Uttar Pradesh J. Zool. 26(0) : 53-56, 2006 ISBN 0256-971X

TICKS INFESTING SHEEP AND GOAT IN WESTERN UTTAR PRADESH

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In a survey of ticks infestation during 2003, four ixodids species were recorded infesting sheep and goats in three tehsils *viz*. Meerut City, Mawana and Sardana under district Meerut located in western belt of Uttar Pradesh.These species are named, *Hyalomma anatolicum anatolicum, H. kumari, Ixodes granulatus* and *Rhipicephalus haemaphysaloides*. The percentage of infestation of ticks was more in 3rd quarter of the year and was maximum in Tehsil Sardana.

Key words : Tick infection, sheep, goat, western U.P.

INTRODUCTiON

Ticks are of public health significance mainly because of the animal diseases transmitted by them, which include an array of bacterial, viral and protozoan disease (Harwood & James, 1979). The ticks cause anaemia by sucking about 0.5 to 2 ml of blood daily as in case of *Boophilus microplus* (Geoffrey, 1956). An average burden of 90 adult ticks on an animal reduces the weight gain by about 32 kg per annum and 500 ticks can even kill a calf (Miller, 1951). Ticks adversely affect the animal health, diminish the yield and depreciate the quality of their produce, in addition to their role in the transmission of a number of infections and thus causing colossal losses to farmers and exchequer in our country. Study of their population dyanamics is essential to device control measures at the preliminary stages (Gardiner *et al*., 1981). Consequently, a preliminary survey of tick species infesting animals-sheep and goats in district Meerut was envisaged and data recorded during the year 2003, January to December 2003 is reported here in as such.

MATERIALS AND METHODS

A survey of cattle markers *viz*. Gulmarg cinema (Meerut city), Nagla Gohar (Sardana), Makhdumpur (Mawana) in three tehsils of district Meerut were visited to ascertain the tick infestation in the villages from where the animals were brought. Besides this, some other villages were also visited to examine the animals for tick infestation as Davathwa, Faridpur, Meerapur, Sindhawali and Hamirpurdabba of tehsil Sardana.

Partapur, Diggi colony near Shastri Nagar, Mohiuddinpur near Meerut city satation, Mohakampur, Meerut Cantt. and Kanker Khera of tehsil Meerut. Dariyapur, Akbarpurganj, Bashuma, Phalavda and Mawana Khera of tehsil Mawana.

The specimen were collected in separate specimen tubes for each animal and identified with the help of keys given by Sen & Flectcher (1962), and Kaiser & Hoogstraal (1964). For taxonomic studies two methods were mainly employed for collecting ticks (Sanyal & De, 1992).

- **Hand-picking method :** This method consisted of searching for ticks on the bodies of domestic and wild animals. Adults and immature stages were removed mechanically using a forceps or a brush and then preserved.
- **Flag-dragging method :** White flags made of lint cloth about one meter square, were dragged on forest vegetation, humus and grassland for collecting questing ticks. Flags were examined at frequent intervals and specimen carefully removed by fine forcep or brush and then preserved.

Table 1 : Ticks infestation among the sheep and goats in various tehsils of district Meerut.

Tehsil	Host	January-March			April-June			July-September			October-December		
		No. Exam-ined	No. Infec-ted	% Infes-tation	No. Exam-ined	No. Infec-ted	% Infes-tation	No. Exam-ined	No. Infec-ted	% Infes-tation	No. Exam-ined	No. Infec-ted	% Infes-tation
Meerut City	Sheep	30	10	33.33	50	35	70.0	70	50	71.54	80	30	37.5
	Goat	72	15	20.83	70	35	50.0	80	70	87.5	90	40	44.44
Mawana	Sheep	37	17	52.4	60	25	41.66	95	60	63.15	40	10	25.0
	Goat	70	30	42.11	70	22	31.42	82	55	67.07	50	20	40.0
Sardhana	Sheep	40	20	50.0	51	25	49.01	70	57	81.42	40	23	57.5
	Goat	47	14	29.78	60	23	38.33	64	52	81.25	30	18	60.0

The ticks obtained were preserved in glass vials containing 70% alcohol. During the survey in the year 2003, from January to December 785 goats and 663 sheep were examined for tick-infestation. Data obtained was thoroughly recorded.

