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COMPOSITION AND PROCESS FOR ADDITIONAL FEEDING AND DEWORMING OF HARES

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Abstract

The study of the composition and process for additional feeding and deworming of hares is an important, fundamental and, especially, applicative issue, because some species serve as definitive hosts in the development cycle and as parasitic vectors, being dangerous for both domestic animals and humans. Parasitosis are the most common diseases in wildlife of the hunting fauna, which results with substantial economic losses. The invention relates to the protection of hunting fauna, namely to a composition and a process for additional feeding and deworming of hares. The composition, according to the invention, comprises, in %: oats 30.0-50.0, wheat 4.0-7.0, barley 2.0-4.0, corn 2.0-4.0, sunflower groats 2.0-4.0, soybean groats 2.0-4.0, bentonite 20.0-30.0, molasses 1.0-2.0, dextrin 2.0-3.0, premix containing vitamins, oligoelements, minerals, coccidiostatic and antioxidant 1.0-2.0, and a preparation containing 20% albendazole 1.0-2.0. The process, according to the invention, provides for the administration to hares of said composition, in a dose of 75 g/hare, in winter, twice with an interval of 14 days, in the form of briquettes, placed at a height of 25-40 cm from the soil.

Key words: *additional feeding, composition, deworming, hare.*

INTRODUCTION

The zoo-veterinary complex occupies an important position in the production structure of the agro-alimentary system in the Republic of Moldova. The further development of agriculture depends on: the economic situation of agricultural enterprises, satisfying the population's demand in high quality food and ensuring the food security of the region. The crucial factors that contributed to a succesful development in this category of national economy are zoo-veterinary actions that aim to ensure health to domestic and wild animals by combating contagious and parazitary diseases (Erhan et al., 2001; Rusu et al., 2020; Erhan, 2020).

Changes that had place in the zootechnical sector in the last three decades, regarding land appropriation are: reorganizing the zootechnical units, founding multiple small farms, redirectioning a large number of animals from complexes to particular households, which lead to major changes of the parasitary fauna.

Bovines that were in the stable, moving to grazing in different anthoprogenic stations, also enter in natural ecosystems, where they can transmit patogens to other wild animals as well (Rusu, 2017; Erhan, 2020; Toderaș et al., 2019).

The set of specific abiotic and biotic conditions, in which the individual lives, the population or a species to a living organism, is named environment, that in parasitic organisms, the extern conditions act indirectly through the host-organism. Therefore, it is common for parasites to be distinguished - 1st order medium (direct environment of the parasite, the host) – the totality of life conditions of the parasite in the host-organism. Life conditions of hosts in external environment serve for parasites as the 2nd order medium (the indirect environment of the

parasite, the host's environment) (Hora et al., 2015; Sergi et al., 2018; Didă & Duca, 2002).

Fauna of hunting interest is part of the national hunting heritage. Both the population and the totality of the spectrum of main and complementary species determine the value of this fund. That is why, the parasitary fauna study of wild animals have a big significance (Rusu et al., 2019; Erhan et al., 2001; Zamornea et al., 2002).

The filed hare (*Lepus europaeus* Pallas, 1778) is a herbivorius mammal, medium-sized, with a body length between 48 and 57 cm, plus a tail of 8-9 cm. The ears have the length of 12-17 cm. The body weight, depending on the geographical ecotype within it's distribution area, varies between 3,5 and 6 kg. The long roar limbs have 5 fingers and the short front ones – 4 fingers. The color of the fur varies a lot depending on the place and season, the general shade being grey-reddish with whitish on the abdomen and white on the lower part of the tail. The tip of the ears and tail is black. Phenotipically, the male does not differ from the female. Due to the difference between the hindlimbs and forelimbs, the hare cannot walk, but only jump, the lenth of which can reach 3 m, and running up the hill is even more advantageous.

