ECONOMIC ASPECTS OF SOME HORSE DISEASES

S.V. Mavadiya, S.K. Raval, S.A. Mehta and D.T. Fefar

Department of Veterinary Medicine
College of Veterinary Science & Animal Husbandry
Anand Agricultural University, Anand-388 001

ABSTRACT

Animal health economics is a relatively new discipline which is working to develop a framework of concepts, procedures and data to support decision-making in animal health management. According to present study, the monetary loss due to treatment for disease conditions in study population (n=512) was found to be Rs. 1, 73,324 and the average treatment cost per horse per year was estimated to be Rs.1768. Average treatment cost per animal per treatment for colic, trypanosomosis, babesiosis, mange infection and equine influenza was Rs. 825, 1897, 1557, 2414 and.2073 respectively. The monetary loss due to mortality was calculated to be Rs. 2, 25,000 per year.

KEY WORD : Economic aspect, Horse, Colic, Trypanosomosis, Babesiosis, Ectoparasites and Equine Influenza.

INTRODUCTION

Animal health economics is a relatively new discipline which is working to develop a framework of concepts, procedures and data to support decision-making in animal health management. Research has dealt primarily with quantifying the financial effects of animal disease, developing methods for optimizing decisions affecting individual animal, herd or population and determining the benefits and costs of disease control programmes (Rushton et al., 1999).The outcome of any disease could lead to direct or indirect economic losses. The direct losses are through mortality, reduced production and performance, increase in culling rate, cost of treatment and control of diseases, whereas indirect losses pave a way through several indirect changes in the form of production loss, poor reproduction, poor growth rate and thereby less monetary gain to horse owners. The economic assessment of animal disease is relatively a new concept. The basic purpose of economic analysis is to aid decision making regarding limited source allocation. It provides a basis for making rational choice among alternative preventive or control measures under the various circumstances.

MATERIALS AND METHODS

The study was undertaken for a period of one year from 1st June, 2008 to 31st May, 2009. The work was carried out at seven selected districts of Gujarat having sizable equine population. The clinical cases coming to the Teaching Clinical Services Complex at College of veterinary Science Anand were also studied. During the study period a total of 47 cases of equine influenza, 24 cases of colic, 12 cases of ectoparasitic infection, 11 cases of trypanosomosis and 4 cases of babesiosis were recorded. Outbreak of equine enfluenza was noted in the month of March-April. The blood samples were collected and serum was submitted at NRCE, Hisar for confirmation of the disease and all the 47 horses were found positive for equine influenza. The economic aspects of study mainly focus on the cost of treatment and losses due to mortality. Total number of horses affected by disease, number of treatments required and average of approximate cost of one standard treatment were calculated. Above information was collected by inquiry and considering the present market price of drugs including Veterinarian's charges. The total cost of treatment in horse disease was calculated by using following formula:

Total cost of Treatment for diseased horse	=	Number of horse affected	×	No. of treatments required	×	Cost/ Treatment(Rs.)

The financial loss due to mortality is the loss of value of living animal. The present market value of living animal was used to calculate the monetary loss due to death of animal for a disease condition. The present market value of different categories of horse is presented in Table-1.

Table-1 Catagorywise present market value of horses

Sr. no.	Type of animal	Average present market value (Rs.)
1.	Foal	15,000
2.	Yearling	30,000
3.	Adult mare	50,000
4.	Adult stallion	40,000
5.	Aged mare	15,000
6.	Aged stallion	15,000
7.	Gelding	40,000

RESULTS AND DISCUSSION

The impact of the disease on horse fertility and mortality were key factors in determining the economic losses. According to present study, the economic losses due to common diseases in horses are presented in Table 2. The monetary loss due to treatment for disease conditions in study population was found to be Rs 1,73,324 and the average treatment cost per horse during the period under study was estimated to be Rs. 1768. Very meager information has been documented on the treatment cost. Average annual treatment cost for colic, trypanosomosis, babesiosis, mange infection and equine influenza was Rs.825, Rs.1897.50, Rs.1556.80, Rs.2413.75 and Rs.2073.60 per animal, respectively whereas the median cost of health management (monetary expenditures plus death losses) was estimated as $ 4.84 per horse per month (James and John. 1997).

