



Research Article

STUDY ON FEEDING, HOUSING AND HEALTH MANAGEMENT PRACTICES OF COW CALF IN PERI-URBAN AREA IN HATHRAS

S.K. RAWAT*

Scientist, (Animal Husbandry), ICAR-Krishi Vigyan Kendra, Hathras, Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, 208002, Uttar Pradesh, India

*Corresponding Author: Email - sudhirkvk@gmail.com

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Abstract: The present study was conducted on small, medium and large size dairy farms in the peri-urban areas of District Hathras district, Uttar Pradesh. Thirty dairy farms owned by 10 farmers from each category were selected randomly to study the status of feeding management, housing management, health management of cow calves. The results showed that the diarrhoea disease infestation in cow calves was 81.33%. None of the farmers were a large number of them (43.33%) fed colostrums 3 to 5 hours and 36.67% after the expulsion of placenta. About 80% of dairy owners provided the cow calves with grain/fodder from 2 weeks to weaning age and 70% of dairy farms provide milk feeding 3-6 months. More than 80% farmers were not deworming the calves and a majority (33.33%) of these dairy owners did not consult a veterinarian for the treatment of sick calves. More than 40% farmers were not providing pacca house, 67.77% concrete shed, 25.66% pacca manager of these dairy owners. The study tended to show that Hathras dairy farms owners were not interested in rearing the male calves because they did not expect sizeable returns from their sale. Thus, there is an urgent need to interest these dairy owners to make calf rearing an economical proposition.

Keywords: *Colostrums, Deworming, Feeding, Housing, Health Management, Peri-Urban*

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Introduction

Dairy farming is one of the most important means of providing livelihood and nutritional security to the vast majority of rural masses Srivastava (2011) [1]. Cow is occupying an important place in Indian dairy industry as well as rural Indian economy. Management is a key factor for the success of any business and in dairy farming, the role of management is very important. It can also play a major role in providing self-employment to the people. The management practices constitute about 75-80 percent of total cost incurred on milk production in dairy business Verma and Sastry (1994) [2]. Efficient management reduces the cost of production thereby increasing the profitability. In dairying the milk production not only depends on the best breeds but also on animal health and housing management. Most of the reproductive problems are due to mismanagement of feeding and poor nutrition leads to, delayed, puberty, reduced conception rate Fleck *et al.* (1980) [3]. Animal health problems are closely related to nutrition and breed. Shortage of quality feed has been found to affect animal health adversely as nutritional stress contributes significantly predisposing animals to susceptibility of diseases. The knowledge of various cows' management practices followed by the farmers in Hathras area is of great importance as it may help in filling the gap between existing practices followed and the recommended scientific practices. The present study was designed to collect the information regarding the existing management practices *i.e.*, feeding, health and housing management adopted by the farmers of the Hathras district of Uttar Pradesh.

Materials and Methods

The present study was conducted in the peri-urban areas of Hathras district, Uttar Pradesh during the year 2019. This area lies between 27.60N latitudes and 78.049E longitudes. Thirty dairy farms from the peri-urban areas running on commercial basis were visited. The farms were categorized as small-sized dairy farms (1 to 10 milch animals), medium-sized dairy farms (11 to 20 milch animals)

and large-sized dairy farms (more than 20 milch animals). The following information was obtained on predestined Performa through interviewing the dairy farm owners: Health management practices, Feeding management and Housing management of cow calves.

Data analysis

The data was collected from the commercial dairy farm through interview as per the pre structured questionnaire schedule. The information was collected on disease infestation of calves and manage mental practices that are being adopted by the farm. The data was analyzed as per the procedures laid down by Snedecor and Cochran (1994) [4] while the significant differences between parameters.

