

HYGIENIC MEASURES IN ENCLOSURES FOR RED AND FALLOW DEERS

F. Zabloudil, P. Novák, P. Juris

Summary

The aim of the study was to find out to what extent the treatment of the open-air feeding place with unslaked lime powder affects the degree of soil infestation with the developmental forms of endoparasites in relation to a possible transfer of diseases among animals. The soil probes were taken after the end of feeding season, i. e. prior to decontamination, then ca 2 month following the decontamination. The third check was carried out prior to the beginning of the next feeding period. No statistically significant differences were found between the feeding places treated with unslaked lime powder and those untreated.

Key words: endoparasites, soil, feeding places

Introduction

First information on enclosures can be found already in the distant past in Egypt and China. Later, enclosures husbandry was founded by the Romans in the southern Europe. Towards the end of the 13th century the crusades brought, apart from others, knowledge of game keeping in enclosures to the Central Europe. Gradually, the enclosures were built in the near vicinity of castles. A great expansion of these hunting places occurred during 15th-17th century (12). At the beginning of the 20th century there were almost 400 enclosures and small enclosures where both autochthonous and from various places imported game was kept (3).

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The reconstruction of old enclosures and the building of new ones, possessing a very high standard, occurred in the second half of the 20th century (11). At that time the issues of game health status, preventive zootechnical measures in enclosures were taken into account (5).

Both in enclosures and in areas with free-living game it is necessary to provide proper care for animals and monitor:

- suitable population of game including the ratio of males and females and age groups
- health status and physical fitness of kept game
- natural capacity to feed game in the park during the whole year
- supplementary feeding or feeding of game according to natural capacity to feed game
- possibilities of shelter and quietness for game
- effective long-term management for hunting.

The advantage of management can be seen in a possibility of a simple adjustment of a planned game population and its physical state. In order to preserve the required optimal environment for game husbandry, a permanent check of enclosure (to preserve disturbances), treatment of pastures (to secure suitable nutrition) and ample vegetation shelter (for a siesta and reproduction) are necessary. On the other hand, the permanent feeding places serving for many years often represent a main source of diseases (4).

Current management of enclosures in the Czech Republic is mostly carried out by state organizations that maintain a very positive trend in husbandry of individual species of game kept in parks. Game parks serve as a genetic basis for game that is used to set up new breeds or to improve breeds requiring the increase of quality (both in game parks and free-living areas) (7). Many original enclosures have been continuously stocked for a very long time (more than one hundred years) with a high number of game per a unit of an area. Thus, the biotope has gradually been disturbed and the environment has been infested with developmental forms of parasites (2, 8, 10). The problems concerned with a possible disease transfer among animals have been dealt with by some authors (4).

Aim of the Study

The aim of this work has been to find out the effect of treatment with unslaked lime powder in the near vicinity of feeding places, as has been recommended in specialized hunter's literature, upon the extent of infestation with developmental forms of endoparasites and to determine a possible transfer of diseases among animals.

Material and Methods

This study was carried out in two game parks (A and B) keeping red and fallow deers in southern and northern Moravia during three years. The feeding places in which higher numbers of animals concentrated were selected.

In the enclosures A samples from 15 feeding places were taken following the end of feeding season, i. e. prior to decontamination, then ca 2 months after the decontamination. The third series of samples was taken prior to the beginning of the next feeding period. Always 3 - 4 mixed soil probes of ca 1 kg each were collected depending on the size of the feeding place to carry out laboratory parasitological examination.

In the enclosures B 2 - 3 mixed soil probes were taken from 10 feeding places.

In order to compare the results obtained, the control samples were collected from 15 (A) and 10 (B) feeding places, resp. in which no decontamination measures were applied, the only exception being the removal of feed remnants.

Unslaked lime powder in the amount of 0.75 - 1.0 kg.m⁻² was used to decontaminate the area. It was applied using a mechanical sprayer connected behind a tractor. The application was always carried out under dry weather conditions.

