ECONOMIC LOSSES DUE TO KETOSIS IN DAIRY FARMS

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ABSTRACT

Ketosis is a condition marked by increased levels of circulating ketone bodies with or without the presence of the clinical signs. It causes severe economic losses through reduction in milk yield. For the study, 30 ketosis affected dairy animals (both cows and buffaloes) were selected through multistage random sampling technique from Namakkal and Karur districts of Tamil Nadu. Data were collected from the respondent farmers through personal interviews, using pretested interview schedule. The loss due to ketosis per affected cow was estimated to be Rs.1481.32. In buffalo, the cost of medicine, veterinary services, cost of supplements, loss towards reduction in milk yield and additional labour cost accounted for Rs.466.36 (32.03 per cent), Rs.251.27 (17.26 per cent), Rs.102.15 (7.02 per cent), Rs.472.80 (32.48 per cent) and Rs.163.21 (11.21 per cent), respectively. It could be extrapolated that the total economic loss in the State due to ketosis would be Rs.21.33 crores and Rs.2.64 crores in cows and buffaloes, respectively.

Key words: Ketosis, Economic loss, Dairy animals

INTRODUCTION

Livestock diseases cause reduction in production efficiency leading to severe economic losses (John Christy and Thirunavukkarasu, 2006). Metabolic disorders of cattle affect dairy cows immediately after parturition. Among metabolic diseases, ketosis is a common disease in lactating dairy animals (Kaneene and Scott, 1990 and Thirunavukkarasu et al. 2010). Ketosis is marked by increased levels of circulating ketone bodies without the presence of the clinical signs, causing severe economic losses in terms of heavy reduction in milk yield and impaired reproductive performance (Ardvan Nowroozi et al., 2011). Quantification of economic losses due to ketosis is important to help in understanding the economic impact of this disease, which can aid in losses to be avoided in dairy farming. Keeping the above facts in view, this study was conducted in Karur and Namakkal districts of Tamil Nadu State.

MATERIALS AND METHODS

For the study, 30 ketosis affected female bovines were selected through multistage random sampling technique from Namakkal and Karur districts, five animals from each block. Affected dairy animals were identified by case registers of veterinary dispensaries and clinics of Veterinary

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College and Research Institute, Namakkal and practicing private veterinary doctors in both districts. This study is based on the primary data collected through personal interviews with the farmers using pre tested interview schedule. The data on size of animal holdings, stage of lactation, feeding practices, milk yield, cost of medicine, treatment charge, additional labour costs, value of animal and milk production losses were collected.

RESULTS AND DISCUSSION

The economic losses due to ketosis in dairy farms are presented in Table 1. The loss due to ketosis in cow was estimated to be Rs.1481.32. The cost towards medicine, veterinary services, supplements and additional labour cost comprised for Rs. 412.50 (27.85 per cent), Rs.250.32 (16.90 per cent), Rs.80.15 (5.41 per cent) and Rs.151.16 (10.20 per cent), respectively. The milk yield loss was calculated for Rs.587.19 (39.64 per cent), which was higher when compared to other costs and other metabolic diseases because after recovery from ketosis the animal took longer period to reach normal level milk yield. This was in agreement with the statement made by Fourichon et al. (1999) who found that the milk yield loss was 1-7 kg/day in ketosis.

The loss due to ketosis in an affected buffalo was estimated to be Rs.1455.79 per incidence, the cost of medicine, veterinary services and cost of supplements accounted for Rs.466.36 (32.03 per cent), Rs.251.27 (17.26 per cent) and Rs.102.15 (7.02 per cent), respectively. Whereas, loss towards reduction in milk yield was calculated an amount of Rs.472.80 (32.48 per cent). The calculated cost for additional labour cost in buffaloe species was 11.21 per cent (Rs.163.21). Extended calving interval and culling of unrecovered animal were not noticed.

The overall economic losses due to ketosis in dairy farms were estimated to be Rs.1320.14 per animal per incidence. Among these, the cost towards medicine and veterinary services occupied for 29.05 per cent (Rs.426.86) and 17.05 per cent (Rs.250.57) of the total economic loss. An amount of Rs.86.02 (5.85 per cent) was found to be purchase of supplements. The loss towards reduction of milk yield was calculated as Rs.556.69 (37.88 per cent) and additional labour cost for Rs.149.37 (10.17 per cent). Kaneene and Scott (1990) estimated the total cost of ketosis per cow per year as $ 6.03 US and the cost of one cow with subclinical ketosis was estimated to be $ 78 US (Geishauser et al., 2001).

From the results presented in the Table 2, the overall incidence in cows and buffaloes were 3.34 per cent and 2.25 per cent, respectively. As per the livestock census (2007), number of milch cows and milch buffaloes at 43.11 lakhs and 8.06 lakhs, respectively. The number of milch cows and milch buffaloes that could have affected by ketosis can be projected to be 1.44 lakh cows and 0.18 lakh buffaloes. Again, taking into account the loss per animal due to ketosis estimated of Rs.1481.32 and Rs.1455.79 in cows and buffaloes, respectively. It could be extrapolated that the total economic loss due to ketosis would be Rs.21.33 crores and Rs.2.64 crores in cows and buffaloes, respectively, together working out to Rs.23.97 crores in the State, of which huge loss (88.99 per cent) would be occurring in cows.

CONCLUSIONS

The results of this study, as it quantifies the economic losses due to the ill effects of this disease in dairy farms, will aid the researchers, planners and policy makers to design suitable policy decisions and appropriate preventive measures to combat this disease. Creating awareness about the important of this disease and nutritive values of various commonly used feed ingredients at field level through extension programmes to minimize this disease loss.

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Table.1

Economic loss due to ketosis in dairy farms

(in rupees / animal / incidence)

S. No.	Particulars	Cow	Buffalo	Overall
i.	Medicine	412.5 (27.85)	466.36 (32.03)	426.86 (29.05)
ii.	Veterinary services	250.32 (16.90)	251.27 (17.26)	250.57 (17.05)
iii.	Supplements	80.15 (5.41)	102.15 (7.02)	86.02 (5.85)
iv.	Loss in milk yield	587.19 (39.64)	472.80 (32.48)	556.69 (37.88)
v.	Additional labour cost	151.16 (10.20)	163.21 (11.21)	149.37 (10.17)
Total cost		**1481.3 (100.00)**	**1455.79 (100.00)**	**1469.51 (100.00)**

Table 2

Projected economic losses due to ketosis in dairy farms of Tamil Nadu

Particulars	Ketosis	
	Cow	Buffalo
Observed rate of incidence (%) in the sample	3.34	2.25
Number of milch animals in Tamil Nadu (as per 2007 census)	4311000	806000
Number of animals expected to be affected in the population	143987	18135
Estimated economic loss per affected animal (Rs.)	1481.32	1455.79
Student 't' value	0.536^{NS}	
Total economic loss in the State (Rs. in crores)	21.33 (88.99)	2.64 (11.01)
	23.97 (100.00)	

NS - Non Significant