RESEARCH ARTICLE

Prevailing Housing and Healthcare Management Practices in Urban and Peri-Urban Dairy Farms of Navsari District, Gujarat State

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Abstract

Personal interviews collected the required information from a total of 40 dairy farms from urban and peri-urban areas in and around Navsari. Frequency distribution was made from collected data, and significance between two categories was tested by the Chi-square test. Data revealed that all farms provided housing round the year. The majority of the sheds had cement type of pillars and *pucca* floor. Gabled roof was more popular in peri-urban areas. The majority of the farms had animal shed away from human dwelling, east-west directional, a double row with head to head. The majority of the sheds had adequate light and good ventilation with drainage facility and manure pit located at an adjacent distance. The majority of farms (90%) practiced regular vaccination to their animals against foot and mouth disease and hemorrhagic Septicaemia disease. The majority (82.5%) of the respondents practiced deworming of their dairy animals regularly and also followed practices to control ectoparasites. However, only 37.5% of the farmers got their sick animals treated by veterinary officers, and 40% of farmers segregate disease affected animals. The study concluded that the majority of the farmers followed housing and health care management practices for improving the production potential and health of the dairy animals.

Keywords: Dairy farms, Healthcare, Housing, Management Practices, Peri-urban, Urban

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Introduction

An efficient dairy farm management is incomplete without a well-planned and adequate housing. Proper house with well ventilation, lighting, and proper flooring provides a comfortable atmosphere to livestock; thus, have a major effect on dairy animal production. India has a BIS housing standard to guide dairy farmers. Standard generally guides livestock farm owners about minimum standards of the shed height, space needed per animal, manger dimensions, water trough dimensions, etc. according to agro-climatic zones. However, small to medium-sized dairy farm operators are constructing shed according to the availability of land and other resources to fulfill minimum requirements at minimum cost.

Further, healthcare practices like vaccination, deworming, udder hygiene, management of sick animals are equally important for improving the status of dairy farms. Proper housing and management, along with the healthcare of animals, facilitate best comfort for dairy animals, which is required for quality and quantity production. However, the documentation about prevailing housing and healthcare practices in urban and peri-urban commercial dairy farms is very scarce. Therefore, an effort was made to study housing and healthcare practices in urban and peri-urban dairy farms nearby Navsari, Gujarat.

Materials and Methods

A field survey was conducted to analyze the prevailing housing and health care management practices at commercial urban and peri-urban dairy farms in the Navsari district of south Gujarat. The farms located within 8 km periphery to Navsari city was classified as a metropolitan area whereas, the farms in 16 km radius minus urban area were classified as peri-urban area. Twenty dairy farms, each from urban and peri-urban possessing 20 adult units of either cattle or buffalo, were selected randomly to make a total of 40 commercial dairy farms for the study. Desired information was collected from dairy farm owners with the help of a pre-tested questionnaire. Collected data were then tabulated into frequency, percentages, Chi-square test by using SPSS.

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Results and Discussion

Housing utilization practices

It is evident from Table 1 that all farms provided housing round the year in both regions. The farmers of both regions maintained their animals on stall feeding only, and hence, grazing was not practiced. These results are in accordance with the findings of Waykar *et al*. (2012) and Sabapara *et al*. (2015). However, many smallholders in India have a very small shed to protect them from sunlight in day hours only (Jatolia *et al*., 2017 and Kumar *et al.,* 2017). Further, most of the farms used electric fans, green net covering on open areas during the hot environment to cool down the shed for better comfort of animals.