The hare manifests preferences for agricultural properties from plain areas and low hills, but also in forests with or without undergrowth. In the conditions of our forests, the hare is also adapted in large bodies, forming the so-called "forest ecotype". It avoids swampy places with stagnant water. It shows a high degree of fidelity to the place of living, having individual sectors from 25 to 80 ha, joining a circle with a radius of no more than 1 km. The hare has a predominantly nocturnal activity, primarily after sunset and in the hours until sunrise. During the reproductive period, it is also active during the day, when it is distributed in familiar groups. Hare's enemies are extremely diverse: dogs, stray cats, weasels, foxes and dogs. In addition to these, ravens, black crows and woodpeckers, as well as some day and night birds of prey, are a great danger for chickens. This list of enemies is joined by a series of diseases of various origins (coccidiosis, brucellosis, staphylomycosis, myxomatosis), which contribute negatively to it's development. The natural losses of the population during the year, and especially during the cold period of the year, are between 20.0-35.0%. Researches showed that cca 62.0% oof rabbits die before turning 1 year old, 7.0% reach up to 2 years, 6% reach up to 3 years, and only 3% tend to reach 4-7 years. According to the data obtained at the Demographic Research Institute "MAX PLANK", the hare in nature lives on average 12 years, and in captivity - no more than 6-7 years (Savin & Ciocoi, 2017).

The hare is an important part of the hunting fauna in both Romania and the Republic of Moldova. In Romania, there is conflicting information related to the dynamics of the hare herds, which has increased, according to some authors, from a number of 266,000 specimens in 1950 to a maximum number of 1.330,000 specimens in 1977 on a positive note. In the period 1978-2013, the curve of hares flattened a lot, the effects remaining relatively constant, below 1,200,000 rabbits. A downward tendency in hare numbers has been observed in all Europe, in the last 35 years (Soveri & Valtonen, 1983; Dubinský et al., 2010).

As a result, the dinamics analysis of hares in the agrarian ecosystems of the Republic of Moldova, in the past years, a constant annual numerical increase of 25-40% and, respectively, an increase of the herd in the spring stock has been established, compared to the previous years by 3.9 times (from 42 thousand rabbits - year 2012 to 166 thousand - year 2019).

In the spring, in the agrocenoses of the Republic of Moldova, the hare is found on non-forested areas on about 2.540 thousand per ha and on 329 thousand per ha in forest areas, with a breeding stock of about 4,2 thousand rabbits. In the period of 2018-2020, in the Northern Zone of the Republic of Moldova, the breeding stock of hares counts about 179 thousand with an average density of about 71 rabbits per 1000 ha. In the centre of the republic, the medium density of cca 63 sp./1 thousand per ha has been highlighted, and in the South – with a density over the average value of 80 sp./1 thousand per ha (Yearbook IPM -2019, 2020).

The ecotone areas (vineyards and orchards at the edge of the forests) are very populated - 160-240 sp./1 thousand per ha. Autumn

plowing and sowing make up 73.0% of the area of the hunting fund with densities of more than 75 rabbits per 1 thousand per ha. The statistical analysis of the evaluations from past years shows that the autumn population of the hare reaches the quota of over 250 thousand hares with a republican average density of 95 rabbits per 1 thousand ha, thus signaling an annual increase of 6-7%. Herd losses during the dormant period are estimated between 25 and 30% of the autumn herd (Savin & Ciocoi, 2017).

Neutralizing these negative factors and implementing the necessary recommendations will make it possible to organize the hunting farm at an effective hunting level. It must be mentioned that that the management of hunting farms in the countries of Central and Eastern Europe (Czech Republic, Slovakia, Hungary, Romania) have shown that the acclimatization of the hare imported from other regions does not give the desired results, therefore it is necessary to preserve and optimize the density of the local population, by implementing the protection recommendations against various parasitic and infectious diseases, stimulating the reproductive process and the rational exploitation of the species. The most visible changes in the report period are contained in the results of the evaluation number of hunting species and hunting itself (Toderaș et al., 2019).

Hares harbor a wide spectrum of parasites that are of great interest to hunting managers and veterinarians as important sources of zoonotic agents (Erhan et al., 2001; Rusu, 2020; Alibekov, 2010).

The epidemiological implications, the lack of bibliography on the parasitosis of wild rabbits, the increase in sanitary standards for hunting products, as well as the importance given to their state of health, motivate the establishment of the prevalence of gastrointestinal parasite infestation in hares.

