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Effect of floor type on the hock health of Murrah buffalo heifers

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Abstract

With the approval of Institutional Animal Ethics Committee of College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura experiment was conducted during the months of November 2019 to February 2020 to achieve the goal. A total of 18 healthy buffalo heifers were randomly divided into three groups on the basis of body weight, containing six animals in each group. Treatment 1 (T1) Concrete flooring (Conventional method practiced at LFC) (Control); Treatment 2 (T2) Compost/cow dung bed flooring; Treatment 3 (T3) Rubber mat installed flooring. The hock score of T1 was found significantly higher ($P < 0.05$) than T2 and T3 treatment groups and further for T3 treatment group it was found significantly higher ($P < 0.05$) than T2 treatment group. From the results of this study, it may be concluded that cow dung bed was the most comfortable floor for the animals followed by rubber mats.

Keywords: Buffalo, flooring, heifers, hock health, hock score

Introduction

In view of the well established fact that the performance of any domestic species including buffalo depends on the influence of heredity and environmental factors, keeping aside the genetic make-up, the individual management practices play an important role for improving the overall performance of animal. The adverse environmental influence can be overcome by adopting proper housing and management practices.

Lameness is one of the most important welfare and productivity problems in the dairy industry. That it causes pain (Rushen *et al.*, 2007) [1] and reduces both milk yield (Green *et al.*, 2002) [2] and reproductive performance makes it extremely costly (Ettema and Ostergaard, 2006) [3].

Early recognition and treatment of lameness is fundamental to mitigate its negative effects. Therefore, changes in measures of lying behavior have been identified as a potential behavioral indicator of lameness, based on differences in lying responses of lame and non lame cows (Ito *et al.*, 2010) [4]. However, changes in lying time can be both a risk factor for and a consequence of lameness, as lameness can be preceded by reduced duration of lying, and once clinically lame, cows tend to have longer lying bouts and longer total lying time per day (Chapinal *et al.*, 2009) [5].

The main aim of better management of heifer is to obtain optimum growth rate, efficient feed conversion efficiency as per their genetic potential thereby to attain early maturity weight and subsequently reduce the age at first calving which has direct effect on the life time production performance of animals. Heifer, which, in future would be producer of the farm is still a neglected entity by most of the farmers in most aspects of management, since the output of heifers is usually considered to be the most costly part of dairy farming as it needs more inputs without immediate returns for a longer period of time. Animal comfortability is of great importance, both from welfare & economic prospective.

Material and methods

The experiment was performed at Livestock Farm Complex of U.P. Pandit Deen Dayal Upadhyay Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go Anusandhan Sansthan, DUVASU, Mathura. The animals (Murrah buffalo heifers) maintained at Livestock Farm Complex (LFC), College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura, were selected as experimental animals for present investigation. A total of 18 healthy buffalo heifers were selected as experimental animals.

The feeding and other management practices for these heifers remained same as is normally practiced at the LFC farm.

With the approval of Institutional Animal Ethics Committee of College of Veterinary Sciences and Animal Husbandry, DUVASU, Mathura experiment was conducted during the months of November 2019 to February 2020. The animals selected for the study were randomly divided into three groups, containing six animals in each group. The grouping of animals was done on the basis of body weight. All the experimental animals were housed in tie-barn double row shed for the entire study period where individual feeding, watering and care was given. The buffalo heifers were divided into three different groups as follows:

Treatment 1 (T1) Concrete flooring (Conventional method practiced at (Control) LFC)

Treatment 2 (T2) Compost/cow dung bed flooring

Treatment 3 (T3) Rubber mat installed flooring

A hock assessment chart was prepared to score the hock condition based on the hock scoring method devised by Cornell University. The hock was scored on a score of 1 to 3, on an increasing rate of hock injuries due to accessibility to abrasive surfaces.

To do hock scoring according to an unbiased and authentic method, assistant professors and research scholars of different departments were invited to do the scoring as per the scoring method used.

