

## PARASITES OF DOMESTIC AND WILD ANIMALS IN SOUTH AFRICA. II. OESTRUS OVIS IN GOATS\*

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### ABSTRACT

HORAK, I. G. & BUTT, M. J., 1977. Parasites of domestic and wild animals in South Africa. II. *Oestrus ovis* in goats. *Onderstepoort Journal of Veterinary Research* 44 (2), 65-68 (1977).

During a period of 13 months, 130 goats' heads, obtained from the Johannesburg Municipal Abattoir, were examined for infestation with *Oestrus ovis*. Infestation was present in 73,8% of the heads and the mean burden comprised 4,4 larvae.

Such a small number of larvae were present that no clear seasonal incidence pattern could be determined.

Pupal periods could be as long as approximately 60 days for flies hatching during October and May and as short as approximately 24 days for those hatching from December-February.

The findings are compared with those obtained from surveys in sheep in South Africa.

### Résumé

#### LES PARASITES DES ANIMAUX DOMESTIQUES ET SAUVAGES EN AFRIQUE DU SUD. II. OESTRUS OVIS CHEZ LA CHÈVRE

Au cours de 13 mois les têtes de 130 chèvres provenant de l'abattoir municipal de Johannesburg ont été examinées pour la présence de *Oestrus ovis*. 73,8% de ces têtes étaient infestées avec une moyenne de 4,4 larves par tête.

Une tendance nette de l'infestation par rapport aux saisons n'a pas pu être déterminée à cause des petits nombres de larves retrouvés.

Alors que la durée des stades pupaux atteignait 60 jours dans le cas des mouches écloses aux mois d'octobre et mai, elle n'était que 24 jours dans le cas des mouches écloses à partir de décembre jusqu'à février.

Les auteurs comparent ces résultats avec ceux obtenus au cours d'une enquête chez le mouton en Afrique du Sud.

### INTRODUCTION

According to Zumpt (1965), the goat is the only domesticated ruminant besides the sheep subject to infestation with *Oestrus ovis*.

Surveys on the incidence of *O. ovis* in goats were conducted in Nigeria by Unsworth (1948, 1949) who found that the incidence increased from 3,6% in January to 67,0% in June and decreased thereafter to 8,5% in December. In Ceylon, Ranatunga & Rajamahendran (1972) recorded an incidence of infestation of 30,2% in Jamnapari goats compared with 16,6% in a South Indian breed.

As a survey of *O. ovis* infestation in sheep slaughtered at the Pretoria Municipal Abattoir was already in progress (Horak, 1977), it seemed the ideal opportunity to conduct a similar survey in goats and then compare the findings in the 2 species.

The present paper describes the incidence of *O. ovis* infestation in goats slaughtered at the Johannesburg Municipal Abattoir.

### MATERIALS AND METHODS

Seven to 12 goats' heads were collected from the abattoir each month from May 1972-May 1973. On each occasion the origin of the goats was recorded.

The heads were examined in the laboratory for *O. ovis* infestation, following the procedures for examination, larval collection, identification and measurement and for determining the pupal period previously described by Horak (1977).

### RESULTS

The incidence of infestation and mean burdens of *O. ovis* larvae recovered, are graphically represented in Fig. 1.

\* This survey was conducted while the authors were employed at the MSD Research Centre, Hennops River

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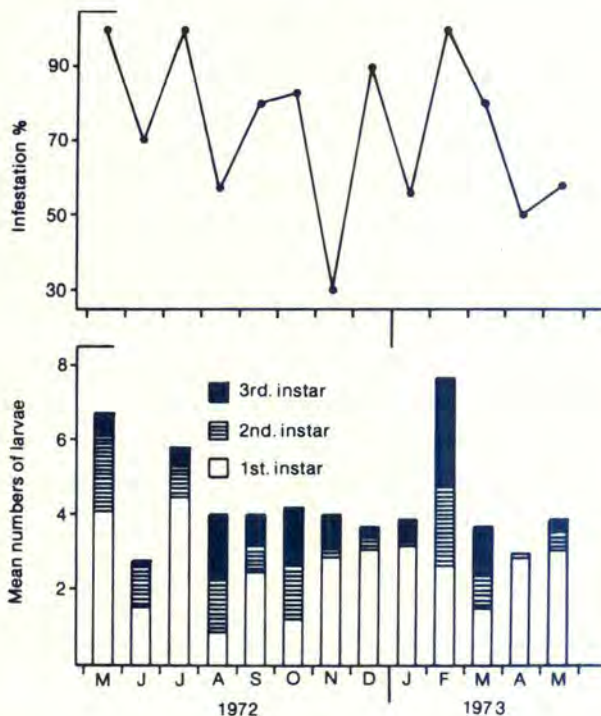


FIG. 1 The incidence of infestation and the mean monthly *O. ovis* burdens of goats slaughtered at the Johannesburg Municipal Abattoir

Except for the goats from the Transvaal (Waterpoort and Mopane) which were slaughtered during February and those from South West Africa (Rehoboth) slaughtered during May 1973, the goats originated from the Cape Province (Douglas, Richmond, Putsonderwater, Upington, Oranjerivier, Maretsane, Beaufort West and Kimberley).

Of the 130 heads examined, 73,8% harboured living larvae with a mean infestation of 4,4 larvae. The largest number recovered from a single goat was 29 larvae.

