

THE EFFECT OF COMPOUND ADDITIVE ON THE GROWTH, FEED
EFFICIENCY AND DIARRHOEA OF RABBIT

Liang Q. Z.; He N. R.; Hou F. A.; Li W. G.; Ren K. L. & Zhang L. J.

Animal Husbandry & Vet. Research Institute, Shanxi
Academy of Agri. Sciences, Shanxi, China.

In recent years, there appear many kinds of feed additives for animal and poultry named after various growth promoters, but almost no any kinds is special for domestic rabbits, especially none for meat rabbits. High mortality of young rabbit due to disease is a hindrance to the development of rabbit farming, hence it is highly necessary to prepare a compound additive which will play an important role in promoting growth and reduce mortality of young rabbit. Based on the feeding experiment of otaguindox /Liang Q.Z. et al. 1985/, copper sulphate /Liang Q. Z. et al. 1986/ and compound trace elements, a kind of compound additive which consists of growth promoter and trace elements was developed. Two feeding experiments were conducted to measure its effect on weight gain, feed efficiency and diarrhoea incidence.

Materials and methods

Two experiments were conducted in the experimental rabbit farm of Shanxi Animal and Vet. Research Institute in Taiyuan. Experiment 1 started from Feb. 14, 1986 and lasted for 3 weeks; Experiment 2 started from July 25, 1986 and lasted for 4 weeks.

Experimental diet;

Base diet for two experiments consisted of dehydrated grass meal 20%, maize 35%, mill offals 25%, soybean cake 18%, bone meal 1%, shell meal 1% and 0.5% salt. The analysis result shows that the content level of CP and CF are 16.28% and 9.24%(DM) respectively. The additive is consisted of ota-

guinox, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$, ZnO , $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ and $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ etc.

In two experiments, the base diet was divided into 2 parts. To one part the additive on trial was added and the other part, used as control, no additive was added to. The feed was pelleted. The only difference of Experiment 2 from the Experiment 1 is the extra 50g tender alfalfa per day to the experimental rabbits for the supplement of vitamins needed.

Experimental animals,

In Experiment 1, 60 meat rabbits (New Zealand White 36 and Danish White 24) of 35 days was chosen and divided into 2 groups according to the varieties, body weights and litters. There are 30 rabbits in each group and the 2 groups were designed randomly.

In Experiment 2, 84 young meat rabbits (NZW 50 & DW 34) of 40 days weaning was chosen and divided into 2 groups according to their varieties, body weights and litters. There were 42 rabbits in every group and two groups were designed randomly. All the animals were caged individually (0.25m^2) with water and feed supplied ad libitum. In two experiments no pre-feed period was designed simply because that the diet in experiments was the same with that before weaning.

In Experiment 1, body weight was measured individually and the feed intake was recorded every week, while in Experiment 2 the individual body weight and feed intake recorded every 2 weeks. In both experiments the diarrhoea and softfeace was observed and recorded every day.

Results and discussion

The results of the initial weight, final weight, daily gain and the ratio of feed intake to weight gain shows in table 1.

1, Effect on weight gain

In Experiment 1, the initial body weight of the control group and the trial group were 601 and 593 g respectively, while the final weight were 958 and 1026 g. The average daily gain of two groups were 17.0 and 20.7g respectively. It increased 21.8% than that of the control.

In Experiment 2 the initial weights of the treatment and the control group were 710 and 704 g and the final weight were 1430 and 1586 g respectively. It has increased 10.9% ($p < 0.01$); The average daily gain of two groups were 21.6 and 31.3g/day. It has increased 22.3% ($p < 0.01$) in the trial group table 1 the initial body weight, final weight, daily gain and the ratio of feed intake to weight gain (unit,g)

	group	number of initial		average			
		animals	weights	final weight	daily gain	feed intake ratio	
Exp. I	control	30	600.7	957.9	17.0	96	5.9
	trial	30	593.0	1025.7	20.7	98	5.1
Exp. II	control	42	710.4	1430.1	25.6	81	3.21
	trial	42	707.3	1586	31.3	90	2.99

table 2 Effect on diarrhoea incidence

group	softfaeces		diarrhoea		mortality		
	number	%	number	%	number	%	
Exp. I	trial	8	26.7	7	23.3	2	6.7
	control	4	13.3	12	40.4	2	6.7
Exp. II	trial	2	4.8	6	14.3	0	
	control	9	21.4	11	26.2	2	4.8
mean	trial	10	13.8	13	18.1	2	2.8
	control	13	18.1	23	31.9	5	2.8

than that of the control.

2. Effect on the feed efficiency

In Experiment 1, the daily feed intake of two groups were 96 and 98g respectively and the feed efficiency were 5.9 ± 1.7 and 5.1 ± 1.5 . The ratio of treatment group reduced 13.6% ($p < 0.1$). It should be pointed out here, that because the pellet size was unexpected rather long, it caused a great deal of waste, resulting a serious increase in feed consumption.