The data obtained in the study were subjected to Standard statistical procedures (Snedecor and Cochran 1994) [6] using SPSS version 20 software licensed under © Copyright IBM Corporation and its licensors 1989, 2011., and the difference between the treatments means were tested by using DMRT (Duncan, 1955) [7].

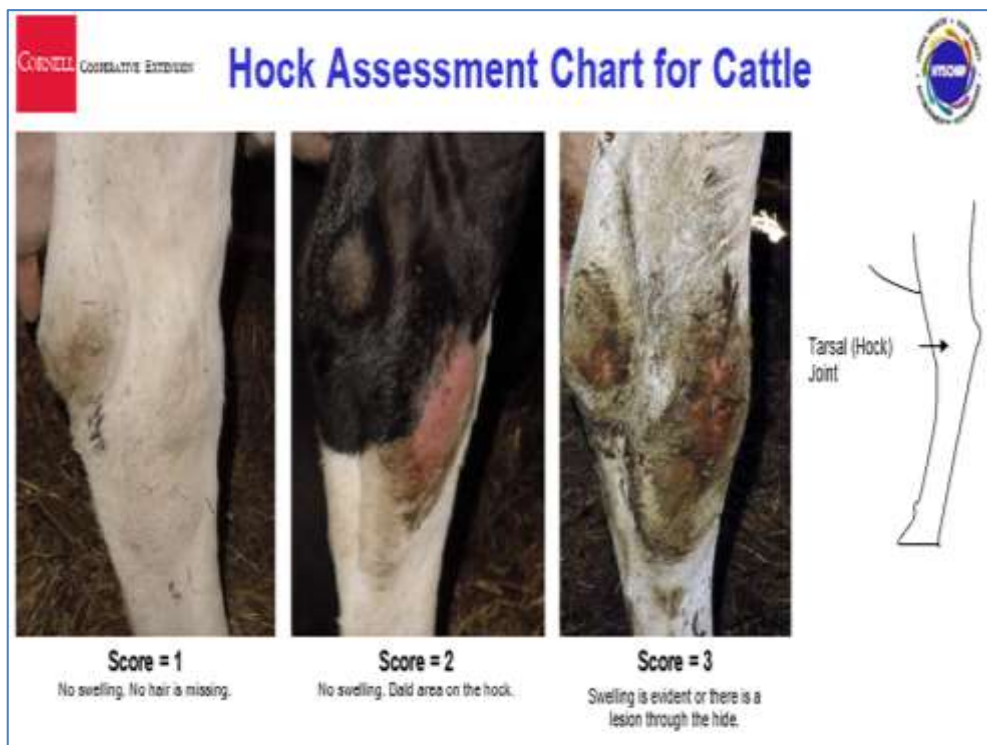


Fig 1: Hock assessment chart (Devised by Cornell University)

Result and Discussion

The hock score (1-3) of heifers of all the three treatment groups was found significantly different ($P < 0.05$) at monthly interval during 3 months trial period. The hock score of T1 was found significantly higher ($P < 0.05$) than T2 and T3

treatment groups and further for T3 treatment group it was found significantly higher ($P < 0.05$) than T2 treatment group. The overall mean value of hock score of T1 treatment group was found significantly higher ($P < 0.05$) than T2 and T3 treatment group.

Table 1: Effect of flooring on hock score of buffalo heifers on different floor types

Days	Treatments			SEM
	T1	T2	T3	
30	2.50 ^c	1.18 ^a	1.54 ^b	0.13
60	2.80 ^c	1.45 ^a	1.79 ^b	0.13
90	2.93 ^c	1.20 ^a	1.72 ^b	0.17
Mean	2.75 ^c	1.28 ^a	1.68 ^b	0.08

