

Assessing the cost of lameness



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Lameness is a continuous challenge for dairies in South Africa. Whether it is caused by physical injury, hoof disease or dietary deficiencies, it results in increased veterinary costs, increased culling, decreased milk yield and ultimately decreased profitability.

It is important that action is taken to assess and prevent lameness in your herd. The first step is to determine the extent of the problem and assess what it is costing the dairy, and the second is to determine how to prevent/treat the problem.

Locomotion scoring is a tool that can be used to determine the extent of the lameness problem and its cost. It is a relatively quick and simple assessment of the ability of cows to walk normally.

Locomotion scoring can also be used to select cows for individual hoof examination/trimming and to then assess the reason for early signs of lameness before the cows become clinically lame. In work completed on a commercial dairy in California, cows with a locomotion score of 3 were four times more likely to score a 4 or 5 (clinically lame) one month later (with no intervention) than cows scoring 2.

Tracking averages and the distribution of locomotion scores on a regular basis provides an index of the extent of lameness in the herd. This will provide criteria to determine when lameness is more preva-

lent, therefore when to intervene and treat the herd. **The question is: how much does lameness cost the dairy producer due to lost milk and revenue?** Based on extensive research (Peter Robinson, UC Davis), milk losses can be estimated based on the locomotion score profile of any group of cows:

- Locomotion score 2: 2%
- Locomotion score 3: 4,1%
- Locomotion score 4: 9,3%
- Locomotion score 5: 15,2%

However, only taking lost revenue due to milk loss into account is underestimating the true cost of lameness to a dairy, as decreased fertility due to lameness also contributes to reduced profitability. Dr Chuck Guard from Cornell University also estimates the losses due to lameness (per case) in his *Lameness Cost-Guard*: 2% of cases die, 20% are culled, 340kg of milk is lost, 28 extra days open, approximately R100 treatment cost, as well as one hour additional labour.

The example in *Figure 1* shows the impact of one set of circumstances. These numbers can be used to assess the relative milk loss from lameness and to therefore decide whether intervention would be cost-effective. The locomotion score profile of the example herd would not be considered representative of a herd with a serious lameness problem (7% clinically lame), yet the milk revenue loss is just over R6 000 per

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month. This cost of lameness should justify intervention, such as calling on the hoof trimmer to regularly trim cows' hooves or consider management, environment or nutritional changes (specifically in score 3 cows).

Steven Berry from UC Davis recommends working towards a locomotion score profile goal (Figure 2). All lameness is not nutritionally related and thus collection and evaluation of accurate claw lesion records, in addition to locomotion scoring, is essential to making the right corrective management decisions.

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Figure 2: Locomotion score goals, % of cows (Steven Berry, DVM, UC Davis)

1	Standing and walking, flat back	75
2	Standing, flat back; walking, arched back	15
3	Standing and walking, arched back	9
4	Standing and walking, arched back; one or more limbs favoured	0,5
5	Standing and walking, arched back; no weight bore on a limb	0,5

ness assessment and prevention programme, FirstStep®, as well as the Zinpro Performance Minerals to ensure strong healthy feet.

Figure 1: Predicted milk revenue losses due to a particular locomotion score profile (Adapted from PH Robinson, UC Davis)

Inputs:	
Number of Cows With the Following Locomotion Scores:	
1. Standing and walking, flat back	65
2. Standing, flat back; walking, arched back	20
3. Standing and walking, arched back	8
4. Standing and walking, arched back; one or more limbs favoured	6
5. Standing and walking, arched back; no weight bore on a limb	1
Total number of cows scored (calculated):	100
Milk price (rand/kg):	R 2,80
Current milk production level (kg/d):	25
Herd/group size (number of cows):	200
Average locomotion score	1,6
Average daily milk loss – kg/cow**:	0,36
kg/group**:	73
Lost revenue due to reduced milk yield – rand/day/group:	R204,26
rand/year/group:	R74 553,88
**Assumptions:	
1. Economics adapted from PH Robinson, PhD, Dept. of Animal Science, UC Davis	
2. Locomotion scoring adapted from Sprecher et al, 1997, Theriogenology 47:1178 - 1187	
3. Estimated milk production losses for cows with the following locomotion scores: Locomotion score 2:2,0% Locomotion score 3:4,1% Locomotion score 4:9,3% Locomotion score 5:15,2%	
4. Lost revenue underestimated as it does not account for lost income due to decreased fertility as the result of lameness. See Lameness Cost - Guard for a more complete list of costs associated with lameness	