In the last decades, once with the intensification of the anthropogenic impact and technogenic factors on natural ecosystems, the study and biodiversity protection in natural ecosystems have became an actual problem that presents a great interest for specialists and public organisations.

The problem of antiparasitic protection of humans and animals, based on the concept of integrated prophylaxis, includes the set of theoretical principles, means and practical methods, of organizational measures to combat parasites in the host's body, as well as to protect the environment from parasitic invasions. For the successful development in the hunting field, and to increase the animal amount it is necessary to continuously improve the maintenance tehnology and to use new biological methods of prophylaxis as well as combating parasiting diseases. It has been observed that in cynegetic households, where parasitic diseases are present, the death rate is growing (Efremov et al., 2017).

The success in combating parasitosis in animals can only be ensured with the active and organized participation of all specialists in the veterinary field. It is known that it is easier to avoid the disease, than treat it. The prevention of parasitic diseases is conditioned, to a large extent, by coordinating the activity of the specialists in the zoo-veterinary sector, fulfilling the technological measures of maintenance and feeding, etc. Complying with the whole set of arrangements is a crucial factor in increasing the amount of animals. Although, the economic factor is not critical, because many parasitic diseases that are found in wild animals are common for humans as well. Therefore, experts from the zooveterinary field are responsible for public health too. Public health, according to The OMS definition, is:

“Science and the art of disease prevention, life extension and promoting health through organized efforts of society” (Frank et al., 2013; Erhan et al., 2020; Rusu et al., 2019; Efremov & Muromtsev, 2016).

MATERIALS AND METHODS

In order to establish the diversity of the most dangerous species of parasitic agents in the hare, during the years 2021-2022, 420 biological samples were collected from various natural and anthropogenic biotopes of the Republic of Moldova. Parasitological researches were done in Laboratory of Parasitology and Helminthology of the Zoology Institute.

In order to identify the parasitic agents, partial parasitological, coproovoscopic (Fulleborn, Darling, repeated washing) and coprolarvoscopic methods were used.
The parasitological evaluation was performed by determining the extensiveness (EI, %) and the intensity of the invasion (II, specimens), using the Novex Holland B series microscope, ob. 20-40 WF 10 x Din/20 mm.
For statistical data processing STATISTICA 12 and MICROSOFT EXCEL 2019 programs were used.

RESULTS AND DISCUSSIONS

The fauna of hunting interest is the component part of the national hunting fund and both the herd and the totality of the spectrum of main and complementary species determine the value of this fund. It is known that parasitic diseases not only restrain the growth and development of the hare, but can lead both directly to their death through the appearance of diseases, and indirectly by weakening or exhausting the body and increasing the possibility of their capture by predators. The multiple measures aimed at the numerical increase of the hare will not be enough, until measures to combat the parasitic fauna will also be taken, which is of particular importance. Along with this, the hare population, in natural winter conditions, will need additional food, when everything around is covered with snow.
Research on the parasitofauna study of hares, carried out by, from various natural biotopes of the Republic of Moldova, where they live, allowed us to highlight a high level of their infestation with various parasitic agents.
As a result of the parasitological research carried out, it was established the infestation of hares with various parasitic agents, from the class *Cestoda* - 1 species, the class *Trematoda* - 2 species, the class *Secernentea* - 8 species and from the class *Gonoidasida* - 7 species (Table 1).
The parasitological examination carried out on coprological samples collected from hares living in various natural and anthropogenic biotopes of the Republic of Moldova, showed that parasitic agents are present in all samples (100% of cases).
To this date, no specific measures or procedures are known for complementary feeding and deworming of hares using lighters. After the obtained result, the closest solution is the method of deworming house rabbits, which consists in deworming them with the use of phenothiazine and piperazine in appropriate doses. The disadvantage of this method lies in the fact that the preparations used in deworming (phenothiazine and piperazine) are very toxic and immunosuppressive on the dewormed animal organism.
The problem solved in the current invention consists in the development of a composition for feeding and deworming hares and an effective, harmless, relatively cheap and simple complex deworming process, which simultaneously ensure complementary feeding and deworming of hares in the cold period of the year (Toderaş et al., 2019).
The composition, according to the invention, contains, in %: oats – 30-50; wheat – 4.0-7.0; barley – 2.0-4.0; corn – 2.0-4.0; sunflower meal – 2.0-4.0; Soybean meal – 2.0-4.0; hunted clay (Bentonite) – 20.0-30.0; molasses – 1.0-2.0; dextrin – 2.0-3.0; complex vitamin-mineral premix for rabbits – 1.0-2.0; antiparasitic preparation Alben granulated – 1.0-2.0.
The procedure of complementary feeding and deworming of hares, according to the invention, provides for the administration during the frosty winter period (December-February) of the mentioned composition dosed per head of animal in the form of briquettes of 75.0 g/rabbit, in two intervals of 12-14 days, suspended with a string passed through the holes at a height of 25-40 cm from the ground.

