

## PREVALENCE OF ECONOMICALLY IMPORTANT TICKS IN CATTLE AND GOAT AT CHITTAGONG HILLY AREAS OF BANGLADESH

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### Summary

The studies on the prevalence of ixodid ticks during July 1991 to June 1992 in five thanas of Chittagong hilly area in Bangladesh revealed that 65.45% cattle and 44.4% goats were infested with *Boophilus microplus*, *Rhipicephalus appendiculatus* and *Haemaphysalis bispinosa*. Aside these, only 4.62% cattle were found infested with *Amblyomma* sp. The tick infestation was highest in summer and declined gradually through rainy season to lowest in winter.

(Key Words : Prevalence, Tick, *Boophilus*, *Rhipicephalus*, *Haemaphysalis*, *Amblyomma*, Chittagong, Hoogstraal)

### Introduction

Ticks are found in most of the tropical and sub-tropical countries and in some cases, ticks became a major factor limiting livestock production (Drummond and Konnerap, 1978). Tick infestation reduces live weight gain, milk yield and quality of hides by providing entry sites for secondary infection and myiasis. Ticks also transmit dreaded diseases. The Chittagong hilly areas of Bangladesh is located in south-eastern part of the country and enjoys a hot humid climate with high rain fall. In these area cattle and goat are grazes in the foot hills and hill sides, which is most favourable habitat for ticks. Limited data is available on the prevalence of ticks in Chittagong hilly areas. To design economically efficient control measures, important ticks were collected and identified at Chittagong hilly areas and seasonal variation of ticks was also studied and reported here.

### Materials and Methods

The present investigation was undertaken from July 1991 to June 1992 in five thanas of Chittagong hilly areas of Bangladesh. One hundred eight (108) cattle and one hundred forty three (143) goats were examined thoroughly at weekly interval, all the year round for ticks infestation.

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In order to know the site of predilection for different stages of ticks, the ticks were detached carefully to avoid decapitation and bottled along with a label denoting the identity of the host, place of collection, site of infestation and date of collection. It was not practical to remove all the ticks from each animal, a representative samples of all stages of ticks was collected and killed in a hot water bath. Then ticks were preserved in 70% alcohol and identified to species according to Hoogstraal (1956).

### Results and Discussion

One hundred sixty five (165) cattle and three hundred twenty two (322) goats were randomly examined from different thanas of Chittagong. Among these animal 108 cattle and 143 goats were positive for tick infestation and selected for year round investigation. The overall percentages of infestation of cattle and goat were 65.45 and 44.4 respectively as shown in tables 1, 2. In cattle the infestation peaked in March-April (82.61%) and declined gradually and the least infestation was recorded in November-December (51.28%).

In goats the infestation peaked in May-June (53.33%) and declined gradually and the least in November-December (35.16%).

A total number of 1963 *B. microplus*, 989 *R. appendiculatus*, 227 *H. bispinosa* and 24 *Amblyomma* sp. were collected from 108 infested cattle (table 3). Similarly, 2186 *B. microplus*, 1002 *R. appendiculatus* and 263 *H. bispinosa* were collected from 143 infested goats (table 4).

TABLE 1. PERCENTAGE OF INFESTATION ON CATTLE WITH TICKS AT CHITTAGONG HILLY AREAS

Months	Number of cattle examined	Number of cattle infested	Percentage of infestation
July-August '91	25	18	72.00
Sept-Oct. '91	32	17	53.13
Nov.-Dec. '91	39	20	51.28
Jan.-Feb. '92	24	16	66.67
March-April '92	23	19	82.61
May-June '92	22	18	81.81
Total	165	108	$\bar{X}$ 65.45%

TABLE 2. PERCENTAGE OF INFESTATION ON GOAT WITH TICKS AT CHITTAGONG HILLY AREAS

Months	Number of goat examined	Number of goat infested	Percentage of infestation
July-August '91	44	18	40.91
Sept-Oct. '91	53	20	37.74
Nov.-Dec. '91	54	19	35.16
Jan.-Feb. '92	70	34	48.57
March-April '92	56	28	50.00
May-June '92	45	24	53.33
Total	322	143	$\bar{X}$ 44.41%

