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THE PREVALENCE OF *HYPODERMA LINEATUM* AND *HYPODERMA BOVIS* (DIPTERA: OESTRIDAE) INFESTING CATTLE IN ISTANBUL REGION, TURKEY

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INTRODUCTION

Larvae of *Hypoderma* spp. are obligatory parasites of cattle. During part of its life cycle, the larvae migrate through the skin, oesophagus, spinal cord, muscles, fat causing great tissue damages (Zumpt, 1965). These damages reduce the milk yield 10 % per day (Bevan and Edwards, 1951) and body weight 10.4-18.6 kg per head (Drummond et al.,1981).

Infestation of cattle with these two flies species is common parasitic problem in Ankara, Samsum and Amasya regions (Celep and Gursoy, 1987; Zeybek, 1988).A high incidence has been reported also in China (Yan, 1986); Italy (Marconcini et al. ,1985); Britain (Beesley, 1974) and in Korea (Jange et al. ,1987).

Information about the prevalence of *Hypoderma* spp. infesting cattle in Istanbul region have not been recovered. Therefore, the aim of this work is to study the incidence and monthly prevalence of these parasites in Istanbul.

MATERIAL AND METHODS

2326 cattle of both sexes, between 1-10 years old, slaughtered at Kucukcekmece abattoir,Istanbul were

examined in this study. The examination was made weekly during the period from March, 1990 to April, 1991. The larvae of *Hypoderma* spp. were manually collected from the skin of each infested cattle, preserved in labelled vials containing 70 % ethanol and identified according to Zumpt (1965).

RESULTS

Exampination of 2326 cattle (Table I) revealed that 29 (1.2 %) were infested with *Hypoderma lineatum* and 16 (0.7 %) were infested with *Hypoderma bovis*. The infestation rate of combined spp. reached 1.9 %

The monthly prevalence of *H. lineatum* (Table 1) demonstrated that the larvae were found only during five months of the year (from March to May, December and February) with mean larval burden of 22.1 larvae per cattle. Simultaneously, the highest mean larval number per cattle was in December (38.5). However, the lowest mean was in February (2.0) and varied from 16.7-28.5 in the period between March to May. The rate of infestation reached its peaks in April (4.9%) and December (4.7 %) and declined to its minimum in February and March (1.1 % each).

The monthly prevalence of *H. bovis* (Table I) revealed that the larvae were found only during four months (April, May, December and February) with a mean larval burden of 20.4 larvae per cattle. The highest mean larval burden per cattle was in December (29.0), and the lowest mean was in April (4.3). The infestation rate reached its maximum in December (3.1 %), and its minimum was in February (1.1 %).

The size of infestation (Table II) showed that the percentage of cattle infested with 1-20, 21-40 and 81-100 larvae were 0.69, 0.47 and 0.09 % for *lineatum* ; and 0.43, 0.22 and 0.04 % for *H. bovis* respectively. No cattle was found infested with 41-60 and 61-80 larvae of either *H. lineatum or H. bovis*.

Table I: Monthly prevalence of *Hypoderma spp.* infesting cattle in Istanbul.

Month	Exam.	*H. lineatum*			*H. bovis*			Combined spp.		
	No.	Inf. No.	M.L. No.	Inf. %	Inf. No.	M.L. No.	Inf. %	Inf. No.	M.L. No.	Inf. %
March, 1990.	90	1	25.0	1.1	0	0	0	1	25.0	1.1
April	302	15	16.7	4.9	6	4.3	1.9	21	13.2	6.9
May	360	6	28.5	1.7	5	25.2	1.4	11	27.0	3.1
June	260	0	0	0	0	0	0	0	0	0
July	266	0	0	0	0	0	0	0	0	0
August	195	0	0	0	0	0	0	0	0	0
September	216	0	0	0	0	0	0	0	0	0
October	171	0	0	0	0	0	0	0	0	0
November	150	0	0	0	0	0	0	0	0	0
December	127	6	38.5	4.7	4	29.0	3.1	10	34.7	7.9
January, 1991.	100	0	0	0	0	0	0	0	0	0
February	89	1	2	1.1	1	23.0	1.1	2	12.5	2.2
Total	2326	29	22.1 SE. 6.1	1.2	16	20.4 SE. 5.5	0.7	45	22.5 SE. 4.3	1.9

Inf. No. : Infested number.