Adoption of components in their livestock shed

The study indicated that the majority (75%) of the farms used cement brick/RCC pillars to erect the shed (Table 2) since it was durable and cost-effective for the farmers. Sabapara *et al*. (2015) also observed that most farmers had such pillars in their animal shed. Table 2 revealed that the majority of the farms (95%) had *pucca* floors in animal houses since the animals were reared in an intensive system, which requires good hygiene. Gable type (two-directional slope) roof was more prevalent in peri-urban farms, whereas, a shed was popular in urban farms. Chi-square test indicated a significant difference in said practice. The shed is a roof type in which slope is toward one direction only. It requires less space and easy to build and cheaper also. But due to less space in an urban area, it was popular but is less comfortable, particularly in summer. The majority (72.5%) of the respondents had half walls in their animal sheds. These findings are slightly higher than the results of Jatolia *et al*. (2017) and contrary to Kumar *et al*. (2017). Data in Table 2 showed that the majority of the farms used galvanized iron sheets as a roofing material. This finding is more or less supported by Sabapara *et al*. (2015). A

Table 1: Distribution of dairy farms according to housing utilization pattern N=40

Sr. No.	*Practices*	*Urban*		*Peri-urban*		*Overall*		*p (Chi-square)*
		n	*%*	*n*	*%*	*n*	*%*	
1	Providing housing shelter round the year							
	Yes	20	100	20	100	40	100	--
2	Placement in housing							
	All-time	19	95	15	75	34	85	
	During night	1	5	4	20	5	12.5	0.195
	Extreme weather	0	0	1	5	1	2.5	
3	Provision & practice to protect animal from extreme weather							
	Yes	16	80	18	90	34	85	0.376
	No	4	20	2	10	6	15	

n = number of dairy farms.

Table 2: Distribution of farms according to the adoption of livestock shed components N = 40

Sr No.	*Practices*	*Urban*		*Peri-urban*		*Overall*		*p (Chi-square)*
		n	*%*	*n*	*%*	*n*	*%*	
1	Type of pillars							
	Cement brick/RCC	13	65	17	85	30	75	0.144
	Iron	7	35	3	15	10	25	
2	Type of floor							
	Pucca (cement concrete)	19	95	19	95	38	95	
	Earthen floor	0	0	1	5	2	2.5	0.368
	Pucaa and earthen floor	1	5	0	0	1	2.5	
3	Type of shed							
	Gable	11	55	3	15	14	35	
	Shed	5	25	15	75	20	50	0.002
	Other	4	20	2	10	6	15	
4	Wall of shed							
	Full	2	10	4	20	6	15	
	Half	15	70	14	75	29	72.5	0.637
	No wall	3	15	2	10	5	12.5	
5	Type of roof provided							
	GI sheet	9	45	10	90	19	47.5	
	Asbestos sheet	7	35	8	40	15	37.5	0.675
	Pucca roof	4	15	2	10	6	12.5	
6	Provision of manger	20	100	20	100	40	100	0.157

galvanized iron sheet was cost-effective and easily affordable by the farmers. Alteration of climatic variables, particularly rainfall in different parts of India, might be attributed to types of building materials used by the farmer. All the respondents provided manger to their animals and are supported by the findings of Waykar *et al*. (2012).

The housing of dairy animals

The data presented in Table 3 revealed that 42.5% of animal shed were away to human dwelling and is also supported by the findings of Atkare *et al*. (2016). Further, awareness of farmers about personal hygiene may be another reason which compelled them to construct animal shed away from the human dwelling. Contrary to the present study, Vranda *et al*. (2017) observed that majority of the animal sheds were beside the dwellings of farmers. Seventy-five percent of the animal houses were oriented in an east-west direction. These findings are supported by the findings of Sabapara *et al*. (2015). Table 3 revealed that one-third of farms had single row head to head system. Data in Table 3 revealed that the majority of farms had provided sufficient light in their animal houses. It is in accordance with Vranda *et al*. (2017). The majority (60%) of the farms had good ventilation provisions in their animal sheds, which is in agreement with the study of Jatolia *et al*. (2017). Practically all farms had drainage facility, which was a good practice compare to other studies. Vranda *et al*. (2017) found that majority of the farmers did not provide a drainage facility. Further, 55% of farms had manure pit adjacent to their animal sheds**.** It is similar with Sabapara *et al*. (2015), who observed that 57.33% of the respondents had a location of manure pit at an adjacent distance. However, the present study was contrary to the findings of Patbandha *et al*. (2018).