Table 1. Parasitofauna diversity in *Lepus europaeus* Pallas, 1778 from the Northern Zone of the Republic of Moldova

Invasion		Level of infection	
		EI (%)	II (ex.)
Class CESTODA			
1.	*Cysticercus pisiformis* (Zeder,1803)	25.0	19-21
Class TREMATODA			
2.	*Fasciola hepatica* (Linnaeus, 1758)	3.5	2.8
3.	*Dicrocoelium lanceolatum* (Rudolphi,1919)	7.1	1,7
Class SECERNENTEA			
4	*Trichocephalus leporis* (Frolich, 1789)	13.4	6.0
5.	*Strongyloides papillosus*(Wedl, 1856)	79.1	128
6.	*Trichostrongylus retortaeformis*(Zeder,1800)	4.1	2.0
7.	*Passalurus ambiguus* (Rudolphi, 1819)	14.6	3.0
8.	*Trcihostrongylus probolurus* (Railliet,1896)	15.3	6.0
9.	*Trichuris leporis* (Frölich, 1789)	17.5	8.0
10	*Graphidium strigosum* (Dujardin, 1845)	2.7	1.0
11	*Nematodirus abnormalis* (May, 1920)	4.7	3.0
Class GONOIDASIDA			
12	*Eimeria acervulina*	82.6	98
13	*Eimeria anceris*	76.6	64
14	*Eimeria brunette*	36.2	43
15	*Eimeria necatrix*	21.2	17
16	*Eimeria mitis*	18.4	5.0
17	*Eimeria adenoids*	7.8	6.0
18	*Eimeria meleagrimitis*	6.3	8.0

The anti-parasitic preparation Alben (granules) - with 20% Albendazole active substance (produced and registered in the Republic of Moldova by Agrovetzaşcita, Russia). Alben is a broad-spectrum anthelmintic active on mature, immature nematodes, cestodes as well as mature trematodes. It is indicated for combating gastrointestinal nematodes (haemonchosis, bunosomosis, esophagostomosis, nematodirosis, ostetagiosis, habertiosis, cooperiosis, strongyloidosis, trichostrongylosis, giostrongylosis, parascaridosis, ascaridosis, trichocephalosis, toxocarosis, toxoscaridosis, hookworm, uncinariasis, ascaridiosis, heterakidosis). Trematodes (fasciolosis, dicroceliosis, paramphistomatosis). Cestodoses (moniosis, avitelliosis, botryocephalosis, caviosis, liguliosis). Pulmonary nematodes (dictycaulosis, protostrongylosis, muelleriosis, neostrongylosis, cystiocaulosis, metastrongylosis).

The recommended dose for animals with fur is 50-100 per preparate, mixed with food, placed in feeders for a group of 10-100 animals.

The Alben (granules) preparate is well tolerated by fur animals and has no contraindications.

The complete vitamin-mineral premix for rabbits is a product based on vitamins, trace elements, concentrated assimilable and coccidiostatic minerals. Manufacturer and distributor in the Republic of Moldova is Vitafort Zrt. (Hungary). The composition of the complete vitamin-mineral premix for rabbits is represented in Table 2.

