



HOUSING MANAGEMENTAL PRACTICES ADOPTED BY DAIRY FARMERS IN HIGH ALTITUDE REGION OF KERALA

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ABSTRACT

Dairying is one of the important sources of income for millions of rural families and it has played a major role in providing employment and income generating opportunities particularly for marginal and women farmers. The production performance of livestock is based on the practices adopted by farmers. So, the present study was conducted to study the scientific dairy farming practices adopted by the dairy farmers of Idukki district. A total of 150 dairy farmers were selected through multistage random sampling technique and an exploratory research design was applied by using a pretested interview schedule. The study revealed that majority of the respondents were from nuclear families with an average of 30-45 years of age and 80% are small farmers with 0-5 acres of land. The majority of farmers have crossbred cattle with an average milk yield of 10-20 litres per day. Most of the farmers constructed the shed with concrete floor (78.67%) followed by mud floor (16.67%) and brick floor (4.66%). The significant number of farmers provided adequate space (68%) and light and ventilation (76%) to the animals. The managemental care during summer (50.67%) was not practised by the majority of the farmers, but contrary to these findings, about 69.33% of the farmers adopted cold management by providing bedding material to the animals. Hence it can be concluded that the adoption of suitable improved housing managemental practices will substantially help in increasing the production as well as income generation of the farming community.

KEY WORDS: Dairy cows, Housing, Management, High altitude region, Idukki.

INTRODUCTION

Animal husbandry is an integral part of Indian agriculture supporting livelihood for more than two-thirds of the Indian rural population (Raju *et al.*, 2017). It requires less capital and expenditure than agriculture. Kerala is a small state lying to the extreme south-west of the Indian peninsula flanked by the Arabian Sea on the west and the mountains of the Western Ghats on the east. This narrow strip of land stretches north-south along the coastline of 580 km with a varying width of 35 to 120 km. It extends north latitude between 8°18' and 12°48' and east longitude between 74°52' and 77°22'. The climate of Kerala ranges from wet to tropical with an ambient temperature ranges from 19.8°C to 36.7°C. Thirteen agro-ecological zones present in Kerala in which Idukki belongs to high altitude zone (Mohan Kumar, 2007). Idukki has a vast forest reserve area and also known as the spice garden of Kerala. Farmers of this region are mainly depending on animal husbandry and spices farming as a source of income.

In the emerging agriculture scenario, livestock production in general and dairying has a special place as an instrument for enhancing the income of small farmers and reducing unemployment among the landless labourers (Satyavir *et al.*, 2010). Animal welfare played a major important role in animal health, productivity and also profitability of the dairy business. Livestock housing is very important to reduce the incidence of probable complications and enhancing the production capacity of

the animals (Reddy *et al.*, 2016). Awareness on livestock housing management practices is necessary to identify the strengths and weaknesses of the rearing systems and to formulate suitable intervention policies (Gupta *et al.*, 2008) for overall development of dairy farming. Hence, the present study was carried out to know the existing dairy housing management practices followed by different categories of dairy farmers in Idukki district of Kerala.

MATERIALS AND METHODS

The study was conducted in the Idukki district of Kerala by selecting three taluks. Five villages were selected from each taluk and from each selected village ten dairy farmers were selected randomly, which constituted a total of 150 respondents from the study area. The farmers were grouped into small (1 to 5 animals), medium (6 to 10 animals) and large farmers (more than 10 animals). The study adopted an exploratory research design and multistage random sampling technique was used for the selection of respondents. The interview schedule for the livestock farmers on dairy management practices is pretested before administering in the main sample area. Rapport was maintained with farmers in eliciting accurate responses from the respondents throughout the investigation. Data was collected through informal and friendly visits to the farmer's home and farms in the early and late hours of the day. The data collected were statistically analyzed as per the procedures laid down by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

In the present study, the majority of the respondents were from nuclear families with an average of 30-45 years of age and 80 % are small farmers with 0-5 acres of land. The cattle breeds possessed by farmers have mainly crossbred cattle with an average milk yield of 10-20 litres per day. The family status of the farmers belonged to the nuclear and joint family is 88 and 12% respectively. The annual

household income of farmer is as follows 80 % earned about Rs. 100000, 16 % earned in a range of Rs. 100000 – 300000 and four % earned around Rs. 300000 –500000. The main source of farmer's income from agriculture, livestock business, government services and private services is 78, 10, eight and four % respectively. The dairy housing managemental practices adopted by different categories of dairy farmers were presented in Table 1.

