

DEMONSTRATION
TRIAL

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**EVALUATION OF IMPROVED MILBOND TX® FOR PRODUCTION
IMPROVEMENT IN BROILER DIETS**

Final Report of the Study

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1 SIGNATURE PAGE

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2 SUMMARY

2.1 Abstract

In order to evaluate the binding ability of Improved MILBONB-TX (IMTX), a demonstration trial was conducted in a commercial broiler farm. 3500 AA chicks were divided into two groups randomly. Every group has two blocks as a repeat. From day 1 to day 21, chick fed IMTX consumed less amount of feed (907.45g Vs 921.27g) grew as well (542.63g Vs 527.33g), and were as efficient (1.67 Vs 1.75) as chicks fed the control diet. For the whole trial period, The IMTX broiler has higher weight increased (2.40 kg Vs 2.04kg), higher feed consumption (5.34kg Vs 4.95kg) lower feed: gain (2.23 Vs 2.42). The benefits analysis shows that the net income of IMTX group is increased 1.33RMB per chick.

2.2 Tabular Summary

Product Name: Improved MILBOND-TX	Generic Name: Hydrated sodium calcium aluminosilicate
SECTION: Demonstration Trial	Reference: Investigating farm: Liaocheng Jiaming Industry and Commerce Co., Ltd., Shangdong province Study period (years): July,24 -Sept. 11,1999
Description of <i>in vitro</i> test: Determination the binding ability of IMTX, evaluate the performance of broiler used IMTX.	
Test substance: Improved MILBOND-TX	
Results: The IMTX treatment has higher weight gain, lower feed to gain ratio and higher net income.	
Conclusions: MILBOND-TX at the 0.25 wt % dosage level in feed offers complete protection against effects of aflatoxin, it is a safety , efficacious, economical feed additive to use in broiler diet.	

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4 INTRODUCTION

It is estimated that there are 25% cereal grains affected by mycotoxins every year over the world. Mycotoxins have high poison, which is a natural byproduct with the growth of the fungi and mould. To kill the fungi and mould can avoid the produced of mycotoxins, but can not eliminate the toxins once they formed in the cereal grains. Most mycotoxins are stable of chemical characteristic, which still exist long time after mycotoxins-produced fungi deceased.

The most important mycotoxin is aflatoxin Aflatoxin cause a variety of effects in poultry, including poor performance, liver pathology, immunosuppression, and change in relative organ weights(Edd and Bortell,1983;Kubena et al. 1990, 1993). It can cause the variety clinical symptom of poultry disease, but it seldom cause morbidity and death, on the contrary , it is always caused the nonspecific harm to poultry, so that caused poor production and poor anti-disease ability. Due to the cereal grains and rapeseed meal is used by most commercial poultry producer, especially broiler producer, the harm of mycotoxins become an obviously and permanently hinder to the benefits of producer.

IMPROVED MILBOND TX® is a high-affinity sorbent that vigorously binds aflatoxin in animal feeds. In its bound state the complexed aflatoxin is no longer bioavailable and therefore will pass harmlessly through the animals gut in the excrement. Thus IMPROVED MILBOND TX ® (IMTX) can be used to protect animals against the deleterious effects of aflatoxicosis when mixed in feeds contaminated with aflatoxin. New in vivo and in vitro studies in United States Universities prove IMTX to be twice as effective against aflatoxicosis and other mycotoxins.

5 OBJECTIVES

The objective of this study is to evaluate the safety and efficacy of IMPROVED MILBOND-TX compared to controls for against the deleterious effects of aflatoxicosis when mixed in feeds.

6 MATERIALS AND METHODS

Treatments.

3500 healthy Day-old AA birds from same source were divided into four blocks randomly, each two blocks was a group, i.e. each group had a repeat.

<u>Group</u>	<u>Treatment</u>
1	Control + MTX 0.25%

2 Negative control

Management

According to < AA broiler management guideline>, feed and water *ad libitum*.

DIETS

Commercial diets is from Jiaming Feed Processing Co., Ltd. ,
Starter--0-3 weeks,
Grower--4-6weeks,
Finisher--7weeks to market
The diet formula and nutrition level is showed in table 1.

CONCURRENT MEDICATIONS

A standard vaccination program was used. The two groups have the same medications treatment for prevention or therapy.

DATA COLLECTION

Weight

- The average weight of the day-old chicks
- The total weight of broilers at 21days
- The total weight of broilers at the time the birds are marketed

Feed consumption

The total amount of feed consumed during the first 21days, grower feed and finisher feed consumed and the date each was initiated.

Mortality & Morbidity

Moribund chicks(defined as unable to stand ,or unable to get to feed or water)as well as dead chicks was collected twice daily (early morning, late afternoon)for the first 21 days and up to market following placement of the chicks. The moribund chicks were euthanatized. All the problem chick was given morbid anatomical entity.

