Int.J.Curr.Microbiol.App.Sci (2019) *8*(6): 2805-2810

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 8 Number 06 (2019)**
Journal homepage: http://www.ijcmas.com

Original Research Article https://doi.org/10.20546/ijcmas.2019.806.338

Housing and Feeding Management Practices in U.S. Nagar District of Uttarakhand, India

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Keywords

Feeding, Housing, Management practices, Dairy animals

Article Info

Accepted:
20 May 2019
Available Online:
10 June 2019

A B S T R A C T

A study was conducted to evaluate the existing housing and feeding management practices followed by the dairy animal keepers in U.S. Nagar district of Uttarakhand. It was observed that majority of farmers housed their animal in pucca house 73.89%, whereas 26.11% had kaccha houses for their animals. 81.67% farmers were following group system of animal housing. Kaccha type of floor was found in 54.44% of the houses. Satisfactory drainage 58.89% was observed in majority of farmers. 74.44% of farmers followed permanent type of roof system. 52.22% farmers housed their animal at day as well as night time. Majority of farmers 60.55% farmers were followed satisfactory ventilation in their sheds. Regarding feeding practices, majority the farmers followed group feeding 66.67 %. Most of the farmers about 90.55% followed the practice of chopped green fodder and fed dry fodder to their animals. 88.89% of the farmers fed concentrate to the animals, farmers adopted the practice of feeding cooked 61.11% form of concentrate to their animals. Most number of farmers 51.11% preferred readymade sources of concentrate feeding for their animals, more than half 73.89% of respondents fed colostrum to newly born calf within 2 hours.

Introduction

Livestock plays an important role in Indian economy. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. Livestock have revolutionized the rural economy of India. It plays an essential and significant role in smallholder subsistence in diverse states of India. Livestock rearing is an important and integral part of agriculture sector in India. It plays significant role in the national economy and socio-economic development of the country. It also plays important role in the economy as supplementing family income and generating gainful employment in the rural sector. Animal husbandry is an occupational culture of livestock production which is making major contribution to

national economy. The Uttarakhand state possesses 22.35 lacks cattle, 2.19 lacks buffalo, 13.35 lacks goat, 2.90 lacks sheep and 26.01 lacks poultry. Livestock management practices regarding feeding and housing are, the major elements in increasing dairy production. Housing along with feeding management plays a very significant role in animal husbandry (Sinha *et al.,* 2009). Proper housing reduces the incidence of diseases. The present study was undertaken to gather information regarding existing housing and feeding practices adopted by the farmers of U.S. Nagar district and to provide help in scientific management practices in the area.

Materials and Methods

The present study was undertaken in U.S. Nagar district of Uttarakhand. This district is present in foot hills of kumaon and known as Tarai area also, which is most suitable for crop production. Majority of population depend on agriculture and animal husbandry. The place is located in the foot hills of Himalayas at 28.5˚SE to 30˚N Latitudes and 78˚E to 81˚E longitude at an altitude of 243.84 m above mean sea level. State is located in western Himalayan region and is one of the geographically smallest states of the country. The present study was carried out on animals, reared by 180 farmers' viz.: areas of Pantnagar, Gadarpur, Bazpur, Kichha and Sitarganj in Udham Singh Nagar district of Uttarakhand. From each cluster 36 farmers were selected during the period, Jan 2017 to June 2017. The selected farmers were interviewed and the desired information was collected with the help of pre-designed questionnaire. The existing management practices relating to feeding and housing management were separately enlisted. The frequencies were obtained for different housing and feeding management practices included in the study. The score of individual practice was converted into percentage.