TABLE 1: Housing managemental practices adopted by different categories of dairy farmers

Sl. No.	Housing Management	Farmers							
		Small (n=50)		Medium (n=50)		Large (n=50)		Overall (T=150)	
		F	%	F	%	F	%	F	%
	Location of shed								
1	a) Shed alongside the house	35	70	10	20	4	8	49	32.67
	b) Separate shed	11	22	32	64	46	92	89	59.33
	c) Below the shade of the tree	3	6	7	14	0	0	10	6.67
	d) Open/No housing	1	2	1	2	0	0	2	1.33
	Orientation of shed								
2	a) East to West	20	40	12	24	5	10	37	24.67
	b) North to South	21	42	24	48	35	70	80	53.33
	c) Southeast to Northwest	4	8	6	12	2	4	12	8
	d) Northeast to Southwest	5	10	8	16	8	16	21	14
	System of housing								
3	a) Loose housing	12	24	5	10	0	0	17	11.33
	b) Conventional barn	38	76	45	90	50	100	133	88.67
	Type of roof								
4	a) Asbestos sheets	11	22	13	26	14	28	38	25.33
	b) Pucca roof	2	4	4	8	1	2	7	4.67
	c) Thatched roof	9	18	11	22	2	4	22	14.67
	d) Galvanized iron sheet	28	56	22	44	33	66	83	55.33
	Type of floor								
5	a) Concrete floor	35	10	38	76	45	90	118	78.67
	b) Mud floor	12	84	11	22	2	4	25	16.67
	c) Brick floor	3	6	1	2	3	6	7	4.66
	Drainage channel								
6	a) Yes	12	24	29	58	45	90	86	57.33
	b) No	38	76	21	42	5	10	64	42.67
	Manger facility								
7	a) Yes	16	32	38	76	50	100	104	69.33
	b) No	34	68	12	24	0	0	46	30.67
	Water trough facility								
8	a) Individual	11	22	28	56	26	52	65	43.33
	b) Group	39	78	22	44	24	48	85	56.67
	Floor space availability								
9	a) Adequate	28	56	36	72	38	76	102	68
	b) Inadequate	22	44	14	28	12	24	48	32
	Adequate light and ventilation								
10	a) Yes	32	64	38	76	44	88	114	76
	b) No	18	36	12	24	6	12	36	24
	Calving Pen								
11	a) Yes	0	0	14	28	16	32	30	20
	b) No	50	100	36	72	34	68	120	80
	Summer management								
12	a) Ventilating fans	8	16	25	50	33	66	66	44
	b) Sprinkling of water on animals	0	0	2	4	6	12	8	5.33
	c) No measures	42	84	23	46	11	22	76	50.67
	Cold management								
13	a) Providing bedding material	26	52	38	76	40	80	104	69.33
	b) Providing heat source	12	24	4	8	2	4	18	12
	c) No measures	12	24	8	16	8	16	28	18.67
	Dung pit availability								
14	a) Yes	18	36	28	56	36	72	82	54.67
	b) No	32	64	22	44	14	28	68	45.33
	Biogas production								
15	a) Yes	2	4	18	36	16	32	36	24
	b) No	48	96	32	64	34	68	114	76

F-Frequency

The results showed that 70, 20 and 8 % of small, medium and large farmers housed their dairy animals alongside the dwelling houses respectively, whereas 92% of large farmers provided separate shed to the dairy animals. The higher percentage of large farmers had constructed a separate shed for dairy animals because of their financial capacity. The present findings were in accordance with those reported by Rathore *et al.* (2010), Vranda *et al.* (2017) and Sreedhar *et al.* (2017). The cost of construction materials and income of the farmer play a major role in the construction of the separate animal shed. Majority of the small (42%), medium (48%), large (70%) and overall (53.33%) farmers have constructed the shed in the north to south orientation due to get maximum sunlight during day time. The farmers belonging to categories of small (76%), medium (90%), large (100%) and overall (88.67%) had provided the conventional barn system to their dairy animals. The probable reason might be due to protect the animals from cold winds during night hours. The results were in consonance with the findings of Siddhartha *et al.* (2017).

