# THE EFFECTIVENESS OF DEHELMINTHATION IN EUROPEAN BISON (*BISON BONASUS)* AND ROE DEER (*CERVUS ELAPHUS*)

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## Introduction

Nowadays the contamination of environment caused by human activity has significant influence on condition and health not only people or domestic animals but also free-living animals. Also changes in structure of arable fields and reducing their surfaces have a negative influence on biodiversity (Andrzejewski,Weigle 2003). In these conditions the free - living animals could be more susceptible to infection. It is important, that the invasion diseases could indirectly influence on animals' condition. In this situation, in changing and contaminated environment, some activity leading to diminishing of parasites invasion could be undertaken.

## Material and methods

The experiment consisted of two separate investigations. One of them concerning bison's dehelminthation was made in the autumn-winter seasons 2000/2001 and 2001/2002 in Borecka Forest. There were free living group of bison counting about 50 animals. Second investigation concerning the red deer's dehelminthation was conducted in the Game Breeding Center of Polish Hunting Association Mikolajki in the autumn-winter seasons 2002/2003 and 2003/2004. In the time of experiment the herd of red deer counted about 80 animals.

In both areas the methods of investigations were similar. Before application the preparate against helminthes the samples of faeces were collected. The extensity (the percentage of samples with presence of helminthes eggs) and intensity (number of eggs in 1g of faeces) of invasion of gastro-intestinal nematodes were examined according to Mc Master method (Stefanski, Zarnowski 1971). In February the Fenbenat, in which active substance is fenbedazol, was administer with bruised grain in bison's group as well as in red deer's herd. 10 days after dehelminthation the samples of faeces were taken once again and the coprological analyzes were conduct. The efficacy of preparate was described as the percentage of reduction of helminthes' invasion.

In both examined groups the application of Fenbenat was repeated next year. The procedure was the same.

**Results and discussion**

The results of the investigations were presented in table 1.

In bison's group the extensity of invasion in first year of examination was on level 73,68 % and the average intensity was 92,11 eggs in 1g of faeces. In samples of faeces taken 10 days after dehelminthation were not observed any eggs of gastro- intestinal nematodes. So the percentage of reduction was 100%. In the next year the extensity of helminthes' invasion was lower and amounted 55%. Also the intensity of invasion was lower – 50 eggs in 1g. of faces. The effectiveness of preparate in this case was also very high, because the percentage of reduction of helminthes' invasion was 100%.

In red deer group the extensity of gastro-intestinal nematodes before dehelminthation was 100% and intensity was 65 eggs in 1g of faeces. 10 days after Fenbenat application the percentage of reduction was 74,35%. In experiment conducted during next season the extensity was much lower - 45% and the intensity was 55 eggs in 1g of faeces. After Fenbenat application it was observed lower level if invasion – extensity 26,32% and intensity 23,68 eggs in 1g of faeces. The percentage of reduction was 56,94%. These results are not so good as in the case of bison, but we should remember nthat these investigations were conduct in natural conditions. The animals migrated and to the examined herd could join animals from other group.

The obtained levels of helminthes' invasion in red deer and bison are noticed in literature (Cisek 2001, Lyszczarz –Jankowiak 2002; Drozdz 1998). The efficacy of application the preparate against nematodes is very high. The similar results after using Fenbenat were observed by others authors (Malczewski 1998).

In these examinations there were observed lower level of invasion in the second year of investigations. It is very promising fact. The aim of these kind investigations is not total removing the parasites from environment but diminishing the level of *invasion. It is important for health and condition of free-living animals. The monitoring of level of parasites' invasion* should be conduct in the following years.

## Conclusions

1. The effectiveness of Fenbenat is quite high, especially in case of bison's dehelminthation
2. During the second year after dehelminthation there was observed the diminishing the level of helminthes' invasion

Table 1. The extensity (%) and intensity (number of eggs in 1g of faeces) before and after Fenbenat application in bison and red deer

| Species | Season | | |
|---|---|---|---|
| BISON | 2000/2001 before dehelminthation | Extensity | 73,68 |
| | | n | 19 |
| | | Intensity | 92,11 |
| | | SD | 76,85 |
| | after dehelminthation | Extensity | 0 |
| | | n | 11 |
| | | Intensity | 0 |
| | % of reduction | 100% | |
| | 2001/2002 before dehelminthation | Extensity | 55 |
| | | n | 20 |
| | | Intensity | 50 |
| | | SD | 64,89 |
| | after dehelminthation | Extensity | 0 |
| | | n | 15 |
| | | Intensity | 0 |
| | % of reduction | 100% | |
| RED DEER | 2002/2003 before dehelminthation | Extensity | 100 |
| | | n | 10 |
| | | Intensity | 65 |
| | | SD | 78,35 |
| | after dehelminthation | Extensity | 28,57 |
| | | n | 14 |
| | | Intensity | 16,67 |
| | | SD | 30,86 |
| | % of reduction | 74,35% | |
| | 2003/2004 before dehelminthation | Extensity | 45 |
| | | n | 20 |
| | | Intensity | 55 |
| | | SD | 75,9 |
| | after dehelminthation | Extensity | 26,32 |
| | | n | 19 |
| | | Intensity | 23,68 |
| | | SD | 51,01 |
| | % of reduction | 56,94% | |