

# A Survey Study on Sheep Infestation with Lice in Salah Al-Din Governorate

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## Abstract

A survey study was conducted for the spread of sheep lice on about 1800 head of sheep distributed in various districts and districts of Salah El-Din Governorate, depending on the physical examination and for the period from 10/1/2021 to 1/4/2022.

The study showed the presence of one species of *Linognathus vituli* parasitizing on sheep in Salah al-Din Governorate. The total number of animals examined during the study months was 1800 head of sheep and the total number of infected animals was 1122, with a total percentage of 62.33% and the highest percentage of infestation in the month of January The first was 95.26%, and in January it was 91.71%, and the lowest infection rate in October was 27.20%, and in March it amounted to 28.80%, as shown in Table.

**Keywords:** sheep infestation; health; lice

## 1. Introduction

Lice is a highly specialized obligate ectoparasites, as each species parasitizes a particular host. The louse that spreads in both humans and animals belongs to two orders: the order Anoplura, to which the louse belongs, represented by *Pediculus humanus* and *Pediculus humanus*. *Phthirus pubis*, *Linognathus ovillus* sheep body louse, Goat *Linognathus tenopsis* *Linognathus*, in addition to several species that infect birds [1] Lice can cause a wide range of animal health problems such as mechanical tissue damage, irritation, inflammation, hypersensitivity, boils and weakness, and when present in large numbers cause anemia and reduced productivity in the animal [2] and cause economical losses reflected on animal health such as anemia, lack of milk production and poor quality of wool, as well as causing severe discomfort to the animal, itching and unwillingness to eat.

## 2. Material and Methods

### Field visits

The field survey included the examination of (1800) sheep of different ages Ranging between (month - 10) years, depending on teething

And of both sexes, for the period from October 2021 until April 2022. To detect lice, two visits per week and randomly through the mine-breeding barns located in different areas of Salah al-Din Governorate. Where the required information was included in a form prepared in advance for this purpose, which includes the areas of louse on the body of the animal, recording the sex, age, area of sampling, the severity of the infestation and the date of examination of the samples..

### Lice sample collection

Lice samples were collected from different areas of the sheep's body using a soft head comb, as well as by hand in areas with light or hairless hair from different areas of the body [3] and the samples were preserved using 70% ethanol alcohol and placed In special plastic tubes, the

date of collection and the area from which it was collected until the study is written (Hasson, 2016)..(

### Phenotypic study

Take the insect out of the alcohol in which it was kept, wash it using distilled water and leave it in for 5 minutes to get rid of alcohol and impurities stuck in the outer structure of the insect's body, and leave it to dry, then put it in plastic tubes containing a 10% potassium hydroxide solution KOH and leave the insect in the solution for a period Two days to soften it and gain the necessary transparency (Then the samples were passed with ethyl alcohol with ascending concentrations 100-90-80-70% and for one day for each concentration in a row [4]. Where a white gel appears at the bottom of the plastic tube in small quantities, which is: C<sub>2</sub> H<sub>5</sub> OK (potassium ethoxide), which was formed as a result of the reaction of ethyl alcohol with potassium hydroxide, as shown in the equation below:

$C_2 H_5 OH + KOH \rightarrow C_2 H_5 OK + H_2 O$  potassium ethoxide + potassium hydroxide water + ethyl alcohol

The sample is placed in a funnel with filter paper to get rid of the alcohol and the gel and the samples were collected in filter paper by forceps and transferred to a higher concentration of alcohol and so on and then placed in xylol solution and left for two days and then examined under the microscope with a magnification of 4×10 and 10×10 to obtain A clear picture of the insect [5].

## 3. Results and Discussion

Infection of sheep with lice according to the months of the year

The study showed the presence of one species of *Linognathus vituli* parasitizing on sheep in Salah al-Din Governorate. The total number of animals examined during the study months was 1800 head of sheep and the total number of infected animals was 1122, with a total percentage of 62.33% and the highest percentage of infestation in the month of January The first was 95.26%, and in January was 91.71%, and the lowest infestation rate was in October, 27.20%, and in March, which

amounted to 28.80%, as in Table 1. The months of the year during the study period had a clear effect, as the spread of lice among sheep increases due to the availability of appropriate conditions with a low degree Temperature and high relative humidity, and this leads to

an increase in the proliferation of lice, and this is in agreement with [6] as it was mentioned that climate factors have a clear impact and that the drier and warmer areas suffer from the least number of parasites.

