Journal Crop and Weed, 11(2):151-153(2015)

Epidemiological survey on morbidity and mortality pattern in Black Bengal goats reared by the tribal people of West Bengal

S. S. DANA, [1]U. K. BANDYOPADHYAY AND AMITAVA GHOSH

Department of Fishery Extension, Faculty of Fishery Sciences, WBUFAS
[1]IVRI-Kolkata centre, Kolkata.

Received : 29.05.2015, Revised : 06.11.2015, Accepted : 16.11.2015

ABSTRACT

The study was conducted among randomly selected 4 tribal villages of Binpur block of Medinipur district of West Bengal. Data were collected through personal interview schedule, observational technique and case study method. The findings of the study revealed that the morbidity rates due to contagious ecthyma were highest but case fatality was very low. The results indicated that the major cause of mortality was diarrhoea. The age-wise morbidity and mortality rates of goats indicated that the highest mortality was recorded in kids of 0 to 3 months age group followed by young stocks and adults. The study also indicated that the indigenous medicines used against diarrhoea in kids are not effective. So, concerted educational efforts are needed to educate the farmers to avail veterinary hospital facilities to control diarrhoea in kids.

Keywords **:** Epidemiology, goats, tribal

The tribals in India present a variety of ecological, socio-economic and techno cultural settings. Each tribal area presents a more or less unique situation in terms of resource endowments, resource use patterns, technological levels and standard of living. Among the tribals, Santals constitute one of the largest tribe of India, numbering more than three million souls (3,152,545). Goats play an important role in generating employment, income, capital storages and improving household nutrition for these tribal people. Goats being small in size do not require large management skills and can be easily handled and managed by women and children (Panin and Mahabile, 1997). Goats are considered as the fixed deposit for the poorest of the poor, supplying fund as and when necessary by vitue of their ready market demand (Schoo *et al.,* 2004). Prabu *et al.* (2011) reported that the goat enterprise was considered to be a profitable income generating way in the dry land areas of Tamil Nadu. Hence, any improvement in their production level has direct bearing on the socio economic status of landless, marginal and small farmers and thereby the overall economic development of the region. The practice of goat farming helps in improving the livelihood activities as well as ensuring nutritional security and the similar finding was reported in case crab farming by Dana *et al.* (2015)

However, the production performance of Black Bengal goats is heavily reduced due to various diseases. Keeping these facts in mind, the present studyis an attempt to knowthe morbidity and mortality patterns of Black Bengal goats reared by tribal people.

MATERIALS AND METHODS

The present investigation was conducted in Binpur block of Medinipur district of West Bengal. Binpur block was selected as it has the highest tribal population of about 56,608. From Binpur block, four villages namely Kodopura, Nayanagora, Krishnapur and Asthajuri were selected by simple random sampling technique. A list of tribal households keeping livestock were identified, out of which 102 heads of Santal households were selected and the same formed the sample of this study. Since the respondents were generally illiterate people, the observational technique supported by case study method, diary writing and personal interview schedule were used to collect the required data.

The following formulae were used to analyse the data in order to draw a meaningful interpretation about the morbidity and mortality pattern of various diseases.

(i) Overall sickness rate = $\frac{\text{Total number of sickness}}{\text{Population in the study area}} \times 100$

(ii) Crude mortality rate = $\frac{\text{Number of animals died}}{\text{Population in the study area}} \times 100$

Email: danashyamsundar@gmail.com

(iii) Overall case fatality rate = $\frac{\text{Total number of animals died}}{\text{Total number of animals fallen sick}} \times 100$

(iv) Proportional morbidity rate due to a disease = $\frac{\text{Number of sickness due to a particular disease}}{\text{Total sickness due to all diseases}} \times 100$

(v) Proportional mortality rate (PMR) due to particular disease = $\frac{\text{Number of deaths due to particular cause}}{\text{Total deaths due to all causes}} \times 100$

(vi) Total recovered = Total animal fallen sick - Total animal died

(vii) Recovery rate = $\frac{\text{Total recovered}}{\text{Total fallen sick}} \times 100$

RESULTS AND DISCUSSION

The morbidity and mortality rates in goats due to various diseases during twoyears period of 1995-1996 have been presented in table-1. The table shows that among various diseases the morbidity rate due to contagious ecthyma was highest during the study period. The proportional morbidity rate in 1995 indicated that out of 100 sicknesses, 51 due to contagious ecthyma, 21 due to diarrhoea, 20 due to respiratory problems, 3 due to cutaneous problems, 1 due to tympanitis, 1 due to anorexia and 3 due to miscellaneous diseases, These finding are in consonance with the finding of Mathur and Dubey (1994), they observed that in case of contagious ecthyma in goats, economic losses due to morbidity are more (90%) than mortality which is usually low. whereas, the proportional morbidity rate in 1996 indicated that out of 100 goats fallen sick, 44 were due to contagious ecthyma, 44 due to diarrhoea, 5 due to respiratory problems, 1 due to cutaneous problems, 1 due to anorexia and 3 due to miscellaneous diseases. The proportional mortality rate in 1995 indicated that out of 100 deaths, 60 were due to diarrhoea, 26 due to respiratory problems, 6 due to contagious ecthyma, and 4 due to tympanitis, 1 due to anorexia and 3 due to miscellaneous diseases. The proportional mortality rate in 1996 indicated that out of 100 goats died due to various diseases, 86 died due to diarrhoea, 5 due to respiratory problems, 4 due to contagious ecthyma, 1 due to anorexia and 4 due to miscellaneous diseases. Similarly Padalkar (1994) and Nooruddin and Islam (1996) reported that in goats diarrhoea was the most common disorder amongst kids and adults.It was also evident from the table-1 that out of a total population of 656 and 692 goats in the years 1995 and 1996, 389 and 338 goats respectively were suffered from different diseases.

