

## **Associative Infection of Cattle with Eimeriosis and Paramphistomatosis**

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### **Abstract**

The article talks about the research works on associative paramphistomatosis and eimeriosis carried out in individual livestock farms of Khachmaz, Siyazan, Shabran districts of Guba-Khachmaz economic district. The extensiveness and intensity of infection with paramphistomatosis and eimeriosis were determined during the scatological examinations conducted in farms. During the examinations in the farms of Khachmaz district, infections with paramphistomatosis were detected in 1-3-month-olds 36.4%, in 6-9-month-olds 45.0%, in 10-12-month-olds 33.3, and in adult animals 21.7%, infection with eimeriosis in 1-3-month-olds 54.5%, in 6-9-month-olds 50.0%, in 10-12-month-olds 28.6%, and in adult animals 13.0, in farms of Siyazan district infection with paramphistomatosis in 1-3-month-olds 30.4%, in 6-9-month-olds 38.1%, in 10-12-month-olds 30.0%, and in adult animals 17.4%, infection with eimeriosis in 1-3-month-olds 43.5%, in 6-9-month-olds 33.3%, in 10-12-month-olds 25.0%, and in adult animals 4,3%; In the farms of the Shabran district, infection with paramphistomatosis was detected in 1-3-month-olds 15.0%, in 6-9-month-olds 18.2%, in 10-12-month-olds 14.3%, in adult animals 9.1%, infection with eimeriosis in 1-3-month-olds 10.0%, in 6-9-month-olds 13.6%, in 10-12-month-olds 9.5%, and in adult animals 4.5%.

Thus, summarizing the results of the scatological examinations conducted, we come to the conclusion that throughout the Khachmaz district, associative infection (extensiveness) with paramphistomatosis was established as 33.7%, with eimeriosis 36.0%, throughout Siyazan district with paramphistomatosis as 28.7%, with eimeriosis 26.4%, throughout Shabran district with paramphistomatosis as 14.1%, with eimeriosis 9.4%. During autopsy examinations, the intensity of infection with paramphistomatosis of cattle in the farms of Khachmaz district was 7-23 specimens,

in animals throughout the Siyazan district 4-11 specimens, and in animals in Shabran district was 2-7 specimens.

**Keywords:** cattle, eimeriosis, paramphistomatosis, farm, associative infection, scatological examination, autopsy examination

## **Introduction**

To the development of animal husbandry, including cattle breeding, is negatively affected by many parasitic diseases (eimeriosis, paramphistomatosis). In this regard, the study of diseases that cause economic damage to cattle breeding, both primary intestinal parasites and helminthiasis, stands out for its topicality. Spreading widely, parasitic diseases negatively affect the development of animals (most often calves and heifers). From this point of view, it is necessary to identify parasites (Artemenko, 1971; Beyer, 1989; Yerbolatov, 1982; Musaev, Surkova, Gaibova, 1986). Against parasitic diseases, scientists from both foreign countries and our republic have carried out large-scale research work, which continues to this day (Berdnikov, 1978; Veselova, Doroshina, Arkhipov, 1987; Yerbolatov, 1977; Musaev, Manafova, 1983; Svanbaev, 1972).

The parasitic fauna of cattle is influenced by many factors, which positively affects their development and leads to the spreading of mixed (associative) invasions that cause economic damage to farms (Denev, co-authors, 1982; Deusov, Podberezhsky, Gevedze, 1960; Orlovsky, 1984; Rekhviashvili, 2001). In this regard, the foundation is being laid for the detection of parasitic diseases in animals and testing of new generation preparations against parasitosis (Velichko, 1971; Lyusin, 2019; Oparin, 1985).

Therefore, we set a goal to study both protozoan intestinal parasites (eimeriosis) and helminthiasis (paramphistomatosis) in the cattle-breeding farms.

## **Materials and methods**

Research work was carried out in 2022 in the laboratory of the Department of Parasitology of the Veterinary Scientific Research Institute on the basis of pathological materials (fecal samples) collected in order to study the dynamics of

infection with parasitic diseases of animals of different ages in individual cattle-breeding farms of Khachmaz, Siyazan, Shabran districts throughout the Guba-Khachmaz economic district. 86 pathological materials were examined in the Khachmaz district, 87 in the Siyazan district, 85 in the Shabran district, then the results were analyzed and the extensiveness was identified. In order to determine the intensity of infection with helminthiasis after slaughtering animals at the points for the slaughter of livestock according to each district, a study was conducted during the autopsy in the internal organs (intestines, rumen) of 6 head of animals.

## Results and discussion

For the purpose of determination the dynamics of associative infection of cattle with paramphistomatosis and eimeriosis in the Guba-Khachmaz economic district in the spring, scatological examinations were conducted on pathological materials (fecal samples) brought from farms.

