

Epizootology Bovicosis of Cattle

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Abstract – The article provides information on the common ectoparasites epizootiology among cattle.

Keywords – *Dynamics, Intensive, Biting Lice, Extensive, Ectoparasite, Endoparasite*

I. INTRODUCTION

Today, due to the growing demand for livestock products around the world due to the coronavirus pandemic, large-scale reforms are being carried out in our country. At the same time, adequate satisfaction of the population's demand for milk, meat, eggs and other livestock products in food security depends in many respects on the animal breeding development and increase its efficiency. Difficulties in providing livestock with medicines, insecticides and other drugs in recent years, increased animal migration, as a result of the sanitary conditions deterioration in livestock buildings, there has been a sharp increase in the number of ectoparasites among cattle, especially biting lice. This is a serious obstacle to increasing the livestock productivity and meeting the population's demand for quality and environmentally friendly livestock products.

Biting lice is the most common ectoparasite among cattle, causing severe persistent discomfort in cattle, hair loss, skin dermatitis and hyperkeratosis, appetite decreases, resulting in young cattle lagging behind in growth and development, milk yield of dairy cows decreases by 30-50 percent, and sometimes stops milking altogether. In addition, they are carriers of many pathogens, namely viral, bacterial, fungal and helminthic, and have even been reported to pass into the human body.

At present, in all countries, the epizootiology disease identification, modern methods development of treatment and prevention is an urgent scientific and practical problem.

II. RESEARCH STYLE

The types of insects collected were identified in the laboratory of arachnoentomology using manuals and identification tables, as well as other specialized literature («Keys to the biting lice (Mallophaga) of domestic animals. Fauna of the USSR. M.,-L.: ed. ANSSSR, 1940; Biting lice. Part 1. ed. ANSSSR, 1959, D.I. Blagoveshensky).

III. RESEARCH RESULTS

In the livestock farms of the country, biting lice, i.e. *Bovicola bovis* - occurs throughout the year in cattle, in poor sanitary conditions, in the cold season, it covers about 90-100% of cattle. Biting lice is the most common persistent ectoparasite among

cattle all over the world, belonging to the *Arthropoda* type, *Insecta* class, *Mallophaga* family, *Trichodectidae* family, *Bovicola* family, *Bovicola bovis* species.

Bovicola bovis – 1.0-2.0 mm small, wingless, elongated oval, flat, brownish-yellow insect, the oral apparatus is the rodent type, consisting of upper and lower lips as well as upper and lower jaws, and has small teeth at the jaws. The eyes are not well developed, the chest has three joints, three pairs of edges are joined by small legs (claws), the claws end tips with one or two claws, the abdomen is elongated oval, segmented, unique with wool and feathers, ie covered with each type, consists of 8-9 joints and six pairs of airways (Fig. 1).



Figure 1. Microscope view of biting licening *Bovicola bovis* imago and larvae

Development cycle. It is an insect that lives in the host's body all its life, from the egg to the imago phase, and the imago forms live for 31-41 days, during which time the female biting lice and attaches 20-100 eggs to the wool root of cattle at a height of 1-3 mm. After 12-16 days the larvae emerge from the egg and begin to feed, the larvae hatch three times and after 19-22 days the adult form - imago. The overall developmental cycle is 4-5 weeks.

Pathogenesis. Biting lice crawl on the surface of cattle skin and feed on epidermal tissue with their strongly developed jaws, while tickling the nerve fibers of the skin causes intense itching, resulting in hair loss, skin dermatitis and hyperkeratosis (Fig. 2). In addition, biting lice release saliva into the wound during feeding, which is toxic to the cattle organism and prevents blood clotting.



Figure 2. Cattle infected with biting lice *Bovicola bovis*

It was found that the biting louse of cattle is more common mainly on farms where sanitary-hygienic, feeding and storage conditions do not meet the requirements. During long-term transportation of cattle, ie from one state to another (migration), the spread of biting lice was also observed through wool, leather raw materials and water (during bathing and drinking).

According to our research, biting lice are more common in cattle of all ages and on farms with poor sanitation (up to 90-100 percent) and occur throughout the year. However, their extensive and intensive damage levels varied depending on environmental factors. Therefore, the epizootology of cattle biting lice was studied during 1997-2020. As a result, in all decades, months and seasons of the year, in different geographical zones and farms, animal species and ages (including breed and sex), the seasonal distribution of biting lice, the dynamics of breeding, the emergence of different phases (eggs, larvae and imago) duration, levels of intensive and extensive damage with biting lice were determined (Figure 1). The high humidity and comfortable temperature in the building, the lack of sunlight in the winter months, the longness of the animal's fur, their poor nutrition and intensive storage create favorable conditions for the development and rapid spread of biting lice. During the summer months, when the animals went out to pasture, their numbers decreased sharply due to sunlight and drought, as well as due to the shedding of animals.

