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The spread, clinical and diagnostic features in case of dermanisiosis in poultry (review of the literature data)

In this article, the literature data on the spread of bird dermanisiosis measures against chicken mites

***Dermanyssus gallinae* in poultry farms are given.**

Poultry red mite, dermanisiosis, poultry, Dermanyssus gallinae

At this time, dermanisiosis is the most common problem caused by ectoparasites of birds, which results in significant economic losses due to decreasing of productivity of poultry and quality of poultry products, and, sometimes, mortality of chickens. Performing of regulated veterinary-sanitary measures is one of the major conditions of effective poultry. The purpose of work was to analyze the literature data on spreading features of dermanisiosis of poultry [3-4, 6].

Dermanyssus gallinae has a tender, oval, 0,75 mm long body, pale yellow in color, and after blood sucking, becomes up to 2 mm long, turning red or brown with metallic shade in color. It has a piercing-sucking type of proboscis. Legs are long and have claws on the ends (fig. 1). Cuticle forms a solid shield. After feeding, a mite leaves the bird. The larva doesn't feed with the blood [2,5].

Often the semites are found in homes of rural residents. Mites attack the birds mainly at night time, but in the cold can find them on the bird at day time [8, 11, 12, 14].

Dermanyssus gallinae lives in poultry houses, nests of poultry and wild birds. It may also bite some species of mammals, including humans, causing pruritus and allergic dermatitis [1, 15].

The mite progresses through 5 life stages: egg, larva, protonymph, deutonymph and adult in 6-12 days. In the southern areas during the year develop 20-24, in the north-up to 5-6 generations of mites. In adult stage, the mites can starve up to 1

year. Mites attack the birds mainly at nighttime [11]. At temperatures below + 10 °C the development of mites is suspended. Ticks on all stages of development are capable of long-term fasting: 6-7 months. This should be considered when planning acaricidal measures. Direct sunlight acts on parasites harmfully [2, 4, 6-8, 14]. Ukraine has all the climatic and geographical conditions for growth and reproduction of these ectoparasites, that's why they are common in poultry farms in our country.

Researches of various foreign scientists also point to a significant dissemination of these mites. Thus, *Dermanyssus gallinae* is prevalent in 68% of free-range poultry farms in Denmark [11]. In France, in 74,7% of poultry farms, specialized on production of organic eggs, was revealed the presence of red mites [10], and in Poland the presence of parasites – in 100% of inspected farms [9].

Most mites are found in poultry houses during the warmer seasons – spring and summer. In heated poultry houses, the mites could be found in winter time. Most mites are getting into the poultry house at the time of regrouping of birds or importation of poultry from unfavorable farms, as well as using packaging, equipment, through wild birds and staff. Chicken mites are not capable of active movement, but with their master, they could be passively transferred over long distances [2, 4-7, 10-12, 14].

As parasites in poultry, mites are

injuring the skin with bites, releasing toxic saliva into the wound, sucking blood. At that point chickens are restless, they are pecking skin, pulling out feathers. Anemia develops; resistance, egg production and live weight gain of poultry are decreasing.

One should keep in mind that chicken mites are carriers of infectious and parasitic diseases, including borreliosis of poultry, spirochaetosis, Saint Louis encephalitis and other [5, 16]. The possibility of transferring by mites of various diseases, common to humans and animals, is proven [16].

To detect mites one can check the poultry house on their availability at day time and at night. In the daytime the dust, which is removed from the bottom of the chicken nest, shaded areas of the cage or from the different gaps of room, is placed on a white paper or a piece of cloth and is closely examined with the naked eye or with a magnifying glass. Moving mites are clearly visible. At night, the floor of the cages and the birds' body should be inspected in bright light. So-called "method of early diagnosis" of red mite *Dermanyssus gallinae* is common. With this purpose, about 10 cm of mud (taken from different places of premises) one puts in a bucket, which is covered with a sheet of white paper (for easier recognition of mites). After 24 hours the paper is examined under bright light [13].

To prevent the importation of mites from unfavorable poultry farms with equipment and poultry, it

is necessary to maintain cleanliness in the poultry house, timely and thoroughly close cracks and joints in buildings.