Results and Discussion

Existing housing management practices

Regarding housing practices the overall results revealed that majority (73.89%) of the respondents were housed their animals in pacca house, while (26.11%) of the respondents were housed in kaccha house. Sabapara *et al* (2015), Tewari *et al.,* (2013) who reported that majority of farmers housed their animals in pucca houses in their study. However, findings were contrary to findings revealed by Meena *et al.,* (2008). Most of the respondents kept their animal in group system (81.67%) followed by (18.33%) were kept in individual type of housing. Housing system followed by majority of farmers (76.67%) was semi-intensive followed by extensive (14.44%) and intensive (8.89%). Present findings were similar to findings of Garg *et al., (*2005). Regarding type of floor more than half (54.44%) of the farmers had kachha floor in their sheds followed by (45.56%) of the farmers had pucca floor. Similar findings reported by Deoras *et al.,* (2004), Sabapara G.P. *et al* (2015), Tewari *et al.,* (2013). It is general observation that pucca floor is better than kaccha (mud) floor for their animals to keep them free from worm problems and also from hygienic point of view. Most (73.89%) of the respondents had slope in floor in animal shed, findings were similar to Garg *et al*.(2005), whereas rest (26.11%) of the farmers had no slope. More than half of the respondents (58.89%) had satisfactory drainage followed by followed by good drainage (24.44%) and finally poor drainage (16.67%) There was no significant association between drainage system in animal sheds and clusters, similar findings by Sabapara G.P. *et al* (2015), Tewari, H. *et al.,* (2013). Majority of the respondents (74.44%) had permanent type of roof system followed by temporary (25.56%) type of roof. These results are almost similar as observed by Kour (2013). Most of the farmers having pucca manger

(96.11%) followed by kaccha (3.89%) manger for feeding of their animals. The type of manger was not affected by clusters. Similar findings as observed by Sabapara *et al* (2010). Most of the cattle and buffalo keepers (52.22%) housed their animal at day as well as night followed by night (29.45%) and remaining (18.33%) were housed in the morning. Majority of the farmers (47.78%) had medium sanitation condition followed by good (31.67%), poor (13.33%) and excellent sanitation conditions (7.22%) in animal sheds. Findings were similar to findings Sharma and Singh (2003).

Most of farmers (60.56%) in different clusters of study had satisfactory ventilation in their sheds followed by good ventilation (24.44%) and poor ventilation (15.00%). This is accordance with the finding of Sabapara *et al.,* (2015) (Table 1).

Feeding management practices

Majority of the farmers (66.67%) preferred group feeding over individual feeding for their animals, (22.78%) of the total preferred individual as well as group feeding, remaining (10.55%) of the total farmers preferred individual feeding of animals. Findings were similar with the findings of Garg *et al*., (2005) and Meena *et al.,* (2012).

Majority of the respondents (65.56%) animal grazing was never preferred and animals were entirely fed on stall, when grazing was not sufficient then stall feeding was practiced and (18.89%) of the farmers preferred animal grazing only when required, while (15.55%) of the farmers always took their animals for grazing. Majority of the farmers (90.55%) preferred to chop green fodder before feeding it to the animals. Present findings were similar to findings of Hodshil *et al.,* (2007) who reported that chaffing green fodder was adopted by (36.00%) farmers, while the present result were contrary with the findings of Meena *et al.,* (2012) who reported that none of the farmers were found to practice fodder chaffing in her study. It was observed that majority (88.89%) fed concentrate to the animals while remaining (11.11%) of the famers concentrate feeding to the animals was never practiced.

Most number of the farmers (40%) preferred feeding of concentrate in morning and (40%) of farmers during both morning as well as evening hours, while only a small number of farmers(20%) preferred to feed concentrate to their animals during evening. Regarding mode of concentrate feeding (61.11%) of respondents fed cooked form followed by wet (26.11%) and remaining (12.78%) of the farmers' dry form of concentrate feeding is practiced. The results indicated that majority of the respondents (51.11%) fed readymade concentrate mixture followed by (40.56%) mixture of self made and readymade followed by (8.33%) self made.

The results revealed that less number of respondents (46.67%) fed mineral mixture to their animals. While less number of the farmers practiced the additions of mineral mixture in the animal ration daily (21.11%), whereas maximum percentage of farmer practiced the addition of mineral mixture occasionally (25.56%).

Most of the farmers (81.67%) fed common salt in animal ration daily while, only (18.33%) fed occasionally. More than half of the farmers (73.89%) out of the total farmers followed colostrums feeding to their animals within 2 hours while, only (26.11%) of farmers followed the practice of colostrum feeding to new born between 2 to 4 hours. Present findings were similar to findings of Minu Singh (2015) who reported in their study that Colostrum feeding was followed by most of the respondents (Table 2).

