Original Research Article

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

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ABSTRACT

An 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 had of the respondents 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 also observed that and 89.30 per cent were constructed with a slope for the roof. The predominant roofing material used was sheets of galvanized iron (62.7%). Analysis of the occupational status of the farmers indicated that dairying was their primary occupation that majority of them undertook for self-employment (42%) and additional income (32.7%). On the adoption of important management practices it was evident from the study that all the respondents had adopted the practices of lmost all the respondents had adopted scientific management practices regular vaccinations and regular deworming of dairy animals. However, it was also notable that 33.3 per cent of them had not adopted the practice of scientifically disposing carasses of dead animals. This is important from the public health point of view, especially in event of natural calamities such as the Kerala Floods, 2018.

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Comment [H2]: Correct grammatical error And restructure the sentence

Comment [H3]: Constructed with sloping roof.

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

INTRODUCTION

It is normal for Kerala to get some of the country's highest rainfall during the monsoon season. Kerala experienced abnormally high rainfall from 1st June, 2018 to 19th August, 2018. This resulted in severe flooding in thirteen 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 (Mishra *et al*., 2018). The rainfall was about 42 per cent more than usual. This devastating phenomenon saw the loss of 400 human lives along with nearly 12,000 dairy animals and 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 the 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, loss due to lack of transportation facility of milk. Kerala is viewed as being a tropical humid ecologically sensitive region because of the peculiar geography and unique topography of the region all of which make the state prone to the effects of the South-west and North-east monsoon every year. Heavy rains and floods are the consequences of climate

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change and this challenge should be viewed seriously. In such situations scientific management of dairy animals is of prime concern. Similarly housing of animals in such areas should also be in such a manner that animals are protected, to the extent possible, in event of flooding. It was in this context that the present study was undertaken 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.

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MATERIALS AND METHODS

Of the fourteen districts in Kerala, thirteen were affected by the floods in 2018 (Disaster Management Department, 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 each 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 with 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 Thrissur and Ernakulam districts were selected using simple random sampling so that the final sample consisted of 75 farmers from Thrissur district and 75 farmers from Ernakulam district. A structured interview schedule was used to collect responses from the selected respondents. Items for various 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

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managemental practices, reason for rearing animals and responsibility of rearing were arrived at through extensive review of literature and consultation with experts. Data were collected by personal interviews of the farmers during the months of 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	*f*	%	Type of floor	*f*	%	Type of roof	*f*	%
1	*Kutcha*	115	76.7	Concrete	127	84.7	Slope	134	89.3
2	Pucca	35	23.3	Stone	23	15.3	Flat	16	10.7

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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 was in agreement with the findings of Promila (1983), Sharma (1996), Sahu (2001), Bainwad *et al*. (2007), Kalyankar *et al*. (2008) and Sabapara *et al.* (2010) who reported that ninety per cent of the animal shed studied were of the *kutcha* type. Over 84 per cent the animal sheds had floors of concrete and this finding was in agreement with those of Sabapara *et al*. (2010) who reported that majority of the floors of animal sheds were made of

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concrete (87%). 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*. (2018).

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	*f*	%
1	Tiles	22	14.7
2	Slate	0	0
3	Galvanized iron sheet	94	62.7
4	Corrugated asbestos	3	2
5	Aluminum sheet	25	16.7
6	Wood	5	3.3
7	Bamboo	1	0.7

The results of the present study indicated that majority of the respondents used galvanized iron sheets (62.7%) as the roofing material. Other roofing material that was used for cattle sheds included aluminum sheets (16.7%) and tiles (14.7%). Very few respondents used wood (3.3%), corrugated asbestos sheets (2%) and bamboo (0.7 %). These findings were in contrast to those of Patel *et al*. (2018) who reported that 51.67 per cent of the farmers studied used asbestos sheets as

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

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Platform of animal shed

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

N=150

Sl. No	Platform	*f*	%
1	Raised	126	84
2	Ground level	24	16

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Raised platforms for animals were provided in 84 per cent of sheds under this study. Animals were housed at the ground level in 16 per cent of sheds of respondents in this study.

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Adoption of scientific management practices

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

N=150

Sl. No	**Practices**	**Adopted**		**Not adopted**	
		f	%	*f*	%
1	Regular Vaccination	100	100	0	0
2	Regular Deworming	100	100	0	0

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3	Periodic examination of animals for diseases	146	97.3	4	2.7
4	Isolation of sick animals	114	76	36	24
5	Scientific disposal of dead animals	100	66.7	50	33.3

The results of this study indicated that regular vaccination and deworming of animals had been adopted by all the respondents of the study. 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. It is evident that the results reported in the present investigation conforms to those observed by Sreedhar *et al*. (2018) who also reported that 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*. (2010) who reported that less than 10 per cent of respondents practiced the scientific disposal of dead animals. Failure of scientific disposal can lead to transmission of diseases between animals and humans, so there was need to follow scientific disposal method like burial method which can be afforded by farmers.

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Reason for rearing animals

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

N=150

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Sl. No	Purpose	*f*	%
1	Additional income alone	49	32.7
2	Milk purpose	23	15.3
3	Meat purpose	0	0
4	For self-employment	63	42
5	Combination of all	15	10

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Regarding the motives behind keeping animals, the respondents of the present study reported that additional income (32.7%) and self-employment (42%) were as the main motivating reasons. Other reasons cited by the respondents of this study indicated that indicated that 15.3 and 10 per cent of respondents reared animals for milk and combination of all activities, respectively. Emmanuel (2019) reported that the love for the dairy animals (47.1%) was the major reason for possession followed by money to supplement family income (22.9%), livelihood (21.4) and only 8.6 per cent of respondents reared animals for fresh milk in the peri urban areas of Wakiso and Kampala.

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Responsibility of rearing

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

N=150

Sl. No	Person involved	*f*	%

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1	Husband	65	43.3
2	Wife	75	50
3	Children	3	2
4	Hired labour	7	4.7

Perusal of data in the present study indicated that the responsibility of animal rearing was primarily vested with by 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 43.3 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 4.7 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 Emmanuel (2019) 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, 9.5 per cent cases women and only 4.5 per cent cases children were the main caretakers were involved in the responsibility of rearing as reported by respondents 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 *kutcha* 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

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included aluminum sheets (16.7%) and tiles (14.7 %). Very few respondents used wood (3.3%), corrugated asbestos sheets (2%) and bamboo (0.7 %) as roofing material. A raised platform in the cattle shed was provided for animals in 84 per cent of the sheds. Farmer motives for rearing animals were also explored as part of this study. Analysis of data revealed that additional income (32.7%) and employment (42%) were the dominant reasons behind farmers venturing into this vocation. This finding, points to the serious disruption that the flood 2018 wrecked on an income and livelihood source for farmers engaged in this vocation. In the case of 15.3 per cent of respondents, animals were reared for milk while 10 per cent reported rearing animals for a combination of all these reasons. Data on the major actors on 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 43.3 per cent of homestead, they were the primary caretakers. Hired labour was resorted to only by 4.7 per cent of the respondents. The respondents of this study were on the forefront with respect to 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 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. Study indicated to come up with the climate smart technologies with respect housing and scientific management of dairy animals.

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