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## Sheep demodecosis (*Demodex ovis* Railliet, 1895) in Israel

**L**a démodécie ovine (*demodex ovis*) Railliet, 1895, en Israël - La démodécie de moutons en Israël est décrite pour la première fois. La maladie a été décelée presque exclusivement chez des moutons de race Merinos et croisements Merinos × Finlandais. Un seul cas de démodécie a été signalé sur une brebis croisée Awassi × Ost Friesian (Assaf). Les animaux parasités étaient âgés de 2 ans ou plus. Vingt-huit troupeaux Merinos et 12 troupeaux Merinos × Finlandais ont été examinés, dont 12 (43 p.100) et 4 (33 p.100), respectivement, étaient parasités. Les 60 troupeaux Awassi visités se révélaient négatifs. Au total, 118 troupeaux ont été examinés dont 17 avaient des animaux présentant des nodules démodectiques. En général, le pourcentage des animaux parasités dans chaque troupeau a été plutôt bas (moyenne : 14,4 p.100). *Mots clés* : Ovin - Démodécie - Israël.

### INTRODUCTION

Sheep demodecosis, caused by *Demodex ovis* (Railliet, 1895) was first diagnosed by Simon in 1842 in the meibomian glands of the eyelids of sheep. The disease has been thoroughly studied by RAILLIET (1985). The parasite has been shown to be world widely distributed and has been described in various countries (1, 2, 3, 4, 6, 7, 10, 12, 14) and in different breeds of sheep (4, 15).

Sheep demodecosis, recorded for the first time in Israel, is described in the present communication.

### MATERIALS AND METHODS

One hundred and eighteen flocks of sheep have been examined throughout the country in the years 1983-1984. Size of the flocks ranged between 100-1,000 ewes, and breed distribution was as follows

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60 Awassi, 28 Merino, 18 Assaf (Awassi × Ost Friesian) and 12 Merino × Finnish cross flocks. The Awassi and Merino flocks graze on natural pasture while the cross-breeds are maintained indoors.

Several ewes of different ages were examined at random in each herd as well as those suspected of demodecosis. A few rams were checked as well. Suspected skin nodules were incised with a scalpel and the cheeselike contents collected and sent for further checking in the laboratory. The material was firstly screened at magnification of × 50. Once found positive it was examined with light microscope and phase contrast at a magnification of × 200, × 400 and × 1,000. Skin biopsies were taken from suspected sheep in 5 flocks for histological examination.

### RESULTS

Demodectic lesions were found in 17 (14.4 p.100) out of the 188 flocks examined. Twelve (70.5 p.100) of the 17 positive flocks were Merino, 4 (23.5 p.100) Merino × Finnish cross and 1 (6 p.100) Assaf. Suspected skin nodules, found in other 30 flocks, were shown negative for demodectic parasites.

The results are presented in table I.

TABLE I Demodectic infestation in flocks of sheep of various breeds in Israel (1983/1984).

	Nb. of flocks	Rate of infestation	
		Nb.	p. 100
Merino	28	12	42.8
Merino X Finnish	12	4	33
Assaf (Awassi X Ost-Friesian)	18	1	5.5
Awassi	60	0	0
Total	118	17	14.4

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Demodectic nodules, ranging between 3-8 mm in diameter, were found in few animals in each infested herd. The lesions were localized on the face, chin and ears, and more rarely on the inner face of the legs (Photo 1). The nodules contained a white cheeselike material which microscopically proved very rich in parasites. *Demodex* parasites obtained from the cross breeds showed intensive motility, squirming across the slide. Such activity was not observed in the parasites collected from the Merino sheep. Histologically the demodectic nodule had a cystlike structure packed with parasites. Infested sheep were 2 years old or more, the majority being 3-5 years old. In one case demodectic nodules were found on a Merino ram. The infested animals were maintained under adequate conditions and in perfect health.

