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ORIGINAL ARTICLE

Welfare assessment of calf rearing management practices in family-based dairy units in rural areas of Mymensingh district, Bangladesh

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Abstract

Background: Dairy calves are the future stock of the dairy farms. It is important to describe weaknesses in rearing calves not only to improve their welfare, but also to detect areas where current scientific knowledge is poorly integrated into practice. The aim of the present study was to gather information on calf rearing management practices followed by dairy owners, which are related to welfare.

Methods: A survey of calf rearing practices was conducted using a farmer questionnaire to collect data. The survey included 140 family-based smalldairy units in seven upazilas of Mymensingh district, Bangladesh. Percentage (%) of values was calculated for different variable.

Results: We observed that all respondents attended their animals during calving and 82.14% respondents allowed cow to clean the calves immediately after calving. Only 13.57% farmers cleaned the mouth and nose of calf after birth. More than 85.0% owners cleaned and trimmed hooves of the calf after birth. More than 90%% respondents did not cut the naval cord of calf and apply antiseptic. More than half of the owners (54.28%) fed colostrum to calves when the animals were able to stand on their feet and only 37.14% of them fed colostrum within one hour of birth. About 44.28% respondents allowed *adlib* quantity of colostrum to calf. It was found that 73.57% of the owners allowed suckling of calf until 3 to 6 month of age. Most of the owners (55.0%) allowed the calves to suckle all the quarter of udder before and after milking. None practiced castration and dehorning for male calves. Majority (97.14%) of farmers did not perform deworming and vaccination schedule of calves.

Conclusion: This study identified a number of rearing practices that represent a poor welfare for calf which may prone towards diseases and hampering the productivity. So in addition to the traditional practices, scientific knowledge for this aspect is also important to get superior animals for future.

Key words: Welfare, Calf rearing, Colostrum, Management, Bangladesh.

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Introduction

Livestock is an integrated part of our farming system and plays an important role in the traditional economy of Bangladesh. Dairy animal welfare in calf rearing practices is the application of sensible and sensitive animal husbandry practices to the calves on the farm. Good animal welfare is an integral part of beef farming. An animal's welfare can be described by considering its state of well-being. Animals should live in reasonable harmony with their environment; have adequate fulfillments of their physical, health and behavioral needs, and not to be subjected to unnecessary or unreasonable pain or distress. Proper welfare of dairy calves starts from the time of calving since if proper handling is not done then in case of dystocia and other reproductive complications it may lead to death of the calves so it is important to keep vigilance at the time of calving and after that cleaning of mucous should be ensured. Proper cutting of naval cord and use of disinfectant at the cut site is also necessary to avoid infection. It is also important to start colostrum feeding within one hour of birth since colostrum not only provide feed and nutrients to the calves but it also provide immunity to the calves as new born calf has a poorly developed immune system and colostrum is rich in IgG immunoglobulins. Further, not feeding of colostrum to new born calves reduces the immunity of calves and makes them susceptible to the diseases (Sheikh *et al.,* 2011; Maousami *et al.,* 2013). To fulfill the nutritional requirement of calves, it should get proper quantity of milk until they have full functional rumen. Castration and dehorning is important practice for the male calves in many countrieswhich cause pain and stress to the calves. All these factors are essential for the welfare of calves.

Calves form the future dairy flock and they require good management skills and constant attention. Many complex factors contribute to the welfare of calves and assess of these factors are not clearly defined in calves. In Bangladesh, calves are suffering from health related problems since after calving which is considered as poor welfare practice. New born animals suffer fairly higher mortality than their adult counterparts and it is one of major reprisal over economy in livestock industry. Farmers are unable to produce productive cattle from their calves for poor management system because of having no knowledge about calf welfare and health care management. Although, calves with optimum health play a crucial role for sustainability of the dairy farms, but there is a dearth of information available on present status of dairy calf health care and management practices in Mymensingh district. Therefore, this study was conducted to evaluate the existing calf rearing management practices followed by family-based dairy owners which are related to welfare.

Materials and Methods

The present study was carried out in Mymensingh district, Bangladesh. Seven out of 14 upazilas of Mymensingh district were selected randomly. Further, two villages from each selected upazilas were identified. Ten livestock owners from each village who had ≥ two dairy cattle were selected randomly for the interview. Therefore, total sample size of the study was 140 respondents from 14 villages in 7 upazilas of the district.

A structured questionnaire was used for data collection. Each respondent was asked separately about their existing calf rearing management practices in study area, without having interaction with the remaining farmers. Thus, each cattle owner had his own independent opinion. The questions included were attending calving and taking care of the calves after it, colostrums feeding to the new born calf, quantity of colostrums, leaving milk in udder for calf, age of weaning of calves, deworming and vaccination of calves etc. The frequency and percentage of the response were described.

