ISSN: 2707-1146
e-ISSN: 2709-4189

DOI: https://doi.org/10.36719/2707-1146/56/4-7

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Study of the Diagnosis of Skin Fly Disease and Control Measures in Cattle Grown in the Ganga-Gazakh Zone

Abstract

During the research, we set ourselves the goal of diagnosing fly disease in cattle bred in the Ganja-Gazakh zone and were studying control measures. The research work was carried out in the "Alabashli farm" in the village of Alabashli, Shamkir region, in the laboratory of the "Veterinary Clinic" and the "Epizootology, microbiology and parasitology" department of the Faculty of Veterinary Medicine of the Azerbaijan State Agrarian University. As a result of our research, we determined that spraying animals with hypodermin-chlorophos solution should be carried out in Azerbaijan in July-August in the lowland zone and in September in the mountainous zone. After these measures are completed, the whole case is carefully reviewed and patients should be selected and treated again. We do not recommend the medication of sick, thin and near-birth animals.

Keywords: *carnal, disease, skin fly, diagnosis, treatment, control measures, hepodermin-chlorophos, chlorophos*

Introduction

Entomology (Greek entoma - insect) is the science that studies insects and is divided into general, agricultural, medical and veterinary branches. Veterinary entomology studies insects that are both pathogens of diseases (entomoses), carriers of infectious and invasive diseases, and damage to products of animal origin (Moiseenko, 2016; Novak, 2015).

Parasitic diseases are considered serious problems all over the world. The causative agents of many of them are cosmopolitan and spread on different continents, while some are only in certain geographical and climatic zones. Parasites live in various organs and muscle groups, feed on the body, and have a harmful effect on their hosts. This effect is either hidden or manifests itself with characteristic symptoms, depending on the degree of harmfulness (pathogenicity) of the factor, the type, age and condition of the host, as well as the external environment. Among parasitic diseases, animal skin disease occupies a special place (Abuladze, 1990; Akbaev, 2000).

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Research

Cattle skin disease is caused by the common skin fluke Hypoderma bovis and the southern skin fluke Hypoderma lineata. As a result of this chronic disease caused by the larvae of these dipteran insects, the parasite negatively affects the animal's milk yield, skin quality, and growth and development of young animals, causing great damage to the economy (Bilalov, 2021).

The female moth attacks the animal only to lay eggs and lays 15 eggs on the hair each time, the southern type, and 1 egg on the common type. This biological process continues during the hot days of the day in the spring-summer months, piercing the skin. The larvae gradually move and reach the animal's back area within 8-9 months, regardless of where they enter the animal's body. During this time, the organs of the larvae also form and form. When paying attention to infected animals at this time (December-February), you can observe the signs produced by the adult larvae that have reached the subcutaneous layer. Such larvae pierce the skin and fall to the ground and turn into a relatively durable pupa. Due to the warming of the environment, especially the soil, adult winged moths emerge from the pupae that have developed within 17-19 days and spread around to give rise to a new generation (Mammadov, Hajiyev, Shirinov, Aghayev, 1986).

Both types of mosquito are widespread in Azerbaijan. The larvae of the common type can be seen in December and June, and the larvae of the southern type can be seen on the back of the animal from December to March. In older animals, most of the larvae die before reaching the subcutaneous tissue. In addition to cattle, the larvae of the common mosquito also live and develop in the bodies of buffaloes and zebu. The larvae of the southern type of mosquito are also found in sheep and horses. The mass flight of the sexually mature form of the mosquito (to lay eggs) begins in May due to the warming of the weather. The egg-laying period lasts 28 days in mountainous areas. The attack of the mosquito causes serious discomfort in animals, they run from pastures to wind-protected hills, around water, and in the shade. Clinical signs of the disease are itching, bumps formed in the subcutaneous tissues, and pain in the areas where the larvae pass (Eyubov, Hajiyev, Shirinov, Mammadov, 2005).

Young animals are more susceptible to the disease, but when feeding and housing conditions deteriorate, older animals also become ill. Primary infection occurs during mass migration in the summer. Larvae parasitize in May and September, and signs of the disease appear in January-April. Rainy and cold weather significantly limit the ability of the mosquito to fly. In favorable weather conditions, the mosquito follows the animals from early morning to evening, attacks them and infects them. In the lowland zone, the flight of the mosquito begins in April and continues until the end of May. In the foothill regions, infection of animals is observed from the second half of May and ends in early July. In the mountainous area, the flight season of the mosquito lasts one month (Novikova, 2023; Foreyt, 2012).

Material and methods. During the research, the general methods adopted for studying the diagnosis and control measures of the disease of cattle raised in the Ganja-Gazakh zone were used. Cattle hypodermatosis is a chronic disease caused by the larvae of Diptera insects called Hypoderma bovis fly and Hypoderma lineata – southern fly. The research work was carried out in the "Alabashli farm" in the village of Alabashli, Shamkir region, in the laboratory of the "Veterinary Clinic" and the "Epizootology, microbiology and parasitology" department of the Faculty of Veterinary Medicine of the Azerbaijan State Agrarian University (Aghayev, Shirinov, 1986).