Health care management practices

Data presented in Table 4 indicated that 90% of farms practiced regular vaccination for Foot and Mouth Disease and Haemorrhagic Septicaemia disease. These findings are in consonance with the findings of Sabapara *et al*., 2015 and Khadda *et al*., 2017, who also reported good adoption of FMD and HS vaccination. The majority of the farmers also practiced deworming to their dairy animals. The majority of the farms also practiced fumigation to control ectoparasites. It is in agreement with Waykar *et al*. (2012) and Khadda *et al*. (2017). Data in Table 4 revealed that 62.50% of farms got their sick animals treated by para veterinarians (livestock inspectors- L.I.), whereas 37.50 percent called qualified veterinarians (V.O.). These findings are in line with Sabapara

Table 3: Distribution of the dairy farms according to the utilization pattern of livestock shed N = 40

Sr No.	*Practices*	*Urban*		*Peri-urban*		*Overall*		*p (Chi-square)*
		n	*%*	*n*	*%*	*n*	*%*	
1	Housing of livestock							
	Attached to human dwelling	9	45	4	20	13	32.5	
	Near to the dwelling	4	20	6	30	10	25.0	0.723
	Away from dwelling	7	35	10	50	17	42.5	
2	Direction of shed							
	East-West	17	85	13	65	30	75	0.144
	North-South	3	15	7	35	10	25	
3	System of housing							
	Single line	8	40	6	30	14	35	
	Head to head	4	20	5	25	9	22.5	
	Tail to tail	6	30	8	40	14	35	0.794
	Single line & Head to head	1	5	0	0	1	2.5	
	Single line & tail to tail	1	5	1	5	2	5	
4	Light							
	Adequate	14	70	13	65	27	67.5	0.736
	Inadequate	6	30	7	35	13	32.5	
5	Ventilation							
	Poor	3	15	1	5	8	10	
	Fairly good	5	25	4	20	9	22.5	0.550
	Good	10	50	14	70	24	60	
	No ventilation	2	10	1	5	3	7.5	
6	Drainage facility							
	Yes	19	95	20	100	39	97.5	0.311
	No	1	5	0	0	1	2.5	
7	Location of the manure pit							
	Adjacent	10	50	12	60	22	55	0.525
	Distant	10	50	8	40	18	35	

Table 4: Distribution of the dairy farms according to health care practices followed

		Urban		*Peri-urban*		*Overall*		
Sr. no.	*Practices*	*n*	*%*	*n*	*%*	*n*	*%*	*p (Chi-square)*
1	Vaccination against F.M.D. & H.S.							
	Yes	17	85	19	95	36	90	0.292
	No	3	15	1	5	4	10	
2.	Deworming of animal							
	Yes	17	85	16	80	33	82.5	0.677
	No	3	15	4	20	7	17.5	
3	Practices to control ectoparasiteses							
	Fumigation	15	75	11	55	26	65	
	Insecticide	2	10	4	20	6	15	0.410
	No	3	15	5	25	8	20	
5	Treatment of Sick animal by							
	L.I	11	55	14	70	25	62.5	0.327
	V.O.	9	45	6	30	15	37.5	
6	Segregation of disease affected animal							
	Yes	12	60	4	20	16	40	0.010
	No	8	40	16	80	24	60	

et al. (2015) and Khadda *et al*. (2017). Contrary to this, a study conducted by Rangamma *et al*. (2016) stated that 68.40% of the respondents consulted veterinarians for the treatment of sick animals. About 60 percent of the respondents kept diseased animals together with healthy ones, which might be due to the low level of knowledge and less availability of space for isolation and segregation process. This finding is in agreement with the reports of Sabapara *et al*. (2015). This is contradictory to the results of Khadda *et al*. (2017), who reported that the majority of the buffalo keepers isolated their sick animals from healthy ones.

Conclusion

The study revealed that majority of the farmers followed housing and health care management practices for improving the production potential and health of the dairy animals. All the farms in both regions provided *pukka*, durable, and well-oriented houses to their dairy animals. Most of the farms followed FMD and HS vaccination and deworming. However, the farmers need to be educated about getting their sick animals treated by qualified veterinarians and also about the importance of isolation to control the spread of diseases.

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