The complete vitamin-mineral premix for rabbits does not contain genetically modified organisms. As enzymes, coccidiostatic and antioxidant, Diclazuril and Ethoxyquin preparations are taken. The mixing rate of the premix in the final ration for rabbits is 2%. The coccidiostatic Diclazuril, from the composition of the complete vitamin-mineral premix for rabbits, is a coccidiostatic preparation, with a wide spectrum of use on all species of coccidia in rabbits. The result of the invention consists in deworming animals in natural conditions and the compensation of the deficit in the cold period of the year with vitamins, trace elements, assimilable concentrated minerals, which will allow the effective preservation of healthy hare species and their reproductive potential in the nature.

Table 2. Composition of complete vitamin-mineral premix for rabbits

Vitamins			Microelements		
Vitamin A	UI/kg	400000.0	E6 Zinc (Zinc oxide)	mg/kg	972.0
Vitamin D	UI/kg	78000.0	E1 Iron (Iron sulfate)	mg/kg	3860.0
Vitamin E	mg/kg	725.0	E5 Manganese (Manganese oxide)	mg/kg	341.0
Vitamin K	mg/kg	70.0	E4 Copper (Copper sulfate)	mg/kg	198.0
Vitamin B12	mg/kg	100.0	3b202 Iod (iodat de calciu)	mg/kg	25.52
Acid pantotenic	mg/kg	430.0	3b202 Cobalt (Carbonate)	mg/kg	9.42
Vitamin B6	mg/kg	20.0	Macroelements		
Nicotinic acid	mg/kg	950.0	Calcium	%	11.63
Biotin	mg/kg	2.60	Phosphorus	%	5.28
Choline chloride	mg/kg	30000.0	Sodium	%	7.72
			Enzymes, coccidiostatic, antioxidant		
			Diclazuril	mg/kg	50.0
			Ethoxyguin	mg/kg	385.0

Also, this procedure allows to effectively and economically use both the food, the premix, and the antiparasitic preparation. The technical result obtained is due to the use of the mixture as an antiparasitic product against endoparasites, as well as its administration to hares during the frosty period, when they lack food in nature. Based on the daily norm of a rabbit in the winter period (December - February) of 50 g of grain concentrates, ingredients were taken for 200 rabbits: 10 kg of concentrated feed mixture (oats - 7000 g, wheat - 1,000 g, barley - 500 g, corn - 500 g, sunflower seed - 500 g, soybean meal - 500 g), to which 5 kg of food supplement is added (clay (bentonite) - 4 kg; molasses - 200 g and 400 g dextrin, which has the role of fixing the ingredients on the surface of the seeds and contributes to making all this food taste more attractive and protected until final consumption from atmospheric conditions; premix vitamino - complex mineral for rabbits - 200 g; anti-parasitic preparation - Alben granulated for - 200 g. mix 2 liters of drinking water with the dry ingredients (15 kg). The whole mass consisting of 15 kg concentrates [oats - 7,000 g, wheat - 1,000 g, barley - 500 g, corn - 500 g, sunflower seed - 500 g, soybean meal - 500 g and ingredients 5 kg (Betonite - 4,000 g, Molasses - 200 g, Dextrin - 400 g, Premix complex for rabbits - 200 g, Alben granulated - 200 g)] is briquetted by hand in the form of corncobs in the form of pellets with holes inside, weighing 75.0 g formed from the following calculations: 15 kg of mass: 200 rabbits = 75 g one briquette for one rabbit, consisting of 50 g of cereal and 25 g of ingredients. The obtained briquettes (200 pieces) are dried in the sun or, to speed up the process, in ovens at a temperature of up to 45°C. The briquettes are administered in two rounds at an interval of 14 days, in feeders, suspended with a string passed through the holes at a height of 25-40 cm from the ground.

Based on the total content of the components calculated for 200 rabbits, the quantitative ratio of the components of a lighter was calculated in grams, per animal: Oats – 35.0 g; wheat - 5.0 g; barley - 2.5 g; corn - 2.5 g; sunflower seed - 2.5g; soy sauce - 2.5 g; hunting clay (bentonite) - 20.0 g; molasses - 1.0 g; dextrin - 2.0 g; complex vitamin-mineral premix for rabbits - 1.0 g; antiparasitic preparation - Alben granulated - 1.0 g.

