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RED CHICKEN MITE IN INDUSTRIAL POULTRY PRODUCTION

Vakhidova Dilbar Salimovna
Professor of the Department of General
Zootechnics and Veterinary Medicine TSAU

Faizildinov A. A.
Co - Researcher

Abstract
The article presents material on the relevance of the fight against mites in the conditions of industrial poultry farming. Data on the biology of the development of the red chicken mite is covered; the optimal development conditions are a temperature of 23-25 0 C and a relative humidity of 60-80%. Diagnostic methods are briefly and accurately described. and the use of veterinary drugs to combat ticks, in the form of oral and external use.

Key words: Red mites (Dermanyssus gallinae), biology and development cycle, relevance of tick control, egg, larva, nymph, tick traps, identification, microcopy, ivermectin, embryotoxic effect.

Introduction

Until recently, it was thought that this ectoparasite of birds had been completely studied and there were no really effective ways of controlling it. All the information was accumulated in textbooks on parasitology and scientific theses, the materials in which were endlessly reprinted and passed from book to book. Which were endlessly reprinted and passed from book to book. In view of actualisation of the problem for industrial poultry farming in recent years the generator of in the scientific research and search for ways to control the mite has become commercial companies.

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The main misconception was that the problem is characteristic only for southern regions and that temperatures from 0 to 0°C are the most common regions, and that temperatures between 0 and 4 C would kill the mite within a few hours. In reality, the mite is also found on poultry farms located in the northern regions of Russia and Central Asian republics. The issue is relevant both for poultry farms, containing marketable laying hens, as well as for breeding breeders with floor or cage housing. Low temperatures also do not cause mite death.

The red chicken mite (Dermanyssus gallinae) is a temporary ectoparasite of chickens, it attacks birds only for feeding, mainly at night for 30-60 minutes. The rest of the time is spent on equipment, in nests in the premises where the birds. If we talk about the prevalence of the mite in the cage battery, then on the lower tiers, its concentration is the highest.

Pic.1. Industrial poultry production

To understand the methodology of mite control, it is necessary to know its biological characteristics. The development cycle, depending on environmental conditions, is 5-14 days. The developmental stages of the mite are egg, larva, protonymph, deuteronymph and adult. The last three stages feed on blood. The most optimal conditions for development are temperature - 18-25C and relative humidity 60-80%, which overlaps with the microclimate parameters in poultry

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housing. Therefore, in workshops at industrial poultry farms the duration of the mite development cycle is at the minimum limit and is 5-6 days. Significant increase in numbers occurs in the warm season. The life span of adults is 10-12 months. Under unfavourable conditions, the mite is capable of going into anabiosis for up to 6-11 months. After feeding, the female lays eggs a few hours later. A clutch from 3 to 20 eggs. The total fecundity of the female is 30-80 eggs per life cycle.

Ways of distribution. The mite is mainly introduced to poultry farms with reusable recyclable containers (cells) or when buying used equipment. On the poultry farm itself, the mite is spread by the staff, when moving various equipment (gas heat generators), along the egg collection line, which runs through all the buildings to the egg store. At breeding breeders, the vector of spreading is also spiking of rooster.

Diagnostic methods. The main signal of mite occurrence on a poultry farm with a critical increase in its population are the complaints of service personnel who are being attacked by the mite. In this case, the tick can be seen on the bird itself or blood streaks on the egg, which appear when the ectoparasite is killed by the mechanical action of the mite. When the ectoparasite is crushed mechanically on the egg collection line.