RESULTS AND DISCUSSION

In the year 2003, January to December, 785 goats and 663 sheeps were examined for ticks infestation. Four species belonging to four different genera *viz. Hyalomma anatolicum anatolicum* (Koch, 1844), *Ixodes granulatus* (Sharif, 1928), *Hyalomma kumari* (Sharif, 1928) and *Rhipicephalus heamaphysaloides* (Supino, 1897) were found on the sheep and goats in district Meerut (Table II).

During the survey it was found that the percentage of infestation increased in the third quarter of year i.e. July-September in all the three tehsils of district Meerut. It is about 71.54% and 87.5%, 63.15% and 67.07%, 81.42% and 81.25% in the sheep and goats, respectively of the three tehsils, Meerut city, Mawana and Sardana of district Meerut (Table I).

The infestation of *H. anatolicum anatolicum*, and *H. Kumari* was more in comparison to *R. haemaphysaloides* and *I. granulatus*. The infestation of *I. granulatus* is found in sheep and not in goats in all the three tehsils. Mixed infestation was on an increase in Meerut city and Sardana tehsil. Their average infestation in three tehsils is shown by histogram in Fig. 1.

Ticks showed two interdependent peaks in a year, with a definite periodicity as reported in some hyalommids. *H. (H.) a. anatolicum* (Chaudhuri *et al.*, 1969); *H. (H.) marginatum* Isaaci (Khan, 1993) and *H. (H.) dromedarii* (Khan & Srivastava, 1994) and *H. (H.) kumari* Sharif, 1928 (Khan, 1996). Khan & Srivastava (1989) studied the predilection sites of tick species infesting domestic stock in district Bareilly. Gill & Gill (1977) reported diversity of Ixodid ticks in domestic animals in Punjab State. The adults after a long winter became active from mid-February and their number on goats gradually increased with a peak of short duration in May.

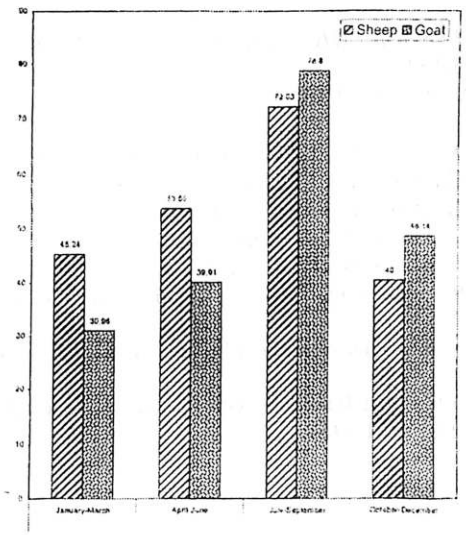

Fig. 1 : Histogram of percentage of infection in sheep and goat in four quarter of year 2003.

After a decrease in June due to hottest and driest month of the year, it became again active in July, a comparatively mild and humid month. Gradually its number on goats increased and remained fairly high and steady from mid-August to mid-September. Thereafter, its populations declined till November with decrease in prevailing temperature (Fig. 1). Timely control measures can be divided by understanding its bionomics shows that hot and humid climate is preferred by various stages of *H. (H.) kumari* (Acarina : Ixodidae) which is in accordance with the present observation.

ACKNOWLEDGEMENTS

The author is grateful to Prof. H.S. Singh, Department of Zoology, C.C.S. University, Meerut; the Principal and Head of the Zoology Department, D.N. (PG) College, Meerut for laboratory facilities and Central sheep and Wool research Institute, Avikanagar (Rajasthan) for their valuable suggestions. We are also thankful to the authorities of UGC for financial assistance.

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