Table 2 Treatment cost of horses for major disease conditions

Name of disease	No. of animals affected	Average treatment cost/ case/day (Rs.)	Average days per event	Total cost of treatment/ year (Rs.)	Average treatment cost/Animal
Equine influenza	47	576	3.6	97459.20	2073.60
Colic	24	550	1.5	19,800.00	825.00
Ectoparasitic infestation/ Mange	12	447	5.4	28,965.60	2413.75
Trypanosomosis	11	575	3.3	20,872.50	1897.50
Babesiosis	04	556	2.8	6,227.20	1556.80
Total	--			**1,73,324.50**	--

In high risk areas, disease imposes significant financial losses due to reduced fertility, high mortality/removal rate and the necessity to import replacement of animals. The variation in the treatment cost might be due to the type and severity of infection, days of treatment, variation in market value of drugs and immune status of animals. Traub-Dargatz et al. (2001) stated that the treatment of horses with colic is often expensive and the economic impact is considerable even when the horses survive. In many cases, due to the expense of the treatment, horses with considerable chance of recovery are subjected to euthenaesia.

In the present study, the annual average treatment cost of colic was Rs. 825. Annual loss due to Trypanosoma evansi infection in horses under study was Rs. 1897.50. The annual cost for veterinary services, drugs, and additional care for colic has been estimated to US $ 160/event. Andrew et al. (1998) estimated total cost of Trypanosoma evansi infection to cattle and horse about to US$ 2.4 million per year.

Losses due to mortality

The relults of economic losses due to mortlatity of horses due to various disease conditions are presented in Table 3. The monetary loss due to mortality was calculated to be Rs. 2, 25,000 per year, and per horse during the year of study, it was Rs. 37,500. The model applied in the present investigation for quantifying the economic losses due to mortality revealed the major economic impact due to diseases.In USA the mortality losses as a result of colic in two different reports were found to be US $ 76 million/year and US $ 115 million/year (Anonymous 2001 and NAHMS Equine '98). Such difference in the mortality losses depended up on the population studied and the number of animal died due the disease. The mortality might be due to the type and severity of infection, management of disease condition, health status of animals, nutrition aspects, economic status of horse owner to provide supportive therapy and immune status of animals. The break up of average treatment cost due to different disease conditions per animal are presented in figure 1 and 2

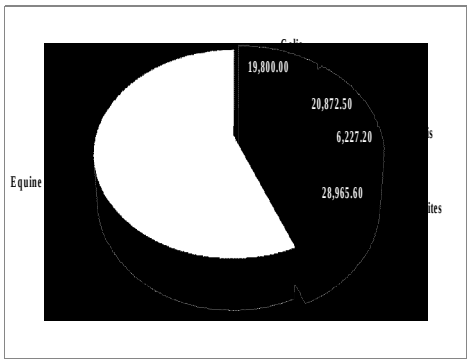

Fig. 1. Total cost of treatment/ disease/year

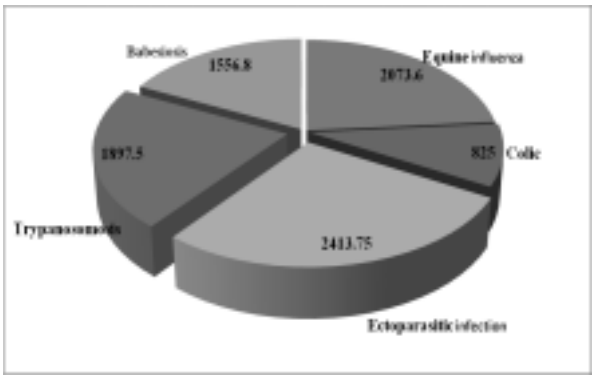

Fig.2 Average treatment cost/disease/animal

Table 3 Quantification of economic losses due to mortality in horses

Sr. No.	Name of disease	Group	No. of animals died	Total losses due to mortality
1	Equine influenza	Adult Mare	1	50,000
		Adult stallion	1	40,000
		Aged stallion	1	15,000
		Gelding	2	80,000
Total			**05**	**1,85,000**
2	Colic	Adult Stallion	1	40,000
Overall total losses		**06**		**2,25,000**

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