



Incidence of Mastitis in cattle and Constraints perceived by farmers in Managing Mastitis

Safer M. Saifudeen*

Research scholar

Department of Animal Husbandry Statistics and Computer Applications, Madras Veterinary College, Chennai, Tamil Nadu Veterinary and Animal Sciences University

*Corresponding author E-mail: safeermisaifudeen@gmail.com

Abstract

To increase production level of dairy animals, farmers need to adopt scientific dairy husbandry practices. However, there are several constraints which vary from area to area are main hindrance for profitable dairy farming. The present study aimed to find constraints perceived by farmers in Chennai district of Tamil Nadu who had access to the Madras Veterinary College hospital for treatment. Pre-tested questionnaire was prepared and detailed information about mastitis infected animals were collected from the farmers. The farmers were asked to rank the constraints perceived by them in managing mastitis. Results revealed that lack of finance is found to be the top most constraint faced by the farmers. The second most constraint, the recurrence of the mastitis to the same animals or to the other animals in the same herd, might be an important factor that badly affects the economic background of the farmers. The third and fourth ranked constraints namely poor housing to milch animals and lack of necessary space required for tying the animals respectively pinpointed the exact picture of the prevailing unscientific and unhygienic barn and farming system. The present study concluded that, even though awareness about the quality milk production was there among farming community, the top most constraints mentioned, acted as hurdles for the poor farming community.

Keywords: Milch cows, mastitis in cows, dairy farmers, management of mastitis, constraints perceived.

Introduction

Mastitis is the most important and expensive disease of dairy industry. (Sharif and Muhammad, 2009). This disease is characterized by inflammation of mammary gland in response to injury for the purpose of destroying or neutralizing the infectious agents and to prepare the way for healing and return to normal function. Elevated leukocytes or somatic cells produced by inflammatory response cause a reduction in milk production and alter milk composition. These changes in turn adversely affect quality and quantity of dairy products (Jones and Bailey, 2009).

Contagious mastitis can be divided into three types, clinical mastitis, subclinical mastitis and chronic mastitis (Awale *et al.*, 2012). Clinical mastitis results in alterations of milk composition and appearance, decreased milk production and the presence of the cardinal signs of inflammation. It is readily apparent and easily detected. Subclinical infections are those in which no visible changes occur in the appearance of the milk or the udder, but milk production decreases, bacteria are present in the secretion and composition is altered (Jones and Bailey 2009).

An inflammatory process that exists for months and may continue from one lactation to another in chronic mastitis. It exists as subclinical but may exhibit periodical flare-ups subacute or acute form, which last for a short period of time (Rabello *et al.*, 2005).

To increase production level of dairy animals, farmers needs to adopt scientific dairy husbandry practices (Srinivas and Ramesha, 2017). However, there are several constraints which are vary from area to area are main hindrance for profitable dairy farming (Rathava *et al.*, 2019). Constraints are nothing but the problems that come in the way of adoption of technology. Many constraints exist simultaneously in several stages of milk production under field conditions among dairy farmers. If these constraints are identified, they are helpful to bridge the gap between dairy technology and its adoption by dairy farmers (Rathod *et al.*, 2014). By knowing the constraints faced by dairy farmers the productivity of animal can improved.

A farmer who knows that mastitis causes production inefficiencies and extra additional costs can be motivated to act on mastitis prevention (Valeeva *et al.*, 2007). Disease control and prevention decisions are often based on the farmer's perception and knowledge level on mastitis control measures. Perception refers to what a farmer thinks as correct. For effective mastitis control, farmers' perceptions of disease risk, different control measures to practice, constraints and the inherent benefits associated with available disease control options are important criteria in adoption decisions (Gnanasekar and Christy, 2013). The present study aims to find constraints perceived by farmers in Chennai district of Tamil Nadu who had access to the Madras Veterinary College hospital for treatment.

Materials and Methods

The present study was conducted at the Large Animal Clinic of Madras Veterinary College (MVC) Hospital, Chennai. The primary data were collected from milch cows presented in outpatient ward of the MVC hospital. In addition, farm visit of the respective farmers were made to obtain the additional information on bovine management practices followed by the selected farmers.

Total number of animals arrived at the Large Animal Clinic of Madras Veterinary College (MVC) during the study period of four months from October 2016 to January 2017 was considered as the total population (N) for the present study. Out of two hundred and eighty milch animals examined during the study period, sixty cows were affected by mastitis. Pre-tested questionnaire was prepared and detailed information about mastitis infected animals were collected from the farmers. Total farm details including details of barn, management aspects, previous history of disease aspects if any and hygienic aspects were collected through personal interview method. The farmers were also asked to rank the constraints perceived by them in managing mastitis.

