



RESEARCH ARTICLE

A STUDY ON INCIDENCE OF CLINICAL MASTITIS IN THE CUDDALORE DISTRICT OF TAMIL NADU

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Received 29th October, 2010; Received in revised form; 10th December, 2010; Accepted 27th December, 2010; Published online 30th January, 2011

ABSTRACT

Diseases are serious constraints affecting dairy cattle production and these diseases affect livestock production in various ways, such as reduced growth rate, milk production, fertility and value of hides and mortality, thus cause considerable economic losses to livestock keepers. In dairy practice, disorders of the udder are among the most frequent clinical conditions encountered. Hence, this study was planned to estimate the incidence of clinical mastitis among dairy cows in the Cuddalore District of Tamil Nadu. Multistage random sampling technique was used to select the dairy farmers and dairy animals. The selected district comprised 13 blocks of which, four blocks, viz., Parangipettai, Bhuvanagiri, Kammapuram and Virudhachalam were randomly selected. In the next stage, two villages from each selected block were chosen randomly. In total, 1000 farmers having dairy herd size of 2 to 8 were chosen again randomly from the selected blocks, 500 from each block. The study was taken up during the months of April and May, 2009 and the data collected from the sample units related to the year 2008-2009. Clinical mastitis incidence in the study area was found to be ranged from 17.8 per cent in Bhuvanagiri block to 18.4 per cent in Virudhachalam block with overall incidence rate of 18.1 per cent. Chi-square analysis revealed that the incidence of mastitis was independent of block where the dairy animal belonged to.

Key words: Mastitis, Incidence, Animal Health Economics

INTRODUCTION

Livestock contribute products for home consumption and use such as milk, meat, hides, skins and manure. In addition, surplus livestock products are sold to generate income that enhances household food security (Perry *et al.*, 2003). Livestock in general and dairying in particular play a major role in the Indian rural economy. The importance of dairying in India hardly needs emphasizing as this sector is the major source of income for an estimated 27.6 million people, Livestock sector provides employment to many people and nearly 70 per cent of them are women (Subbarama Naidu, 2004). Diseases are serious constraints affecting dairy cattle production and these diseases affect livestock production in various ways, such as reduced growth rate, milk production, fertility and value of hides and mortality, thus cause considerable economic losses to livestock keepers. In dairy practice, disorders of the udder are among the most frequent clinical conditions encountered (Fourichon *et al.*, 2001). Mastitis is an inflammation of the mammary glands of dairy cows accompanied by physical, chemical, pathological and bacteriological changes in milk and glandular tissue (Hurley and Morrin, 1997).

It is considered as one of the most costly disease affecting dairy cows. Hence this study is planned to estimate the incidence of clinical mastitis among dairy cows in the selected area.

METHODOLOGY

Cuddalore District of Tamil Nadu was randomly selected for the present study. Multistage random sampling technique was used to select the dairy farmers and dairy animals. The selected district comprised 13 blocks of which, four blocks, viz., Parangipettai, Bhuvanagiri, Kammapuram and Virudhachalam were randomly selected. In the next stage, two villages from each selected block were chosen randomly. In total, 1000 farmers having dairy herd size of 2 to 8 were chosen again randomly from the selected blocks, 500 from each block. The study was taken up during the months of April and May, 2009 and the data collected from the sample units related to the year 2008-2009. Relevant data were collected from the chosen respondents through personal interview using a pre-tested interview schedule. Cross checks were made to minimise the errors due to recall bias and also to ensure reliability of the information provided by the respondents. Percentage analysis was employed to analyse the incidence of mastitis.

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Table 1. Incidence of mastitis in the selected blocks

S. No	Name of the Block	No. of mastitic animals	No. of non-mastitic animals	Total
1	Parangipettai	90 (18.0)*	410 (82.0)*	500 (100.0)*
2	Virudhachalam	92(18.4)*	408 (81.6)*	500 (100.0)*
3	Bhuvanagiri	89 (17.8)*	411 (82.2)*	500 (100.0)*
4	Kammapuram	91 (18.2)*	409 (81.8)*	500 (100.0)*
Grand Total		362 ^a (18.1)**	1638 (81.9)**	2000 (100.0)**

* Figures in the parenthesis indicates percentage to the total

** Figures in the parenthesis indicates percentage to the grand total

^a Incidence of clinical mastitis is independent of block (χ^2 2.162^{NS} P>0.05)

RESULTS AND DISCUSSION

Table 1 presents an overall view of the incidence of mastitis during the study period in the selected blocks. The incidence rate measures the number of new mastitis cases recorded over a period of time, in the form of number of cases per 100 cows over a 12-month period. Clinical mastitis incidence in the study area was found to be ranged from 17.8 per cent in Bhuvanagiri block to 18.4 per cent in Virudhachalam block with overall incidence rate of 18.1 per cent. Chi-square analysis revealed that the incidence of mastitis was independent of block where the dairy animal belonged to. Beck et al. (1992) found that average annual incidence of bovine clinical mastitis was 135 cases per 100 cows each year where as Oltenacu and Ekesbo (1994) found that the incidence rate of clinical mastitis in primiparous Swedish Friesian cows was 15 per cent. Thirnakkarasu (1996) found that the incidence of mastitis in government/university farms and private farms were 13.29 per cent and 11.99 per cent respectively. Sargeant *et al.*, (1998) investigated clinical mastitis in dairy cattle in Ontario and found that 19.8 per cent of cows experienced one or more cases of clinical mastitis during location.

Bradley et al., (2007) estimated that in in England and Wales, the mean incidence of clinical mastitis was 47 to 71 cases per 100 cows per. Olde Riekerink *et al.*, (2008) stated that median incidence rate of clinical mastitis in Canada were 23.0 cases per 100 cow-years in the selected herds, with a range from 0.7 to 97.4 per herd. Petrovski et al (2009) estimated the incidence of clinical mastitis as 14.8 per cent in 14 dairy farms from the Northland region of New Zealand. Non-management factors such as age, genetic group season, parity, lactation stage, breed, udder conformation, milk production, milking speed and reproductive disorders are known to be associated with mastitis (Philipson et al. 1980). The findings of this study also concurs with various studies previously conducted in many parts of world that mastitis is a complex disease problem and a classical example of the interaction of micro organisms, host factors and the environment irrespective of the place of animals.

Conclusion

The results of the study clearly showed that Clinical mastitis incidence in the study area was found to be ranged from 17.8 per cent in Bhuvanagiri block to 18.4 per cent in Virudhachalam block with overall incidence rate of 18.1 per cent. A well-knit extension programme about disease awareness, giving adequate emphasis to management and

control measures is to be developed for education at farmers' level as udder health, hygiene and nutrition play an important role in the control of mastitis and decrease the mastitis incidence. The best and cost effective practices for reducing the incidence of mastitis should be propagated widely among the dairy farming community through appropriate channel.

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