

Original Research Article

Exploring motivations, housing patterns and management practices adopted by 2018 Kerala flood affected dairy farmers

ABSTRACT

A study on the dairy management practices adopted by dairy farmers who had been affected by the floods of 2018 was carried out in selected districts of Kerala state. A cross sectional survey design was employed for the study in which data were collected using structured interview schedules. Analysis of data revealed that 76.70 per cent of the respondents had housed their animals in traditional kutcha sheds. Raised platforms were seen in 84 per cent of the animal sheds. It was observed that 84.70 per cent of sheds had floors of concrete. Regarding the roof, it was observed that 89.30 per cent were constructed with sloping roof. The predominant roofing material used was sheets of galvanized iron (62.70 Per cent). Analysis of the occupational status of the farmers indicated that dairying was their primary occupation that majority of them undertook for self-employment (42 per cent) and additional income (32.70 per cent). On the adoption of important management practices, it was evident from the study that all the respondents had adopted scientific management practices such as regular vaccinations and regular deworming of dairy animals. However, it was also notable that 33.30 per cent of them had not adopted the practice of scientific disposal of carcass. This is important from the public health point of view, especially in event of natural calamities such as the Kerala Floods, 2018.

Keywords: Flood, Dairy farmers, Managerial practices, Interview schedule, Respondents

INTRODUCTION

It is normal for Kerala to get some of the country's highest rainfall during the monsoon season [1]. Kerala experienced high rainfall from 1st June 2018 to 19th August 2018. This resulted in severe flooding in thirteen out of the fourteen districts of the state because of a spell of low pressure over the region. As per the data from the Indian Meteorological Department, Kerala received 2346.6mm of rainfall from 1st June 2018 to 19th August 2018, in contrast to an expected 1649.5mm of rainfall [1]. The rainfall was about 42 per cent more than usual. This devastating phenomenon cause the loss of 400 human lives along with nearly 12,000 dairy animals and the destruction of about 57,000 hectares of cultivated land. According to the Government of Kerala, one-sixth of the total population of Kerala had been directly affected by floods and related incidents. This phenomenon resulted in heavy losses for the livestock sector, especially the dairy sector. The dairy sector suffered a serious setback as a result of flooding by way of loss of animals, destruction of cattle shed, loss of feeding stuff, infrastructure loss to the Dairy Co-operatives and loss due to lack of transportation facilities for milk. The unique geology and distinctive geography of the region, which all make the state susceptible to the effects of the South-west and North-east monsoons each year, are the reasons why Kerala is considered to be a tropical humid environmentally sensitive zone. Heavy rains and floods are the consequences of climate change and this challenge should be viewed seriously [2]. In such situations, scientific management of dairy animals is of prime concern. Similarly, the housing of animals should be

constructed in such a manner that animals are protected, to the extent possible, in event of flooding. In this context, the present study was undertaken to assess the housing patterns of dairy animals as well as the adoption of scientific management practices among farmers of Ernakulam and Thrissur districts who had been victims of the Floods 2018 and to suggest developing climate-smart housing solutions and managing dairy cows scientifically during climatic disasters.

MATERIALS AND METHODS

Out of the fourteen districts in Kerala, thirteen were affected by the floods in 2018 (Disaster Management Department, Government of Kerala, 2018). The districts of Thrissur and Ernakulam were selected at random from the list of thirteen affected districts. From the list of 127 and 255 affected villages in Ernakulam and Thrissur districts, respectively; a total of ten villages from both districts that were drastically affected by the flood were selected at random. The list of livestock farmers who had been affected by the floods in the selected villages of both districts was prepared using the data available from the Department of Animal Husbandry, Kerala and the Department of Dairy Development, Kerala. This list formed the sampling frame for selecting the affected livestock farmers. From this list, a total of 75 livestock farmers each from the selected villages in the Thrissur and Ernakulam districts were selected using simple random sampling method. So, that the final sample consisted of 75 farmers from the Thrissur district and 75 farmers from the Ernakulam district. A structured interview schedule was used to collect responses from the selected respondents. Variables for different categories of observations to be made, such as the type of animal shed, type and materials used for animal house roofing, type of flooring, adoption of various scientific management practices, the reason for rearing animals and

responsibility of rearing animals were arrived at through extensive review of literature and consultation with experts. Data were collected through personal interviews with the farmers during October, November and December 2020.

