

Management practices followed by the dairy farmers of Mizoram, India

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Abstract

The dairy sector in Mizoram, India, is presently developing with the efforts taken by various agencies. A study was undertaken in Aizawl and Kolasib districts of the State with an objective to explore the existing management practices followed by the dairy farmers of the State. A total 100 farmers were randomly selected from these two districts and interviewed personally with a structured interview schedule. The study shows that the dairy farmers reared cross-bred cattle in intensive system. The cattle barn was mainly constructed with locally available materials like bamboo, woods etc. They practiced Artificial Insemination for breeding. Green fodder + concentrate feeding was practiced by majority (95.00%) of the dairy farmers. Vaccination and deworming were not practiced by the farmers and they were not aware of regular checkups and disease preventive measures of their animals. Colostrums feeding were practiced by all the respondents. Insurance of the cattle was done by 42.00 per cent of the respondents. Majority (49.00%) of the dairy farmers were selling their milk to the Co-operative Union.

Key words: Cattle; Dairy; Management; Mizoram

Introduction

Livestock farming plays an important role in the socio-economic and cultural life of the people Mizoram, India. With the efforts taken by various agencies working in the field of dairy development, the dairy sector in the state of Mizoram is now developing. Crossbred cows and indigenous cows are mainly used for milk production while milking of goat and buffalo are very rare in Mizoram and is negligible. Mizoram has a total cattle population of 34,803 and the total annual milk production for the year 2013-2014 in Mizoram was worked out to 15,305.217 tonnes which shows an increase of 12.22 per cent over the previous year (Integrated Sample Survey, 2013-14). In spite of the increase milk production, there is still a demand gap of 85110 tonnes of Milk in 2013-14 as per requirement recommended by Indian Council of Medical Research (Mizoram Economic Survey, 2014-15). The per capita availability of milk per day in 2013-14 was estimated to 40 gms only whereas the all India average was 307 gms (BAHFS, 2015). Many studies have so far been conducted in most of the states in India to know the intricacies of dairy sector and its development, however in case of Mizoram, any study on the dairy farming is very rare. Keeping all the above mentioned areas in view, the present study was undertaken with objective to explore the existing management practices followed by the dairy farmers of the State.

Materials and Methods

The study was conducted in two purposively selected districts, namely, Aizawl and Kolasib of Mizoram, India. Four development blocks (two blocks from each district) were selected based on the number of dairy farms. Out of the four development blocks, 20 villages (5 villages from each development block) were randomly selected and from each village, 5 farmers engaged in dairy farming were randomly selected, therefore the total number of respondents for the study became 100, i.e. Fifty (50) dairy farmers from each district. Data were collected by personal interview of the respondents and by self-observation. A structured schedule was prepared covering existing dairy farming practices to collect the data.

Results and Discussions

Management practices in the field of housing, feeding, breeding, health care, general care and management practices etc. were observed. The results of the study pertaining to dairy farming practices followed by the dairy farmers are presented under the following subheads:

Housing system and materials used for its construction

The findings related to the housing system of the cattle followed by the respondents are presented in the Table 1.1. A close look at the Table shows that all the dairy farmers reared their cattle in intensive system of rearing. The roof of the cattle barn was mainly constructed with tin (94.00%). Majority of the farmers (97.00%) used bamboo for the construction of side walls and majority (78.00%) practiced wooden slated flooring system in their cattle barn. Singh et al. (2015) and Rathore et al. (2010) also reported that cattle shed were constructed with locally available materials and floor was non-concrete. It was observed that all the farmers (100.00%) used aluminum vessel for the feeding of concentrate feeds. A large percentage (77.00%) of the dairy farmers fitted electricity in their cattle shed.