Table.1 Housing Management practices

S.I	Particulars	Frequency	Percentage
1.	**Housing**		
(a)	Kaccha	47	26.11
(b)	Pacca	133	73.89
2.	**Type of Housing**		
(a)	Individual	33	18.33
(b)	Group	147	81.67
3.	**Housing System**		
(a)	Intensive	16	8.89
(b)	Semi-Intensive	138	76.67
(c)	Extensive	24	14.44
4.	**Type of floor**		
(a)	Kaccha	98	54.44
(b)	Pacca	82	45.56
5.	**Type of slope**		
(a)	Yes	133	73.89
(b)	No	47	26.11
6.	**Drainage**		
(a)	Good	44	24.44
(b)	Satisfactory	106	58.89
(c)	Poor	30	16.67
7.	**Roof**		
(a)	Permanent	134	74.44
(b)	Temporary	46	25.56
8.	**Manger**		
(a)	Yes	180	100.00
(b)	No	00	00.00
9.	**Type of manger**		
(a)	Kaccha	7	3.89
(b)	Pacca	173	96.11
10.	**Housing Time**		
(a)	Day	33	18.33
(b)	Night	53	29.45
(c)	Both	94	52.22
11.	**Sanitation**		
(a)	Excellent	13	7.22
(b)	Good	57	31.67
(c)	Medium	86	47.78
(d)	Poor	24	13.33
12.	**Ventilation**		
(a)	Good	44	24.44
(b)	Satisfactory	109	60.56
(c)	Poor	27	15

Table.2 Feeding Management Practices

S.I	Particulars	Frequency	Percentage
1.	Feeding		
(a)	Individual	19	10.55
(b)	group	120	66.67
(c)	Both	41	22.78
2.			
a.	Always	28	15.55
b.	When required	34	18.89
c.	Never	118	65.56
3.			
a.	Yes	180	100.00
b.	No	00	00.00
4.			
a.	Chopped	163	90.55
b.	Unchopped	5	2.78
c.	Both	12	6.67
5.	Mode of Dry fodder		
a.	Chopped	163	90.55
b.	Unchopped	5	2.78
c.	both	12	6.67
6.	Concentrate feeding		
a.	Yes	160	88.89
b.	No	20	11.11
7.	Time of concentrate feeding		
a.	Morning	72	40
b.	Evening	36	20
c.	Both	72	40
8.	Mode of concentrate feeding		
a.	As such	23	12.78
b.	Soaked	47	26.11
c.	cooked	110	61.11
9.	Source of concentrate feeding		
(a)	Readymade	92	51.11
(b)	Self made	15	8.33
(c)	Both	73	40.56
10.	Mineral Mixture		
(a)	Yes	84	46.67
(b)	No	96	53.33
If yes then,			
a.	Daily	38	21.11
b.	Occasionally	46	25.56
a.	Daily	147	81.67
b.	Occasionally	33	18.33
a.	Within 2 hrs	133	73.89
b.	Between 2-4 hrs	47	26.11

It can be concluded that adoption of scientific existing housing and feeding management practices of dairy animals were close according to the recommended practices. It was observed that overall housing and feeding management practices was satisfactory except for kaccha floor and feeding of mineral mixture so, these practices need to be improved in the survey area. There are few aspects where they followed management practices properly to certain extent but most of the housing and feeding practices needs to be improved a lot in this area. Adoption of scientific and suitable housing and feeding practices of dairy animals will substantially help to increase the production as well as income generation which improve the socio economic condition of dairy keepers. So awareness camps and training programmes regarding scientific animal housing and feeding management practices will help in improving the husbandry practices in future.

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How to cite this article:

Shikha Yadav, Anil Kumar and Singh, C.B. 2019. Housing and Feeding Management Practices in U.S. Nagar District of Uttarakhand. *Int.J.Curr.Microbiol.App.Sci.* 8(06): 2805-2810.
doi: https://doi.org/10.20546/ijcmas.2019.806.338