing
- Sole ulcers**
 - Particularly painful
 - Often accompanied by the sole

Less common lesions

- Further back on the foot than is typical white line**
 - Sometimes cracks back to heel
- White line disease**
 - Appears on a white line defect on the inner wall
 - Sometimes hard to spot
- Foreign body**
 - Sharp stones or other objects
 - Do not confuse with more gentle cracks in sole other sites

Four success factors for healthy feet:

- Reduce infection pressure
- Improve hoof shape and horn quality
- Reduce forces on the hoof (good cow flow and comfort)
- Early lameness detection and prompt, effective treatment

www.dairyco.org.uk