Results and Discussion

Housing management practices

Housing management practices by periurban dairy farms in the study area is presented in [Table-1]. The housing conditions of the livestock more affects their health and productive performance specially the calves which are more prone to diseases as their immunity level is week. Further exposure to extreme climatic variations such as extreme heat and extreme cold leads to physical stress and the body of calves is not adapted to bear such stress and the calves may collapse. It was observed that majority (68.89%) of dairy farmers provided loose housing system followed by conventional type (22.23%) and 8.88 percent dairy farmers didn't provided shed to their dairy animals. It is similar to the findings of Modi and Patel (2010) [5] who reported that 63.00 percent of farmers kept dairy animals in loose house, in contrast to these Sabapara *et al.* (2015) [6] reported that majority of farmer's preferred conventional type of housing in the study area. Majority of dairy farmers provided pucca type of housing 60% to their dairy animals followed by kutch type (33.33%).

(36.70%) dairy farmers used asbestos sheets as roofing material compared to the dairy farmers who have used cement concrete roofing (32.22%), tin roofing 24.44% and chappar use 6.66%. Similar result was found by Sabapara *et al.* (2015) [6] Pucca type of manger was provided by majority of dairy farmers (74.44%) and followed by kutchha type of manger (18.89%) and No Manger (6.67%). These results were comparable with the observations of Rathore and Kachwaha (2009) [7], Modi and Patel (2010) [5] and Sabapara *et al.* (2015) [6] who reported that majority of farmers provided pucca manger.

Table-1 Housing management practices at various dairy farms

Parameters	Farm size			
	Small (n=10)	Medium(n=10)	Large (n=10)	Total (N=30)
Type of House				
Pucca	18(60)	16(53.33)	20(66.67)	54(60)
Katchha	10 (33.33)	11(36.67)	9(30)	30(33.33)
No House	2 (6.67)	3(10)	1(3.33)	6(6.67)
Housing System				
Conventional	9(30)	5(16.67)	6(20)	20(20.23)
Loose	18(60)	23(76.67)	21(70)	62(68.89)
No House	3(10)	2(6.66)	3(10)	8(8.88)
Roof of Shed				
Asbestos	10(33.33)	11(36.67)	12(40)	33(36.67)
Tin	6(20)	9(30)	7(23.34)	22(24.44)
Concrete	12(40)	7(23.33)	10(33.33)	6(32.22)
Chappar	2(6.67)	3(10)	1(3.33)	6(6.67)
Manger				
Pucca	20(66.67)	22(73.33)	25(83.34)	67(74.44)
Kachha	7(23.33)	6(20)	4(13.33)	17(18.89)
No Manger	3(10)	2(6.67)	1(3.33)	6(6.67)

Feeding management practices

Colostrum feeding

Feeding colostrum within the first hour of life is essential, it has many advantages as it fortify the calf's disease resistance due to the presence of antibodies in it, also it has large quantities of vitamins and minerals but it was found that majority of dairy owners in the areas were not maintaining the proper timing. They waited for the expulsion of placenta and on many occasions the animal did not release placenta for more than 7-8 hours, thus the colostrum feeding was delayed, leading to lowered immunity level in calves. Calves receiving colostrums within 2 to 3 hours after birth on small, medium and large sized dairy farms were 20%, 30% and 10% respectively and 3 to 5 hours after birth on small, medium and large-sized dairy farms were 30%, 40% and 60% respectively. After expulsion of placenta on small, medium and large-sized dairy farms were 50%, 30% and 30% respectively. Majority of the dairy farms fed colostrum to calves 3 to 5 hours after birth, as they thought that if they feed colostrum immediately after birth. Similar findings were reported by Verma and Sastry, Malik and Nagpaul [8], Tiwari *et al.* (2007) [9], Deshmukh *et al.* (2009) [10], Rathore and Kachawaha (2009); and Rathore *et al.* (2010) [11].