RESULTS AND DISCUSSION

Type of animal shed and floor type in the survey area

Table 1: Distribution of respondents based on type of animal shed and floor type

N=150

Sl. No	Type of shed	Frequency	Per cent	Type of floor	Frequency	Per cent	Type of roof	Frequency	Per cent
1	Kutcha	115	76.70	Concrete	127	84.70	Slope	134	89.30
2	Pucca	35	23.30	Stone	23	15.30	Flat	16	10.70

It was evident from data in this study that over three fourths of the animal sheds in the survey area were of the *kutcha* type which were mostly made of extremely cheap materials found locally. This agreed with the findings of Promila[3], Sharma [4], Sahu[5], Bainwadet al. [6], Kalyankaret al. [7] and Sabaparaet al.[8] who reported that ninety per cent of the animal shed studied were of the *kutcha* type. Over 84 per cent of the animal sheds had floors of concrete and this finding agreed with those of Sabaparaet al. [8] who reported that the majority of the floors of

animal sheds were made of concrete (87per cent). Majority of the livestock owners in the present study constructed the roof of the animal sheds with a slope and this was in agreement with the findings of Patel *et al.* [9].

Roofing material of animal shed

Table 2: Distribution of respondents based on type of roof material used for animal shed

N=150

Sl. No	Roof material	Frequency	Per cent
1	Tiles	22	14.70
2	Slate	0	0.00
3	Galvanized iron sheet	94	62.70
4	Corrugated asbestos	3	2.00
5	Aluminum sheet	25	16.70
6	Wood	5	3.30
7	Bamboo	1	0.70

The results of the present study indicated that the majority of the respondents used galvanized iron sheets (62.70 per cent) as the roofing material. Other roofing material that was used for cattle sheds included aluminum sheets (16.70 per cent) and tiles (14.70 per cent). Very few respondents used wood (3.30 per cent), corrugated asbestos sheets (2per cent) and bamboo (0.70per cent). These findings were in contrast to those of Patel *et al.* [9] who reported that 51.67

per cent of the farmers interviewed in said study used asbestos sheets as roofing material while 25.42 per cent used earthen plates, 12.08 per cent used thatched materials and 10.83 per cent galvanized iron sheets for their animal sheds in Valsad district of Gujarat.

Platform of animal shed

Table 3: Distribution of respondents based on type platform used in the animal shed

N=150

Sl. No	Platform	Frequency	Per cent
1	Raised	126	84.00
2	Ground level	24	16.00

Raised platforms for animals were provided in 84 per cent of sheds under this study to prevent dampness caused by stagnant water. Animals were housed at the ground level in 16 per cent of sheds in this study.

Adoption of scientific management practices

Table 4: Distribution of respondents based on the adoption of scientific management practices

N=150

Sl. No	Practices	Adopted		Not adopted	
		Frequency	Per	Frequency	Per

			cent		cent
1	Regular Vaccination	100	100.00	0	0.00
2	Regular Deworming	100	100.00	0	0.00
3	Periodic examination of animals for diseases	146	97.30	4	2.70
4	Isolation of sick animals	114	76.00	36	24.00
5	Scientific disposal of dead animals	100	66.70	50	33.30

The results of this study indicated that regular vaccination and deworming of animals had been adopted by **all the respondents**. Further, it was also evident that animals were periodically examined for diseases by 97.3 per cent of respondents. However, the practice of isolating sick animals was adopted by just 76 per cent of respondents and only 66.7 per cent had adopted scientific disposal of dead animals. **The results reported** in the present investigation conform to those observed by Sreedhar *et al.* [10] who also reported that the majority of the dairy farmers in Andhra Pradesh regularly followed vaccination, deworming and isolation of sick animals along with treatment for the wellbeing of animals. The finding of the present study that one third of farmers had not adopted scientific disposal of dead animals was contrary to the findings of Rathore *et al.* [11] who reported that less than 10 per cent of respondents practiced the scientific disposal of dead animals. Failure of scientific disposal can lead to the transmission of diseases between animals and humans, so there was a need to follow scientific disposal methods like the burial method which can be afforded by farmers.