During the examinations in the farms of Khachmaz district, infections with paramphistomatosis were detected in 1-3-month-olds 36.4%, in 6-9-month-olds 45.0%, in 10-12-month-olds 33.3, and in adult animals 21.7%, infection with eimeriosis in 1-3-month-olds 54.5%, in 6-9-month-olds 50.0%, in 10-12-month-olds 28.6%, and in adult animals 13.0, in farms of Siyazan district infection with paramphistomatosis in 1-3-month-olds 30.4%, in 6-9-month-olds 38.1%, in 10-12-month-olds 30.0%, and in adult animals 17.4%, infection with eimeriosis in 1-3-month-olds 43.5%, in 6-9-month-olds 33.3%, in 10-12-month-olds 25.0%, and in adult animals 4.3%; In the farms of the Shabran district, infection with paramphistomatosis was detected in 1-3-month-olds 15.0%, in 6-9-month-olds 18.2%, in 10-12-month-olds 14.3%, in adult animals 9.1%, infection with eimeriosis in 1-3-month-olds 10.0%, in 6-9-month-olds 13.6%, in 10-12-month-olds 9.5%, and in adult animals 4.5% (Table 1).

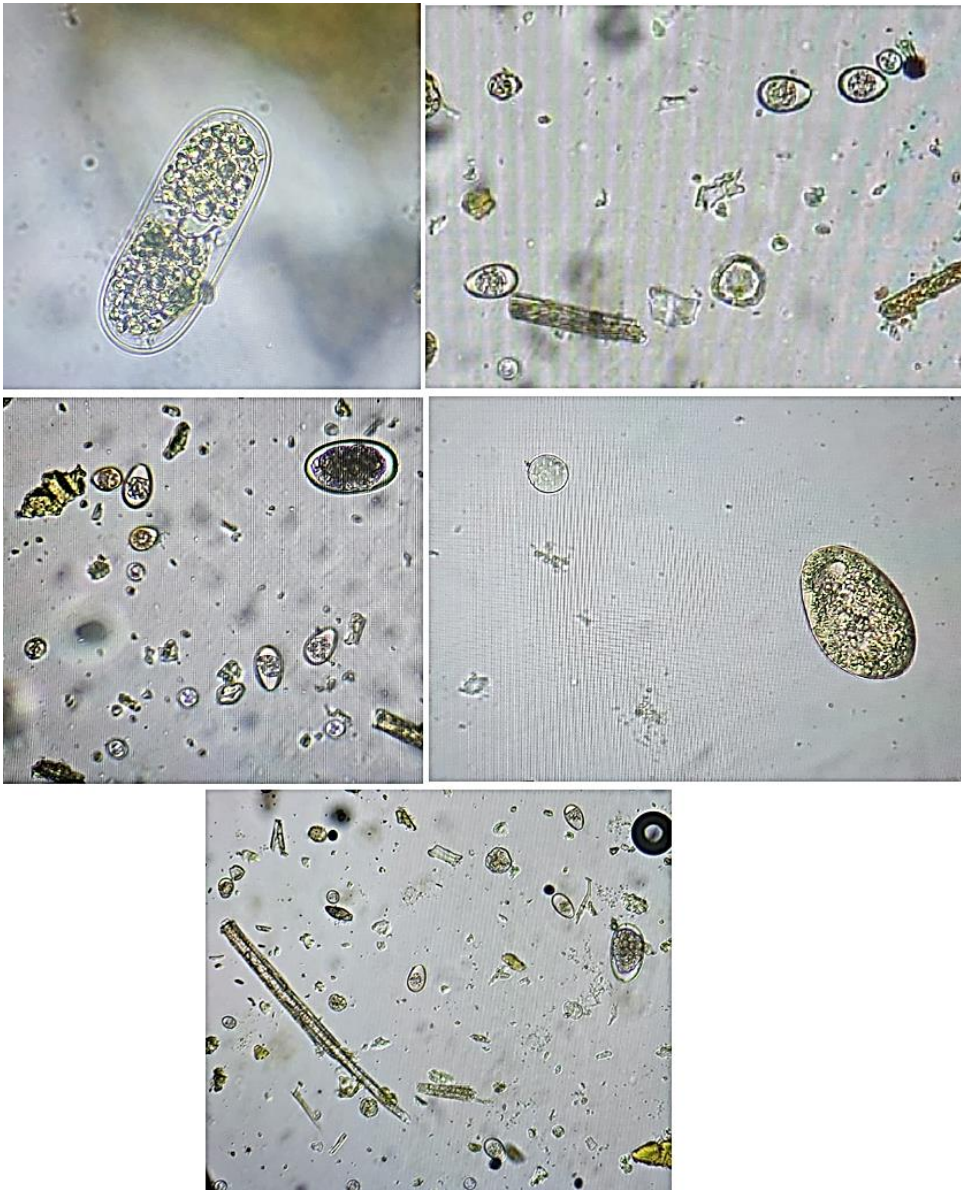
Thus, summarizing the results of the scatological examinations conducted, we come to the conclusion that throughout the Khachmaz district, associative infection (extensiveness) with paramphistomatosis was established as 33.7%, with eimeriosis 36.0%, throughout Siyazan district with paramphistomatosis as 28.7%, with eimeriosis 26.4%, throughout Shabran district with paramphistomatosis as 14.1%, with eimeriosis 9.4%.