Poultry houses should be constructed so that they did not have places for chicken mites to stay.

Drinking bowls, cages and feeders are disinfected by immersing them for 4-5 minutes into the acaricidal solution. Feeders and drinking bowls, after application of acaricidal solution, should be washed with water.

The effectiveness of preventive measures is largely dependent on the method and remedy for killing mites. Among the existing ways to combat ectoparasites of birds the main is chemical way, as synthetic insectoacaricides have a wide range of actions, simultaneously destroying a number of pests from different taxonomic groups at different stages of development.

The list of insecticides, approved for use, is constantly changing. To be sure of the correct application, follow the instructions to the drug, in which dose and method of administration must be specified [3-5].

In modern poultry laborious measures are not permissible. The key for successful application of insectoacaricides is the penetration of a drug to the place of direct staying of the parasite. When spraying, each bird should be subjected to careful handling – to be wet to the skin, and in poultry houses places, where the parasites are concentrated, shall be subjected to processing. According to Kyryllovskiyh V.A. (1998), Tymofeyeva B.A. (2003) the preferred method of treatment of hens, grown in cages, is spraying of preparations under high pressure on the outside of the cage. Other types of equipment can be used, if they guarantee the penetration of the insecticides into the skin and feathers [3, 4].

Conclusions

1. Analysis of the literature shows that red chicken mite *Dermanussus gallinae* is widely spread in the world and in our country. There are optimally favorable climatic and geo-

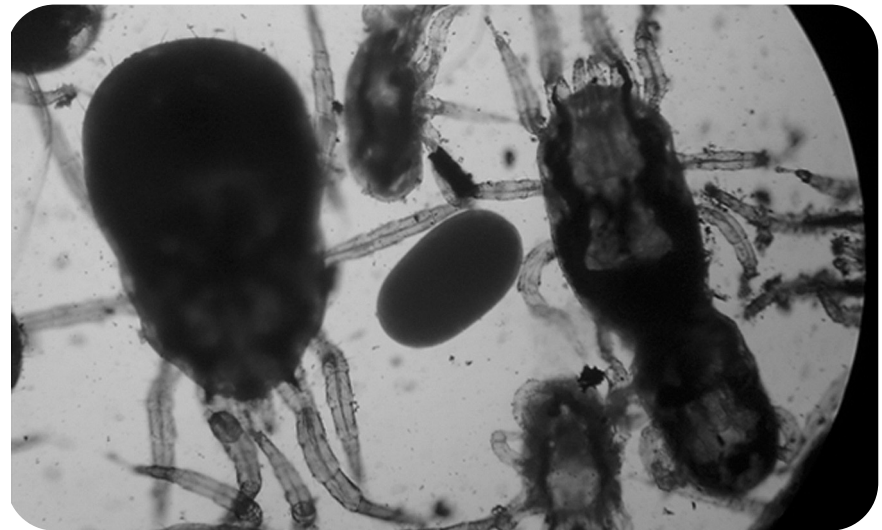


Fig. 1. Chicken mite *Dermanussus gallinae*

graphical conditions for growth and reproduction of ectoparasites in Ukraine, so dermanisiosis is registered in almost all poultry farms.

2. With frequent and massive parasitizing of mites, birds are getting weak, their productivity is decreasing and sometimes birds die, which leads to significant economic losses. In addition, chicken mites are carriers of infectious diseases, including dangerous or humans.

3. Considering the characteristics of the biology of the pathogen, treatment and preventive measures for this disease are extremely difficult. Their effectiveness depends largely on the method of processing and remedy, which is used for killing mites.

У статті наведено короткий огляд літературних джерел з поширення, особливостей клінічного перебігу та основних



заходів боротьби при враженні птиці курячим кліщем *Dermanussus gallinae*.

Курячий кліщ, профілактика, дерманісіоз, інсектоакарициди

В статтю представлено короткий огляд літературних даних по особливостям распространения, клинических проявлений, диагностики и методам борьбы с куриным клещом *Dermanussus gallinae*.

Куриный клещ, профилактика, дерманиссиоз, инсектоакарициды

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