Testing antibody level of NDV

At 2 days of age and 7 days of age, take 30 birds randomly as sample to blood, test the antibody of NDV by the method of red corpuscle.

7 RESULTS AND DISCUSSION

7.1 The effectiveness data of IMTX used in broiler for the first three weeks is summarized in table 2. It shows that the average weight gain is increased 15.3g (2.9%), average feed consumption reduced by 13.82g (1.50%), it shows significant difference ($P < 0.05$). The feed to gain ratio and mortality & morbidity has been reduced obviously. ($P > 0.05$).

7.2 The effectiveness data of IMTX used in broiler for the whole trial is summarized in Table 3 . It shows that the total weigh gain increased 647.56g ,it shows significant difference ($P < 0.05$). The feed to gain ratio and mortality & morbidity has been reduced obviously. ($P > 0.05$).

7.3 Take 30 birds blood randomly as samples from each team to test NDV antibody titer, the results is in table 4, it shows that the IMTX group has higher antibody titer. ($p > 0.05$)

7.4 To this trial, benefits analysis is showed in table5. For the effect of IMTX binding aflatoxin, the weight gain, feed consumption, mortality & morbidity have obviously improved of IMTX group compares to control group, it cause the economic efficiency to be increased.

8 CONCLUSIONS

In conclusion, MILBOND-TX at the 0.25 wt % dosage level in feed offers complete protection against effects of aflatoxin , it obviously improve the growth performance of broilers , the average weight increased 0.39kg over control group per bird ($P < 0.05$), the feed to gain ratio and mortality & morbidity is decreased obviously, the net return is increased 1.33 RMB per birds. IMTX is a safety, efficacious, economical feed additive.

9 TABLES AND FIGURES

Table 1. Diet formula and nutrition level

Diet formula	1□3 weeks	4□6 weeks	The seventh week
Corn (%)	58.95	64.06	66.94
Soybean meals(%)	32.11	25.02	21.65
Meat and bone meals(%)	1.00	2.00	2.00
Limestone (%)	1.39	1.16	1.19
Calcium phosphate (%)	1.51	1.11	1.12
Salt(%)	0.35	0.25	0.25
Others (%)	4.69	6.40	6.85
Nutrient level			
Metabolizable energy(Karl/kg)	2900	2980	3000
Crude protein(%)	20.5	19.00	18
Calcium (%)	1.00	0.90	0.90
Available phosphorus (%)	0.69	0.65	0.64
Lysine (%)	1.01	1.00	0.94
Methionine (%)	0.44	0.45	0.42

Table 2 The effectiveness of IMTX used in broiler for the first three weeks

Treatment	IMTX group	Control
Numbers	1,750	1,750
Average weight of day-old chicks (g)	39.17	39.17
Average weight of 27 days (g)	581.8	566.5
Average weight gain (g)	542.63	527.33
Total feed consumption (kg)	1588.04	1612.23
Feed consumption per chick (g)	907.45	921.27
Feed: Gain	1.67:1	1.75:1
Numbers of dead and moribund	20	22
Mortality & morbidity	1.14	1.26

Table 3 The effectiveness of IMTX used in broiler for the whole trial

Treatment	IMTX group	Control
Numbers	1,750	1,750
Numbers of dead and moribund	20	31
Mortality & morbidity	1.14	1.77
Number of broilers alive	1,730	1,719
Average weight of day-old chicks (g)	39.17	39.17
Total weight of market(kg)	4220	3550
Total weight of dead chicks (kg)	6.776	29.212
Total weight gain (g)	4158.22	3510.66
Total feed consumption (kg)	9339.95	8510.32
Feed: Gain	2.26:1	2.42:1

Table 4 The effectiveness of IMTX to NDV antibody titer

Blood days	Group	7birds or 8birds average titer				Group average titer
2 days old	IMTX group	7.71	7.63	8.88	7.57	7.95
	Control	7.62	7.86	7.71	7.50	7.65
17 days old	IMTX group	5.25	5.25	5.5	5.86	5.45
	control	5.00	5.14	4.71	4.75	4.90

Table 5 Benefits analysis

	IMTX group	Control
Weight to Market(kg per bird)	2.44	2.07
Unit price of broilers (RMB/kg)	5.6	5.6
Total income (RMB per bird)	13.66	11.59
The cost of day-old chicks (RMB per chick)	2.80	2.80
Unit price of feed (RMB/kg)	1.51	1.47
Average feed consumption (kg per bird)	5.34	4.87
Feed cost (RMB per bird)	8.06	7.21
Other cost (RMB per bird)	0.65	0.65
Net income(RMB)	2.15	0.82

Based on the market price of Liaocheng city in September, the net income of IMTX is increased 1.33RMB over control group.

10 REFERENCES

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