

# Influence of manure scrapers on cardiac activity and behaviour of dairy cows

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## Key words

Manure scrapers, dairy cows, animal welfare, heart rate variability, feeding behaviour, behaviour

## Aim of the study

The aim of the study was to assess changes in cardiac activity and disturbances of feeding behavior caused by running scrapers, and to evaluate behavioural reactions to different scraper types.

## Material and methods

Cardiac activity of 10 cows each on 3 farms was recorded telemetrically with Polar™ heart-rate devices. Simultaneously to the measurement of cardiac activity, the behaviour of the cows was recorded by video. Cardiac activity and cow behaviour were recorded during 10 scraping events on each farm, as well as during periods without a manure scraper in action (reference values). Feeding behaviour of 12 cows each on 2 farms was recorded with a jaw movement sensor (number of feeding bouts, duration of night feeding time, total feeding time) with the scraper running either during or after the main feeding time. Direct reactions (e.g. avoiding the scraper by walking away, crossing the scraper) to encounters with 3 scraper types were analysed on 5 farms per scraper types. To take into account the experience of the cows with the scraper, primiparous and multiparous cows were considered separately in all parts of the study.

## Results and significance

The results of cardiac-activity measurement showed that cows are stressed by the active manure scraper at least during some of the behaviour elements that were considered. Activating the manure scraper during the daily main feeding period caused the animals to change their feeding behaviour. They showed more feeding bouts that is they left the feeding place more often, and they postponed feeding partly until night-time whereas total feeding time was unchanged. The reactions to scraper encounters depended on the number of animals present in the walking area before the scraping started rather than on the type of the scraper. The age of the animals did not have an influence on the physiological or behavioural parameters in either part of the study. The authors concluded that active manure scrapers signify a certain amount of stress for the cows but that they are able to cope with the manure scrapers types analysed in study. This can be supported by a suitable scraper management.

## Publications, posters and presentations

- Buck, M.; Friedli, K.; Steiner, B.; Wechsler, B.; Gygax, L.; Steiner, A.; Pelzer, A.; Lapke, J. (2010) Beeinflussen Entmistungsschieber die Herzfrequenz und die Fresszeit von Milchkuhen in Laufstallen? Proceedings of the 24th IGN-Tagung, Tanikon, Schweiz, 3.-5.Juni 2010.
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