Assessment of skin damages in dairy cows

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Abstract

Skin damages were assessed at 48 conventional and organic farms with mainly cubicle houses. Scores from 1 – 9 were given depending on type and size of the damaged skin at 9 locations of the cow: outer hock, inner hock, knee and body all left and right hand side and the neck. Only the highest score per location is recorded and remarks of unusual findings are made separately. The most frequent and most severe affected location is the outer hock followed by the knee. Only 14 percent of all cows did not have any damage, 34 percent had only hairless patches and 24 percent of the cows did have at least one swelling. Correlations of the mean farm score for the left and right hand side are high for the outer hock and low for the body. To have the most impact in advising farmers, assessment should preferably be made at the end of the housing period, the most threatening period in animal welfare in the Netherlands. This system allows benchmarking within and between farms.

Introduction

In animal assessment of welfare, beside lameness, one of the important issues are skin damages of the cows. Hairlessness, wounds, bruises and swelling demonstrate that the animal does not fit in the housing or that the housing system does not fit to the animal (Whay et al; 2003, Klocke and Ivemeyer; 2004; Rousing et al, 2000). In the new EU health strategy (European Commission, 2007) is acknowledge that suitable performance indicators will allow the assessment of progress. In the Netherlands a assessment system for skin damages has been developed in witch it was important to have a link between the location of the damage on the cow and the cubicle housing system. Farmers understand performance parameters as a practical system for assessing skin damages of diary cows and are able and wiling to react with improvements in the housing conditions.

Material and methods

In the period 2005 -2007 in total 2419 cows are assessed for skin damages at 34 conventional farms (con), 11 organic farms (eco) and 3 biodynamic farms (bd). The majority of the herds were Holstein Frisian. At nine farms Meuse Rhine Ijssel was the main breed, at one farm Brown Swiss, one farm Montbeliarde and at one farm Jersey. At 11 farms cows were scored twice (at the end of the stabling period and at the end of the grazing period), at 37 farms cows were scored once during the stabling period. All assessments were carried out by the same person. The scoring system for skin damages is as given in table 1. Scores are recorded separately for outer hock, inner hock, front knee, neck and body. Except for the neck, all locations are score on the left- and on the right-hand side of the cow. If more cows do have comparable

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damages on the body or damages on the same place, it is recorded as an extra remark.

Only the worst damage per location is recorded: a cow with a swollen hairless outer hock with an open wound, will get a score for that place of at least 7 (depending on the size of the swelling). Cows are assessed while standing at the feeding rack. At farms over 30 cows a random sample of about 25 cows is assessed. To ensure a random selection of 1st and 2nd calvers and older cows, instead of selecting particular cows, some more cows than strictly necessary for a good sample are assessed. Selecting particular cows disturbs the cows and takes much time. Assessing cows for skin damages takes about 2 minutes per animal. Together with skin damages body condition and locomotion are assessed and sometimes also teat end callosity.

Table 1. Scoring skin damages in assessment system for dairy cattle

Patch	Hairless			Lesions (open or curing)			Swollen		
(Ø in cm)	<3	3-6	>6	<3	3-6	>6	<3	3-6	>6
Score	1	2	3	4	5	6	7	8	9

Results

All farms except three with deep litter housing, kept the cows in winter in cubicle housing. The bedding in the cubicles consisted of deep straw or sawdust or of different types of mattresses, waterbeds or rubber mats with sawdust or grinded straw on top. The average score per location and farm is presented in figure 1 as the mean of the left and the right-hand side of the cow and ranked by the sum of sores by farm type (bd, eco, con). The best possible score is 0 (no skin damage at all), the worst possible score is 45 (max swelling at the 5 assessed locations of the cow).

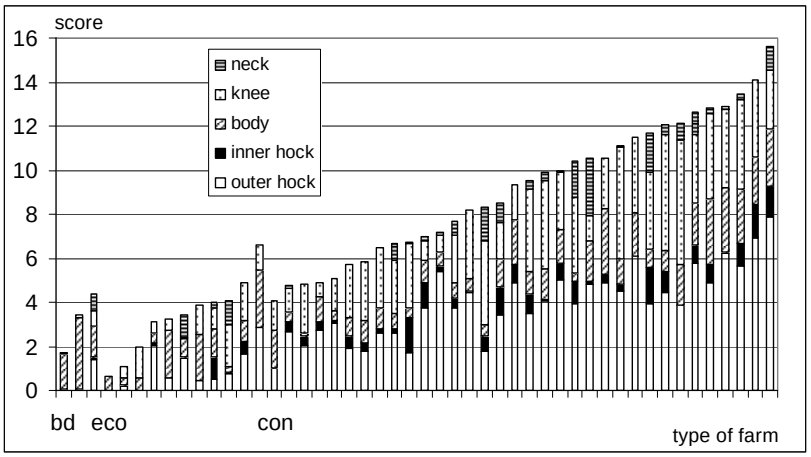

Figure 1. Mean skin damage score per location and total score per farm

The organic farms, even with horned cows at the biodynamic farms, reach good scores compared with conventional farms. The average overall score is 7.4 (table 2).