Means bearing the different superscript with in a row differ significantly

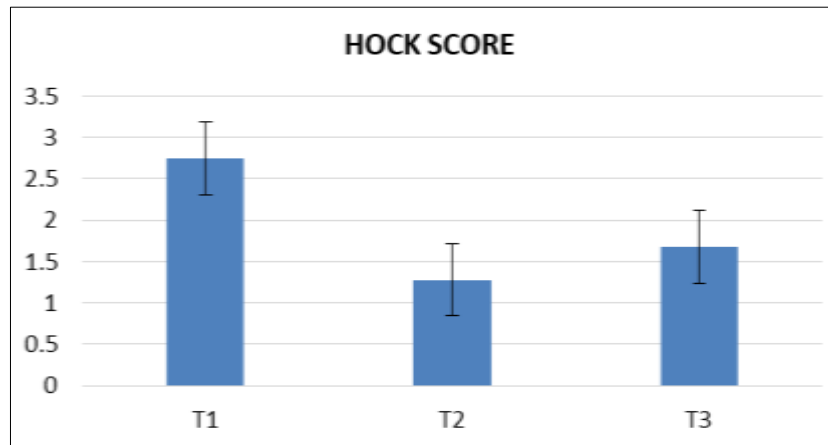


Fig 2: Effect of flooring on hock score of buffalo heifers on different floor types

Our results are in line with the findings of Webster (1994) ^[8] who showed that keeping heifers in a straw yard until eight weeks after calving, compared with moving them to cubicles with concrete flooring four weeks before calving, significantly reduced the severity of sole hemorrhages and sole ulcers.

Similarly, Keane *et al.* (2015) ^[9] in their study on effect of old and new concrete slats (CS) with or without rubber mats (RM) on performance of continental crossbred beef bulls reported that bulls on RM had 44% more hoof lesions ($P < 0.01$) than those on CS. They found no evidence of lameness in bulls on RM, but the increased number of hoof lesions which suggested that hoof health may be compromised in bulls housed on RM.

Gurung *et al.* (2020) ^[10] observed the effect of different flooring types on the hock health of Sahiwal heifers reared on concrete flooring (T1), Sand flooring (T2), Cow Dung bed flooring (T3) and Rubber mat installed flooring (T4). There was a significant effect ($P < 0.5$) observed on the pooled mean value of hock score which indicated the hock health condition in the manner (T3>T4>T1>T2). Our result was in alliance with their study.

Conclusion

It may be concluded that cow dung bedding is the best flooring option for Murrah heifers with regard to hock health followed by rubber mat flooring.

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References

1. Chapinal N, De Passille AM, Weary DM, Von Keyserlingk MAG, Rushen J. Using gait score, walking speed, and lying behavior to detect hoof lesions in dairy cows. *Journal of dairy science* 2009;92(9):4365-4374.
2. Duncan, DB. New multiple range test. *Biometrics* 1955,11(1).
3. Ettema JF, Østergaard S. Economic decision making on prevention and control of clinical lameness in Danish dairy herds. *Livestock science* 2006;102(1-2):92-106.
4. Green LE, Hedges VJ, Schukken YH, Blowey RW, Packington AJ. The impact of clinical lameness on the milk yield of dairy cows. *Journal of dairy science* 2002;85(9):2250-2256
5. Gurung A, Sirohi R, Singh Y, Singh DN, Tiwari S, Shakya P. Effect of floor type hock health of Sahiwal heifers. *Journal Entomology Zoology Studies* 2020;8(3):1876-1879.
6. Ito K, Von Keyserlingk MAG, LeBlanc SJ, Weary DM. Lying behavior as an indicator of lameness in dairy cows. *Journal of dairy science* 2010;93(8):3553-3560.
7. Keane MP, McGee M, Riordan EGO', Kelly AK, Earley B. Effect of floor type on hoof lesions, dirt scores, immune response and production of beef bulls. *Livestock Science* 2015;180:220-225.
8. Rushen J, De Passillé AM, Keyserlingk MA, Weary DM. *The welfare of cattle* (Vol. 5). Springer Science & Business Media 2007
9. Snedecor GW, Cochran WG. *Statistical Methods*. Eighth Edition, Iowa State University Press 1989.
10. Webster J. *Comfort and injury*. In: *Livestock Housing*.; (C. M. Wathes and D. R. Charles, eds. CAB International. Wallingford) UK 1994,49-68