

Project: Brief communication

Behavioural effects of housing in dairy cattle

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The difference between tie-stall and loose-house systems for dairy cattle could cause differences in behavioural welfare.

There are mainly two types of housing systems for dairy cows used in Sweden, tie-stalls and loose-houses. Tie-stalls are the most common, but the production is slowly changing from tie-stalls to loose-housing systems. In a tie-stall are the cows tied by their neck next to the fodder table while they can move around freely in a loose-house. It is believed that cows kept in a loose-house will have better opportunities to express their natural behaviour than cows kept in a tie-stall (Rousing et al. 2004). The opportunity to behave normally will probably reduce the stress to being kept in a housing system. The aim of this study was to see if there were any behavioural problems among cows kept in a loose-house compared to cows kept in a tie-stall. The overarching hypothesis was that cows in the loose-housing system have higher behavioural welfare than cows kept in a tie-stall.

The tie-stall used in the study was of a short-stall model where the cows kept their head over the fodder table in order to have room for lying and standing, they were milked in their stalls. The loose-house was a cubicle system consisting of a passageway with slatted floor, a fodder table for roughage, two feeding automats for concentrated feed and stalls to lie on. These cows were driven up to a milking parlour when milked. During the summer the cows from the two housing systems were mixed and kept on the same pasture either during the night or the day.

Observations were made on pasture in order to get a baseline over the most natural behaviour; this could then be compared to the indoor behaviour. After the intake from pasture there were continuous observations made in the tie-stall and the loose-house during the autumn. Both individual behaviours and group synchronisation were observed. Additionally there were heart rate measures made before, during and after milking in both the loose-house and in the tie-stall. There were possible welfare problems found in both the loose-house and the tie-stall. The following problems were found in the loose-house.

The active behaviours observed were grazing/eating, drinking and walking. Among the active behaviours grazing/eating were by far the most common. Thus, the activity could be considered to be the same as eating duration. There was a significantly higher activity seen on pasture while there was a tendency for lower activity in the loose-house than in the tie-stall. This could mean a shorter eating duration in the loose-house. The loose-house cows have to compete for their fodder, both around the fodder table and the feeding automats, while the tie-stall cows have their places fixed around the fodder table and do not have to compete for their food. This could lead to stress for the loose-house cows. It has also been suggested that a short eating duration could cause tongue rolling (Lindström and Redbo, 2000), a stress-related behaviour in cows.

The rising up and lying down movements are innate and can therefore be used as welfare indicators (Lidfors, 1989). There was a tendency for more difficult rising ups in the loose-house. This was probably due to a bar that was placed over the stalls, the bar forced the cow to make compensatory movements when rising.

Group synchronisation was the highest on pasture while there was a tendency for lower group synchronisation in the loose-house than in the tie-stall. This could also be classified as a possible welfare problem in the loose-house. The observations on pasture suggest that it is

natural for them to have a high synchronisation. It has also been concluded by others that a high lying synchrony can be indication of good welfare (Fregonesi and Leaver, 2001).

There was also a tendency for higher heart rate in the loose-house than in the tie-stall. The difference was the biggest two hours before milking and can therefore not be linked to the milking procedure. This implies that the cows in the loose-house generally could be more stressed than the cows in the tie-stall.

The problems seen in the loose-house was also seen in the tie-stall, but not to the same extent. Besides those problems there were two other big problems in the tie-stall. Firstly, there were significantly higher frequencies of difficult lie-downs seen in the tie-stall than in the loose-house. The second problem was that there were significantly higher frequency of stepping in the tie-stall than in the loose-house. When the cows were stepping they were standing at the same spot lifting and setting down the limbs repeatedly. This is probably a stress-related behaviour.

The overall conclusion drawn from these results was that there are possible welfare problems in both the tie-stall and the loose-house but that the problems in the tie-stall could be considered as more severe.

References

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