The probes taken were examined for parasites. Altogether, 675 samples were taken from experimental (treated) feeding places and the same number of samples from the control areas.

Since the identification of individual helminthes from the soil samples is complex (6) we have concentrated only on the incidence of the following helminths of red and fallow deer: *Dicrocoelium dentriticum*, *Nematodus* sp., *Bicaulus sagittatus*, *Fasciola hepatica*, *Taenia hydatigena*, *Paramphistomum cervi*, *Ostertagia leptospicularis*, *Oesophagostomum venulosum*, *Chabertia ovina*, *Trichuris globulosa*, *Bicaulus sagittatus*, and *Werdikmansia flexuosa*. Some helminths species were impossible to determine due to their deformation changes. Several authors have come to the same conclusion (2).

Results and Discussion

The results obtained have unambiguously proved that the difference in the number of positive findings between the control places and those treated with unslaked lime powder is only 0.15% (14.22 % and 14.37 % of positive findings, res.). The decontamination with unslaked lime powder in the amount of 0.75 - 1.0 kg.m⁻² to the place slightly increased pH value to 4.3 in the

treated areas compared with the value of 4.1 in the control, non-treated feeding places. Better conditions have thus been created for the growth of grass, which absorbs humidity improving thus the soil structure around the feeding place. However, more grass provides better conditions for the survival of parasite developmental forms. The results of parasitological examination are summarized in Tables 1 and 2.

Table 1. - ENCLOSURE A – SOUTH OF MORAVIA

Number of samples	Year								
	1997			1998			1999		
	I	II	III	I	II	III	I	II	III
Experimental (treated) feeding place									
Total count	50	50	50	50	50	50	50	50	50
- positives	6	7	6	8	9	7	8	8	7
- % positives	12	14	12	16	18	14	16	16	14
Control feeding place									
Total count	50	50	50	50	50	50	50	50	50
- positives	7	7	6	9	9	8	8	8	7
- % positives	14	14	12	18	18	16	16	16	14

Table 2. - ENCLOSURE B – NORTH OF MORAVIA

Number of samples	Year								
	1997			1998			1999		
	I	II	III	I	II	III	I	II	III
Experimental (treated) feeding place									
Total count	25	25	25	25	25	25	25	25	25
- positives	3	3	3	4	3	4	3	3	4
- % positives	12	12	12	16	12	16	12	12	16
Control feeding place									
Total count	25	25	25	25	25	25	25	25	25
- positives	3	3	4	5	3	3	2	3	3
- % positives	12	12	16	20	12	12	8	12	12

It can be concluded that in practice the efficient natural way of environmental remediation (sunbeams) has proved successful. At the same time it is, however, necessary to interrupt the developmental forms of parasitic germs applying a regular changing of localities of feeding places in game parks. The most suitable appears, however, the idea to place the feeding places into free

space where the direct effect of solar radiation can be employed and which together with an ample natural airing will create conditions for parching of these places with a possibility of self-decontamination. When applying a chemical decontamination agent in the vicinity of feeding places it is necessary to consider both a potential contamination of subsoil and water resources and problems of realization in practice together with the financial cost of such measures.

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HIGIJENSKJE MJERE U OKRUŽENJU CRVENOG I SMEDEG JELENA

Sažetak

Cilj ovog istraživanja bio je otkriti utjecaj otvorenog prostora za hranjenje tretiranog s negašenim vapnom na stupanj infestacije tla razvojnim oblicima endoparazita u vezi s mogućim prijenosom bolesti između životinja. Uzorci tla uzimani su nakon sezone hranjenja tj. prije dekontaminacije, zatim dva mjeseca tijekom dekontaminacije. Treća provjera izvršena je prije početka slijedećeg perioda hranjenja. Rezultati dobiveni s prostora za hranjenje tretiranih s negašenim vapnom i onih netretiranih statistički su neznatni.

Ključne riječi: endoparaziti, tlo, prostor za hranjenje

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