Constraint perceived by the sample respondents (Rank Based Quotient method)

The problems based on the information obtained from the farmers were ranked, the data were quantified and the Rank Based Quotient (RBQ) was calculated using the following formula:

$$\text{R.B.Q} = \frac{f_i(n + 1 - i)}{N \times n} \times 100$$

Where,

f_i = Frequency of farmers for the i^{th} rank of the attribute

N = Number of farmers contacted for factor identification

n = Number of constraints identified

i = Rank of the attributes

Results and Discussion

Nature of mastitis in sample cases.

Table 1 showed that acute clinical cases of mastitis were predominant (46.67 percent) when compared to subclinical and chronic mastitis. Out of sixty mastitis infection studied, 28 cases were clinical mastitis, 17 cases were sub-clinical and the remaining 15 mastitis cases reported were chronic cases.

Table 1. Nature of mastitis in sample cases

Nature of mastitis	Number of cases	Percentage
Clinical	28	46.67
Sub Clinical	17	28.33
Chronic	15	25
Total	60	100

Category of quarters affected

In table 2, the involvement of different quarters of mammary gland in mastitis infection is shown. Of the total number of 240 quarters from 60 affected animals, the affected quarters were 111 (46.25 percent). The percentage of quarters affected in right fore, right hind, left fore and left hind were 18.92, 27.03, 21.62 and 32.43 respectively. It revealed that the incidence of mastitis was more in hind quarters than fore quarters. Nakovet *al.* (2014) observed that the rear udder quarters had a higher risk of clinical mastitis incidence compared to the front udder quarters.

Number of clinical quarters at a time

Details of number of clinically affected quarters at a time with mastitis in cows were shown in table 3. Among the sixty infected cows, single quarter affected was seen in 30 cases (50 percent), two quarters in 20 cases (33.34 percent), three quarters in 8 cases (13.34 percent) and all the four quarters affected only in two cases (3.33 percent). Table 4.8 shows that the incidence of mastitis.

Table 2. Category of quarters affected

Involvement of quarters	No. affected	Percentage
Right fore	21	18.92
Right hind	30	27.03
Left fore	24	21.62
Left hind	36	32.43
Total number of infection studied =60		
Total number of quarters affected =111(46.25 percent)		

Table 3. Number of clinical quarters affected at a time

Number of quarters affected	Number of animals	Percent to total affected
1	30	50.00
2	20	33.34
3	8	13.34
4	2	3.33
Total	60	100

Relationship between barn details and incidence of mastitis

Certain barn details regarding type of farming system, floor space provided per milch animal, herd size, provision of bedding materials were collected and the relationship between barn details and incidence of mastitis were assessed. The details were presented in

table 4. For the purpose of analysis, farming system were classified as ‘grazing’ and ‘no grazing’ and the floor spacing provided in to ‘adequate’ and ‘not adequate’. Herd size was categorized as ‘less than or equal to five’ and ‘greater than five’. Overstocking of cattle and poor manure management would exacerbate the detrimental effects of the environment on mastitis control (Hogeveen *et al.* (2011)).

Table 4. Relationship between barn details and incidence of mastitis

Particulars	Practice followed	Number affected	Percent affected
Farming system	Grazing	42 ^a (156)	26.92
	No Grazing	18 ^a (124)	14.52
Floor space provided	Adequate	11 ^b (83)	13.25
	Not adequate	49 ^b (197)	24.87
Herd size	Less than or equal to five	17 ^c (90)	18.89
	Greater than five	190 ^c (43)	22.63
Bedding materials	Yes	14 ^c (85)	16.47
	No	46 ^c (195)	23.58

Constraints perceived by the farmers in managing mastitis

Constraints perceived by farmers who had access to the Madras Veterinary College hospital, were evaluated in the case of management of mastitis. Out of ten pre-determined constraints given, the farmers

were asked to rank the constraints accordingly. The results obtained is presented in the table 5. The constraints perceived by the farmers were ranked according to the Rank Based Quotient (RBQ) value obtained from top to bottom.

Table 5. Constraints perceived by farmers in managing mastitis

No.	Constraints	Rank (RBQ)
1	Lack of finance	I (79.36)
2	Recurring of the mastitis to the same animals or to the other animals in the same herd	II (73.14)
3	Poor housing to milch animals	III(64.32)
4	Lack of necessary space required for tying the animals	IV(61.54)
5	Inadequate timely veterinary service	V(54.29)
6	Lack of nutritious feed	VI(51.18)
7	Lack of awareness about the seriousness of mastitis	VII(49.39)
8	Poor knowledge about scientific animal husbandry practices and dairy farming	VIII(47.64)
9	Unavailability of effective medicines in rural areas	IX(38.43)
10	Lack of awareness about the quality milk production	X(30.71)

Lack of finance is found to be the top most constraint faced by the farmers. Similar study was done by John (2014). He assessed the constraints perceived by farmers in Villupuram District of Tamil Nadu and concluded that, high treatment costs, shortage of labour and difficulty in diagnosis were the top three constraints ranked by the farmers in the study area.

