

SEASONAL ABUNDANCE OF TICKS ASSOCIATED WITH INDIGENOUS GOATS ON A NORTHERN TRANSVAAL FARM

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ABSTRACT

The 3 most abundant tick species on indigenous goats on a northern Transvaal farm were found to be *Rhipicephalus evertsi evertsi*, *Rhipicephalus appendiculatus* and *Amblyomma hebraeum*. Three other tick species were present in small numbers. The economical and ecological importance of the ticks found on the goats, mainly in rural areas where chemical control of ticks is practically non-existent, is discussed. The high number of goats in the study area and the shift towards alternative methods of tick control, such as the use of resistant hosts, are important factors in the livestock industry of southern Africa.

Key words: Ticks, indigenous goats, northern Transvaal, seasonal control.

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INTRODUCTION

The geographical distribution of ticks in South Africa and the hosts on which they feed are relatively well documented¹⁵. The seasonal abundance of the economically important ticks on cattle has also been recorded from various places in the country^{2 11 12 13}. Similar data are available for game animals in different regions of South Africa^{4 5 7}. However, less has been published about the seasonal activity of ticks associated with goats^{3 8 9 10 11}.

This paper reports on the seasonal abundance of ticks on indigenous goats on a farm situated in the northern Transvaal region of South Africa.

MATERIALS AND METHODS

The study was conducted on 120 ha of natural grazing on the farm "Naauwpoort", which is situated in the north western part of the Waterberg mountains (24° 10'S; 28° 20'E) in the northern Transvaal. Acocks¹ defined the vegetation of the area in which the study took place as Sour Bushveld: an open savanna, dominated by *Faurea saligna* and *Acacia caffra*. On some parts of the

farm a sourish/mixed Bushveld in which *Acacia caffra* is abundant, is found.

Two seasons, namely a hot and wet summer (October to March) and a cool and dry winter (April to September) occur in the northern Transvaal. The mean maximum and minimum temperatures recorded during winter (July) were 20°C and -4,0°C, and during summer (January and February) 37°C and 14°C, respectively.

Kudu (*Tragelaphus strepsiceros*), bushbuck (*Tragelaphus scriptus*), common duiker (*Sylvicapra grimmia*), steenbok (*Raphicerus campestris*), caracal (*Felis caracal*) and bushpigs (*Potamochoerus porcus*) are common on the farm. Many small mammals, mainly rodents, are also present in the study area¹³.

The 10 goats used during this study had been exposed to ticks on the farm prior to the commencement of the survey. The same animals were used throughout the study, and were not treated with acaricides. The animals were secured and the ticks removed from the various parts of the body. Particular attention was paid to the removal of ticks from around the hooves.

RESULTS

The results are presented as mean number of ticks per goat. The most com-

mon ticks found feeding on the goats were *Rhipicephalus evertsi evertsi*, *Rhipicephalus appendiculatus* and *Amblyomma hebraeum*. Other tick species such as *Boophilus decoloratus*, *Hyalomma truncatum* and *Hyalomma marginatum rufipes* were found regularly in small numbers.

Rhipicephalus evertsi evertsi were found in small numbers throughout the year with a peak during mid-summer (November to January) (Fig. 1). Immature stages were removed from the goats in small numbers during early winter (April and May).

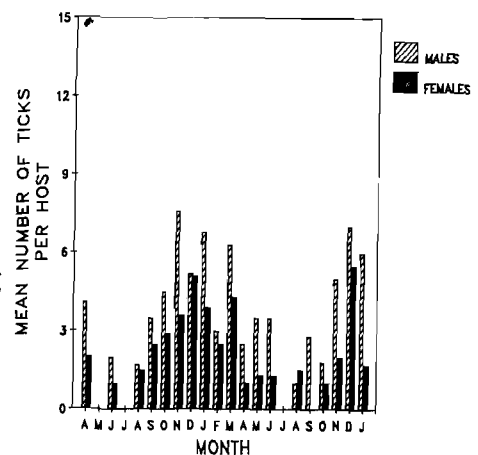


Fig. 1: Mean number of *R. e. evertsi* adults collected at monthly intervals from ten indigenous goats

The numbers of adult *Rhipicephalus appendiculatus* increased during October-November, reached a peak later in summer (February) and declined in April (Fig. 2). No adult ticks were found during winter and early summer. Nymphs of *R. appendiculatus* were collected during autumn (April to early June) and early summer (August and September) and were absent during summer and winter (Fig. 2).

Adult *Amblyomma hebraeum* were present on goats during summer and late summer, but absent during winter and early summer (Fig. 3). Unlike the adults, nymphs were present during most of the year with the exception of July. At times

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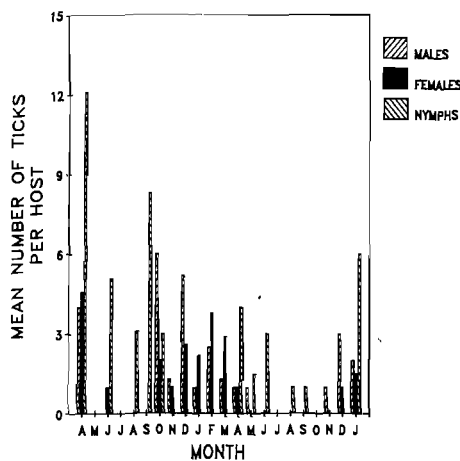


Fig. 2: Mean number of *R. appendiculatus* adults and nymphs collected at monthly intervals from ten indigenous goats

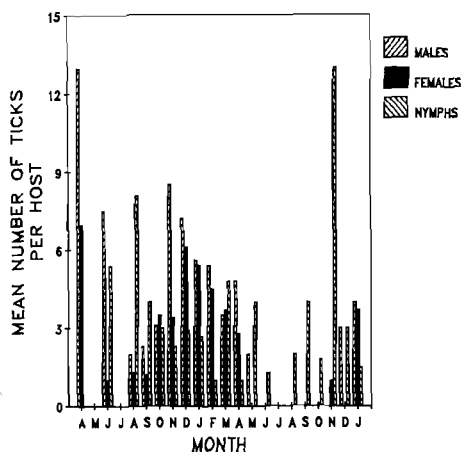


Fig. 3: Mean number of *A. hebraeum* adults and nymphs collected at monthly intervals from ten indigenous goats

they were also not found during April and May (Fig. 3).

B. decoloratus adults were found in small numbers during May, September, January and March and were absent during the other months. *H.m rufipes* and *H. truncatum* were also found in small numbers during early and late summer.

DISCUSSION

The common tick species collected from indigenous goats in this survey were *R.e evertsi*, *R. appendiculatus* and *A. hebraeum*. However, when compared to tick loads on cattle, the density of these species was low^{11 13 14}. Our observations showed that the number of ticks carried by the goats mainly during summer was high enough to cause anorexia (resulting in loss of weight or reduction of weight gain) and abscessation¹⁰. The economical importance of ticks associated with goats is emphasised further by the undeveloped conditions prevailing in the rural areas of northern Transvaal, where chemical control of ticks is practically non-existing.

The role of goats in maintaining tick populations in Natal, has been discussed previously². The high number of goats prevailing in the study area and the fact that they are not treated against ticks has probably resulted in increased numbers of ticks. The shift towards alternative methods of tick control, based on the use of tick-resistant hosts, is an important fact in protecting goats. Preliminary field studies (Rechav 1988, unpublished data) indicated that indigenous goats carried fewer ticks than exotic goats. Exotic goats also failed to acquire resistance against ticks in laboratory experiments conducted in Zambia⁶.

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