Pic. 2. Mite build-up around the eyes and on the eggs

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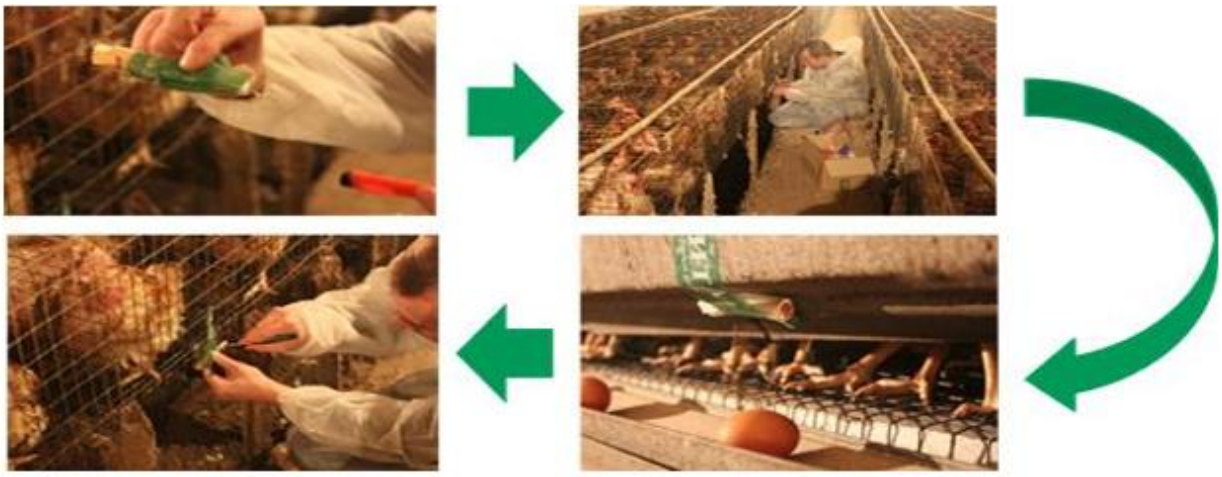
The most optimal method of diagnostics, however, is to place specialized traps on the equipment. This method allows not only to estimate the scale of the population in quantitative terms population scale in quantitative terms, but also to assess the intensity and efficiency of the treatments carried out.

Methodology:

In the morning traps are set evenly on the batteries (Pic. 2). Trap locations are sketched so that later traps can be set in the same locations.

On the morning of day 2, the traps are removed. Each of them is placed in individual polythene bag, tightly tied to prevent the tick from scattering (Fig. 3). (Pic. 3). In order to reduce tick activity, it is possible to place bags with traps in the freezer.



Pic. 3. Setting and removing tick traps

Then we proceed to identification of the ectoparasite and counting its number (Pic. 4). The simplest way to differentiate the mite from other ectoparasites is to counting the number of pairs of legs - the mite has 4 pairs, the others have.

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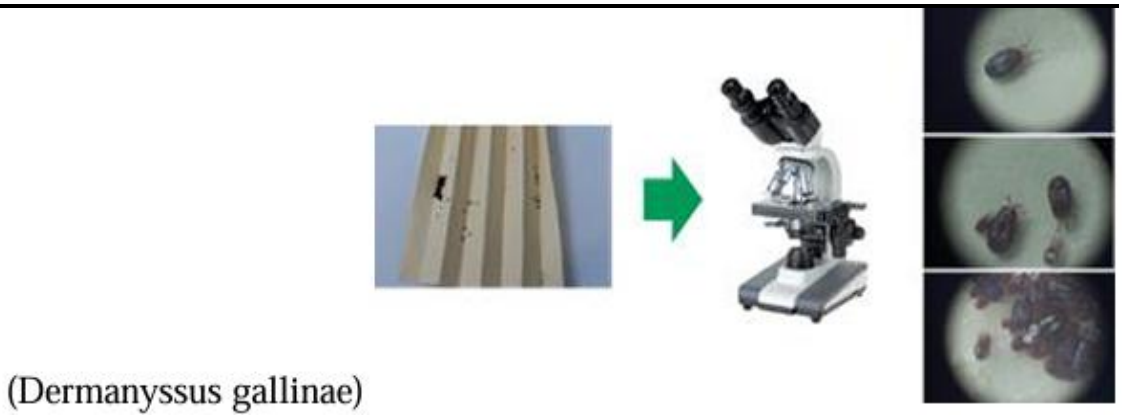