In order to deworm and compensate the physiological needs of the hare's body, during the cold period of the year (December-February), with vitamins, trace elements, assimilable concentrated minerals, which give a new qualitative effect and allow to ensure survival, increase their reproductive potential under natural conditions, as well as to reduce the risk of their capture by predators in two seasonal installments: December and February, 150 g (75 + 75 g) of briquetted complementary food is provided for each rabbit. About 50 rabbits live on one thousand ha of hunting land, which requires 7.5 kg of briquettes (100 briquettes of 75 g each), in both seasons distributed in 5 feeders (10 briquettes in each feeder per season) x 2 seasons = 100 briquettes in total. Deworming the hare under natural

conditions and compensating the deficiency of vitamins, trace elements, assimilable concentrated minerals in the cold period of the year allow the preservation of healthy hare herds and their reproductive potential in nature, being administered simultaneously with the preferred supplementary feed of antiparasitic preparations.

Furthermore, this composition allows using food efficiently and economical, the premix, as well as the dewarming preparates. In order to determine the therapeutic effectiveness of the antiparasitic preparation Alben granulated on endoparasites in hares, biological samples were collected from them, establishing the extent of the invasion with initial endoparasites before and after the administration of the preparation. The administration of the Alben granulated preparation to the hare was carried out in identical doses (1.0 g of the preparation included in the briquetted food of 75.0 g for a hare) (Table 3).

Table 3. The effectiveness of the Alben granulated preparation in combating endoparasites in hares

Invasion	Extensiveness of the invasion until treatment, %	Extensiveness of the invasion after treatment, %
Trichocephalus leporis (Frolich, 1789)	13.4	0
Strongyloides papillosus (Wedl, 1856)	79.1	2.6
Trichostrongylus retortaeformis (Zeder,1800)	4.1	0
Passalurus ambiguus (Rudolphi, 1819)	14.6	1.0
Trcihostrongylus probolurus (Railliet,1896)	15.3	1.4
Trichuris leporis (Frölich, 1789)	17.5	1.7
Graphidium strigosum (Dujardin, 1845)	2.7	0
Nematodirus abnormalis (May, 1920)	4.7	0

The obtained results proved that the Alben granulated preparation has a high efficacy on the endoparasites established in the hare. The results of the research showed that the proposed procedure provided the hare with vitamins, trace elements, assimilable concentrated minerals deficient in food from nature during the cold period of the year and to carry out, for curative-prophylactic purposes, their deworming with minimal expenses.

Therefore, the simultaneous deworming and compensation of the body's physiological needs in vitamins, trace elements, assimilable concentrated minerals give a new qualitative effect, which allows to increase the survival and reproductive potential of the hare in natural conditions. The proposed procedure can be used in all areas of the Republic of Moldova, populated by hares. The coccidiostats Diclazuril and Clinacox from the complete vitamin-mineral premix for rabbits are prepared with a broad spectrum of use against all species of coccidia in them. The mixing rate of the premix in the final ration for rabbits is 2%. The effectiveness of these coccidiostats is represented in Table 4.

Table 4. Efficacy of the coccidiostats Diclazuril and Clinacox in the complete vitamin-mineral premix for rabbits in combating eimeriosis in field rabitts

Invasion	Extensiveness of invasion until treatment, %	Extensiveness of invasion after treatment, %
Eimeria acervulina	82.6	4.4
Eimeria anceris	76.6	3.6
Eimeria brunette	36.2	2.2
Eimeria necatrix	21.2	0
Eimeria mitis	18.4	0
Eimeria adenoids	7.8	0
Eimeria meleagrimitis	6.3	0

As a result, the effectiveness of the coccidiostats Diclazuril and Clinacox in the complete vitamin-mineral premix for rabbits possesses a high coccidiostatic efficacy against all species of coccidia detected in the rabbit - in the field. For the experimental control of the proposed composition, 3 variants of briquette mixtures were prepared. The versions of the experiences are presented in Table 5.