M.L. No. : Mean larval number.

SE. : Standard Error.

Table II: Ranked size of *H. lineatum* and *H. bovis* infestation in cattle

Size of infestation	*H. lineatum*		*H. bovis*		Combined spp.	
	NO. of cattle	% of cattle	No. of cattle	% of cattle	No. of cattle	% of cattle
0	2297	98.75	2310	99.31	2281	98.06
1 - 20	16	0.69	10	0.43	26	1.12
21 - 40	11	0.47	5	0.22	16	0.69
41 - 60	0	0	0	0	0	0
61 - 80	0	0	0	0	0	0
81 - 100	2	0.09	1	0.04	3	0.13

Table III: Effect of age of cattle on the level of infestation by *Hypoderma spp.* larvae.

Age of cattle (year)	Exam. No.	Infestation No.	Infestation %	Mean larval No.
1 - 3	1894	26	1.37	17.7
4 - 6	201	10	4.98	16.4
7 - 10	231	9	3.90	36.7

A total of 970 larvae of both *Hypoderma* spp. were collected; 679 (70 %) were *H. lineatum* and 291 (30 %) were *H. bovis*.

The effect of cattle age on the level of infestation (Table III) revealed that the highest percentage of infested cattle (4.98 %) was seen in those aging 4-6 years. However, the greatest larval burden per cattle (36.7) was seen in adult cattle (7-10 years old). The lowest percentage of infested animal (1.37 %) was observed in calves (1-3 years old) with relatively low mean larval burden (17.7).

DISCUSSION

The present results indicated that cattle in Istanbul were infested with two species of *Hypoderma*, *H. lineatum* and *H. bovis*. The infestation rate of the combined species (1.9 %) was low as compared with those reported in other provinces of Turkey. It was 57 % in Samsum and Amasya regions (Celep and Gursoy, 1987)and from 5-93 % in Ankara (Zeybek, 1988).

A higher incidence was also reported in other countries; 64.54 % in China (Yan, 1986), 28.6 % in Italy (Marconcini et al. ,1985) and 43-55 % in Britain (Beesley, 1974). The mean larval burden per cattle (22.5) of combined spp. recorded in this study was in accordance with that reported in Tunisia (2-76) by Kilani et al. (1986).

As found by Yan (1986) in China and Kilani et al.(1986) in Tunisia, our study also revealed that the prevalent species was *Hypoderma lineatum*. This finding might be due to: (1) larvae of *H. lineatum* was found during five months of the year versus four months only in *H. bovis*, (2) the highest mean larval burden was 38.5 larvae in *H. lineatum* versus 29.0 larvae in *H. bovis*, and (3) the infestation rate was 1.2 % in *H. lineatum* versus 0.7 % in *H. bovis*.

This study demonstrated that the lowest percentage of infested animal (1.37 %) was observed in calves (1-3 years old) and that the greatest larval burden (36.7) was seen in adult cattle (7-10 years old). However, Yan (1986) found that the greatest infestation was in calves.

SUMMARY

Out of 2326 cattleexamined at Istanbul abattoir in 1990-1991, 45 (1.9 %) were found to be infested with *Hypoderma lineatum* and *Hypoderma bovis*, with annual mean larval burden of 22.5 larvae per cattle. The more prevalent species was *Hypoderma lineatum* (1.2 %). For both species, the highest mean larval burden per cattle was in December and the lowest mean was in February.

The intensity and infestation rate were significant different between adults and calves where they were greatest in adults. 970 larvae were found in the skin; 679 (70 %) of them were *Hypoderma lineatum* and only 291 (30 %) were *Hypoderma bovis*.

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