Pic. 4. Tick count

Identification and counting quantities ectoparasite by microscopy. The need for mite control, especially in the presence of poultry, because of the extensive damage it causes. Firstly, by attacking the bird, the mite causes anxiety, constant stress, severe itching, exhaustion, anaemia, even mortality, and cannibalism. It increases feed conversion feed, egg production and weight gain decreases (cachexia). Dermatological problems in service personnel - 'urticaria', so to persuade or to persuade or force staff to work in buildings with high tick prevalence is very difficult and not very humane. In addition, ticks are vectors of many dangerous diseases (NB, GP, smallpox, pasteurellosis, etc.).

Measures to control the red hen mite are divided into two types: 1) Compliance with general veterinary and sanitary rules and regulations, the aim of which is to prevent the transfer of the ectoparasite between workshops by means of vectors; 2) disinfestation measures, which are aimed at preventing the transfer of the ectoparasite between workshops by means of vectors; and decontamination measures, which are carried out in the presence and absence of poultry during a sanitary break.

The first disinfestation during a sanitary break is carried out immediately after removal of poultry from the room, when the housing is still warm, in order to prevent the mite from leaving the room and hiding in places that are difficult to access for treatment - cracks, crevices, etc. Various insectocaricides from different groups can be used, as the treatment is carried out in the absence of the

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mite groups, as the treatment is carried out in the absence of the bird. The most effective are pyrethroids. It is recommended not to use carbamates in order to prevent the development of resistance to them. Carbamates are recommended not to be used in order to avoid possible development of resistance to them in ticks, as products from this group will be used to control ectoparasites in the presence of birds.

Insectocaricides that can be safely used for tick control in the presence of poultry are listed in the table below in the presence of birds are presented in Table 1

Table 1 Insectocaricides that can be safely applied in the presence of poultry.
in the presence of poultry.

Table 1

Active ingredient	Method of application
ivermectin 1% + vitamin E (OR)	drinking
Fluralaner 1% (OR)	drinking

Veterinarians of poultry farms for the control of red mite are more often Ivermectin-based preparations are more often used for red mite control, not only because of their comparable efficacy against this ectoparasite compared with Ivermectin-based preparations are more often used by poultry farm veterinarians for control of red mite not only because of their comparable efficacy against this ectoparasite in comparison with fluralaner-based preparations, but also because of financial costs. The use of products based on ivermectin-based products are much more favourable in terms of cost. There is also a big question among veterinary specialists have a big question about the period of restriction after the use of fluralaner-based preparations. Fluralaner-based preparations - the restriction period for meat is 14 days, but for egg - it is absent.

Scheme for control of red hen mite in the presence of poultry (Table 2) is made taking into account the biological cycle of ectoparasite development and is based on application of two ivermectin preparations safe for chickens - for drinking and

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external treatment, which, in addition, also do not have embryotoxic effect, this is especially important for breeding reproducers.

Scheme for the control of red hen mite in the presence of poultry. Table 2

One day at a time	Applicable preparation	Method of application	Dosage/ dilution working solution
1-day	Ivermectin (OR)	drinking	0.04 ml of drug/ 1 kg of body weight
	Ivermectin (ON)	Treatment by coarse-drop atomisation	In dilution 1:100
2-day	Ivermectin (OR) 0.04 ml	drinking	0.04 ml of drug/ 1 kg of body weight
	Ivermectin (OR)	drinking	0.04 ml of drug/ 1 kg of body weight
5-day	Ivermectin (ON)	Treatment by coarse-drop atomisation	In dilution 1:100
6-day	Ivermectin (OR)	drinking	0.04 ml of drug/ 1 kg of body weight