Table 1. Infection rate of cattle with paramphistomatosis and eimeriosis (in%)

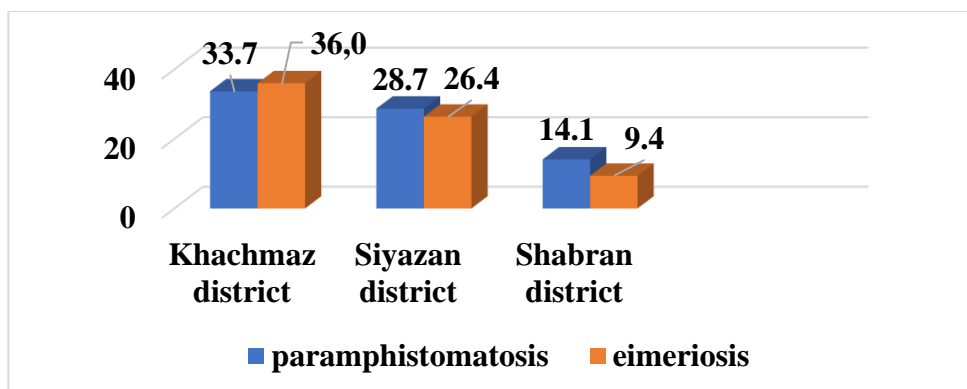
Age of animals	Examined	With paramphistomatosis		With eimeriosis	
		Infected	Invasion extensiveness	Infected	Invasion extensiveness
Khacmaz district					
1-3-month-olds	22	8	36,4	12	54,5
6-9-month-olds	20	9	45,0	10	50,0
10-12-month-olds	21	7	33,3	6	28,6
The adults	23	5	21,7	3	13,0
In total	86	29	33,7	31	36,0
Siyazan district					
1-3-month-olds	23	7	30,4	10	43,5
6-9-months-olds	21	8	38,1	7	33,3
10-12-months-olds	20	6	30,0	5	25,0
The adults	23	4	17,4	1	4,3
In total	87	25	28,7	23	26,4
Shabran district					
1-3-month-olds	20	3	15,0	2	10,0
6-9-month-olds	22	4	18,2	3	13,6
10-12-month-olds	21	3	14,3	2	9,5
The adults	22	2	9,1	1	4,5
In total	85	12	14,1	8	9,4

On the territory of Khachmaz, Siyazan, Shabran districts of Guba-Khachmaz economic district, an incomplete helminthological examination was carried out during autopsy on animals slaughtered at the slaughterhouses, located on the territories of the above-mentioned districts. When examined during autopsy, the intensity of infection with paramphistomatosis of cattle in the farms of Khachmaz

district was 7-23 specimens, of animals in Siyazan district 4-11 specimens, and animals in Shabran district 2-7 specimens.



**Figure 1. Causative agents of eimeriosis and paramphistomatosis in cattle**



**Figure 2. Infection rate of cattle with paramphistomatosis and eimeriosis**

So, in the presence of favorable conditions and as a result of the development and achievement of the invasive stage of intestinal parasites, including helminth eggs and oocysts of eimeriosis, animals become infected. It should be noted that both the constant presence of intermediate hosts in favorable conditions leads to infection of cattle with paramphistomatosis, and the oocysts of eimeria, forming spores, acquire the ability to infect.

## Conclusion

The extensiveness of associative infection throughout the Khachmaz district, with paramphistomatosis 33.7%, eimeriosis 36.0%, throughout the Siyazan district with paramphistomatosis 28.7%, with eimeriosis 26.4%, and throughout the Shabran district with paramphistomatosis 14.1%, with eimeriosis 9.4% was identified. During the autopsy examinations, the intensity of infection with paramphistomatosis of cattle in the farms of Khachmaz district was 7-23 specimens, in animals throughout the Siyazan district 4-11 specimens, and in animals in Shabran district was 2-7 specimens.

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