Table-2 Colostrum feeding, Milk Feeding, fodder/ grain feeding at different farms

Parameters	Farm size			
	Small (N=10)	Medium (N=10)	Large (N=10)	Total (N=30)
Feeding of colostrum of the calf				
Within 2-3 hours after birth	2 (20)	3 (30)	1 (10)	6 (20)
3 to 5 of birth	3(30)	4(40)	6(60)	13(43.33)
After expulsion of placenta	5 (50)	3 (30)	3 (30)	11 (36.67)
Quantity of colostrum feeding				
Ad-lib sucking	3 (30)	3 (30)	3 (30)	9 (30)
In one quarter	2(20)	2(20)	1(10)	5(16.67)
Some milk in all Quarters	5 (50)	5 (30)	5 (30)	15 (50)
As per body weight	0(20)	0 (30)	1 (10)	1 (3.33)
Duration of Milk Feeding				
Less than 3 months	2 (20)	2 (20)	3 (30)	7 (23.33)
3-6 months	7(70)	7(70)	7(70)	21(70.00)
More than 6 months	1 (10)	1 (10)	0(00)	2 (6.67)
Fodder/grain feeding				
Less than 2 wk. old	3(30)	2 (20)	1 (10)	6 (20)
Between 2 wk. to weaning age	7(70)	8 (80)	9 (90)	24 (80.00)

As shown in [Table-2], the percentages of calves Quantity of colostrum feeding were ad lib, on small, medium and large-sized dairy farms were 30, 30 and 30

respectively. One quarter on small, medium and large-sized dairy farms were 20, 20 and 10 respectively., Some milk in all Quarters on small, medium and large-sized dairy farms were 50, 50 and 50 respectively and as per body weight on small, medium and large-sized dairy farms were 0, 0 and 10 respectively. Majority of the dairy farms Quantity of colostrum feeding was some milk in all Quarters. Present findings are similar to the result of Kumar and Mishra (2011a) [12].

Almost 70% dairy farms fed milk to the calf for 3-6 months and 23.33 percent of the dairy farms fed milk for less than 3 months and only 6.67% of the dairy farms fed milk for More than 6 months [Table-2]. This clearly indicates that farmers had awareness about the nutritional value of milk and colostrum which are must for the welfare of calves. [Table-2] indicates that 20% of dairy farmers fed the calves with grain/fodder when calves were 2-week-old and the remaining farmers were feeding them from 2 week to weaning age. The study found no more variation between fodder/grain feeding practice of farmers among the all three herd sizes. Similar observations were made by Tiwari *et al.* (2007).

Health management practices

[Table-3], [Fig-1] shows that the most common and frequent occurring disease in calves was diarrhea which was reported as 81.33% of the dairy farms followed by endoparasitic infestation (79.66%), ectoparasitic infestation (78.66%) and naval ill, bloat, pneumonia, septicaemia, under feeding and over feeding are recorded as 72.66%, 60.33%, 47.33%, 28.33%, 15% and 11% respectively. Similar results were reported by Tiwari *et al.* (2007), Sreedhar *et al.* (2010) [13] and Srivastava *et al.* (2013) [14]. High incidence of mortality due to diarrhoea in calves might be due to bacterial and/or viral infections or due to delayed feeding of colostrum to the calves.

Table-3 Disease wise infestation in dairy farms

Disease	Small (n=10)	Medium (n=10)	Large (n=10)	Total (N=30)
Diarrhea	8.5 (85)	6.7 (67)	9.2 (92)	24.4 (81.33)
Endoparasites	6.5 (65)	9.0 (90)	8.4 (84)	23.9 (79.66)
Ectoparasites	6.6(66)	8.8 (88)	8.2 (82)	23.6 (78.66)
Navel ill	8.0(80)	6.0(60)	7.8(78)	21.8 (72.66)
Bloat	6.0 (60)	7.2 (72)	4.9 (49)	18.1 (60.33)
Pneumonia	6.5(65)	3.5 (35)	4.2 (42)	14.2 (47.33)
Septicaemia	2.3(23)	3.0(30)	3.2(32)	8.5(28.33)
Under Feeding	0.9(9)	1.6(16)	2.0(20)	4.5 (15)
Over Feeding	0.5(5)	1.2(12)	1.6(16)	3.3 (11)
Average	15.24 (50.88)	15.66 (52.22)	16.50 (55)	47.43(52.7)

