

EPIDEMIOLOGICAL SURVEY OF VARIOUS DISEASES OF CATTLE AND BUFFALOES IN HARYANA

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ABSTRACT

The information provided by the 237 field veterinarians of Haryana regarding cattle and buffaloes, showed gastro-intestinal parasitic infestation as most common problem having prevalence of 10.54% in buffaloes and 19.18% in cattle with CFR of 11.63% and 14.74%, respectively. Among the genital problems, the prevalence of anestrus and repeat breeding put together was highest. Mastitis was ranked third in cattle and buffaloes with prevalence of 6.19% and 2.71%, respectively. Milk fever was ranked seventh and ninth with prevalence of 3.95% and 1.65% among cattle and buffaloes, respectively. Haemorrhagic septicemia was ranked fifth and tenth with CFR 58.98% and 38.94% in buffaloes and cattle, respectively. Pneumonia and haemoprotozoan diseases were comparatively less prevalent. The CMR for the year 1997-98 was found to be 30.03 per thousand.

Key words: Prevalence, case fatality rate, crude mortality rate, haemorrhagic septicaemia

The scope of epidemiology in modern animal husbandary practices is continuously widening for assessing economic impact of a disease and developing disease forecasting system. No systematic work appears to have been carried out to find status of various health problems of livestock in different states including Haryana. The present study was, therefore, for the first time planned to know the status of various disease problems of cattle and buffaloes which will be useful for decision making on disease control programmes and focusing research priorities.

MATERIALS AND METHODS

In the present study, a comprehensive questionnaire for collection of base-line data for the year 1997-98 on various diseases of buffaloes and cattle was developed and distributed among 401 veterinarians working in government veterinary hospitals in nineteen districts of Haryana. At least ten veterinary hospitals from each district, except Panchkula (having only six veterinary hospitals) were surveyed for collection of information. Data was analyzed using

Pearson's multiple correlation and student's 't' distribution test to derive pattern of disease, prevalence, crude mortality rate (CMR) and case fatality rate (CFR) due to various diseases. The prevalence, CFR and CMR were computed using following formulae where n varies from 2 to 6.

The field vets were asked to rank the diseases of cattle and buffaloes in their areas

$$\text{Prevalence} = \frac{\text{No. of cases of disease at a point in time}}{\text{Animal population at risk at that time}} \times 10^n$$

$$\text{CFR} = \frac{\text{No. of deaths from a specific cause during a given period}}{\text{Animals affected from that particular disease during the period}} \times 10^n$$

$$\text{CMR} = \frac{\text{No. of deaths occurred during a given period}}{\text{Animal population during the same period}} \times 10^n$$

based on hospital record and personal observations. Finally overall ranking of each disease was calculated using scoring method (Snedecor and Cochran, 1967). The temporal distribution of various diseases was also studied from April, 1997 to March, 1998. The total population based on livestock census of the state had 21.3 lacs cattle and 43.7 lacs buffaloes.

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Livestock census (2003) has however shown a decreasing trend in cattle (15.3 lacs) and increasing trend in buffalo population (60.2 lacs) in the state.

RESULTS AND DISCUSSION

Out of all infectious diseases, the gastrointestinal tract parasitic infestation was ranked as number one condition in cattle and buffaloes and was more common in low lying areas of eastern Haryana. Its prevalence was 10.54% in buffaloes and 19.18% in cattle with CFR of 11.63% and 14.74%, respectively. Mixed infection of strongyles, strongyloides and *Toxocara* species resulted in gastroenteritis in buffaloes and was the cause of high mortality in calves. Ascariasis was major cause of mortality in young buffalo calves. Fascioliasis was found to be more common in buffaloes than cattle. The prevalence of GIT parasites was highest during rainy season followed by winter and summer. The higher prevalence of helminths was also observed by Chaudhari *et al.* (1993) in eastern part of Haryana. Borthakur *et al.* (1998) in Assam also found a higher nematode burden in calves as compared to heifers and adults.

Among gynaecological problems, anestrus, repeat breeding, metritis, retained placenta, abortion and uterine torsion, were reported to be present all over Haryana. The prevalence of anestrus and repeat breeding put together were the highest. In buffaloes, anestrus and repeat breeding have been ranked number two and four. While in cattle, repeat breeding was ranked second and anestrus as fourth by the field vets. Anestrus was most common single cause of infertility encountered in buffaloes in rural areas. Anestrus was more prevalent in buffaloes as compared to cattle, that too in summer months (April-June). Malnutrition or poor feeding status might be the cause. Repeat breeding problem was more common in crossbred cattle than in buffaloes. Malnutrition might be a contributing factor towards this problem. Dabas (1998) reported cystic ovarian disease as major cause of infertility. Sremannarayana and Narsimha (1997) observed that the prevalence of acycilia and ovulatory aberrations was higher in crossbred

cows as compared to buffaloes. A low prevalence and case fatality rate in uterine torsion and dystocia (other than torsion) was observed in buffaloes (0.29% and 0.75%, respectively) and cattle (0.82% and 1.80%, respectively) in the present study. Among reproductive problems, the case fatality rate was reported to be highest in case of uterine torsion (28.31% in buffaloes).

