

A Field Trial of Some Coccidiostatics on Meat
Rabbits Under Large-scale Conditions

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Introduction

The range of preparations to prevent intestine and hepatic coccidiosis in rabbits is rather limited comparing to that of poultry. Only a few preparations proved to be effective in the past decades in connection with the above mentioned disease of rabbits. Dürr and Lammler /1970/ tried some sulphonamids from among these to prevent intestine coccidiosis in rabbits. From the four preparations Rofenon mixed in the food in 100 mg/kg dose /sulphadimetine-dia-veridine 3:1/ proved to be fairly effective against single high dose and mixed oocysts infection. However, it protected the animals only to a small extent when given in identical dosage against continuous experimental infection. Fitzgerald /1972/ found Monensin effective in 0,005 and 0,002 % concentration to prevent hepatic coccidiosis. Lammler and Hein /1980/ mixed Salinomycin in 20 and 45 mg/kg dose in rabbit food. Salinomycin proved to be effective against *E.stiedia* in both doses. Sambeth and Raether /1980/ examined the anti-coccidial effect of ionophore antibiotics /Salinomycin, Monensin, Lasalocid/ in rabbits in case of preventive dosage. Salinomycin and Monensin in 50 mg/kg dose prevented the development of intestine and Hepatic coccidiosis effectively. Varga /1982/ examined among others the effectiveness of Salinomycin under large-scale conditions. According to his experimental results Salinomycin in 50 mg/kg dose mixed in rabbit food provides good coccidiostatic effect.

On the basis of the above our target was to try Salinomycin, Roferon and the effective antibacterial preparation, Furazolidon under large-scale conditions.

Material and Methods

The experiments were carried out under large-scale conditions with 7058 New Zealand white, weaned rabbits at the age of 28-30 days on the rabbit farm of Agricultural State Farm, Környe. In the course of the feeding experiment repeated three times the rabbit food of identical composition was supplemented with 25 and 50 mg/kg Salinomycin, 25 and 50 mg/kg Monensin, 100 mg/kg Furazolidon, and 100 mg/kg Roferon. In all the cases an untreated control group was also present in the experiment. At the beginning of the experiment 100-120 rabbits were individually weighed and ear-tagged. The tagged animals were individually weighed every second week while the others were weighed in groups at the beginning and when the experiment was over. Feeding of the treated foods lasted eight weeks and after a week withdrawal period the rabbits were slaughtered.

Besides the regular production data collection /body weight gain, food consumption and utilization/ death was registered daily and the cause of death was determined by post mortem examination. The oocyst shedding of the animals both in the treated and the untreated control groups was determined with the McMaster oocyst-counting method. Examinations were carried out weekly, using 10-10 mixed faeces at each group.

The effectiveness of the preparations mentioned above was evaluated on the basis of the performance of rabbits from both groups /average daily body weight gain, food conversion ratio/ and as well as mortality % and the amount of shedding oocysts /OPG/.

Results

The effect of the tested preparations on meat rabbit production is summarized in table 1., while their effectiveness against coccidiosis is summarized in table 2.

As for as the effect of the tested preparations on body weight gain is concerned, only the Furazolidon treatment increased body weight significantly / $P < 0,05$ / in the 1st and the 3rd experiment/. Neither ionophor antibiotics nor Roferon improved daily body weight gain, moreover, in most of the cases the body weight gain of the treated animals proved to be worse than that of the untreated ones.

The tested preparations generally moderated the food intake and increased food conversion ratio to a small extent. Furazolidon feeding in each case, Rofaron, Salinomycin and Monensin feeding except the 1st experiment /higher dose/ resulted in better food conversion ratio than control food feeding.

The 50 mg/kg Salinomycin and Monensin decreased both weight gain and food utilization. The 50 mg/kg Monensin especially, significantly decreased food intake in the first two weeks of the experiment. In most of the cases, except the whole 2nd experiment and the Furazolidon - treated group of the 1st experiment, mortality rate in the untreated control group was smaller. 92 % of the deaths was due to the diarrholic diseases of the digestive organs.