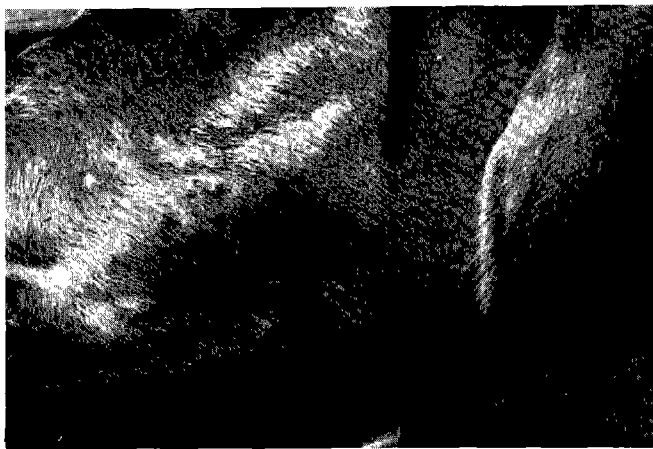


Photo 1 : Demodectic papules (*Demodex ovis*) on the face of a Merino ewe.

## DISCUSSION

Sheep demodecticosis has been described as a mild

parasitic disease (6, 12), generally observed in its chronic latent form (11). KLINSKII (1959) described 2 species of *Demodex* in sheep. The lesions appear as skin nodules or more rarely pustules with no effect on the wool (2, 3, 4) or else the wool, soiled by a sebaceous secretion, becomes massy, glued in clusters, tinted reddish-brown with a repulsive smell. In the last case parasites were found in skin scrapings (5, 14). In the present study isolated nodules were observed mainly on the head with no other clinical manifestations. BROWNLEE (1935) reported that most of the infested sheep were in bad condition whereas in our case no physical deterioration was observed.

*Demodex* parasites were often observed in the meibomian glands of the eyelids (2, 8, 9, 12) and the epithelial cells of the sensory hairs (13). Some authors (3, 4) claim that skin areas particularly rich in well developed sebaceous glands are most frequently parasitized. In our study demodecticosis was detected mainly in the Merino sheep and its crosses. In one case *Demodex* was found in a skin scraping of an Assaf (Awassi × Ost Friesian) ewe infested with sarcoptic mange. These findings would indicate a difference in the susceptibility of the various ovine breeds to the parasite.

Demodecticosis was detected in ewes aged 2 years or more. Lambs, aged less than 1.5 year which originated in 4 infested flocks were found negative. This finding would allude to the slow evolution of the disease. However, NEMESERI and SZEKY (1966) reported demodecticosis in young animals. All developmental stages of *Demodex* have been found in the meibomian glands from eyelids of sheep (2). No such checking was attempted in our study. Means of transmission of demodectic parasites in sheep are still unknown (15) and experimental transmission failed (6). ■

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Demodecticosis in sheep in Israel is described. The disease has been detected almost exclusively in Merino and Merino × Finnish cross. A single case has been reported in an Awassi × Ost Friesian (Assaf) ewe. Demodectic infestation was found in animals aged 2 years or more. Twelve (43 p.100) out of the 28 Merino flocks and 4 (33 p.100) out of the 12 Merino × Finnish flocks examined were found positive for demodecticosis. All 60 Awassi flocks examined proved negative. In all, 17 out of 118

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Se describe por primera vez la demodecticosis de las ovejas en Israel. El parásito fue descubierto casi exclusivamente en raza Merino y cruza Merino × Finlandesa. Un solo caso fue encontrado en una oveja Awassi × Ost Friesian (Assaf). La infestación demodectica se halló en animales de 2 años o más de edad. Doce (43 p.100) y cuatro (33 p.100) de un total de 28 rebaños Merino y 12 rebaños Merino × Finlandesa respectivamente que se examinaron eran parasitados. Un total de 60 rebaños Awassi

flocks examined were found infested with demodectic nodules. The mean rate of demodectic infestation in the flocks was rather low (14,4 p.100). *Key words* : Sheep demodecosis – Israel.

resultaron negativos. En suma, de un total de 118 rebaños examinados, 17 (14,4 p.100) resultaron parasitados. La prevalencia de la demodecosis en los rebaños fue bastante baja. *Palabras claves* : Oveja – Demodecosis – Israel.

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