Results and Discussion

The results of the study regarding calf rearing welfare practices followed by dairy animal

owners in the studied areas are presented in Table 1. The finding indicates that all respondents (100%) attended the cattle as well as calf at the time of calving. It is good for the dam and calf as well so that any emergency during calving time can be solved immediately. Similar findings were also reported by other authors (Singh *et al*., 2018; Kumar and Mishra, 2011). Cleaning of calves immediately after calving is essential so that any membrane and mucous adhering to the mouth, nostril, eyes and ears of the new born can be carefully removed to facilitate normal breathing. Majority (82.14%) of the respondents followed the practices of cleaning the calf immediately after birth as well as trimming hooves and allowed the dam to lick her calf immediately. These findings are in line with the observation of Saharan *et al.* (2015) and Mahla *et al.* (2015). Only 13.57% farmers clean the mouth and nasal orifices of newborn calves using hand or cloth. Table 1 shows that 88.57% cattle owners did not follow the practice to cut and disinfect the naval cord. Very few (11.43%) owners cut the naval cord with new blade or knife and tied with thread. It is due to lack of knowledge and awareness about the importance of these practices. Hence, more efforts are required to motivate farmers to follow this practice. Similar findings were also reported by Saharan *et al.* (2015) and Mahla *et al.* (2015).

Feeding colostrum within the first hour of life is essential, it has many advantages as it fortifies the calf's disease resistance due to the presence of antibodies, large quantities of vitamins and minerals in it. We found that majority of respondents in the studied area did not maintain the proper timing and it was fed to calves when they were able to stand on their feet. We also observed that majority (54.28%) of the respondents fed colostrum to the calves when they were able to stand on their feet, 37.14% owners fed colostrum within one hour of the birth and rest (8.57%) fed colostrum after the release of placenta. This finding is in agreement with Singh *et al*. (2018) in India. However, Khadda *et al.* (2010) and Sinha *et al.* (2010) reported that majority of their respondents fed colostrums after removal of placenta. The quantity of colostrum fed to newborn calves was *ad lib*, one quarter and half quarter by 44.28%, 30.71% and 25.0% of the farmers, respectively. Similar findings were also reported by Saharan *et al.* (2015) and Mahla *et al.* (2015) but this finding contrasted with Deoras *et al.* (2004).

Table 1. Existing calf rearing management practices in Mymensingh district (n= 140)

Variables	**Frequency**	**Percent**
Care at the time of calving		
Yes	140	100
No	0	0
Allow cow to clean calf body after calving		
Yes	115	82.14
No	25	17.86
Cleaning of mouth and nasal orifice after calving		
Yes	19	13.57
No	121	86.43
Trimming of hoof		
Yes	25	17.86

Variables	Frequency	Percent
No	115	82.14
Cutting and disinfection of naval cord		
Yes	16	11.43
No	124	88.57
Time of colostrum feeding to the calf		
Within one hour	52	37.14
Within 3 hours or when able to stand	76	54.28
After dropping of placenta	12	8.57
Quantity of colostrum feeding to the calf		
Adlib suckling	62	44.28
One quarter	43	30.71
Half quarter	35	25.0
Leaving milk for calves in udder		
One quarter	16	11.43
Two quarters	47	33.57
All four quarters	77	55.0
Duration of suckling of calf		
Weaning (just after birth)	0	0
Less than 3 months	10	7.14
3-6 months	103	73.57
More than 6 months	27	19.29
Deworming and vaccination of calves		
Yes	4	2.86
No	136	97.14
Castration of male calves		
Yes	0	0
No	140	100
Dehorning of male calves		
Yes	0	100
No	140	0

Variables	Frequency	Percent
Protect calf against inclement weather condition		
Yes	47	33.57
No	93	66.43

More than 50% farmers left some milk in all four quarters for calves; this observation was also reported by Singh *et al.* (2017). None of the respondents practiced weaning system of calf rearing. This system of calf rearing was also reported by Rathore *et al.* (2010) and Deoras *et al.* (2004). The majority (73.57%) of the respondents allowed suckling to their claves up to six months of age. Weaning age was higher in our survey probably due to unavailability of good-quality feed. This is good for health as it reduces the weaning stress to the calves. This clearly indicates that farmers had awareness about the nutritional value of milk and colostum which are must for the welfare of calves. These findings are in line with the observation of Saharan *et al.* (2015) and Mahla *et al.* (2015) but contrasts with observation of Maousami *et al.* (2013) and Sinha *et al.* (2010).