Values in parentheses are percentages

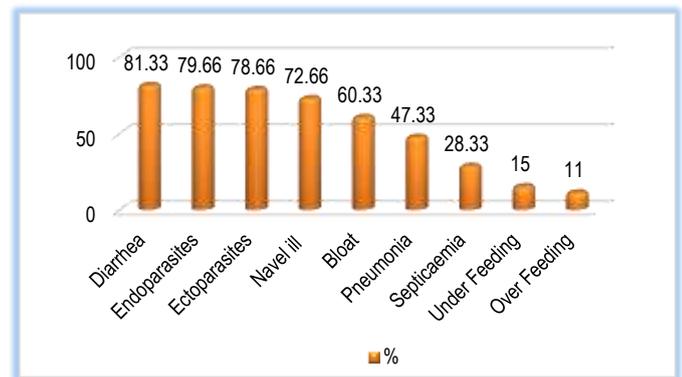


Fig-1 Disease wise infestation in dairy farms

Treatment

The health cover in the Hathras is mainly provided by the state animal husbandry departments. The results in the [Table-4] reveal that majority of the dairy farms having small (40%), medium (60%) and large (70%) herd size consulted veterinary doctor for animal health problems. However, few of the respondents having small (40%), medium (20%) and large (20%) herd size were found doing Paravet, Local person of the sick animals. Further it was also reported that self-medication (indigenous medicines) was consulted by 20 percent of the dairy farms having small herd size, 20 percent having medium herd size and 10 percent having large herd size and if the condition of animal became severe, then the Veterinarian was consulted.

The results show that majority of the respondents consulted Veterinary doctor for animal health problem. The findings of the study conducted by Yadav *et al.* (2009) [15] among the tribal dairy farmers of Dungarpur district of Rajasthan also reported that majority of the farmers consulted veterinary doctor for the treatment of their animals. Similar results were reported by Tiwari *et al.* (2007).

Table-4 Type of treatment at different farms

Parameters	Farm size			
	Small (n=16)	Medium (n=16)	Large (n=16)	Total (N=48)
Treatment of sick animal by				
Veterinary doctor	4 (40)	6 (60)	7 (70)	17 (66.67)
Paravet, Local person	4 (40)	2 (20)	2 (20)	8(26.66)
Self-medication (indigenous medicines)	2 (20)	2 (20)	1 (10)	5 (16.67)

Values in parentheses are percentages

Deworming

With regards to deworming of calves, only 20% of farmers have dewormed their calves at regular intervals, whereas rest of the farmers (80%) have not done [Table-5]. It was also observed that scientific deworming practices were not properly adopted in many farms and most farmers were not using the recommended dose of a de-wormer. The study observed no variation in deworming practice among the dairy farm with different herd sizes. Tiwari *et al.* (2007) have reported similar findings in various commercial dairy farms.

Table-5 Deworming, Dehorning Castration Management at different farms

Parameters	Farm size			
	Small (n=10)	Medium (n=10)	Large (n=10)	Total (N=30)
Deworming				
Yes	1(10)	2(20)	3(30)	6(20)
no	9(90)	8(80)	7(70)	24(80)
Dehorning				
Yes	1(10)	3(30)	4(40)	8(26.67)
no	9(90)	7(70)	6(60)	22(73.33)
Castration of male calf				
Yes	2(20)	3(30)	4(40)	9(30)
no	8(80)	7(70)	6(60)	21(70)

Dehorning

Only 26.67% dairy farms were performing dehorning of their calves, while remaining majority of the farmers preferred not to dehorn [Table-5]. However, the results are similar findings reported by Sabapara *et al.* (2010) [16] and Rathore *et al.* (2010).