Reason for rearing animals

Table 5: Distribution of respondents based on the reason for rearing the animals

N=150

Sl. No	Purpose	Frequency	Per cent
1	Additional income alone	49	32.70
2	Milk purpose	23	15.30
3	Meat purpose	0	0.00
4	For self-employment	63	42.00
5	Combination of all	15	10.00

Regarding the motives behind keeping animals, the respondents of the present study reported that additional income (32.70 per cent) and self-employment (42 per cent) were the main motivating reasons. Other reasons cited by the respondents of this study indicated that 15.3 and 10 per cent of respondents reared animals for milk and a combination of all activities, respectively. Katende[12] reported that the love for dairy animals (47.10 per cent) was the major reason for possession followed by money to supplement family income (22.90 per cent), livelihood (21.40 per cent) and only 8.60 per cent of respondents reared animals for fresh milk in the peri urban areas of Wakiso and Kampala, Uganda.

Responsibility of rearing

Table 6: Distribution of respondents based on the responsibility of rearing animals

N=150

Sl. No	Person involved	Frequency	Per cent
1	Husband	65	43.30
2	Wife	75	50.00
3	Children	3	2.00
4	Hired labour	7	4.70

A perusal of data in the present study indicated that the responsibility of animal rearing was primarily vested with the housewife as reported by fifty per cent of the respondents of this study while husbands were the primary persons engaged in this vocation as reported by 43.30 per cent of the respondents. The involvement of children as primary caregivers in the rearing of animals was reported by just 2 per cent of respondents while 4.70 per cent of respondents reported engaging hired labour for the care of their animals. The findings of the present study were in contrast to the findings of Katende [12] who reported that hired labourers were mainly involved in management of animals in over two third of the studied farms whereas in just over 13 per cent of instances the husband, 9.50 per cent cases women and only 4.50 per cent cases children were the main caretakers were involved in the responsibility of rearing animals in peri urban areas of Wakiso and Kampala.

CONCLUSION

Data on the housing patterns of animals in the survey area indicated that over three fourths of the sheds were of the *kutchha* type: over 84 per cent of these sheds were provided with concrete floors and over 89 per cent had roofs with a slope. Galvanized iron sheets were the most commonly used roofing material, while other roofing material that were used for cattle sheds included aluminum sheets (16.70 per cent) and tiles (14.70per cent). Very few respondents used wood (3.30 per cent), corrugated asbestos sheets (2 per cent) and bamboo (0.70per cent) as the roofing material. A raised platform in the cattle shed was provided for animals in 84 per cent of the sheds. Analysis of data revealed that additional income (32.70 per cent) and employment (42 per cent) were the dominant reasons behind farmers venturing into this vocation. This finding points to the serious disruption that the flood of 2018 wrecked on an income and livelihood source for farmers engaged in this vocation. Data on the major actors **in** these livelihood systems indicated that women were vested with the primary responsibility of rearing these animals on half of these homesteads while men were not left behind as was reflected by the fact that in 43.30 per cent of the homestead, they were the primary caretakers. Hired labour was resorted to only by 4.70 per cent of the respondents. The respondents of this study were **at the forefront of their** adoption of recommended practices that are needed to sustain this vocation as reflected by data on adoption of scientific management where all the respondents carried out regular vaccination and deworming of animals. However, data on the adoption of crucial post flood animal management measures such as the scientific disposal of the carcass of dead animals was of concern. Data on this practice indicated that one third of farmers in this study did not practice

scientific disposal of dead animals. The study indicated coming up with climate-smart technologies concerning housing and scientific management of dairy animals.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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