Table 1.1. Housing system and materials used for its construction

Sl. no.	Housing System	Frequency & Percentage (n=100)
1	Roof	
	Thatch	4
	Tin	94
	Others	2
2	Wall	
	Bamboo	97
	Other materials	3
3	Floor	
	Wooden	78
	Cement concrete	6
	Non-concrete	16
4	Feeding/water trough is made up of	
	Aluminium vessel	100
6	Electricity	
	Present	77
7	System of rearing	
	Intensive	100

Housing system was based on traditional practices with minimal scientific interventions. Locally available materials were used for the construction of the cattle barn. Materials like bamboo were readily available in the vicinity of every village and need not to purchase by the farmers which greatly reduced the capital expenditure of the farmers. It was observed that in majority of the cattle shed, the space requirement for

each animal was insufficient and all the categories of the animals were kept under the same shed. This might be due to the fact that available land for cattle shed was less because the farms were situated in the slopes of hills. The sanitary system of the stall and drainage system was unhygienic and poor. The dung was usually dumped in the vicinity of the shed.

Breeding system as practiced by the dairy farmers

Table 1.2 shows that all the respondents (100.00%) kept cross-bred dairy cattle mainly Holstein and Jersey cross. It was found that Artificial Insemination (AI) was within the reach of majority of the dairy farmers. Majority of the respondents (98.00%) did AI within 12-18 hours after heat detection. AI was preferred by the farmers over natural service in the study area as rearing of bull for breeding purpose was costly affair for these small dairy farmers. An overwhelming majority of the respondents (76.00%) achieved pregnancy of the cow with 2 times of AI whereas the average number of AI per pregnancy of the cow is 1.98. The reasons for the failure of AI in many cases could be attributed to mineral deficiency or physio-ovarian disorders or faulty AI. Almost all the farmers were found to be aware of the timing of insemination and 98.00 per cent of the respondents inseminated within 12-18 hours of heat detection. All the respondents were quite aware of the heat signs in one way or the other and majority (80.00%) of the respondents observed vaginal discharge + bellowing as a symptoms of heat detection. Though pregnancy diagnosis was one of the most important aspects of scientific management of dairy animals, it was found to be practiced by only 3.00 per cent of the respondents. The farmers reported that there is unavailability of the qualified personnel to perform the diagnosis and they could not afford the high cost involved in it. The farmers (52.00%) reported that the calving intervals were ranged from 13-15 months. The long duration of the calving intervals could be due to the number of repeat breeders as well as the farming practices followed by the farmers. However, treatment of repeat breeder was found to be practiced by only 38.00 per cent of the respondents. The above findings were in consonance with the findings of Sabapara et al. (2010) who reported that majority (85.00%) of farmers in the tribal areas of South Gujarat relied on mucus discharge and bellowing as the symptoms of heat; majority (96.50%) of farmers used AI for breeding their dairy animals; majority (98.00%) of the respondents allowed their female animals for breeding through AI or natural service between 12 and 18 hours after heat detection; however pregnancy diagnosis was followed by 64.00 per cent respondents but only 12.50 per cent of pregnancy diagnosis was done by a qualified veterinarian.

Table 1.2. Breeding system as practiced by the dairy farmers

Breeding Practices		Frequency & Percentage (n=100)	
1	Keeping a Cross-bred cow		
	Yes	100	
2	Breeding of female animals		
	A.I	98	
	Natural service	2	
3	Symptoms of heat detection		
	Mucus discharge	10	
	Mucus discharge+ bellowing	80	
	Other	10	
4	Insemination or mating of female after heat detection		
	Within 12-18hours	100	
5	No. of service per pregnancy		
	1-2 time	13	Average AI 1.98
	2-3 times	76	
	>3 times	11	
6	Breeding after calving		
	2-3 months	27	
	3-5 months	40	
	After 5 months	33	
7	Pregnancy diagnosis		
	Practice	3	
	Not practise	97	
8	Treatment of repeat breeder		
	Yes	38	
	No	62	