As a result, biting lice occur in the body of cattle in all months, but the intensity and intensity of the invasion varies with the season, ie the damage is maximal in December-January-February-March-April-May, minimum in June-July-August-September, October-November observed to be in average condition in the months.

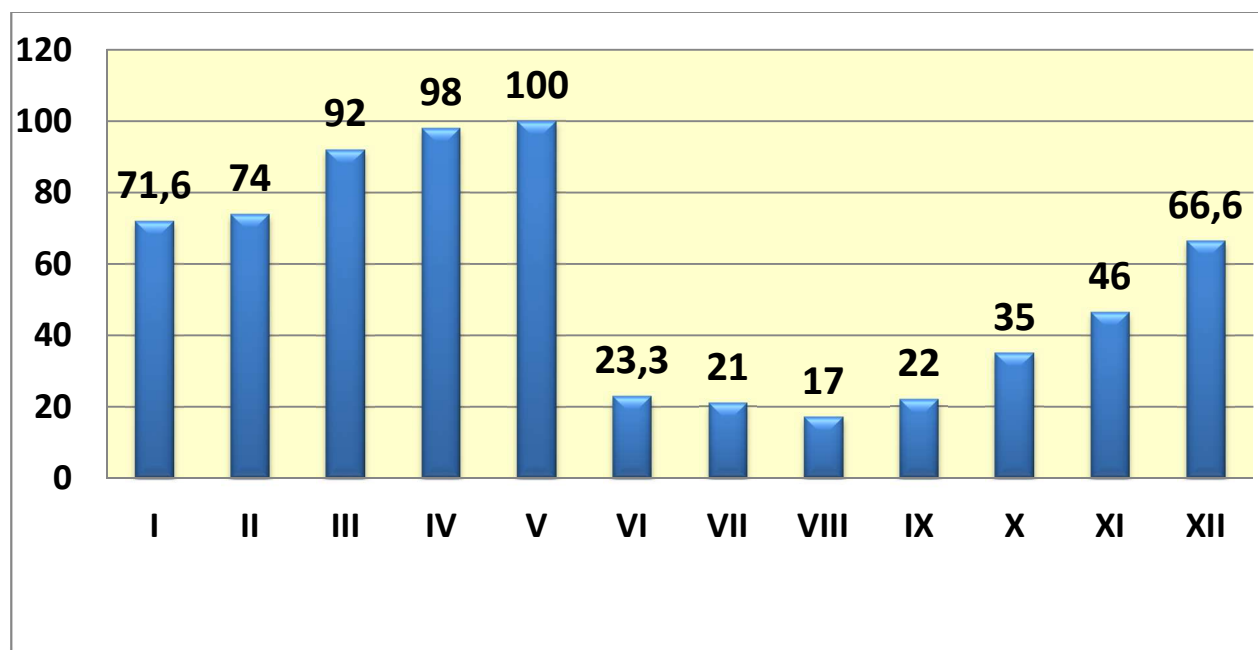


Diagram 1. The rate of damage by months with biting lice of cattle

Extensive damage (ED) rate with seasonal liceing of cattle in the study of calves up to 5-6 months, in cattle aged 18-20 months and older - in the winter - up to 69.0-72.0 percent, the intensity damage (ID) rate ranges from 677-963 copies per 100 cm² of skin surface, in the spring, the ED level is 95.0-98.0 percent, and the ID level is 1003 to 1224 copies per 100 cm² of skin, in the summer, the ED level ranges from 18.0 to 23.0 percent, and the ID level ranges from 7-9 copies per 100 cm² of skin surface, in the autumn, the ED level was found to be 31.0-37.0 per cent, and the ID level was found to be 94-242 copies per 100 cm² of skin surface, and young cattle were more severely damaged than older cattle (Diagram 2).

