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NITROVIN IN FATTENING OF RABBITS

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Introduction

The yield increasing medicaments are such natural or artificial chemical supplemets, that mixed in the feed improve the production indexes already in very little dose. According to the experience of Kaemmerer /1975.cit.Herold 1984/ the effective substance of nitrovin is absorbed only slightly in the animals organizm, its overdosage did not cause considerable alterations in the toxicity tests. Its predominating part evacuates in a short time through the intestinal canal, so its application can be considered harmless.
The investigations of Kirchgessner /1975/ carried out with fattening pigs prove that by effect of nitrovin the digestibility of crude protein increased. Jeroch experienced the same /1975;1979/ with broiler chickens. It is emphasized that since the effective substance of nitrovin is not antibiotics, but synthetic antibacterial and anabolic substance, does not cause problems characteristic so many times on antibiotics.Its effect - depending on the environment to a great extent - results highly considerable overplus in production and feed utilization mainly at the youngest age. The considerable performance improvements achieved at other species of animal impelled us to test the effect of the preparation also in the fattening of the meat rabbit.

Methods and materials

Nitrovin is a derivative of furan;/1,5-bis/5-nitro-2-furyl/ 1,4-pentadien-3-one amidinohydrazone hydrochloride/.
In our investigation we applied "Biogrand-1o" nitrovin preparation developed and produced by BIOGAL Pharmaceutical Works.
The test was performed twice one after another on the rabbit farm of the Institute with New Zealand White young rabbits of nealy identical age /35±3 days/ and live mass /72o±5o g/ 24, respectively 3o per occasion and group. The litter mates were divided in identical sex rate per group to secure the genetic uniformity this way. Animals were placed individually into two story metal cages with 3ox6o cm surface, according to a scheme determined in advance, divided uniformly in the stable space. There was automatic poultry value fountain in the cages and the feed was available ad libitum for the animals. Each observation took 35 resp. 42 days in course of which we weighed the individual body mass and feed consumption of the animals per two weeks. The deaths were recorded.
On both occasions 3 groups were formed from the animals. So there was a control untreated, a smaller /12 mg per kg feed/ and a larger /24 mg per kg feed/ nitrovin dose consuming stock. Taking no notice of the yield stimulator all the three groups ate a feed of identical composition and nutritive matter content /11.5 MJ/kg, 16 % crude protein, 13 % crude fibre/. In the finishing period of the trial - then the animals were of 11 weeks old - we choose 4-4 female litter mates of almost identical live mass from every group with the object of utilisation examination. These were placed in special utilization cages and the digestibility of the fed rabbit rations was examined with the method of Fekete and Gippert /1983/ with an excreta collection of 2x4 days.

Evaluation of results

The production results are published in the 1.table.

Mass gain:
The experimental treatment was of positive effect at both occasion and in both groups. The results are averagely by 5-9 % better than in the control group. The performance increasing effect is not independent of the extent of the dose.
As long as the nitrovin supplementation of 12 mg/feed kg only slightly, the effective substance treatment of 24 mg/feed kg significantly /$P < o,ol$/ improved the mass gain in comparison with the control in the first trial. On the second occasion this difference is less expressive.

Feed utilization:
Nitrovin influenced the specific feed utilization also favourably in both trials. We established an average specific feed utilization of 3.26 kg in the control stock, a 3.18 kg in the nitrovin at smaller dose and 3.o6 kg at the greater dose. These data mean that by the influence of the yield grower decreased less feed by 3-6 % for the production of 1 kg live mass during the whole fattening period. This difference is significant on the level of $P < o,o5$ in both trials.

Deaths:
Nitrovin did not influence the death, it was around 17 % uniformly in all the three groups.

Digestibility coefficients:
The digestibility coefficients of the feeds is contained in the 2.table.

By the influence of the nitrovin treatment the digestibility of crude fat and crude protein improved significantly /$P < o,o5$/. The former did by 5, the latter by 6.6 %.

Discussion

Since our investigations were inspired mainly by the favourable usability of the nitrovin in broiler fattening, we took into consideration the levels applied here also at the election of the dose. Though Herold et al. /1984/ reported a 6 % increase of body mass gain already at feeding of 12 mg per kg feed, according to our investigations this dose remained effectless in rabbits. With the increase of the dose /24 mg/kg feed/however, both the body mass gain and the specific feed utilization worked out equally more favourably. All this presumably is in relationship with the improvement experienced in the protein digestibility, what was reported about also by Kirchgessner /1975/ in case of pigs. It can also be seen that the results are connected with the quantity of nitrovin used, since the higher concentration led to better production parameters. Since it did not succeed to reproduce fully the results received for the first occasion, it is presumed we did not yet reach the optimal level with that. Jeroch et al. /198o/ reached the most favourable results with the distribution of 4o mg nitrovin per kg feed in their broiler fattening trial.
On the basis of all these we find perspective also the trial of a greater dose, respectively a combined trial of the nitrovin with other antibiotics in the rabbit nutrition.

