

Cow comfort effects of milk production and mastitis: a field study

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The DeLaval swinging cow brush provides grooming opportunities for dairy cows. Dairy cows have a high need for grooming as was shown recently in a study by DeVries et al using a similar cow brush system.

Cows in a pen with a mechanical brush increased their grooming time approximately fivefold compared to a pen without such a brush. The authors concluded that a grooming device helps to satisfy the cow's need for grooming, while at the same time improving cow cleanliness. Both these factors (better 'welfare' and cleaner cows) may have an impact on disease occurrence and on milk production.

Studies have associated cow cleanliness with mastitis incidence, and the increased activity of the cow may lead to less metabolic diseases, better digestion and eventually in higher milk production.

Although the intuitive concept of the swinging cow brush being associated with better productivity and increased health may be straightforward, no hard data exist to quantify this potential relationship.

Therefore a comparison study of cows experiencing a cow brush was designed, including a contemporary control and pre-study baseline measurements.

New York field study

The objective of this pilot study was to compare daily milk production and animal health in pens of cows with and without a swinging cow brush on one New York dairy farm.

In this field study, a total of four pens were used with two pens having two cowbrushes each installed and two pens that served as contemporary controls. Although many data points provided a very precise evaluation of the differences between the pens with and without the cowbrushes, the study design is essentially a two by two comparison. This should be kept in mind when further evaluating the observed differences between the



pens. Cows adapted well to the cowbrushes and utilised the brushes frequently. Farm workers noticed the frequent use of the brushes and the eagerness of the cows to use the brushes.

Daily milk production for second lactation animals showed a significant and increasing difference in daily milk production with the time passing since installation. At approximately six months after installation, the difference in daily milk production stabilised at approximately 1kg higher daily milk production (3.5%) in the cows experiencing the cowbrushes. This difference in daily milk production was not observed in the other two lactation groups.

It is not clear why one lactation group of cows would show an effect due to the cowbrush while other groups do not show this effect. While evaluating the behaviour of cows with access to a mechanical brush, DeVries et al. (2007) did not report on differences between parity groups in the use of the mechanical brush.

It may be hypothesised that cows that are more active and walk to use the cowbrush are also inclined to visit the feed bunk while active. Cows being more active would also utilise ketones more efficiently and may experience less reduction in feed intake due to high ketones concentration in serum.

This would lead to a potential increase in daily milk yield. No obvious reason is present why this would differentially affect cows in different lactation groups. Ketosis registration in the study herd was limited to clinical cases. No difference in clinical cases of ketosis was observed in the cowbrush and control pens (seven and six cases respectively). Clinical mastitis data in cows in second and higher lactation (pens 27 and 28)

showed a clear and significant difference in mastitis incidence as soon as the cowbrushes were installed.

The difference in mastitis incidence increased with increasing lactation number.

We can only speculate with regards to the reasons for this decrease in mastitis cases in the pens with cowbrushes. The initial hypothesis was that cows that are more active and walk more, are lying a shorter period of time in the stalls and thereby exposing themselves less to bacteria on the stall surface.

The grooming behaviour of the cows may also lead to an overall cleaner skin in the animals with access to the cowbrush.

Although the mammary gland itself will not be groomed when using the cow brush, the tail and hind areas of the cows will be groomed and may result in a lower exposure of the mammary gland due to general reduction of dirt on the cow.

No difference was observed in the two pens with first lactation animals. The incidence of mastitis in both of these pens was very low and the power of this study to identify differences in clinical mastitis between the two first lactation cow pens was very small.

In summary, installation of the cowbrushes resulted in an immediate increase in cow grooming behaviour. Installation of the cowbrushes resulted in either no difference in daily milk production (in lactation 1 and 3 and higher), or in an approximate 1kg higher daily milk production in second lactation cows. Clinical mastitis was lower in pens of cows in second and higher lactation with a cowbrush present. ■