The absolute score shows that the outer hock is the most affected location of the cow and the inner hock the least affected area. For all assessed parameters there are farms with no damaged cows, but on 15 of the farms there were no cows without skin damages. From the total score, 41% is caused by the outer hock and 30% by damages of the front knee. The maximum percentage of total score shows that up to 100% of skin damages could be caused by one parameter.

Table 2. Absolute and relative mean score for skin damages of cows (48 farms)

Location	Outer hock	Inner hock	Body	Knee	Neck	Total score
Absolute score						
Mean	3.1	0.5	1.30	2.2	0.4	7.4
Maximum	7.9	1.7	3.3	5.7	2.6	15.6
Percentage of total score						
Mean	41	6	17	30	5	100
Maximum	76	26	100	73	29	
Percentage of cows						
No skin damage	45	92	77	67	89	14
Hairless	34	5	16	20	8	34
Infected	15	3	6	5	1	28
Swollen	6	0	1	8	2	24

Fourteen percent of all assessed cows did not have any skin damage at all. For the different parameters the percentage of not damaged cows ranged from 45% for the outer hock to 92 percent of the inner hock. In 34 percent of the cows, the damages were only hairless patches while 24 percent of the cows did have at least one swelling somewhere. The outer hock is not only the most severe affected part of the cow, with 55% of cows it is also the most frequent damaged location.

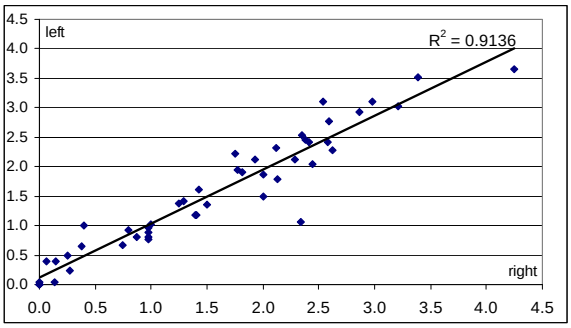

Figure 2. Correlation between mean farm score for left- and right outer hock of the cow

Assessing left and right hand side

Correlation between the left-hand and right-hand side of the outer hock are given in figure 2. The mean scores per farm for the right- and left-hand side of the outer hock are comparable (r^2=0.91). Correlations between the left-hand side and the right-hand side for inner hock, body and knee respectively are. 0.67; 0.39 and 0.74. The skin damages on the body are sometimes typically for the stable on one side of the body especially if they are caused by obstacles in the walking area or at the feeding rack.

Discussion

The assessment system is used to help farmers finding inadequacies in the housing of the cows. To be able to show the farmers the weak points of their housing, at farms were cows are grazing during summer, assessments should be preferably made at the end of the stabling season. Under grazing conditions skin damages are less frequent and less severe than under stabling conditions. Especially for assessing the front knee, it helps if cows can be closed in the feeding rack. Although assessing only one side of the cow would save time, large part of the skin damages at the “body” are missed. Assessing the different locations of the cow makes the system acceptable by farmers for it is easier to link the damaged locations of the cow to specific housing conditions. So there will be a greater chance of Improving the situation for the animal (Aerts et al, 2006). As Whay et al (2003) reported, we found that even farms with a low level of animal welfare usually do have one strong point. In assessing more separate locations of the cow the chances of having some positive results on certain locations compared with colleagues are higher and in a positive mood, farmers are more susceptible to improve the weak points in their housing system. For reliable results in various housing systems, between different breeds, between horned and dehorned cows and between farm types more assessments are being made.

Conclusions

The most affected places with skin damages are the outer hocks of the cows. Assessing only one side of the cow gives a good idea of the damages of the outer hock but not of skin damages of the body. Farmers understand the system while there is a link between assessed locations of the cow and the housing system and are able to improve housing based on the assessment.

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