**Table 1 The percentage of sheep infestation with lice by months of the year.**

Percentage of infection%	Number of infected animals	Number of animals	examined Temperature		month	T
			Great	Minor		
27.20	68	250	.359	.198	October	1
37.81	121	320	28.4	16.7	November	2
95.26	362	380	14.9	7.8	December	3
91.71	321	350	.122	3.7	January	4
71.20	178	250	.245	10.3	February	5
28.80	72	250	27.0	.162	March	6
62.33	1122	1800	Total			

Sheep louse infestation

The study, which was conducted on sheep flocks from different regions, was recorded, where the highest area in which the infection rate was concentrated was the back area with a rate of 26.47%, and then followed by the abdomen area with a percentage of 19.93%, while the areas of the back and chest were 15.70%, while the rest of the areas were varying percentages and were lower. The percentage in the genital area was 2.94%, as shown

in Table 2 and 3.

The current results agree with [7], where the high rate of infestation was concentrated in the back and abdomen area, and the lowest percentage was in the genital areas, and the reason is due to the thickness of the wool in these areas, which provides the lice with an atmosphere conducive to living and reproduction.

**Table 2 The area of sheep lice infestation by body area.**

The back area	the feet area	genital area	udder area	Abdomina area	back area	chest area	neck area	head area	month	T
6	3	2	4	12	18	10	8	5	October	1
31	9	6	11	15	28	19	12	8	Novembe	2
25	23	21	43	68	71	45	31	35	December	3
34	23	26	40	64	58	24	34	18	January	4
19	21	15	9	30	32	22	18	12	February	5
10	7	4	5	9	14	11	7	5	March	6
107	86	74	103	198	221	131	110	83	Total	

**Table 3 Percentage of sheep infestation with lice by body.**

The back area%	the feet area%	genital area%	udder area %	Abdomina area%	back area %	chest area%	neck area%	head area%	month	T
8.82	4.41	2.94	5.88	17.64	26.47	14.70	11.76	7.35	October	1
10.74	7.43	8.82	9.09	12.39	23.14	15.70	9.91	6.61	Novembe	2
6.90	6.35	5.80	11.87	18.78	19.61	12.43	8.56	9.66	December	3
10.59	7.16	8.09	12.46	19.93	18.06	7.47	10.59	5.60	January	4
10.67	11.79	8.42	5.05	16.85	17.97	12.35	10.11	6.74	February	5
13.88	9.72	5.55	6.94	12.50	19.44	15.27	9.72	6.94	March	6
61.6	46.86	39.62	51.29	98.09	124.6	77.92	60.65	42.9	Total	

The relationship of infection to the age of the animal. The results of the current study indicated that the age of the animal had a significant impact on the rates of infestation, as the highest rate of lice infestation was recorded at the ages between 1 - < 3 years, and the

percentage was 72.99%, followed by the ages between 3-6 years and at a rate of 71.60%, and the lowest was recorded in the ages between 8- 10 years, where the percentage amounted to 42.46%, as shown in Table 4.

**Table 4 The relationship between the age of the host and the infection rate.**

Percentage of injury%	Number of infected animals	Number of animals	Age in years
58.24	219	376	month - < year(
72.99	327	448	)year - <3)year
71.60	295	412	(6> -3)years old
55.76	174	312	(8> -6)years old
42.46	107	252	(10-8)years
62.33	1122	1800	total summation

The results of the current study showed a high incidence of infection in ages greater than three years and less in

ages from eight to ten years. The results agreed with the findings [8] who recorded a high incidence of infection at

ages greater than two years and its decline in large animals, and he attributed the reason to the lack of host resistance.

### Rrea effect

The region had an effect on the rate of lice infestation, as the highest infection rate among the examined herds during the study period was recorded within the Dujail district by 70%, then the Mukashifa region by 69%, then the Banat Al-Hassan, Balad and Mafraq regions, respectively, with rates of 55%, 55.2%, 55%, respectively.

Table 5.

Percentage of injury%	Number of infected animals	Number of animals	Regions
55	231	420	Daughters of Hassan
70	350	500	Dujail
55.2	210	380	country
69	276	400	Tigris district
55	55	100	Mafraq
62.33	1122	1800	the total

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