Table 1: Disease-wise morbidity and mortality rates in goats reared by Santals

Disease	Number affected		Number died		Morbidity rate per 100		Mortality rate per 100		Proportional morbidity rate %		Proportional mortality rate %		Case fatality rate %		Recovery rate%	
	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2
Contagious ecthyma	200	150	4	4	305	217	6	6	51	44	6	4	2	3	98	97
Diarrhoea	83	155	42	90	126	224	64	130	21	46	60	86	51	58	49	42
Respiratory problems	79	18	18	5	120	26	27	7	20	5	26	5	23	28	77	72
Cutaneous problems	10	2	0	0	15	3	0	0	3	0	0	0	0	0	100	100
Tympanitis	3	1	3	1	4	1	4	1	1	0	4	1	100	100	0	0
Anorexia	3	2	1	0	4	3	1	0	1	1	1	0	33	0	67	100
Miscellaneous diseases	11	10	2	4	17	14	3	6	3	3	3	4	18	40	82	60
Overall	389	338	70	104	593	488	107	150								
Population	656	692														

The age-wise morbidity and mortality rates in goats have been presented in table-2. The table shows that highest mortality was recorded in kids (0 to 3 months age group). It was conspicuous from the study that in 1995, the highest proportional mortality rate (71%) was recorded in case of kids followed by young stock (15%) and adults (14%). Almost similar trend was found in 1996 where, the highest proportional mortality was recorded in kids (72%) followed by adults (16%) and young stock (12%). It can be noted here that Santals rarely avail modern veterinary facilities. When animals suffer from any ailments, they go to the '*ojha*'(village medicineman) for treatment of their livestock. The '*ojha*' treats the patient with the help of roots, leaves or bark of different medicinal plants and he never charges any fees from the owner. For the treatment of diarrhoea in kids, Santals use fresh tender green leaves of Babul (*Acacia Nilotica*) and sugar, some Santals also use leaves of Bamboo (*Bambusa*sp). But the results of the study indicated that the indigenous medicines which they use against diarrhoea in kids are not effective.

Table 2: Age-wise morbidity and mortality rates in goats reared by Santals

Age group	Age-wise Population		Number affected		Number died		Morbidity per 1000		Mortality per 1000		Proportional morbidity rate %		Proportional mortality rate %		Recovery rate%	
	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2	Yr.1	Yr.2
Kids (0-3 months	342	355	270	244	50	75	789	687	146	211	69	72	71	72	81	69
Young stock (>3months to 1 year)	102	87	58	25	10	12	569	287	98	138	15	7	15	12	83	52
Adults (>1 year)	212	250	61	69	10	17	288	276	47	68	16	21	14	16	84	75

Two sample t test with unequal variances was performed to test whether there was any significant differences in the Proportional morbidity rate and Proportional mortality rate during the years 1995 and 1996 and it was found that there were no such statistical differences existed as in both the cases, values of T_{cal} (0.86, 0.84) $<T_{crit}$(12.7).

So, the study indicated that the most important task in front of the extension worker is to reduce the mortality rates of kids in tribal area and to control important diseases especially, respiratory diseases and contiguous ecthyma. So, concerted extension educational efforts are needed to persuade the tribals to adopt improved animal husbandry practices and regular vaccination measures by organizing demonstrations, animal health camps and through interpersonal contacts.

REFERENCES

Dana, S. S., Ghosh, A. and Bandyopadhyay, U. K. 2015. Socio-economic profile and problems of mud-crab farmers of South 24 Parganas, West Bengal: an explorative study. *J. Crop Weed*, **11**:120-23.

Nooruddin, M. and Islam, K. S. 1996. Distribution and body size of *Facidagigantica* in livers of Bengal Goats in Bangladesh. *Small Ruminant Res.,***19**:189-91.

Padalkar, R.D. 1994. Incidence of Various disorders in kids and adult goats- A comparative study. *Livestock Adviser,* **19**: 8-11.

Panin, A. and Mahabile, M. 1997. Profitability and household income contribution of small ruminants to small scale farmers in Botswana. *Small Ruminant Res.*, **25**: 9-15.

Prabu M, Selvakumar K N, Pandian A, Kumar, G. S. and Meganathan N. 2011.Profitability Analysis of Goat Farming in Tamil Nadu. *Indian J. Animal Res.,* **45**: 32 37.

Sahoo, A.K., Pan, S., Tantia, M. S. and Ahlawat, S.P.S. 2004. *Bengal Goat National Agricultural Technology Project (Mission Mode), West Bengal* University of Animal & Fishery Sciences, Kolkata and National Bureau of Animal Genetic Resources, Karnal, pp. 1-63.