



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

P. Arun Nehru<sup>1\*</sup>, N. Muniyappan<sup>2</sup>, M. Arulmuthumathavan<sup>3</sup>, V.V. Raji<sup>4</sup>

<sup>1</sup>Department of Livestock Production Management, Madras Veterinary College, Chennai, Tamil Nadu, India.

<sup>2</sup>Department of Veterinary Physiology, Madras Veterinary College, TANUVAS, Chennai, Tamil Nadu, India.

<sup>3</sup>KS Cattle Feeds, KSE Limited, Dindigul, Tamil Nadu, India.

<sup>4</sup>KS Cattle Feeds, KSE Limited, Irinjalakuda, Kerala, India.

\*Corresponding author's email: arunvet88@gmail.com

### ABSTRACT

Dairy farming is an integral part of agriculture which provides sustainable income and reduces unemployment to a large number of rural poor. Hygienic milking plays a crucial role in profitable dairy enterprise. The clean milk production depends on the practices adopted by farmers. The present study was conducted in Idukki district of Kerala by collecting a data from 150 dairy farmers of different villages of three taluks. The study revealed that majority of the farmers preferred to milk their animals in the same place, where they were tethered. Most of the farmers practiced twice a day milking schedule in their animals. Wet hand milking was found to be (85.33%) a common practice adopted by majority of the farmers. Even though knuckling method is wrong, 65.33% of farmers have followed in the study area. The frequency of cleaning of the milch animal shed was done at once in a day (64%). Regular cleaning of udder and teats of animal prior to milking was adopted by 82.67% of farmers but teat dips were followed by only 14% of the farmers. It was observed that 57.33 % women were involved in milking related activities. Open mouth buckets were used by 88% of the farmers. Detergents used for cleaning the milking pails (61.33%) and only 24% of the farmers followed mastitis control programme in all around year. Majority of the farmers are drying of pregnant animals by incomplete milking (72%) method and 76 % of the farmers have not practiced teat sealing at the end of lactation. The farmers prefer milma cooperative (81.33%) for the sale of milk. Still there is a gap while implementing the scientific milking management practices were followed by the farmers. Hence suitable training programme on improved milking management practices will help the farmers in clean milk production and increase the production performance of the dairy animal as well as generate more additional income to the farming community.

**KEY WORDS:** Dairy farmers, Milking, Management, Idukki, Udder, Milker.

### INTRODUCTION

Dairying in India is a closely interwoven and integral part of agriculture. It is a cream activity and is one of the most important dimensions of diversified agriculture with a lot of potential for socioeconomic development of farming community (Sreedhar *et al.*, 2017). The cattle and buffaloes are known for their milk production and they contribute approximately 96% to total milk production in India. Though milk production in India is 176.3 million tonnes in 2017-18 with a growth rate of 6.62% and it is projected to produce 255 million tonnes in 2021-22 (NAPDD Vision-2022 Report, 2018). 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. Though India produces the highest quantity of milk but its contribution to international milk market is lower than many countries because our milk quality does not match export standard (Bashir and Kumar, 2013). Scientific milking management practices like improved milking techniques, hygienic milk production and better milk let down could improve total milk production and quality of milk as well (Borghese, 2007). Understanding of livestock management practices followed by the farmers are crucial to identify the strengths and weakness of the animal rearing system and to devise appropriate intervention policies (Sabapara *et al.*, 2015). Although, Idukki district contributes to highest livestock production in the state of Kerala but still there is an ample gap between the livestock population and their corresponding production level because, the farmer's adopt different types of husbandry practices based on their knowledge. Hence the present study was conducted to document the existing milking management practices adopted by dairy farmers in high altitude region of Kerala.

**MATERIALS AND METHODS**

The present investigation was undertaken in Devikulam, Idukki and Thodupuzha taluks of Idukki district of Kerala. Five villages from each taluk and ten dairy farmers from each village were selected randomly, giving a sample size of 150 respondents. The selected farmers were interviewed by contacting them at their doorstep utilizing a pre-tested well structured interview schedule developed for the purpose. While collecting data, sufficient time was given to the farmers to arrive at values by the memory recall

method. The family members of the farmers were also involved in collection of the data so as to get accurate information as far as possible. The data collected were statistically analyzed as per the procedures laid down by Snedecor and Cochran (1994).