Dehorning and castration of male calves were not practiced by any of the respondents. Similar observation was also made by other authors (Malsawmdawngliana *et al.*, 2016; Saharan *et al.*, 2015; Mahla *et al.*, 2015; Sagar *et al.*, 2012). Usually farmers rear the male calves for future beef fattening program to get more cash money. The practice was good for animal welfare point of view as both castration and dehorning causes pain which is cruelty for animals.

Calves can be vaccinated as early as 6 months and dewormed between 3 to 4 months of age to keep them healthy. However, we observed that only 2.86% farmers follow proper deworming and vaccination program. Singh *et al.* (2018) also reported that 91.87% owners did not perform deworming practice in their calf rearing management practices. Only 33.57% of farmers protect their calf from extreme weather which is supported by the report of Singh *et al.* (2018). To protect the calf from severe cold in winter season, they used jute bags or old clothswhile in peak summer majority of respondents practiced to tie their calf under shady tree and occasionally bathe them to reduce the heat stress.

Conclusion

It can be concluded that health care and management practices of calves in family-based small dairy units are neglected in the study areas. Farmers need proper education, training through extension works about scientific management of calf health care and husbandry practices to ensure the welfare practices of animals. Calf management is very essential for a dairy herd or farm to get the future superior animals for sustainable livestock sector in Bangladesh.

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Conflict of interest

There are no conflicts of research interest for this study.

References

1. Deoras R, Nemn RK, Mishra UK. Management practices of calves in Rajnandgaon district of Chhattisgarh plain. Indian Journal of Animal Sciences. 2004; 74(I): 91-93.
2. Khadda BS, Kanaklata Jadav JK, Kalash P and Kumar R. Study on calves' management practices in tribal and non-tribal areas of Panchmahals district of

Gujarat. Journal of Progressive Agriculture. 2010; 1(1): 84-86.
3. Kumar S. and Mishra BK. Existing calf rearing and milking practices followed by dairy farmers in Uttarakhand. Journal of Hill Agriculture. 2011; 2(10): 79-84.
4. Mahla V, Choudhary VK, Saharan JS, Yadav ML, Kumar S, Choudhary S. Study about socio-economic status and calf rearing management practices adopted by cattle keepers of Western Rajasthan, India. Indian Journal of Agricultural Research. 2015; 49(2): 189-192.
5. Malsawmdawngliana R, Rahman S. Management practices followed by the dairy farmers of Mizoram, India. Journal of Livestock Science. 2016; 7: 220-225.
6. Maousami SBP, Kumar R, Kumar V, Dohare A. Analysis of Buffalo Calf Management Practices followed by Buffalo Owners. Journal of Animal Science Advances. 2013; 3(3): 129- 133.
7. Rathore RS, Singh R, Kachawaha RN, Kumar R. Existing management practices followed by the cattle keepers in Churu district of Rajasthan. Indian Journal of Animal Sciences. 2010; 80(8): 798–805.
8. Sagar CV, Tiwari R, Roy R, Sharma MC. Management of young animals and perceived constraints in rearing livestock in dryland areas of Tamil Nadu. Indian Journal of Animal Sciences. 2012; 82(7): 773–774.
9. Saharan JS, Choudhary VK, Goswami SC, Bais B, Jhirwal AK, Gadhwal RS, Mahla V, Choudhary S, Kumar S. Study on Calf Rearing Management Practices Adopted By Tharparkar Cattle Breed Keepers of Western Rajasthan. Veterinary Practitioner. 2015; 16(2): 327-328.
10. Sheikh AS, Bhati DS and Sheikh W. Feeding practices followed by professional Kankrej cow owners of Banaskantha district of North Gujarat. Journal of Progressive Agriculture. 2011; 2(10): 67-69.
11. Singh B, Oraon J, Pandey A, Anand M, Rewani, S. Dairy animal welfare in calf rearing practices and the constraints experienced by the farmers in following the practices. International Journal of Livestock Research. 2017; 7(10): 53-58.
12. Singh V, Goswami S, Kumar V, Choudhary P, Jhirwal A, Shringi R. Milking and calf rearing management practices followed by Gir cattle owners for conservation of Gir cattle in Ajmer District of Rajasthan. International Journal of Livestock Research. 2018; 8(12): 160-167.
13. Sinha RRK, Dutt T, Bhushan B, Singh RR, Singh M and Kumar S. Comparative studies of calf rearing and milking management practices in rural, semi-urban and urban areas of Bareilly district of Uttar Pradesh. Indian Journal of Animal Sciences. 2010; 80(5): 483-85.