Ivermectin is administered on day 2. In order to kill all stages of the ectoparasite that have formed from the egg not destroyed on day 1, taking into account its development cycle, on day 5, the house and equipment and the poultry are fed and treated with ivermectin, equipment and the bird itself with ivermectins (OR and ON). To kill the stages of the mite, which did not feed on the 5th day, the oral form (OR) is fed on the 6th day (Pic. 5) the use of oral ivermectins (OR) achieves the elimination of the stages of tick development that feed on blood - protonymph, deutonymph and adult. Ivermectin preparations for external treatment (ON) affect all stages of the tick (larva, protonymph, deutonymph, adult) except for the egg. For stages of the mite that have not fed on day 1.

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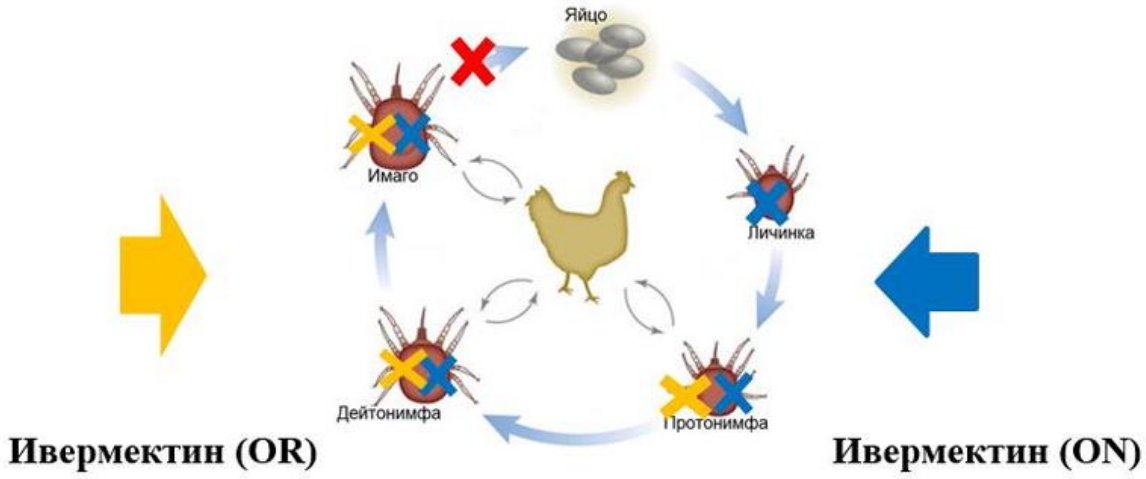

Pic.5. Effects of different forms of ivermectins on tick stages.

The frequency of application of a red hen mite control scheme in the presence of poultry is determined by the critical increase in its population obtained by the diagnostic set-up of special traps and the the acquisition of associated signals.
In conclusion, control of the red hen mite is a very long and labour intensive process time-consuming and labour-intensive process. It is virtually impossible to completely eliminate this ectoparasite is virtually impossible and the main aim of the control is to reduce the population of red hen mite population to a level that minimises damage to poultry and poultry handlers poultry and handlers.

References

1. Akbaev M.Sh. 'Parasitology and invasive diseases'. Textbook M.Kolos 2002
2. Akbaev R.M. 'Parasitology of chickens and domestic waterfowl'. Parasitology M.2017
3. Abuladze V.I. and others 'Practicum on diagnostics of invasive diseases' Textbook M. 'Kolos' 1994
4. Vakhidova D.S. 'Fundamentals of veterinary medicine' Textbook T. 'Ilm Ziyo' 2022
5. Krylov V.M. 'Determinator of parasitic protozoa' SPB 'Zoological Institute of RAS' M.1996. Institute of the Russian Academy of Sciences' M.1996

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6. Polyakov V.A. 'Veterinary entomology and acarology' Textbook M. 'Agrapromizdat' 1999
8. Fedorov I. 'Chicken red mite' "Parasitology" M.2022