**RESULTS AND DISCUSSION**

The data on milking managerial practices adopted by dairy farmers are presented in Table I.

**TABLE I:** Milking managerial practices adopted by dairy farmers in high altitude region of Kerala

Sl. No.	Milking managerial practices	Frequency (n=150)	Percentage	
1	Place of milking	Milking at the place of tethering	106	70.67
		Milking at the separate and dry place	44	29.33
		High yielders first	66	44
2	Sequence of milking	Low yielders first	26	17.33
		Healthy animals followed by sick	34	22.67
		No sequence	24	16
		Once in a day	0	0
3	Frequency of milking	Twice in a day	150	100
		Thrice in a day	0	0
4	Method of milking	Hand milking	102	68
		Machine milking	48	32
5	Milking habit	Dry hand	22	14.67
		Wet hand	128	85.33
		Full hand	24	16
6	Method of hand milking	Stripping	28	18.67
		Knuckling	98	65.33
7	Frequency of cleaning milch animal shed	Once in a day	96	64
		Twice in a day	43	28.67
		Thrice in a day	11	7.33
8	Cleaning of udder and teats before milking	Always	124	82.67
		When required	24	16
		Never	2	1.33
9	Udder washing done by using	Antiseptic solution	5	3.33
		Only water	145	96.67
10	Teat dips	Followed	21	14
		Not followed	129	86
11	Gender of milker	Male	64	42.67
		Female	86	57.33
12	Type of milking pail	Open mouth bucket	132	88
		Scientific milking pail	18	12
13	Cleaning of milking pail with	Clean water	28	18.67
		Detergent powder/soap	92	61.33
		Sand or ash	30	20
14	Care against mastitis prevention programme	Always	36	24
		When required	102	68
		Never	12	8
15	Teat sealing at the end of lactation	Followed	36	24
		Not followed	114	76
		Abrupt cessation	6	4
16	Method of drying off	Incomplete milking	108	72
		Intermittent milking	36	24
17	Marketing of milk	Milma cooperative	122	81.33
		Direct to customers	28	18.67

The study revealed that majority of the farmers (70.67%) milked the animals at the place of tethering in the shed where they are kept, where as only 29.33% of farmers milked in a separate and dry place. Since the shed remains clean and dry the farmers prefer to milk their animals in the same place. The other probable reason might be the floor space constraint. These finding were in close association with those reported by Tapas *et al.* (2015), Ahirwar *et al.* (2010) and Rathore *et al.* (2010). The farmers are milking their animals in the following sequence, that are high yielders first (44%), healthy animals followed by sick (22.67%), low yielders first (17.33%) and no sequence (16%) of milking. The results also revealed that all the farmers (100%) practiced twice a day milking schedule in their animals. The similar results were reported by earlier workers (Rathore *et al.*, 2010, Sabapara *et al.*, 2015 and Tewari *et al.*, 2018) in their respective survey areas.

Majority of the farmers followed hand milking (68%) than machine milking (32%). The herd strength and financial status of the farmers determine the using of the milking machine. These results are close in accordance with Sreedhar *et al.*, 2017. It was also observed that majority of the respondents practiced wet hand milking (85.33%) than dry hand milking (14.67%). The present results were close in accordance with the results of Sabapara *et al.* (2015) and contrary to the results of Patbandha *et al.* (2014) and Kumar *et al.* (2014). The practice of dry hand milking is a superior practice than wet hand milking and the farmers of surveyed area still need to increase their awareness for adoption of this practice. The results further revealed that 65.33 per cent of farmers followed knuckling method, 18.67 per cent farmers followed stripping while remaining 16 per cent adopted full hand milking. These results were in agreement with Rathore *et al.*, (2010) and Sabapara *et al.*, (2015). It might be due to lack of awareness of farmers about benefits of full hand milking to maintain the udder health. On the contrary to this, Jacob and George (2013) and Siddhartha *et al.* (2017) have reported that majority of farmers opted for full hand milking due to their higher awareness and knowledge regarding scientific milking practices.

