

# Keeping cows of the Hérens breed in loose housing system and outdoor exercise of tied cows: specific instructions for cowshed's construction and management.

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## Key words

Hérens cows, agonistic behaviour, winter exercise, social distances, alpine pasture, loose housing, injuries

## Aim of the study

Aims were (1) to find the ideal frequency for winter outdoor exercise of tied cows of the Hérens breed, (2) to examine how Hérens cows in loose housing react to a reintroduction into their herd after a separation, and (3) to find the effects of the winter housing conditions on fighting and spacing behaviour on alpine pastures.

## Material and methods

Winter outdoor exercise of tied cows: 6 herds were observed (total of 51 horned cows) at increasing interval between days with outdoor exercise (daily, every 3rd, 4th or 5th day), during 40 minutes after leaving the stall.

Reintroduction in loose housing system: data from 4 groups of cows were analysed after 2 durations of separation (about 1 and 2 days) for behaviour, injuries and faecal cortisol metabolites.

Alpine pastures: 218 cows representing 3 different winter housing conditions (tied cows with No exercise "NE" or Daily exercise "DE", and Loose housing "LH") were split into 16 herds and 5 alpine pastures and their behaviour was recorded.

## Results and significance

Winter outdoor exercise of tied cows: the frequency of agonistic interactions increased along with the interval between two days of exercise ( $p < 0.001$ ) and decreased in the course of the exercise of a given day ( $p < 0.001$ ). The duration of fights increased if the interval between exercise was longer than three days. The risk of injury to the udder and the body (except the head) increased along with an increasing interval between exercise ( $p < 0.001$ ). Cows of the Hérens breed show pronounced agonistic behaviour after only a few days of tethering and thereof the length of the interval between exercise days should be shorter than 4 days.

Reintroduction in loose housing system: it seems that duration of separation has an influence on agonistic behaviour of the cow. There is a tendency of injuries to increase after a 2 days separation (head:  $p = 0.07$ , body:  $p = 0.09$ ) or with dominance-index (udder:  $p = 0.07$ ).

Alpine pastures: winter housing conditions did not significantly influence fighting rate ( $p = 0.20$ ) nor the probability that a cow fought at all (DE versus NE:  $p = 0.10$ ; LH versus NE:  $p = 0.21$ ), but both parameters decreased with time after grouping of the cows (fighting rate:  $p < 0.001$ ; probability:  $p < 0.001$ ). For each type of housing, distances between cows from the same herd were similar. Cows with NE stayed closer to members of their own herd compared to members of another herd ( $p < 0.001$ ). This difference was significantly bigger in cows with DE and smaller for cows in LH where distances towards cows of the same herd were similar to distances to cows of other herds. In conclusion, winter housing conditions did not influence fighting behaviour on alpine pastures in cows of the Hérens breed, but modulated their spacing behaviour during the first week after grouping.

## Publications, posters and presentations

Castro, IML.; Gyga, L.; Wechsler, B.; Hauser, R. (2010) Social behaviour during winter outdoor exercise of cows of the Hérens breed kept in tie-stalls. In Proceedings of the 44th congress of the International Society for Applied Ethology (ISAE). 4-7 August 2010, S – Uppsala (+ Talk).

Castro, IML. et al. (2010) Increasing the interval between winter outdoor exercise aggravates agonistic interactions in Hérens cows kept in tie-stall. Submitted to Applied Animal Behaviour Science.

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