Results and discussion. We determined that the first clinical signs of the disease are itching, infiltrative tumors formed in the subcutaneous tissues, and pain in the areas where the larvae passed. We observed that the animals had difficulty getting up from the floor and making voluntary movements due to the accumulation of larvae in the sacral plexus. As the larvae settle in the lumbar region of the animals in the autumn-winter period, hazelnut-sized bumps form on the skin. The enlarged larvae

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e-ISSN: 2709-4189

gradually thin the skin and pierce it to the outside. Serous-purulent exudate flows from the wounds that have formed. The wounds gradually dry up and a scab with hairs stuck to them forms in their place. As the larvae move in the body, the animal becomes restless and tries to scratch the places they pass by with its tongue and teeth. We diagnosed the disease based on the raised swelling formed on the lumbar skin, exudate wounds on the skin, and shiny eggs on the hair. We treated animals infected with hypodermatosis in the fall and spring. During our research, we carried out the treatment in two stages (Azizova, Hasanov, 2024):

The first stage falls on the period when the larvae migrate in the animals' bodies. At this time, we treated the animals in July-August in the lowland and foothill zones, and in September in the mountainous zones. For this purpose, we applied 16 ml of 11.6% hepodermin-chlorophos to animals weighing up to 200 kg, and 24 ml to those weighing more than 200 kg.

It is more effective to apply Hypodermin-chlorophos to cattle of all ages (except cows in the last stages of calving, heifers two weeks before calving, sick and very thin animals) as soon as possible after the end of the calving period. The solution is poured into the animal's back with a needle-free syringe - from the right and left lumbar spine to the base of the tail to the scapula. The preparation is used in cattle weighing up to 100 kg in 16 ml (20^0C), and in cattle weighing more than 200 kg in 24 ml. If poisoning is observed in the animal when using Hypodermin-chlorophos, then 1% atropine is injected in the amount of 1 ml per 100 kg of live weight (Gojayev, Akhundov, Nasibov, 2004).

The second stage was carried out during the period when the larvae were parasitic on the animal's back. When the larvae were massive on the animal's back, a 4% solution of chlorophos in water was used. We poured the solution onto the back of each animal with a needle-free syringe, starting from the base of the tail and ending at the scapula. We repeated the treatment once a month from January to May.

In addition, to prevent the disease, we also use Dioxaphos-K, hipklofos (chloroacetophos), ivomek, sidectin, aversect (pharmacin), and fascoverm in our farms. Dioxaphos-K and hipklofos are applied with a hypodermin-chlorophos regimen of 12 and 16 ml, respectively. We applied Ivomek, sidectin, aversect (pharmacin) subcutaneously at a single dose of 0.2 mg/kg, and fascoverm subcutaneously at a dose of 1 ml per 20 kg of live weight, not more than 10 ml per animal (Seyidov, 2023).

To keep the herd healthy and protect it from re-infection, it is necessary to keep the animals in the barn, attic, shed and in the shade during the flight period of the skin fly. The animals are released to pasture only in the mornings and until the weather warms up and in the evenings after it cools down. In early spring, the herd should be carefully examined, all possible means should be mobilized to separate the sick and destroy the larvae in them.

In another method of prevention, animals in unhealthy farms are released to pastures at night, or rather, during the period when the insects are inactive. In this method, the animals should be artificially isolated from the skin fly throughout the season (Mammadli, Murtuzov, Shahmarov, 2015).

Conclusion

The conducted studies show that susceptible animals in unhealthy farms were bathed with a 1% chlorophos solution every 10 days from April to the end of July. Animals in unhealthy farms should not be allowed to graze at night. Animals treated with Hypodermin-chlorophos can be slaughtered for meat only after 2 weeks. If forced slaughter occurs, the meat is examined for chlorophos, if the drug is detected in 1 kg of meat less than 1 mg, the meat is used without restrictions, if more, the relevant rules of sanitary organizations are followed. If Hypodermin-chlorophos was used in dairy cows, then the milk obtained from them is prohibited from being used in children's and diet food for 2 days.

ISSN: 2707-1146
e-ISSN: 2709-4189

References

1. Abuladze, K. I. (1990). *Parasitology and invasive diseases of agricultural animals*. VO, Agropromizdat, 464.
2. Akbaev, M. Sh. (2000). *Parasitology and invasive diseases of animals*. Kolos, 776.
3. Aghayev, A., Shirinov, N. (1986). *Parasitic diseases of agricultural animals and birds and measures to combat them*. Azernashr, 87.
4. Azizova, A., Hasanov, A. (2024). *Veterinary protozoology*. Science and Education, 216.
5. Bilalov, R. M. (2021). *Parasitology and invasive diseases of animals*. Textbook for Higher Schools. LDU, 375.
6. Eyubov, I. Z., Hajiyev, Y. H., Shirinov, F. B., Mammadov, A. T. (2005). *Veterinary medicine (reference book)*. Azernashr, 736.
7. Foreyt, U. (2012). *Veterinary parasitology*. Aquarium-Print, 578.
8. Gojayev, E. G., Akhundov, S. M., Nasibov, F. N. (2004). *Diagnosis, treatment and prevention of worm diseases in animals.* Agroecology, 29.0
9. Seyidov, M. (2023). *Arachnology and arachnoids*. "Ajami" Publishing and Printing Union, 184.
10. Mammadov, A. G., Hajiyev, Y. H., Shirinov, N. M., Agayev, A. A. (1986). *Veterinary parasitology*, 435.
11. Mammadli, A., Murtuzov, G., Shahmarov, A. (2015). *Diseases of agricultural animals*, 168.
12. Moiseenko, L. S. (2016). *Internal and external parasites of domestic animals: treatment and prevention of diseases caused by them*. Rostov-on-Don: Phoenix, 187.
13. Novak, M. D. (2015). *Parasitic diseases of animals: a tutorial*. RIOR; INFRA-M, 192 p.
14. Novikova, K. R. (2023). *Parasitology and invasive diseases: a tutorial*. Tver: Tver State Agricultural Academy, 193.

Received: 14.01.2025
Accepted: 07.04.2025