

ВСЕРОССИЙСКИЙ НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ И
ТЕХНОЛОГИЧЕСКИЙ ИНСТИТУТ ПТИЦЕВОДСТВА
РОССИЙСКОЙ АКАДЕМИИ СЕЛЬСКОХОЗЯЙСТВЕННЫХ НАУК

УТВЕРЖДАЮ:

Директор ВНИТИП

В.И. Фисинин



Отчет по теме:

Определить эффективность препарата БиоАктив
в комбикормах для бройлеров.

Руководитель

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Сергиев Посад, 2012

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Subject Report on:

The Determination of the Efficiency of the BioActiv Drug Preparation in
Ready-mixed Fodder for Chicken.

Project Manager
T.M. Okolelova

Sergiev Posad, 2012

List of responsible parties:

Project manager: T.M. Okolelova, Doctor of Biological Sciences, Professor

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Background

Within recent years Russia substantially increased egg and poultry meat production. However, poultry farms produce except their main products, i.e. eggs, meat, fluffy feathers, directly proportional quantities of so called poultry waste daily. The most substantial wastes are poultry manure, waste waters, and nonedible products of processing units.

Only a single medium duty poultry factory (400 thousands of laying hens or 6 millions of chicken broilers) produces yearly over 30 thousand tons. When not processed effectively, such large volumes of organic wastes are accumulated in the vicinity of poultry factories, while their storage locations, often unauthorized, turn into potential hazardous sources of pollution of environment, including atmosphere, and areas of normal abundance for pathogenic agents.

According the World Health Organization manure and waste water from poultry farms may represent a pathophoresis factor of over 100 infections and parasitic diseases, including zoonotic infections.

Moreover, the organic wastes themselves represent a favorable medium for grow and enduring survival of pathogenic flora, contain increased amounts of heavy metals, pesticides, medicamental preparations, radioactive materials, weed seeds, and other pollution.

Alongside with that all kinds of manure are use worldwide and domestically in agriculture as organic fertilizer to increase fertility of fields and productivity of both cereal and legume crops, as well as vegetables.

Therefore it is of critical importance to process manure timely and in accordance with requirements of veterinary and environmental inspection for the preparation of quality fertilizers, sanitary and environmentally safe.

In the context of urgency of this issue the purpose of study included the determination of the BioActiv preparation's efficiency at broiler operation.

Material and Research technique

The experiment was carried out in the research farm of ARPRATI cross Cobb broilers 1 to 37 day age as per the scheme, given in Table 1.

Table 1

Experiment scheme

Groups	Feed description
1- control	BR – basic ration, balanced feeding
2-experimental	BR - control + BioAvtiv 200 g/t of fodder

Recipes are shown in Table 2.

Table 2

Combined fodder recipes

Components	1 period	2 period
Wheat	63.15	59.60
Soybean oil	4.40	5.00
Corn protein	10.00	8.00
Choline-chloride	0.07	0.07
Full-cream soy	–	18.00
Sunflower oil meal	3.80	2.10
Soybean oil meal	10.00	–
Fish-meal	5.00	3.80
Methionine	0.20	0.22
Lysine	0.50	0.54
Threonine	0.15	0.19
Primary calcium phosphate	0.76	0.71
Limestone	1.52	1.30
Salt	0.35	0.37
Premix	0.1	0.1
100 g contain:		
Metabolizable energy, kcal	310.0	320.0
Crude protein, %	23.0	21.0
Fat	6.27	8.45
Fiber	3.59	4.04
Lysin	1.27	1.25
Methionine	0.63	0.59
Cystine	0.34	0.30
Methionine + cystine	0.97	0.89
Threonine	0.90	0.84
Tryptophane	0.24	0.22
Ca	1.00	0.90
P	0.65	0.65

P digestible	0.40	0.40
Na	0.20	0.20

During the experiment basic zootechnic factors and air composition have been accounted. During balance experiments digestibility and foodstuff utilization were estimated.

The results of the investigation

The main experimental results are shown in Table 3.

Table 3

The main experimental results

Parameters	Group 1	Group 2
Broiler live weight, g:		
On 21 day, g	695.2±12.7	721.4±11.7
On 37 day, g	2165.8±29.5	2169.5±22.1
Arithmetical mean	2135.5	2166.6
♂	2278.3±16.0	2266.7±24.9
♀	1992.7±34.1	2066.5±12.4
Livability, %	94.3	100
Daily average amount of growth, g	57.7	58.6
Fodder consumption:		
Per 1 head, g	94.40	95.14
Per 1 kg of amount of growth, kg	1.591	1.581
Number of female chicks	13	17
Number of male chicks	20	18
CO ₂ , % in air volume	0.064	0.062
H ₂ S, mg/m ₃	0.146	0.148
NH ₃ , mg/m ₃	1.176	1.118

The results in Table 3 show that the chicken of the experimental group surpassed those of control group in live weight in three week age by 3.77 %, although the experimental group contained lees male chicken, than the control one, which, as is known, demonstrate higher growth rate, when compared with female chicken. The depicted trend remained until the end of culture. Taking into account the different number of female and male chickens, the arithmetic mean was used for the analysis of broiler live weight at the end of culture.

The broiler live weight at the end of culture for broilers, who consumed BioActiv with fodder exceeded the control by 1.5 % with grow fodder cost reduced by 0.7 %. In the experimental group the chick livability was higher by 5.7 %.

The balance experiment results are shown in Table 4.

Table 4

The balance experiment results

Groups	Parameters						
	Digestibility				Utilization		
	Protein	Fat	Fiber	Ash	Nitrogen	Calcium	Phosphorus
1- control	89,25	69,35	14,79	43,22	45,15	40,07	49,43
2- experimental	91.48	71.16	18.14	50.37	49.79	47.61	59.83

The results in Table 4 show that adding of the BioActiv additive leads to increased digestibility of protein, fat, fiber, and ash for the broilers of the experimental group by 2.23; 1.81; 3.35 and 7.15 % respectively. Whereby the utilization of nitrogen, calcium and phosphorus increased by 4.64; 7.54, and 10.4 % respectively. The balance experiment results correspond to the zootechnic indices and give evidence of the preparation efficiency.

It is common knowledge that the poultry productivity depends on the indoor microclimate (temperature, gas composition).

During our research the air temperature met the standard, as for the air composition, the concentration of CO₂, H₂S и NH₃ was within level. However adding of the BioActiv additive to the fodder for broilers somewhat decreased the CO₂ and NH₃ concentration. In particular, the content of carbon dioxide in air was reduced by 3.2 %, and that of by 5 %.

No operating standards of chicken culture have been violated in our experiment, nor was water ingress allowed in manure, unlike the operating environment. In the operating environment dense placing of chicken is applied for 3-4 week broilers. The livestock population is often overstocked when growing replacements and mature stock of industrial layers, what inevitably results in increased gas contamination of premises. The situation is aggravated by poor

ventilation and water ingress in manure. Against this background the efficiency of BioActiv will be certainly higher.

Conclusion

The use of the BioActiv preparation contributes to the increase digestibility and utilization of the nutrients of fodder, and as a consequence, **the broiler productivity by 1.5 %, chick livability by 5.7 %, with grows fodder cost reduced by 0.7%**. The additive's efficiency has been obtained while meeting all operating standards of chicken culture. In case of violation of operating standards, poor air exchange, the effect would be certainly higher, especially as for livability, since the fast-growing broilers' mortality is most often due the myocard rupture, pulmonary oedema etc.

Our findings allow recommending the introduction of the preparation.