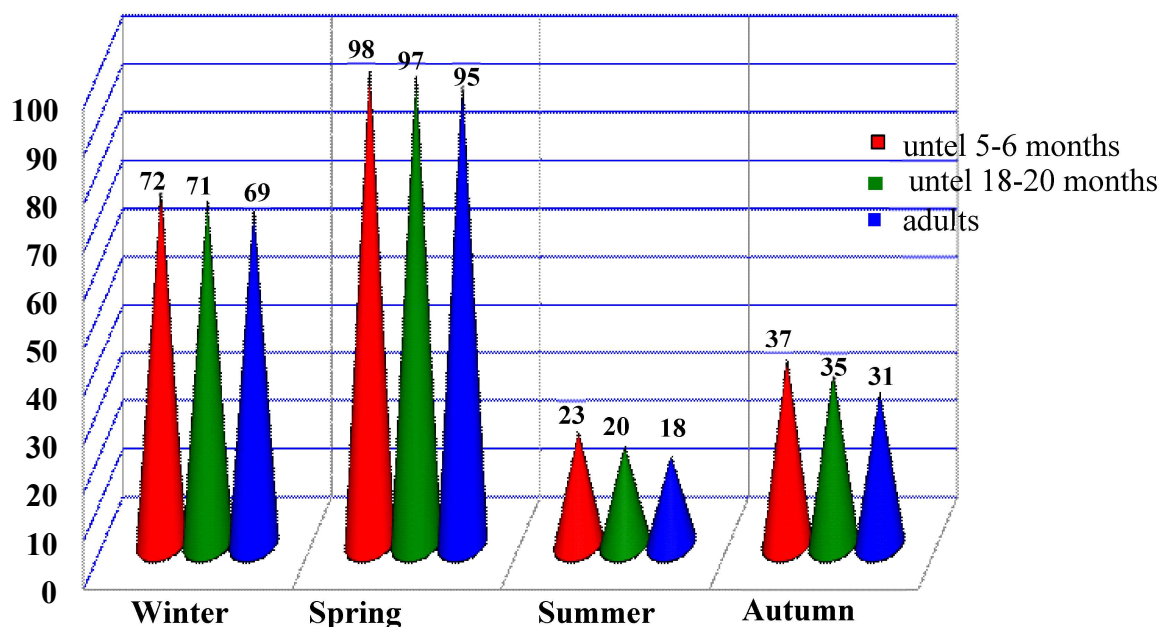


Diagram 2. Seasonal dynamics of biting lice in cattle of different ages

These indicators were summarized and the seasonal average extensive infestation rate was determined by biting lice of total age cattle (Diagram 3).

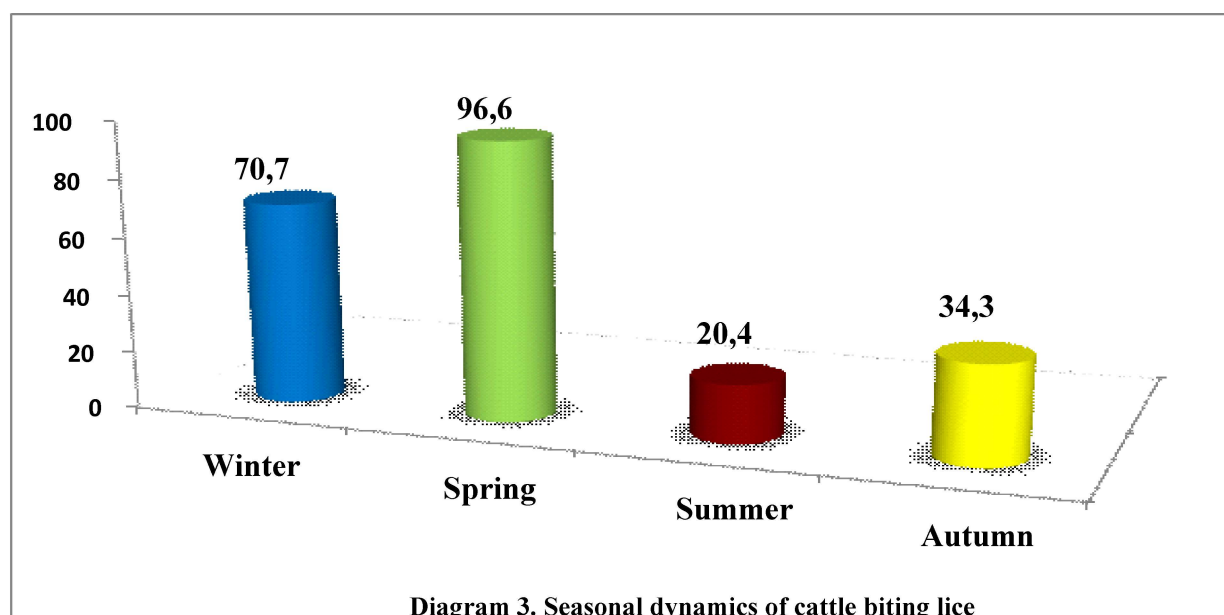


Diagram 3. Seasonal dynamics of cattle biting lice

Thus, when we determine the seasonal distribution dynamics of biting lice in cattle, the most extensive damage peak falls in the spring. The average number of cattle was 96.6%, 70.7% in winter, 20.4% in summer and 34.3% in autumn and biting lice was observed in the epizootic form.

IV. CONCLUSION

1. Among cattle, biting lice from ectoparasites is the most common and affects cattle of all ages, especially on farms with poor sanitation, covering about 90-100 percent of cattle during the cool seasons.

2. Biting lice occurs in cattle in all seasons. However, the extent and intensity of the invasion varies with the season. At the same time, the damage is maximum in December-January-February-March-April-April-May, minimum in June-July-August-September, and moderate in October-November. In seasonal dynamics, epizootics are observed at a maximum in winter and spring, a minimum in summer and an average in autumn.

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