MORBIDITY AND MORTALITY PATTERN IN BOVINE OF HIMACHAL PRADESH

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ABSTRACT

In the present study age, sex, season and cause wise morbidity and mortality data were collected from selected bovine owners of the Himachal Pradesh for a period of one year (January 2011 to December 2011). The reproductive diseases were more prominent having highest morbidity followed by specific diseases, parasitic diseases, digestive diseases, injury and accidents, nutritional deficiency, respiratory diseases and poisoning. Study of mortality pattern revealed that deaths occurred in bovine during study period were maximum due to poor management problems followed by digestive diseases, specific diseases, injury and accidents and for parasitic diseases. The calves were found at more risk of morbidity and mortality and the probability of getting disease reduces with increase in age.

INTRODUCTION

Livestock sector plays a critical role in the welfare of India's rural population. This sector is emerging as an important growth leverage of the Indian economy. As a component of agricultural sector, its share in gross domestic product has been rising gradually. Total bovine population of Himachal Pradesh is approx. 1.0% of India's total bovine population. Contribution of livestock in total GDP is 3.37%, Livestock in agricultural GDP is 23.80% and agriculture in total GDP is 12.6% (Basic Animal Husbandry Statistics, 2012). Estimation of morbidity and mortality pattern in the population is an important tool for determining the disease status.

MATERIALS AND METHODS

Sampling Design : A total of 540 livestock owners constitute the ultimate sample from thirty six villages and twelve veterinary hospitals for the study. Age, sex, season and cause wise morbidity and mortality data were collected from all selected bovine owners in the state for period of one year (January 2011 to December 2011). The sampling scheme followed in the present study is Stratified three-stage random sampling. The diseases observed during the study period were classified (Prasad *et al.*, 2004) as follows: (1) Digestive Diseases, (2) Respiratory Diseases, (3) Reproductive Diseases, (4) Parasitic Diseases, (5) Specific Diseases, [Foot and Mouth diseases (FMD), Mastitis, Hemorrhagic Septicaemia (HS), Enzootic Bovine Hematuria (EBH), Rabies, Actinomycosis)], (6) Nutritional and Metabolic diseases, (7) Injuries and accidents, (8) Other Diseases (Poor management problems).

Methodoloty :

1. Morbidity/Mortality Pattern : Among various diseases the morbidity/mortality pattern due to each disease was calculated by the formula:

$$= \frac{\text{Number of cases (deaths) of particular diseases observed during period}}{\text{Total number of case during period}} \times 100$$

Association between cattle morbidity and mortality pattern and different factors was calculated by χ^2 test.

2. CHI-SQUARE ANALYSIS: The chi square analysis done by using following formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

O = Observed count and E = Expected count

RESULTS AND DISCUSSION

Morbidity Pattern : A total of 1918 livestock of different age and breeds were maintained by 540 livestock owners selected for the study during period of 1st January 2011 to 31st December 2011. The reproductive diseases were more prominent having highest morbidity (28.87%) , followed by specific diseases (18.24%), parasitic diseases (15.41%), digestive diseases(14.91%) , injury and accidents (3.12%) and other diseases (nutritional deficiency, respiratory diseases and poisoning) 5.68%. The morbidity pattern differs significantly with respect to age, sex and season (p<0.01). The occurrence of poor management cases (59.63%) were greater in calves, young-stocks showed highest morbidity (33.33%) for parasitic diseases and adults showed highest morbidity (34.0%) for reproductive diseases. Male bovine showed high morbidity (52.94%) due to poor management problems while female bovine showed high morbidity (33.75%) due to reproductive diseases.

Mortality Pattern : Study of mortality pattern revealed that deaths occurred in bovine during study period were maximum (45.87%) due to poor management problems followed by digestive diseases (18.18%) , specific diseases (9.87%), injury & accidents (8.71%) and for parasitic diseases (3.51%). The age wise distribution of mortality was 21.53%, 9.35%, 4.73% in calves (0-1yr), young stocks (1-3 yrs.) and adults (> 3yrs.) respectively. The age-wise mortality rates in bovine are in agreement with Jindal *et al.* (2002) and Palanivel *et al.* (*2007*). Male bovine showed higher mortality (20.91%) than female (4.81%) . Calf showed highest mortality (74.71%) due to poor management problems, while young stocks showed relatively high mortality (34.78%) due to digestive diseases. The major causes of mortality in case of adults were digestive diseases and injury and accidents each causes 25.0% mortality. The chi-square analysis showed that the mortality pattern differs significantly (p<0.01) with age and sex. Effect of sex on mortality revealed that in case of male poor management problems showed highest mortality (71.29%) , while in female majority of mortality cases were due to digestive diseases (31.88%) .

Reproductive diseases are major problem that affecting bovine under village condition though they were recorded only in female. The reason for this is silent heat, nutritional status, hormonal imbalance and faulty AI and infections of genital organs. High incidence of digestive diseases was reported by Sivula *et al.* (1996), Prasad *et al.* (2004) and Palanivel *et al.* (2007). Poor management problem was a major cause of morbidity and mortality in calves. The occurrence of injury and accidents were high in grazing animals as during grazing there were more chance of injury and accidents and hilly regions of Himachal Pradesh was one of the another reason for injury and accidents.

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