The second most constraint, the recurrence of the mastitis to the same animals or to the other animals in the same herd, might be an important factor that badly affects the economic background of the farmers. The third and fourth ranked constraints namely poor housing to milch animals and lack of necessary space required for tying the animals respectively pinpointed the exact picture of the prevailing unscientific and unhygienic barn and farming system.

Results obtained revealed that, even though awareness about the quality milk production was there among farming community, the top most constraints mentioned earlier acted as hurdles for the poor farming community. Yadav *et al.* (2016) studied constraints perceived by tribal livestock owners under different livestock management practices and concluded that lack of grazing pasture land, poor production status of livestock, repeat breeding problem, poor economic condition of family and high cost of treatment for diseased animal were considered as major constraints reported by tribals having RBQ values 98.34, 96.83, 96.67, 94.17 and 93.67 respectively. The results obtained is in concordance with the present study.

Acknowledgments

The authors are thankful to Dean and to Head of Department of Clinics of Madras Veterinary College for providing the necessary facilities to conduct the research work. Authors extend their sincere thanks to employees of college hospital including duty doctors, staffs for their co-operation during data collection.

References

1. Awale, M. M., G. B. Dudhatra, K. Avinash, B. N Chauhan, D. Kamani, C. Modi and R. Kennedy, (2012). Bovine mastitis: a threat to economy. *Sci. Rep.*, 1(5): 295.
2. Gnanasekar, R. and R. J. Christy, 2013. Knowledge level of livestock keepers on clinical mastitis control measures in Villupuram District of Tamil Nadu. *J. Ext. Educ.*, 25(1): 4999-5003.
3. Hogeveen, H., S. Pyorala, K. P. Waller, T. J. Hogan Lam, S. P. Oliver and J. E. Hillerton (2011). Current status and future challenges in mastitis research. *In Proceedings of the 50th Annual Meeting of the National Mastitis Council*, 23-26 January, 2011, Arlington, USA, pp. 36-48.
4. John Christy, R. (2014) Garrett's Ranking Analysis of Various Clinical Bovine Mastitis Control Constraints in Villupuram District of Tamil Nadu. *j. agric. vet. Sci.*, 7(4): 62-64.
5. Jones, G. M., and Bailey, T. L. (2009). Understanding the basics of mastitis. *Virginia Cooperative extension*, 404: 233.
6. Nakov, D., S. Hristov, S. Andonovand M. Trajchev (2014). Udder-related risk factors for clinical mastitis in dairy cows. *Vet. Arh*, 84(2): 111-127.
7. Rabello, R. F., C. R. V. M. Souza, R. S. Duarte, R. M. M. Lopes, L. M. Teixeira and A. C. D. Castro (2005). Characterization of *Staphylococcus aureus* isolates recovered from bovine mastitis in Rio de Janeiro, Brazil. *J Dairy Sci*, 88(9): 3211-3219.
8. Rathva A. L, Sorathiya L. M and Sabapara G. P. (2019). Milking management practices followed at commercial dairy farms in urban and peri-urban areas of Navsari district of Gujarat. *Vet. res. int.*, 07(4): 263- 266.
9. Rathod P, Balraj S, Dhanraj G, Madhu R, Chennaveerappa and Ajith M. C (2014). Knowledge level of dairy farmers about artificial insemination in Bidar district of Karnataka, India. *Vet.res. int.*, 2(2): 46-50.

10. Sharif, A. and G. Muhammad (2009). Mastitis control in dairy animals. P. V. J., 29(3): 145-148.
11. Srinivas B and Ramesha KP (2017). Analysis of feeding methods of dwarf dairy cattle breed MalnadGidda for improving productivity. Livest. res. int., 05(3): 45-51.
12. Yadav, M. L., D. S. Rajput, S. Chand and N. K. Sharma (2016). Constraints in livestock management practices Perceived by tribal livestock owners of Banswara district of Rajasthan. Indian j. ext. educ., 14(4): 37-41.
13. Valeeva, N.I., T.J.G.M.Lam and H.Hogeveen, 2007. Motivation of dairy farmers to improve mastitis management. J. Dairy Sci., 90: 4466–4477.

Access this Article in Online	
	Website: www.ijarbs.com
	Subject: Veterinary Sciences
Quick Response Code	
DOI: 10.22192/ijarbs.2020.07.11.015	

How to cite this article:

Safeer M. Saifudeen. (2020). Incidence of Mastitis in cattle and Constraints perceived by farmers in Managing Mastitis. Int. J. Adv. Res. Biol. Sci. 7(11): 116-121.
DOI: <http://dx.doi.org/10.22192/ijarbs.2020.07.11.015>