University of Tehran Press

Journal of Veterinary Research

Homepage: jvr.ut.ac.ir

Online ISSN: 2251-6190

Original Article

J Vet Res, Volume 79, Number 1, 2024, 39-50

Association of Brisket Board Height and Neck-Rail Position in Freestall Barns with Some Comfort Indices in Dairy Cows

Fatemeh Kohansal[1]✉, Amir Hosein Ebrahimi[1]✉, Marzieh Faezi[2]✉, Ahmadreza Mohammadnia[3]✉

[1] *Graduated from the Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran*
[2] *Graduated from the Faculty of Veterinary Medicine, University of Tehran, Tehran, Iran*
[3] *Department of Clinical Sciences, Faculty of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran*

Received: *22 September 2023****, Accepted:*** *25 December 2023*

10.22059/jvr.2023.362608.3369 20.1001.1.20082525

Abstract

BACKGROUND: In free stalls, factors related to the surface and dimensions of the stall affect how the cows rest and comfort. The brisket board and the neck rail are the most controversial parts of the free stall in Iran's dairy farms, that can affect the stability of the stall and its lifespan, while improper use of these structures has led to significant discomfort for cows, causing substantial issues including lameness and hock, knee and withers lesions.

OBJECTIVES: This study aims to investigate Brisket boards and neck rails usage and measures in freestall barns and assess its possible impact on some comfort indices in dairy cows.

METHODS: Nine dairy farms with over 100 milk cows and freestall barns were selected using the Dairy Farmers of Canada protocols by a convenience sampling method. Horizontal, vertical, and diagonal distances of the neck rail, the presence or absence of brisket boards, and the brisket board height from the bedding were measured. The locomotion score based on a five-point scale as well as hygiene, knees, hocks, and withers scores were recorded. The correlation was evaluated using the Spearman correlation test and Pearson's correlation test.

RESULTS: In 68.3 % of the freestall barns, the brisket boards were at the bedding level or were not used at all; however, the mean brisket board height (11.2±10.8) was not significantly different from the standard height value of 10 cm (P>0.05). The vertical distance of the neck rail (120.4±10.4 cm) was significantly different from the standard values. The median of withers and locomotion scores were consistent among all farms. At the farm level, the median knee, hygiene, and hock scores did not show a significant correlation with the mean of neck rail measures and brisket board height (P>0.05). Also, the median locomotion score did not show a significant correlation with the mean horizontal distance of the neck rail at the individual freestall barn level (P>0.05). However, a significant correlation between the mean of knee scores and vertical distance of the neck rail at the farm level, and between the mean of locomotion score and horizontal distance of the neck rail at the individual freestall barn level were reported.

CONCLUSIONS: An increase in the mean vertical distance of the neck rail is associated with an increase in the median knee scores, while an increase in the mean horizontal distance in each barn was associated with an increase in the median locomotion score, indicating the potential impact of these measurements on cow comfort. However, further research using a larger sample size is needed.

Keywords: Brisket board height, Comfort, Freestall, Lameness, Vertical distance of the neck rail

Publisher: University of Tehran Conflict of interest: The authors declared no conflict of interest.

Corresponding author: Ahmadreza Mohammadnia, Tel/Fax: +9851-36579430

How to cite this article:

Kohansal F, Ebrahimi A H, Faezi M, Mohammadnia A. Association of Brisket Board Height and Neck-Rail Position in Freestall Barns with Some Comfort Indices in Dairy Cows. J Vet Res, 2024; 79(1): 39-50. doi: 10.22059/jvr.2023.362608.3369

Figure Legends and Table Captions

Table 1. Brisket board usage in the study farms.
Table 2. Freestall measures in the study farms.
Figure 1. Different components of the stall.
Figure 2. Relative frequency of the comfort indices at the cow level.
Figure 3. Measured distances of the neck rail and the brisket board height in each farm (Farms are shown by an arrow). The mentioned variables were different in different pens.