Doctoral Thesis

Der Einfluss unterschiedlicher Laufstallsysteme auf Verhaltensmerkmale von Mastochsen

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DER EINFLUSS UNTERSCHIEDLICHER LAUFSTALLSYSTEME AUF VERHALTENSMERKMALE VON MASTOCHSEN

ABHANDLUNG

zur Erlangung
des Titels eines Doktors der technischen Wissenschaften

der

EIDGENÖSSISCHEN TECHNISCHEN HOCHSCHULE
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vorgelegt von

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Abstract

Effects of different loose-housing systems on behavioural traits of fattening steers

by B. Graf

This paper studies the effects of two loose-housing systems on resting, feeding and social behavioural traits of fattening steers. Furthermore, the extent to which these systems fulfil species-specific requirements was investigated.

One system (SF), was pens with slatted floor and 3 different sizes of lying area (LA) and manger space (MS) while the other (SB), comprised pens with straw bedding and an adjoining solid feeding area. Food consisted mainly of maize silage and concentrate, and some grass silage. Groups of 8 Swiss Brown steers were observed repeatedly over 24 or 48 h between the ages of 8 and 14 months.

Compared with SB, on SF daily lying time is shorter, daily lying frequency is lower, mean duration of lying periods is longer, lying frequency decreases and duration of lying periods increases with age. All differences are highly significant ($P < 0.001$).

Nearly all SF-animals exhibited "lying down hindquarters first" and "horse-like getting up" movement patterns, though in varying degrees. These abnormal patterns occured very frequently and strongly increased with age. Furthermore, lying down and getting up intentions were often shown. However, hardly any abnormal movement pattern occured on SB.

On SF, daily and mean duration of lying postures requiring slightly more width are shorter, daily duration and frequency of maximum space postures are greater and mean duration of long narrow postures is shorter than on SB. All differences are highly significant. Within SF, daily duration of postures requiring more width decreases significantly ($P < 0.01$) with reduced LA.

Highly significant differences were found between SF and SB, as on SF daily feeding time is prolonged, daily feeding frequency is increased and mean duration of feeding periods is shortened. Agonistic interactions during feeding occur more often on SF. Within SF, reducing MS results in significantly increased frequency respectively decreased duration of feeding periods.

Chasing away lying pen-mates, butting, headpushing and social grooming are more frequent on SF than on SB. Social rank order is rather unstable and mostly not linear, particularly in SF-groups.

In resting behavioural traits, the deviating SF-results are mainly due to hardness, perforation and especially lack of slip-resistance. The absence of separated feeding and lying areas causes the deviations in feeding behavioural traits, social interactions and, partly, in daily lying time and lying postures.

It is established, that housing-caused deviations from species-specific behavioural norms are objectively ascertainable and therefore suitable to evaluate housing systems. In traits of lying down, lying, getting up and partially lying postures SF-animals frequently show deviations from these norms, which have to be judged as predominantly severe. It can be concluded, that SF considerably reduces the prerequisites for meeting the animals' need for rest. Marked deviations from the species-specific norm in daily feeding time, frequently observed in both systems, indicate that the food (structure, way of offering) does not sufficiently meet the need for occupation during feeding. - In contrast to SB, the SF-system is inadequate to fulfil essential species-specific requirements of the observed cattle category, while the food is inadequate irrespective of system.