Castration of male calf

About 30% of dairy farms practiced castration in male calves [Table-5]. The observations are Low as compared to findings of Sheikh and Parmar (2015) [17].

General condition

As shown in [Table-6], [Fig-2] The general condition and appearance of the calves kept in these dairies tended to show that majority of calves (46.67%) were average, the condition of calves was (30%) very weak or emaciated and (23.33%) was very good condition. Similar findings were reported by Tiwari *et al.* (2007) and Gupta *et al.*(2008) [18].

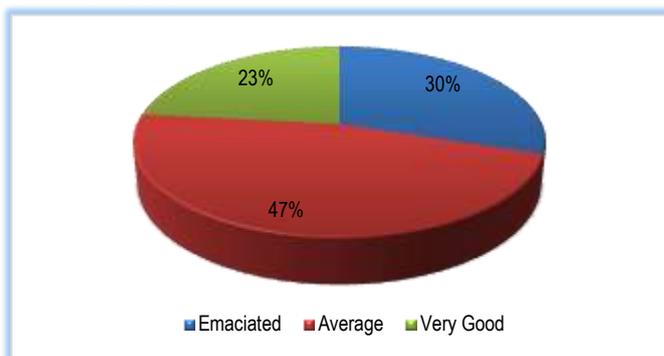


Fig-2 General condition of calves at various farms

Table-6 General condition of calves at various farms

Condition	Small (n=10)	Medium (n=10)	Large (n=10)	Total (N=30)
Emaciated	4 (40)	3(30)	2(20)	9 (30)
Average	4 (40)	5 (50)	5(50)	14(46.67)
Very Good	2(20)	2 (20)	3 (30)	7 (23.33)

Conclusion

By studying the results of this investigation, it can be concluded that rearing of calf was more uneconomical and unnecessary expenditure as perceived by the dairy farms and hence the calves are highly ignored due to the notion of false economy. This negligence is creating a great loss to the nation in terms of good quality germplasm. The future of the dairy industry is also affecting, if the calf managemental practices are not improved in field conditions. From the study it can be concluded that even though majority of the farmers have adopted the health care practices like disease, veterinary facility, treatment of sick animals, feed manger and vaccination programmes, there is a gap in implementing the recommended practices such as daily watching for disease symptoms, control of ectoparasites, endoparasite, colostrums feeding, deworming, dehorning of calf and castration practices. The housing management of the animals was also not satisfactory as they were not using proper housing facility. Most of the respondents had shed with Kuchha floor, house and roof and loose housing system. To minimize gap between farmers practices and recommended/improved scientific practices farmers have to take interest in dairy farming activity. In this regard suitable extension strategies can be developed for creating awareness among the farmers by conducting training programmes, awareness camps, demonstrations regarding scientific animal health management and housing management practices which will have catalytic influence on improvement of knowledge of the farmers.

Application of research: The knowledge of cow management practices in Hathras is of great importance as it may help in filling the gap between existing practices followed and the recommended scientific practices. The data generated from the respondents were interviewed with the help of well-structured interview schedule. The following information was obtained the dairy farm owners: Health management practices, Feeding management and Housing management of cow calves.

Research Category: Animal Husbandry

Abbreviations: No.-Number, Wk. Week, gm.-gram, kg.-Kilo gram

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University: Chandra Shekhar Azad University of Agriculture & Technology, Kanpur, 208002, Uttar Pradesh, India

Research project name or number: Research station study

Author Contributions: Sole Author

Author statement: Author read, reviewed, agreed and approved the final manuscript. Note-Author agreed that- Written informed consent was obtained from all participants prior to publish / enrolment

Study area / Sample Collection: Hathras districts

Cultivar / Variety / Breed name: Cow

Conflict of Interest: None declared

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Ethical Committee Approval Number: Nil

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