Prior to 2004, foot and mouth disease had been reported from all the districts throughout the year with prevalence rate of 4.94% in buffaloes and 9.24% in cattle. It was ranked as 7th important disease in buffaloes and 6th in cattle by field vets. Serotype '0' was the most predominantly isolated virus at All India Coordinated Research Project for Epidemiological Studies on FMD at CCS HAU, Hisar. (Sharma and Kaker, 2005). However, after launch of FMD control programme by mass vaccination on 23rd January, 2004, there have not been major outbreaks due to FMD in the state and is an important step in creating FMD free zone.

Mastitis was reported throughout the state with huge economic losses. It was ranked number three in both buffaloes and cattle though the prevalence was high (6.19%) in cattle as compared to buffaloes (2.71%) and was reported to occur more during peak calving season (October-December). Subclinical mastitis was the most predominant. Although many reports on prevalence of mastitis are available in India but invariably these are based on single herd or farm. Prevalence of udder infections in different herds as reported by Kapur (1979) was found to vary upto 80% in cows and 63% in buffaloes. The prevalence of milk fever in cattle and buffaloes as reported by field veterinary surgeons in Haryana was 3.95% and 1.65%, respectively with CFR of 9.79 and 6.19% respectively. It ranked at 7th place in cattle and 9th place in buffaloes. This problem was observed with high prevalence in south-western Haryana. It might be due to the fact that this is mineral deficient zone and majority of metabolic diseases are prevalent in this area. In UK, the annual morbidity rates of 3.5 to 8.0% have been recorded in milk fever (Mullen, 1975).

Pneumonia was reported to be present all over Haryana. During 1997-98, cattle showed

prevalence of about 6% (CFR 17.96%) whereas in buffaloes it was 2.26% (CFR 12.25%) and was ranked at number eleven in both the species by field vets. Rathore (1998) in all India epidemiological study on buffaloes for the period 1987-1991 had also found about 290 deaths due to respiratory diseases alone. Temporal distribution revealed that this problem was common during winter months (December and January) because of the fact that many animals don't get sufficient protection to extreme cold (2-3°C) resulting in stress and making them susceptible to exogenous and endogenous microbes leading to pneumonia.

Hemorrhagic septicemia was reported from each district of Haryana. It ranked 5th in buffaloes and 10th in cattle by field vet. Though the period prevalence during 1997-98 for buffaloes as well as cattle was low (0.31 and 0.25%, respectively) the CFR was highest for HS as compared to other diseases (58.98% in buffaloes and 38.94% in cattle) thereby indicating that it is an important cause of mortality particularly in buffaloes. Saini *et al.* (1991) reported overall morbidity of 0.41% and case fatality rate of 20.21% due to HS in Punjab. On the other hand, Sheikh *et al.* (1996) from Pakistan reported case fatality rates of 78% and 62% in buffaloes and cattle, respectively. The observation made by field vets all over Haryana also revealed an increasing trend during 1995-98 for HS outbreaks (Verma, 2000). Temporal distribution revealed that the disease occur more between July to March indicating that the disease was usually associated with wet or humid weather.

The haemoprotozoan diseases like surra and babesiosis were also reported throughout Haryana and ranked 14th in buffaloes and 20th in cattle. The overall annual prevalence of haemoglobinurea was 0.50% in buffaloes and 1.79% in cattle with CFR of 19.39% and 21.91%, respectively. The prevalence of surra in buffaloes was 0.53% with CFR of 21.08%. Case fatality rate of theileriosis mainly in crossbred calves/cattle was 24.38%.

The CMR depicting deaths due to all causes in cattle and buffaloes in the state of Haryana during the year 1997-98 was found to be 30.03 per thousand. Rathore (1998) had reported crude

death rate of 9.28% in buffaloes in 28 farms of the country spreading over 14 states. The highest CMR in Panchkula district was probably due to less number of veterinary institutions and different geographic area (Shivalik foothills). On the basis of present study, it could be concluded that still there is a long way to go as far as the data recording on livestock diseases is concerned. To develop a meaningful disease forecasting system, there is an urgent need to evolve a uniform system of data recording and reporting throughout the veterinary institutions in the state.

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