Feeding practices

Table 1.3 shows that all the respondents practiced stall fed feeding system. It can also be seen that Green fodder + concentrate feeding was practiced by majority (95.00%) of the dairy farmers while only 5.00 per cent of the respondents practiced Green fodder + concentrate + dry fodder feeding as a ration for their dairy cattle. The Table 1.3 shows that 3 to 5 kg of concentrate per day was fed by 53.00 per cent of the respondents while 45.00 per cent of them fed 2 to 3 kg of concentrate per day to their lactating cow. Dry fodder was not available in the study area, only a few farmers in Aizawl district were found to provide dry fodder which they bought from Thenzawl Village during dry season. The most common concentrate mixture consisted mainly of

wheat bran, wheat flour, oil cakes and salt. A close look at the table reveals that 82.00 per cent of the respondents supplied feed three times a day. It is seen that only 4.00 per cent of the respondents cultivated green fodder. The table reveals that only 14.00 per cent of the respondents provided supplements to the feed. It was observed that the amount of green fodder fed to the adult stock at each feeding time weigh about 20-25 Kg which consisted mainly of broom, Banana leaves some tree leaves like Jack fruit etc. It was observed that all the farmers relied on rain/ pond water as their main sources of water. In the state, there is provision of rain water harvesting in every household. They mainly store the water for using in winter season. The respondents did not practice fodder cultivation which might be due to lack of cultivable land and irrigation facility.

Table 1.3.1 Feeding system practiced by the farmers

Sl. no.	Feeding practices	Frequency & Percentage (n=100)
1	Feeding of animals	
	Stall feeding	100
2	Type of ration used	
	Green fodder+ concentrate	95
	Green fodder+ concentrate+ dry fodder	5
3	Quantity of concentrate fed to the lactating cow per day	
	1-2 kg concentrate	2
	2-3 kg concentrate	45
	3-5 kg concentrate	53
4	Cultivation of green fodder	
	Yes	4
	No	96
5	Frequency of feeding	
	Twice	8
	Thrice	92
6	Sources of water	
	Rain water + River/Stream/ Pond water	100
7	Supplements provision	
	Yes	14
	No	86

Table 1.4. Health care practiced by the farmers

	Health care practices	Frequency & Percentage (n=100)
1	Deworming of Cow	
	Occasional	18
	Not practiced	82
2	Deworming of Calf	
	Occasional	24
	Not practiced	76
3	Control of ecto-parasite	
	Practised	4
	Not practised	96
4	Vaccination	
	Yes	38
	No	62
5	Naval disinfection of calf after birth	
	Practiced	28
	Not practiced	72
6	Treatment of sick animals by	
	Use of ITK	4
	Veterinary doctor	33
	Paravets	63

Health care practiced by the farmers

In the present study, 82.00 per cent of the dairy farmers did not practice deworming of milch animals whereas 76.00 did not practice calf deworming of calves (Table 1.4). Lower deworming practices might be attributed to their poor knowledge about the harm caused by endo-parasites in animal. Control of ectoparasite was practiced by only 4.00 per cent of the dairy farmers. Regarding Prophylactic measures, only 38.00 per cent of the respondents were going for vaccination against contagious diseases prevalent in the area such as foot and mouth disease (FMD). The high cost associated with the vaccination, lack of awareness and insufficient attention of the veterinarian might be the probable causes for low vaccination in the area. Naval disinfection of the newly born calf was practiced by only 28.00 per cent of the farmers. It was found that majority (63.00 %) of the respondents were getting treated their sick animal by paravets and the rest by the Veterinarians (43.00%) and use of Indigenous Technical Knowledge (ITK) accounted about 4.00 per cent of the treatments. It was observed that in most part of the study area, Veterinary Doctors were not available when needed by the dairy farmers.

Though health care facilities such as vaccine, deworming drugs etc. were available to some extent, the farmers did not give much attention to it and they were not aware of regular checkups and disease preventive measures of their animals. The above findings have similarities with the findings of Rathore et al. (2010), Sabapara et al. (2010) who reported that majority of the respondents were not practiced deworming to their milch animals at regular interval and practice of naval cord cutting after birth.