As Table 2 shows both Salinomycin and Monensin significantly decreased the amount of the sheeding oocysts in both groups. At the same time the other two preparations, Furazolidon and Roferon had no influence on the number of the shedding oocysts.

Discussion

From the tested preparations Salinomycin and Monensin in 50 mg/kg dose practically eliminated, while in 25 mg/kg dose significantly decreased the amount of oocysts in the faeces. The other two preparations /Furazolidon, Roferon/ showed no anti-coccidial effect in our experiments. However, the effective anti-coccidial preparations couldn't decrease the damage caused by the diseases of the digestive organs either. In most of the trials the number of death in the untreated groups was lower. The above mentioned preparations with the exception of Furazolidon didn't increase, but decreased body weight.

It's wellknown that in the etiology of the diseases of the digestive organs besides coccidiosis numerous bacteria /E.Coli, Cl.Perphringeus, B.Piliformus /viruses/ adeno-, rota,- reovirus/ and other non-infections causative agents can be present /4,10/. Our examinations didn't cover the examination of these agents. The results are likely to suggest that keeping in wire bottom cage under large-scale conditions and regular cleaning and disinfection /often burning/ prevent death due to intestine and hepatic coccidiosis.

However, Varga /1982/ reports that 54 % of rabbit liver coming from small-scale breeders was condemned because of hepatic coccidiosis at the slaughter house of Agricultural State Farm, Környe. Consequently, mainly small-scale populations need effective coccidiostatics. For this purpose 25 mg/kg Salinomycin or Monensin in similar dose can be suggested.

Table 1.

The Performance Data of the Trials

<u>Experiment 1.</u>	Body weight gain g/day	Food consump- tion g/day	Food conver- tion g/day	Mortality %
I. Furazolidon/100 mg/kg/	28,72	109,40	3,04	10,6
II. Rofenon /100 mg/kg/	27,70	121,20	3,21	18,8
III. Salinomycin/50 mg/kg/	26,53	113,90	3,34	17,7
IV. Monenzin /50 mg/kg/	23,27	116,30	3,50	25,0
V. Control /untreated/	27,66	119,50	3,18	15,5
 <u>Experiment 2.</u>				
I. Furazolidon/100 mg/kg/	23,88	112,82	3,41	34,34
II. Monenzin /25 mg/kg/	23,74	103,47	3,25	28,38
III. Rofenon /100 mg/kg/	24,37	106,93	3,23	28,43
IV. Salinomycin/25mg/kg/	25,08	113,01	3,36	30,40
V. Control /untreated/	25,67	136,54	3,89	44,68
 <u>Experiment 3.</u>				
I. Furazolidon/100 mg/kg/	26,13	108,0	3,52	13,88
II. Salinomycin/ 25 mg/kg/	24,66	87,7	3,16	18,44
III. Monenzin / 25 mg/kg/	23,83	95,8	3,37	17,14
IV. Control /untreated/	25,10	119,0	3,95	13,61

Table 2.

Average oocyst number x 1000 of 1 g faeces and the reduction in untreated control percent in the 1st, 2nd and 3rd experiments