Majority of the small (56%), medium (44%), large (66%) and overall (55.33%) farmers have used galvanized iron sheets as roofing material for housing the animals followed by asbestos sheets and thatched roofing materials. Vranda *et al.* (2017) and Sinha *et al.* (2009) suggested that farmers preferred permanent roofing material. It could be attributed to the fact that galvanized iron sheets were cost effective and easily affordable by the farmers. Majority of small farmers (84%) preferred mud floor and medium (76%) and large farmers (90%) preferred over cement concrete floor. The results concluded that mud floors are easy to replace whenever soil contamination occurs regarding the spread of the disease among small farmers. However medium and large farmers preferred to the concrete floor which might be due to the economic status and affordability of farmers and longevity of flooring material. These findings are close accordance with the findings of Kumar *et al.* (2006), Ahirwar *et al.* (2010) and Siddhartha *et al.* (2017).

The drainage facility was not provided by the majority of the small farmers (76%). It may be due to an earthen and uneven floor and lack of awareness among the farmers. Majority of the small (68%) farmers did not provide manger for feeding their dairy animals. The probable reason might be due to a lack of awareness among the farmers regarding the benefits of the manger in terms of hygienic and minimum wastage of feeding. Similar findings were reported by Kalyankar *et al.* (2008), and Vranda *et al.* (2017). Majority of small farmers (78%) preferred group water trough facility and medium (56%) and large farmers (52%) preferred over individual water trough.

The results showed that higher percentage of small (56%), medium (72%), large (76%) and overall (68%) farmers provided adequate floor space to their animals which indicated the better health care of dairy animals. These findings were in close agreement with those reported by Sinha *et al.* (2010), Ahirwar *et al.* (2010), Sreedhar *et al.* (2017) and Vranda *et al.* (2017). Majority of the small (64%), medium (76%), large (88%) and overall (76%) farmers provided adequate light and ventilation in the

animal shed. Siddhartha *et al.* (2017) and Sreedhar *et al.* (2017) suggested that proper light and ventilation is essential to keep the respiratory and skin diseases away from the animals. The results of the study indicated that medium (28%) and Large (32%) farmers have segregated the pregnant animals from other animals before calving. It may be due to a lack of awareness among dairy farmers and lack of floor space. These findings are close in accordance with the findings of Sreedhar *et al.* (2017). None of the small dairy farmers has practised segregation of pregnant animals from other animals.

The summer management of dairy animal did not practice by small (84%) farmers. Sreedhar *et al.* (2017) suggested that exposure of dairy animals to extreme heat leads to thermal stress in the body affecting their production performance which increases the sensitivity to many diseases. The medium (50%) and large (66%) farmers had preferred to provide fans and coolers which might be due to the affordability and economic status of the dairy farmers. Majority of small (52%), medium (76%), large (80%) and overall (69.33%) farmers have provided bedding material to their animals for protecting from the extremely cold environment. The results were similar to the earlier findings reported by Vranda *et al.* (2017).

Waste management practices were followed by 54.67 % of the overall farmers with specially constructed pukka dung pits. Biogas production practices were adopted by 24 % of the overall farmers. It may be due to a lack of awareness about the utilization of biogas and its benefit. The results were similar to the earlier findings reported by Siddhartha *et al.* (2017).

CONCLUSION

From the study, it can be concluded that increasing the farmer's income and to improve the yield of the farm more and more scientific dairy farming practices need to be adopted. This can be done by attending training programmes, workshops, field demonstrations and study tours conducted by government and nongovernment organizations. To inculcate knowledge about improved housing management practices among the farmers, the progressive young farmers could be selected and trained by the master trainers in the particular field.

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Conflict of Interest

We declare that we have no conflict of interest.

Authors Contribution

This work is a part of the project work of first Author Dr P. Arun Nehru. Dr N. Muniyappan helped in the recording of data, statistical analysis and manuscript writing. Dr V.V. Raji planned, supervised the work and edited the manuscript.

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