The frequency of cleaning of the milch animal shed was done at once (64%), twice (28.67%) and thrice (7.33%) in a day. Tewari *et al.* (2018) suggested that the water availability and herd strength determines the frequency of cleaning. Regular cleaning of udder and teats of animal prior to milking was adopted by 82.67% of farmers, however 16 % of the total dairy farmers cleaned the udder and teats only when dirty or when required while, rest 1.33 % never followed this practice. Rathore *et al.* (2010) and Sabapara *et al.* (2015) have reported that all the farmers (100%) washed teats along with udder before milking animals in their respective survey areas. Around 96.67 % of the farmers washed the udder with water and 3.33 % washed with antiseptic solution. The teat dips were followed by only 14 % of the farmers. The similar results reported by Sabapara *et al.* (2015) and Tewari *et al.* (2018). The dairy farmers were unaware of clean milk production practices like separate space for milking, cleanliness of utensils, teat dips, use of quality feeds, milking care and handling of animals.

In respect of gender of milker, 57.33% women were involved in milking followed by 42.67% men. The findings of the present study shows that, the majority of the milking related activities are carried out by women at household level. Hence, farm women need to be trained more especially in the area of clean milk production practices (Kumar *et al.*, 2017). Most of the farmers (88%) used open mouth bucket for milking the animals. Similar observations were made by Rathore *et al.* (2010) Kathiriya (2013) and Tapas *et al.* (2015). Scientific milking pail having a lid through which milk may freely pass into the pail, and during such passage be strained, hence it is a better option for hygienic milk production. Perusal of study revealed that 61.33% farmers used detergent to clean the milking pail followed by sand/ash (20%) and water (18.67%). The results contrary from the study are similar as observed by Garg *et al.* (2005) and Gupta *et al.* (2008). The care against mastitis prevention programme was followed by the farmers during always (24%), when required (68%) and never (8%). Kishore (2013) reported that a lack of awareness about the cause of mastitis and its control programme among the dairy farmers. Majority of the farmers (76%) have not taken the teat sealing at the end of lactation. Sreedhar *et al.*, 2017 suggested that the teat sealing should be done at the end of lactation, which ensures prevention of any infection during dry period. In respect of drying method of animals, farmers were following incomplete milking (72%), intermittent milking (24%) and abrupt cessation (4%) method. The present findings were in close association with those reported by Rathore *et al.* (2010) and Patbandha *et al.* (2014). The farmers prefer milma cooperative (81.33%) and direct to customers (18.67%) for the sale of milk. Hence these findings it can be concluded that the farmers preferred selling more milk to cooperative societies due to good milk procurement price and organizing sector for selling their milk. The present findings were in close agreement with the reports made by Ahirwar *et al.* (2010) and Siddhartha *et al.* (2017).

## CONCLUSION

From the above findings, it could be concluded that dairy farmers were quite acquainted with the milking and health care practices but still needs to be regularly monitored and updated with the new and improved dairy husbandry practices in the area of milking and health care for better results in future. Attempts should be made in area of increasing farmer's awareness level so that their subsequent adoption level can be further improved. It can be achieved by extension activities through conducting field demonstrations and training programme, closer interaction between farmers and researchers through participatory approaches and development of dairy infrastructure.

## REFERENCES

Ahirwar, R.R., Ashok, S. and Qureshi, M. I. (2010) A study of managerial practices in water buffalo (*bubalus bubalis*) in India, *Buffalo Bull.*, **29**(1): 43-51.

