



The significance of ear mange (*Psoroptes cuniculi*) infestation level in does and their offspring

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ABSTRACT

*This experiment was performed with a Pannon White rabbit stock based on 200 does and their young, over a period of approximately three years. A close ($r=0.86$) correlation was ascertained between the degree of infection of ear mange (*Psoroptes cuniculi*) in the does and that in their offspring prior to weaning. After three and four months treatment of the breeding does with ivermectin injection at 200 µg per kg b.w. on two occasions, 7 to 10 days apart, a significant increase in the degree of detectable infection in the five-week-old progeny was observed. Treatment of the breeding does on five occasions resulted in a significant decrease in the degree of infection in the 5-week-old progeny within the stock. The degree of infection among the offspring of a doe is primarily dependent on her own condition with respect to infection. However, the practical implication of the findings made is that, on the basis of the above epidemiological data, protective treatment against ear mange should be based on treatment of does, to ensure effectiveness of the treatment at farm level together with the economic advantages attainable (i.e., treating only does but within a strictly controlled veterinary programme) Treating does three times per year with ivermectin injection at 200 µg per kg b.w. on two occasions, 7 to 10 days apart, appears to be an effective alternative for the purpose of controlling ear mange at farm level.*

(Keywords: rabbit, *Psoroptes cuniculi*, epidemiology, ivermectin)

ÖSSZEFOGLALÁS

A nyúl fülruhósság (*Psoroptes cuniculi*) fertőzöttségi szintjének vizsgálata anyanyulakban és utódaikban

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*A kísérleteket 200 Pannon fehér anyával és szaporulatával dolgozó nyúltelepen végeztük, mintegy három éves periódusban. Az anyák és választás előtti utódaik fülruhósságának (*Psoroptes cuniculi*) fertőzöttségi szintje között szoros ($r=0,86$) összefüggést tapasztaltunk. A tenyészállatok ivermectin injekciós kezelését követően kettő, három és négy hónappal vizsgálva szignifikánsan nőtt a kimutatható fertőzöttség az ötletes korú növendékekben. A tenyésznyulak ötszöri kezelése szignifikánsan csökkentette az 5 hetes növendékek fertőzöttségi szintjét az állományban. Az utódok fertőzöttsége elsősorban az anyanyulak fertőzöttségi állapotától függ. A megállapítás gyakorlati eredménye pedig az, hogy a fülruhósság elleni védekezést a fenti járványtani adatok alapján az anyák kezelésére kell*

alapozni. Az így elvégzett – következetesen végrehajtott, programszerű - kezelések igen gazdaságos állományszintű tünetmentességet biztosítanak. Az általunk ajánlott módszer: a tenyésznnyulak kezelése 200µg/ttkg ivermectin tartalmú injekcióval, 7-10 napos időközzel kétszer ismételve, évi 3 alkalommal.

(Kulcsszavak: nyúl, *Psoroptes cuniculi*, járványtan, ivermectin)

INTRODUCTION

The ear mange (*Psoroptes cuniculi*), is a long-recognised one by *Delafond (1859)*, *cit Arlian et al., 1981* and its development cycle, its virulence and the conditions required for its survival in the environment have been investigated thoroughly (*Arlian et al., 1981*); however, in the international literature the authors have come across no data relating to its epidemiological properties within rabbit stocks. Therefore the authors considered it justified to perform a study on ear mange within a rabbit population from the aspect of epidemiology, with particular respect to the relation between the degree of infection in does and that developing among their offspring.

MATERIALS AND METHODS

This experiment was performed with a Pannon White rabbit stock based on 200 does and their young, over a period of approximately three years.

In examining naturally occurring cases of ear mange the presence of the ear mange pathogen (*Psoroptes cuniculi*) was ascertained by means of a microscope from scab scrapings taken from the ears of the rabbits; the severity of infection was then assessed from the size of these lesions by direct examination of the ear with an otoscope. A scale of 0 to 10 was used for the purpose of establishing this, 0 representing a clear ear and 10 a severe degree of infection visible on 100% of the surface of the external auditory canal. The relation referred to in the title was investigated under three experimental arrangements, performed under farm conditions.

- The degree of infection present in the does (n=32) and in their own offspring (n=206) was examined at weaning, when the young rabbits were 5 weeks old.
- Two, three and four months subsequent to the administration of the treatment to the breeding does (200 µg per kg b.w. ivermectin inj. s.c. Cevamec inj. (Ceva-Phylaxia, Budapest)) the degree of infection in the weaned rabbits was monitored.
- In the second part of the experiment the symptoms of ear mange were eradicated in the infected does. This programmed treatment consisted of 200 µg per kg b.w. ivermectin injection s.c. (Cevamec inj. (Ceva-Phylaxia, Budapest) given twice with an interval of 7 to 10 days. The treatment was repeated every 4 months, on five occasions in total. Two months after both the first and the final treatment the degree of infection in the five-week-old progeny was assessed.

The SPSS 7.5 programme was used for the statistical analysis procedure (analysis of variance).

RESULTS

A close (r=0.86) correlation was ascertained between the degree of infection in the does and that in their offspring prior to weaning (*Donkó, 1999*).

On examination two, three and four months after the treatment was administered to the breeding does a significant increase in the degree of detectable infection in the five-week-old progeny was observed (Table 1).

Table 1

Changes in the degree of infection in the five-week-old offspring subsequent to single treatment of the does (in scores of 0-10)

Time after treatment of does (1)	n	Mean(2)	SD(3)
2 months (2. hónap)	148	1,17 ^a	1,36
3 months (3. hónap)	172	1,79 ^b	1,74
4 months (4. hónap)	136	2,67 ^c	1,75

a, b, c: means with different superscripts differ significantly from each other ($P < 0.05$), (a, b, c: az eltérő betűvel jelzett átlagok szignifikánsan eltérnek egymástól ($P < 0,05$))

1. táblázat: Az öthetes életkorú növendékek fertőzöttségének változása az anyák egyszeri kezelését követően (0-10-es skálán)

Anyák kezelésétől eltelt idő(1), Átlag(2), Szórás(3)

Treatment of the breeding does on five occasions resulted in a significant decrease in the degree of infection in the 5-week-old progeny within the stock (Table 2).

Table 2

Changes in the degree of infection in the five-week-old offspring subsequent to programmed treatment of the does (in scores of 0-10)

	n	Mean(3)	SD(4)
After 1 st treatment (1)	148	1,17 ^a	1,36
After 5 th treatment(2)	152	0,41 ^b	1,04

a, b: means with different superscripts differ significantly from each other ($P < 0.05$) (a, b: az eltérő betűvel jelzett átlagok szignifikánsan eltérnek egymástól ($P < 0,05$))

2. táblázat: Az öthetes életkorú növendékek fertőzöttségének változása az anyák programszerű kezelését követően (0-10-es skálán)

1. kezelés után(1), 5. kezelés után(2), Átlag(3), Szórás(4)

CONCLUSIONS

The three different approaches led to the same conclusion: that the degree of infection among the offspring of a doe is primarily dependent on her own condition with respect to infection. However, the practical implication of the findings made is that, on the basis of the above epidemiological data, protective treatment against ear mange should be based on treatment of does, to ensure effectiveness of the treatment at farm level together with the economic advantages attainable (i.e., treating only does but within a

strictly controlled veterinary programme. Treating does with ivermectin injection at 200 µg per kg b.w. on two occasions, 7 to 10 days apart, appears to be an effective alternative for the purpose of controlling ear mange at farm level.

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