Treatments	A g e i n d a y s								
	28	35	42	49	56	63	70	77	84
<u>Experiment 1.</u>									
I. Furazolidon /100 mg/kg/ reduction %	17,6 45	1,1 45	6,5 0	5,5 0	8,0 0	1,7 0	5,8 0	31,6 0	2,4 0
II. Rafenon /100 mg/kg/ reduction %	13,7 45	1,1 0	3,5 0	21,0 0	1,7 0	6,1 0	18,2 0	59,6 0	3,7 0
III. Salinomycin /50 mg/kg/ reduction %	2,9	0,1 95	0 100	0,3 25	0 100	0 100	0,1 25	0 100	0 100
IV. Monensin C /50 mg/kg/ reduction %	3 95	0,1 100	0 100	0 100	0 100	0 100	0 100	0 100	0 100
V. Control /untreated/	16	2	0,8	0,4	0,3	0,3	0,4	0,8	0,5
<u>Experiment 2.</u>									
I. Furazolidon /100 mg/kg/ reduction %	14,2	26,5 0	14 0	40 0	17 0	3,4 0	4,4 0	28,6 0	3,4 0
II. Monensin /25 mg/kg/ reduction %	3,4	1,5 0	0 100	0 100	0,4 0	0 100	1,0 33	0 100	0 100
III. Rofenon /100 mg/kg/ reduction %	3,6	2,3 0	0 0	3,5 0	3,2 0	2,3 0	20,7 0	9,1 0	11,3 0
IV. Salinomycin /25 mg/kg/ reduction %	2,2	0 100	0 100	0 100	0 100	0 100	0 100	0 100	0,2 33
V. Control /untreated/	2,5	0,6	0,3	0,4	0,4	0,3	1,5	0,4	0,3
<u>Experiment 3</u>									
I. Furazolidon /100 mg/kg/ reduction %	1,7	2,2 0	1,9 0	13,2 0	24,2 0	0,9 0	43,2 70	55 0	12,7
II. Salinomycin /25 mg/kg/ reduction	13,4	1,2 37	1,2 37	0,2 91	1,1 56	0 100	0,2 97	0,2 97	
III. Monensin reduction %	1,6	0,6 68	0,2 89	0,1 96	0,1 96	1,4 53	0,4 94	0,2 97	
IV. Control /untreated/	3	1,9	1,9	2,3	2,5	3,0	6,8	6,3	

The data above are the average of ten measurements.

Summary

The authors examined the anti-coccidial effect of 25-50 mg/kg Salinomycin, 25-50 mg/kg Monensin, 100 mg / kg Roferon /sulphadimetoxine-diaveridine 3:1 / and 100 mg/kg Furazolidon and their influence on meat rabbit production under large-scale conditions. In three trials a total of 7058 New Zealand white weaned rabbits at the age of 28-30 days were examined. In each case an untreated control group was also present. The above mentioned preparations mixed in food were fed for 8 weeks and after a week withdrawal period the experiment was over. Furazolidon significantly improved body weight gain /P 0,05/ in two cases of the three trials. Furazolidon and 25mg/kg Salinomycin and Monensin improved food conversion ratio to a small extent. None of the preparations eliminated damages caused by the diseases of the digestive organs after weaning. A 25-50 mg/kg dose Salinomycin and Monensin significantly decreased the amount of oocysts in the faeces.

Résumé

Les auteurs ont examiné au niveau de grande usine 25 ou plutôt 50mg/kg de Salinomycine, 25 ou plutôt 50mg/kg de Monensine 100mg/kg Rofenon/sulphadimetoxine-diaveridine 3:1/ et 100mg/kg Furazolidon anticoccidien et leur effet exercé sur la production des lapins de viande. En 3 répétitions en tout 7058 lapins de race néo-zélandaise, choisis à l'âge de 28-30 jours figuraient à l'essai. Dans tous les cas on a mis à l'épreuve des groupes-témoin non traités. Les animaux ont mangé pendant 8 semaines des aliments composés complétés par les produits mentionnés, puis après une semaine d'excrétion l'essai s'est terminé. Le Furazolidon dans deux cas sur trois a amélioré d'une façon significative / P 0,05/ l'augmentation du poids de corps des lapereaux. L'utilisation du fourrage spécifique a été améliorée les 25mg/kg de Salinomycine ou plutôt par le Monensine. Les pertes, causées par les maladies des organes digestifs après le sevrage, n'ont été modérées par aucun des produits. Les 25 ou plutôt les 50mg/kg de Salinomycine ou plutôt le Monensine ont diminué notablement la quantité des oocystes excrétés.

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