General care & management practices of the dairy farmers

Colostrum feeding were practiced by all the respondents. None of the farmers practiced castration of male calf and they usually sold them (Table 1.5). There is high demand of male calf in the local market and it fetches a good price. Almost all the dairy farmers did not practice special care to heifers whereas majority (80.00%) of them practiced special care to pregnant cows. All the farmers were aware of special care to pregnant cows after calving. It was observed that cowshed cleaning was practiced at least two times a day by majority (63.00%) and cleaning of cow shed was mainly done after feeding of cattle. Dry period of about 60 days was practiced by 83.00 per cent of the farmers. The reason for the less dry period as reported by the farmers was that they believed it reduced the occurrence of milk fever. Singh *et al.*(2015) reported that the most of the farmers were feeding colostrums to the new born, special care was taken to the pregnant animals which are in line with the findings of the present study. From the present study, it was observed that majority (71.00%) of the respondents used dung solely for manuring the agricultural field and that 21.00 per cent of them used some parts of dung as manure and some parts for the *Gobar* (Cow dung) gas plant. Dung was mainly used for two purposes in Mizoram: fuel and manure. From environmental angle, using dung as manure is desirable and beneficial to soil health. The finding is similar with the finding of Premchand (2008), who also reported that dung utilization pattern amongst dairy farmers of Rajasthan was quite eco-friendly as it was mostly used for manure and only 27.00 per cent was used for fuel. Rahman (2015), reported that dung utilization pattern amongst dairy farmers of Assam was quite eco-friendly as not a single respondent used the dung completely as fuel.

Table 1.5. General care & management practices of the dairy farmers

Sl no.	General care & management practices	Frequency & Percentage (n=100)
1	Colostrums feeding	
	Practised	100
	Not practiced	0
2	Castration of male calf	
	Practised	0
	Not Practised	100
3	Special care to heifer	
	Practised	6
	Not Practised	94
4	Special care to pregnant cow	
	Practised	80
	Not Practised	20
5	Special care to cow after calving	
	Practised	100
	Not Practised	0
6	Cowshed cleaning	
	Once a day	0
	Twice a day	63
	Thrice a day	37
7	Practices dry period of about 60 days	
	Yes	83
	No	17
8	Dung utilization pattern	
	As fuel	8
	Both	21
	Manure	71

Milk Marketing Pattern

The study reveals that 49.00 per cent of the dairy farmers were found to sell their milk to the Co-operative Union whereas 21.00 per cent of the dairy farmers were found selling their milk both to Co-operative Union and local consumers directly. It was found that only 17.00 per cent of the farmers sold their milk directly to the local consumers alone. The major cooperative plant that procured milk from the study region was Mizoram Milk Producers Co-operative Union Ltd. (MULCO). It was observed that milk was collected by the plant in the morning and at evening with a rate of about Rs 39.00 per litre of milk based on the fat and SNF (Solid-not-fat) content. The price of milk varies depending upon the fat and SNF percentage. The fat and SNF

contents for milk procurement were 3.5-4.0 % and 7.0-8.5% respectively. The retail price of milk in the market was Rs 50.00 per litre at the time of study.

Livestock Insurance

Dairy animals such as crossbred cattle are highly valuable and livestock insurance provides a protection mechanism to the farmers against any eventual loss due to death of the animals. It was found that 42.00 per cent of the respondents insured their dairy cattle. Mizoram state is already implementing the Livestock Insurance Scheme sponsored by Government of India through state livestock development board. Mainly insurance was provided by the New India Assurance Company Limited through MULCO and National Insurance Company which was sponsored by Department of Animal Husbandry and Veterinary, Government of Mizoram. It was found that some of the farmers did insurance in the past but did not renew their insurance anymore.

Conclusion

Regular training programs of dairy farmers in the areas like vaccination, deworming, fodder cultivation, AI, herd recording etc. should be undertaken to make the dairy sector sustainable in Mizoram an important hill state of North East region of India.

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