- Bashir, B.P. and Kumar, V.G. (2013) Milking management practices followed in selected areas of the Kottayam district of Kerala state. *J. Life Sci.*, **5**(1): 53-55.
- Borghese, A. (2007) Milking management of dairy buffalo. *Italian J. Anim.al Sci.*, **6**(2): 39-50.
- Garg, M.K., Jain, L.S. and Chaudhary, J.L. (2005) Studies on housing, feeding and milking management practices of dairy cattle in Baran district of Rajasthan. *Indian J. Dairy Sci.*, **58**(2): 123-128.
- Gupta, D.C., Suresh, A. and Mann, J. S. (2008) Management practices and productivity status of cattle and buffaloes in Rajasthan, *Indian J. Anim. Sci.*, **78**(7): 769-774.
- Jacob, S.K. and George, A. (2013) Analysis of the clean milk production practices of dairy farmers of Kerala. *Ind. J. Appl. Res.*, **3**(7): 604-606.
- Kathiriya, J.B. (2013) Role of rural women in dairy farming of Rajkot district. Tamilnadu *J. Vet. Anim. Sci.*, **9**(4): 239-247.
- Kishore, K.A. (2013) Study on buffalo management practices in Khammam district of Andhra Pradesh. *Buffalo Bull.*, **32**(2): 97-119.
- Kumar, S., Jain, A. and Gupta, A.K. (2014) Studies on Breeding, Health Care and Milking Management Practices Adopted by the Dairy Owners in Shahdol District of MP, India *Int. Res. J. Biol. Sci.*, **3**: 32-36.
- Kumar, S., Subash, S. and Jangir, R. (2017) Feeding and Milking Management Practices Adopted by Indigenous Cattle Farmers in Thar Desert of Rajasthan. *J. Anim. Health Prod.*, **5**(1): 14-18.
- Mohan Kumar, B. (2007) Agroforestry systems and practices of Kerala. In: Agroforestry systems and practices of India. Puri, S. and Panwar P. (eds). New India Publishing Agency, New Delhi, pp 459-483.
- NAPDD Vision-2022 Report (2018) Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Government of India.
- Patbandha, T.K., Marandi, S., Pathak, R. and Ahlawat (2014) A study on milking management practices opted by dairy farmers for clean milk production in South Saurashtra agro-climatic region of Gujarat. *J. Interacad.*, **18**: 589-596.
- Rathore, R.S., Singh, R., Kachwaha, R.N. and Kumar, R. (2010) Existing management practices followed by the cattle keepers in Churu district of Rajasthan, *Indian J. Anim. Sci.*, **80**(8): 798-805.
- Sabapara, G.P., Fulsoundar, A.B. and Kharadi, V.B. (2015) Milking and Health Care Management Practices Followed by Dairy Animal Owners in Rural Areas of Surat District. *Sch. J. Agric. Vet. Sci.*, **2**(2A):112-117.
- Siddhartha, S., Kotresh, P., Sankar, R., Maruthi S.T. and Abraham, J. (2017) Scientific dairy farming practices adopted by dairy farmers in Wayanad district of Kerala. *Glob. J. Bio-Sci. Biotech.* **6**(4): 683-686.
- Snedecor, G.W. and Cochran, W.G. (1994) Statistical methods. 6th edn. Oxford and IBH, Publishing Company, Calcutta.
- Sreedhar, S., Reddy, A.N., Babu, P.R., Sudhakar, B.V., Kamalakar, G. and Tejaswi, V. (2017) Milking Management Practices and Marketing of Milk in Rayalaseema Region of Andhra Pradesh. *Int. J. Pure App. Biosci.*, **5**(6): 524-530.
- Tapas, K., Patbandha, R., Pathak, S., Marandi, D.K., Swain, A.R and Ahlawat. (2015) Milking management practices in Gir cattle and Jaffrabadi buffaloes in their habitat with due reference to disparity between the two species, *Anim. Sci. Reporter.* **9**(4): 123-130.
- Tewari, H., Kumar, S., Singh, D.V., Rath, R. and Tyagi, K. (2018) Studies on existing milking and health care practices adopted by dairy farmers in Tarai region of Uttarakhand, India. *Indian J. Anim. Res.*, **52**(3): 454-458.