Table 5. Experimental variants

Variants / Briquette	Alben granu-lated (gr)	Complete vitamino-mineral premix for rabbits (%)	Oats (%)	Wheat (%)	Barley (%)	Corn (%)	Sunflow er groats (%)	Soy bean groats (%)	Ben-tonite (kg)	Molasses (g)	Dextrin (g)
Component 1	0.5	1	50	20	10	10	5	5	3	100	300
Component 2	1.0	2	70	10	5	5	5	5	4	200	400
Component 3	1.5	3	75	5	5	5	5	5	5	300	500

For deworming the hares, it is recommended to use the briquettes with a mixture from the 2nd composition, which has demonstrated optimal consumption results during a daily feeding cycle. The species, the spatial distribution, the herd and the density of the hare on a certain territory are determined and the coprological analysis of the biological samples regarding the presence of parasitic agents is carried out in detail. From the herd of heres, complementary food (briquettes) is prepared with the addition of an anti-parasitic preparation and a complete premix for rabbits with coccidiostats, which is placed in specially designed feeders, installed in advance specifically for the complementary feeding of hares. The hares know very well where the feeders are located, and during the period of lack or insufficiency of food, the reflex brings them closer to these feeders from which they consume the additional food brought by the caretakers. During this period, we recommend to carry out, along with the additional feeding of the hare, their deworming. The method was applied in the frosty months of the year, when everything around is covered with snow, and the hare has a shortage of food. After deworming, in 1-2 weeks, the analysis of the biological samples from the dewormed hares is carried out to establish the effectiveness of the treatment and its repetition in 12-14 days. The deworming results are presented in Table 6.

Table 6. The results of coprological research until and after the application of the anti-parasitic treatment to hare

The place of research	Number of examined samples	% of infestation	
		Until deworming	After deworming
The hunting fund "Ialoveni"	50	endoparasites	endoparasites
		82.6	4.4

The achieved results showed us that the proposed procedure allows the deworming hares and provide them with vitamins, trace elements, assimilable concentrated minerals deficient in food from nature, with minimal expenses.

Therefore, the simultaneous performance of deworming with endoparasites and compensating the physiological needs of the body in vitamins, trace elements, assimilable concentrated minerals give a new qualitative effect, which allows to ensure the survival and increase the reproductive potential of hares in natural conditions, as well as to reduce the risk of their capture by predators.

The proposed procedure can be used in all natural and man-made biotopes in the Republic of Moldova, where the hare is found.

CONCLUSIONS

In hares, from various natural and Anthropogenic biotopes of the Republic of Moldova, an increased level of infestation with various parasitic agents was established: from the *Cestoda* class - one species, the *Trematoda* class - 2 species, the *Secernentea* class - 8 species and from the *Gonoidasida* class - 7 species.

From the total of established species (15 species): 5 species (33.3%) are specific only for rabbits (*Cysticercus pisiformis, Trichuris leporis, Trichocephalus leporis, Passalurus ambiguous, Graphidium strigosum*), 10 species (66.7%) are common and other species of wild and domestic animals (*Strongyloides papillosus, Trcihostrongylus probolurus, Trichostrongylus retortaeformis, Nematodirus*

abnormalis, Fasciola hepatica, Dicrocoelium lanceolatum, Eimeria stiedae, Eimeria leporis, Eimeria exigua, Eimeria intestinalis), of which 2 species (*Fasciola hepatica, Dicrocoelium lanceolatum*) are also present in humans.

The procedure, according to the invention, provides the administration for hares of the mentioned composition, in a dose of 75 g/rabbit, in winter, twice, with an interval of 14 days, in the form of briquettes, placed at a height of 25-40 cm from the ground. It was established that the simultaneous performance of deworming with endoparasites and compensating the body's physiological needs in vitamins, trace elements, assimilable concentrated minerals give a new qualitative effect, which allows to ensure the survival and increase the reproductive potential of hares in natural conditions as well as to reduce the risk of their capture by predators.

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