In Experiment 2 the daily intake of the control and the treatment group were 81 and 90 g (the extra 50g tender alfalfa was not included in) and the ratio of two groups were 3.21 ± 0.71 and 2.99 ± 0.79 respectively. The feed efficiency of the trial group has increased 6.9% ($p > 0.05$), anyhow it failed to reach a distinguish level. Although too much waste existed in two experiments, considering that there always exist a correlation between daily gain and feed efficiency /Schlotaut W. et al 1985/ and the similarity of feed-bowls feed patterns and feeding methods in two experiments, the data of intake/weight gain still has reference value to some extent.

3. Effect on diarrhoea incidence

Table 2 shows that in Experiment 1 the diarrhoea incidence of the trial and the control groups were 23.3% and 40% respectively. The trial group reduced 16.7% than that of the control, while in Experiment 2 the diarrhoea incidence of two groups were 14.3 and 26.2%, the trial group reduced 11.9% than that of the control. Besides the softfaeces and the death number maintained a tendency of reduce.

4. Effect on carcass quality

A experiment measuring carcass quality lasted about 4 weeks and the result shows in table 3. The level of water and protein increased 0.83 and 0.57% ($p > 0.05$)

table 3 Effect on carcass quality

	water	protein	fat	ash	Ca	P	Fe	Zn	Mn	Cu
	%	%	%	%	%	%	ppm	ppm	ppm	ppm
control (n=6)	71.3	19.3	8.5	1.06	.169	.176	4.0	7.67	.248	.41
trial (n=6)	71.9	19.7	7.6	1.07	.152	.181	4.6	9.18	.401	.40

respectively, but the fat level reduced 1.25% ($p > 0.05$). The result showed that there were no any negative effects on carcass quality.

References

1. LIANG Q.Z. et al. 1985
The effect of olaguindox on weight gains of rabbit. Chinese J. Rabbit Farming. 4 41-43.
2. LIANG Q.Z. et al. 1987
Effect of high-Cu diet on performance of growing Rabbit. 2nd international symposium on the nutrition of herbivores. University of Queensland, Brisbane, Australia.
3. SCHLOLAUT W. et al. 1985.
Rabbit compendium. Federal German press, Eschborn. 261pp.

THE EFFECT OF COMPOUND ADDITIVE ON THE GROWTH, FEED
EFFICIENCY AND DIARRHOEA OF RABBIT

Liang Q. Z.; He N. R.; Hou F. A.; Li W. G.; Ren K. L. & Zhang L. J.

Animal Husbandry & Vet. Research Institute, Shanxi

Academy of Agri. Sciences, Shanxi, China.

Summary

To develop rabbit farming, a kind of compound additive Tubao has been prepared which was consisted of high-efficiency anti-coccidiosis, growth promoters and variable trace elements. Two experiments were conducted to measure its effect.

In Experiment 1, 60 meat rabbits (36 New Zealand White & 24 Danish White) of 35 days old were divided into 2 groups. The results show that, in the treatment group the growth gain increases 21.8% ($P < 0.05$), the feed consumption for per unit weight gain reduces 13.6% ($p < 0.01$) and the diarrhoea incidence reduces 16.7%.

In Experiment 2, 84 rabbits of 40 days old were divided similarly into 2 groups. The results show that, in the treatment group the weight gain increases 22.3% ($p < 0.01$), the feed consumption for per unit weight gain reduces 6.9% ($p < 0.05$) and the diarrhoea incidence reduces 11.9%. Moreover in both experiments the soft faeces and the mortality maintained a tendency of reduce.

Résumé

Pour développer l'élevage des lapins, on a produit un additif composé de pâtures, Tubao, qui se compose de médicaments de bonne efficacité contre la coccidiose, de promoteurs de croissance et de diverses traces d'éléments et s'est mis à deux essais pour examiner son efficacité.

Essai 1. 60 lapins blancs néo-zélandais et danois, à l'âge de 35 jours, divisés en groupe d'essai et groupe de comparaison selon leur espèce, leur poids du corps et leur portée. Résultats, vitesse d'accroissement de poids, augmentée de 21.8% ($p < 0.05$); consommation spécifique de pâture pour l'accroissement de poids, diminuée de 13.6% ($p < 0.01$); morbidité de diarrhée, diminuée de 16.7%.

Essai 2. 84 lapins blancs néo-zélandais et danois, à l'âge de 40 jours, divisés en deux groupes comme l'essai 1. Résultats, vitesse d'accroissement de poids, augmentée de 22.3% ($p < 0.01$); consommation spécifique de pâture, diminuée de 6.9% ($p < 0.05$); morbidité de diarrhée, diminuée de 11.9%. De plus, le rapport d'excrément mou et le taux de mortalité dans les deux groupes tendaient à diminuer pour les deux essais.