TABLE 1 The mean lengths of 1st and 2nd instar *O. ovis* larvae recovered from goats

Month	Mean length (range) in mm		Percentage of 1st instar larvae measuring 1,7 mm and less
	1st instar larvae	2nd instar larvae	
June '72.....	2,0 (1,7-2,3)	6,4 (3,2-11,0)	11
July '72.....	2,0 (1,6-2,8)	7,2 (4,0-12,5)	8
August '72.....	2,2 (1,9-2,9)	9,8 (3,3-13,0)	0
September '72.....	1,9 (1,7-2,3)	7,5 (4,9-12,3)	5
October '72.....	2,2 (1,7-3,4)	8,2 (5,5-14,3)	23
November '72.....	1,9 (1,7-2,3)	12,0 (11,5-12,5)	25
December '72.....	2,1 (1,6-2,9)	8,8 (7,3-10,3)	3
January '73.....	2,3 (1,9-4,5)	—	0
February '73.....	2,6 (1,7-4,3)	8,4 (4,5-12,9)	8
March '73.....	2,6 (1,9-4,2)	9,5 (6,5-14,9)	0
April '73.....	2,1 (1,7-3,6)	—	3
May '73.....	2,1 (1,6-4,1)	7,0 (3,9-10,7)	11

Four infested goats also harboured dead larvae; 2 heads contained dead larvae only and a further 6 exhibited lesions typical of infestation although no larvae were present.

The greatest number of 1st instar larvae was encountered during May and July 1972 while the greatest number of 3rd instar larvae was recovered from the goats examined during February 1973.

The mean and range in length of the 1st and 2nd instar larvae are summarized in Table 1.

The largest 1st instar larvae were recovered from January–March 1973, while the greatest percentages of small larvae were encountered during October and November 1972.

The lengths of the pupal periods of the larvae that pupated and hatched on the laboratory verandah are presented in Fig. 2.

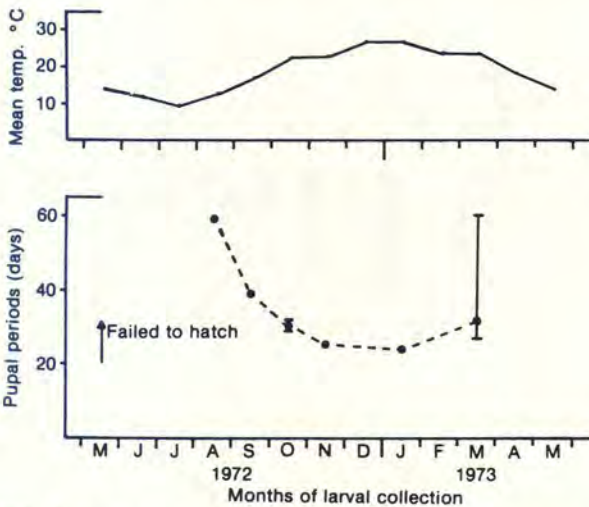


FIG. 2 The mean and ranges in length of the pupal periods of *O. ovis* recovered from goats

The pupal period decreased from 59 days for the larvae collected during August to 24 days for the larvae collected during January and increased to 60 days for one of the larvae collected during March.

The first flies to hatch after the winter months were recovered on 6 October 1972, and the last fly to hatch before the winter emerged on 21 May 1973.

With the exception of the larvae collected during May 1972, one or more of the mature larvae collected on each occasion gave rise to flies. If the former larvae are excluded, 36 larvae were collected, of which 19 (52,8%) developed into adults.

DISCUSSION

The mean incidence of infestation of 73,8% was considerably higher than that recorded in goats in Ceylon by Ranatunga & Rajamahendran (1972) and exceeded the overall incidence of 32,9% calculated from the results of Unsworth (1949) in Nigeria. It is virtually identical with the incidence in sheep (73,4%) recorded by Horak (1977) in South Africa.

If the goats harbouring dead larvae only, plus those with typical lesions of infestation but no larvae, are included in the count of infested animals, the incidence of infestation is 80,0%. This figure is also virtually identical with the 80,3% incidence recorded in sheep in South Africa when the same concessions are made (Horak, 1977).

Although the incidence of infestation in the sheep and goats examined in these 2 abattoir surveys was equal, a marked difference in the degree of infestation in the 2 species was evident. The mean burden in sheep was 15,2 larvae whereas that in goats was only 4,4. As these sheep and goats did not necessarily come from the same regions of the country during the same seasons of the year, and almost certainly did not come from the same farms, it is impossible to say whether the lower larval burdens in goats were due to differences in host species, animal husbandry practices or climate. It might have been possible to eliminate some of these factors by conducting a survey in goats at the Pretoria Municipal Abattoir but they are not slaughtered there in sufficient numbers.

The larval burdens of the rather limited numbers of sheep and goats examined by Buchanan, Dewhurst & Ware (1969) in Arizona and Ranatunga & Weilgama (1972) in Ceylon confirm the smaller infestations in the latter species. Mean burdens of 0,8 to 3,2 larvae in goats compared with 18,2 larvae in sheep were recorded by the former authors and 2,0 larvae in goats and 8,5 larvae in sheep by the latter. These lower burdens could possibly be due to the goat's habit of sneezing or snorting and thus dislodging larvae.

Because the larval burdens in the goats were so low, no clear pattern for the seasonal incidence of *O. ovis* in this host could be determined. The large percentages of small 1st instar larvae recovered during October and November would indicate recent infestation during these months, and would thus correspond with the findings in sheep (Horak, 1977).

The pupal periods of the larvae from goats, and the dates on which the last fly hatched before winter and the first fly hatched after winter, were virtually identical with those for flies from sheep (Horak, 1977). The percentage of larvae from goats which gave rise to adults was, however, smaller than that from sheep.

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