TABLE 3. THE MEAN SEASONAL INFESTATION OF TICKS IN CATTLE

Seasons	Number of positive cattle	Ticks			
		<i>B. microplus</i>	<i>R. appendiculatus</i>	<i>H. bispinosa</i>	<i>Amblyomma</i> sp.
Autumn (July-Oct.)	35	591 (16.88)	297 (8.48)	58 (1.66)	5 (0.14)
Winter (Nov.-Feb.)	36	533 (14.80)	336 (9.33)	59 (1.63)	6 (0.16)
Summer (March-June)	37	839 (22.67)	356 (9.62)	110 (2.97)	13 (0.35)
Total	108	1,963 (18.18)	989 (9.16)	227 (2.10)	24 (0.22)

Note: figure in the parentheses indicate the mean value.

TABLE 4. THE MEAN SEASONAL INFESTATION OF TICKS IN GOAT

Seasons	Number of positive goat	Ticks		
		<i>B. microplus</i>	<i>R. appendiculatus</i>	<i>H. bispinosa</i>
Autumn (July-Oct.)	38	548 (14.42)	200 (5.26)	42 (1.10)
Winter (Nov.-Feb.)	53	702 (13.24)	373 (7.03)	52 (0.98)
Summer (March-June)	52	936 (18.00)	429 (8.25)	169 (3.25)
Total	143	2,186 (15.28)	1,002 (7.00)	263 (1.84)

Note: figure in the parentheses indicate the mean value.

The overall mean infestation of *B. microplus*, *R. appendiculatus*, *H. bispinosa* and *Amblyomma* sp. were 18.18, 9.16, 2.10 and 0.22 respectively on cattle. The overall mean infestation on goat with *B. microplus*, *R. appendiculatus* and *H. bispinosa* were 15.28, 7.00 and 1.84 respectively.

These findings correlate the work of Garriss and Scotland (1985). It was observed that tick infestation in cattle varied between seasons. Tick infestation increased following the summer and gradually decreased from rainy to winter. This correlates with the work of Chaudhuri et

al. (1969).

The mean infestation with *B. microplus* was found highest in summer (March-June) in both cattle and goats, ie, 22.67 and 18.00 respectively and gradually declined in Autumn (July-October) 16.88 and 14.42 and least infestation occurred in winter (November-February) as 14.80 and 13.24 respectively.

In the case of *R. appendiculatus*, the highest infestation of cattle and goats were recorded in summer, 9.62 and 8.25 respectively and least infestation were recorded in autumn, 8.48 and 5.26 respectively. Similarly,

the mean highest (2.97 and 3.25) infestation of *H. bispinosa* on cattle and goats were observed in summer and lowest mean infestation (1.63 and 0.98) were recorded in winter.

The *Amblyomma* sp. was only found in cattle, but in goat, this species of tick was not recorded. *Amblyomma* sp. was also highest in summer 0.35 and lowest in autumn 0.14.

*Amblyomma* sp. is recorded for the first time in our country. Tick infestation was comparatively higher in summer as well as in high land area, where the animals were not generally washed regularly for want of water. Because, at the beginning of summer in Chittagong area, all the ditches, ponds, canals were dried up as a result the owner of cattle are not able to bathed their animals. On the other hand larvae of *B. microplus* were wide spread in the pasture even in dry grass or in dry soil.

In winter the percentages of infestation as well as number of ticks decreased for the reasons that most of the ticks dropped from the body of the host and remained quiescent throughout the winter.

Ticks were found throughout the body of cattle and goat, but the adults were mainly attached to the udder in

cows, scrotum and perenium in bullock and male calves, the nymphal stage occurred mostly in the ear of the animals Nirmal and Ruprah (1979).

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