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1. table

Effect of feeding nitrovin on the performance of fattening rabbits

Production indexes			Control	experimental treatments 12 mg N/kg feed	24 mg N/kg fedd
First experiment					
Starting stock	pcs.		24	24	24
Death	pcs.		4	4	4
Average daily mass gain	g		34,5o^{x}	37,o1	37,87^{x}
		s±	4,3	4,2	5,1
Teed utilization			3,26^{+}	3,18	3,o6^{+}
		s±	o,35	o,28	o,25
Average daily feed consumption	g		112	116	115
		s±	13,o	11,3	9,5
Second experiment					
Starting stock	pcs.		3o	3o	3o
Death	pcs.		5	5	5
Average daily mass	g		35,2o	35,28	36,6o
		s±	5,1	6,3	4,8
Feed utilization			3,3o^{+}	3,2o	3,12^{+}
		s±	o,28	o,31	o,28
Average daily feed consumption	g		116	112	114
		s±	12,4	11,2	13,1

x P o,o1

\+ P o,o5

2. talbe

Chemical digestibility coefficients of feeds /%/

Feedstuff	Dry matter	Crude ash	Organic matter	Crude protein	Crude fibre	Crude Fat	N.F.E.
Control	91,3o	8,2o	83,1o	17,53	1o,25	2,34	52,98
12 mg Nitrovin	91,4o	5,8o	85,6o	17,13	1o,2o	2,96	55,31
24 mg Nitrovin	91,25	5,95	85,3o	17,17	1o,3o	2,94	54,89
Control $\bar{x}$	73,86	66,48	71,85	73,28^{x}	24,71	83,o4^{x}	8o,98
$s^{\pm}$	1,85	3,98	1,87	2,49	3,48	1,3o	1,47
Nitrovin $\bar{x}$	69,95	46,26	68,54	73,91	23,34	86,93	78,18
12 mg/kg feed $s^{\pm}$	2,17	5,53	2,o5	4,94	2,o5	3,49	1,26
Nitrovin $\bar{x}$	76,17	6o,3o	72,74	78,1o	29,52	87,51^{x}	81,48
24 mg/feed kg $s^{\pm}$	2,99	3,65	3,14	3,2o	5,42	2,72	1,25

X P = o,o5

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NITROVIN IN THE FEEDING OF RABBITS

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The observation was carried out twice using New Zealand White breed rabbits with nearly the same age /35-3 days/ and live weight /72o-5o g/ 24 respectively 3o per group accomodated in individual cages. The feedstuff of each treatment contained 11.5 MJ per kg metabolizable energy, 16.5 % crude protein and 13 % crude fibre. The feedstuff of two groups was supplemented with 12 respectively 24 mg per kg nitrovin. Each study took 35 respectively 42 days. In the final period of the study - at 11 weeks of age-,the digestibility of the three feedstuffs was examined. The greater dose of nitrovin improved mass gain slightly in one experiment and significantly in the other / $P<o,ol$/ and significantly / $P<o,o5$/ in both the feed utilization.The death was not influenced. In the utilization study on the effect of 24 mg per kg nitrovin treatment significantly improved /$P>o,o5$/ the digestibility of the crude fat and crude protein.

NITROVIN IN DER KANINCHENFÜTTERUNG

Die Beobachtung wurde zweimal mit 24 u.3o in den einzelnkäfigen gesetzten Kaninchen der neuseeländischen weißen Rasse, im nahen gleichen Alters /35- 3 Tage/ und Gewicht /72o- 5o g/ durchgeführt. Die Futter jeder Behandlungen enthielten 11,5 MJ/kg VE, ein Roheiweißgehalt von 16,5 % und 13 %-igen Rohfaser. Zu den Futtermitteln wurden 12 mg/kg bzw.24 mg/kg Nitrovin zugegeben. Je eine Prüfung dauerte 35 bzw. 42 Tage lang. In der Beendigugsphase der Untersuchung wurden die Verdaulichkeiten von drei Futtern untersucht. Die größere Nitrovindose hat den Massenzuwachs in einem der Versuche weniger, im anderen signifikant / $P<o,ol$/ und in beiden die Futterverwertung auch signifikant / $P<o,o5$/ verbessert. Der Abfall wurde damit nicht beeinflußt. Im Bilanzversuch hat die Nitrovinbehandlung in der Dose 24 mg/kg die Verdaulichkeit von Rohfett und Rohprotein signifikant / P o,o5/ verbessert.