

Nanotechnology in broiler meat production

A.G. Avakova, M. Yu. Gotovsky

(North-Caucasian Research Institute of Animal Husbandry, Krasnodar, Center "IMEDIS", Moscow, Russia)

One of the most effective ways to improve the provision of the population with deficient nutrients is the introduction of feed products with a high content of biologically active substances into the diet of animals. In most European countries, the USA, Canada, New Zealand and Japan, products fortified with trace elements, vitamins and essential fatty acids have long been in steady demand, but in our country their range is very limited. In this regard, the problem of developing technologies for the production of fortified products is currently very urgent.

As you know, the natural micronutrients used in feed are absorbed by the bird quite well, but still not fully.

Studies have shown that the use of bioresonance technology in the production of broiler meat makes it possible to activate the assimilation of microcomponents. The essence of the method consists in influencing the bird with electromagnetic waves, the frequency of which coincides with the frequency spectrum of vitamins, macro- and microelements and other biologically active substances to which the body is evolutionarily adapted. This process activates absorption and promotes more complete absorption of micronutrients from feed.

Today bioresonance technology can be used on a production scale. It is realized with the help of the Transfer-Agro equipment, the work of which is based on the energy-informational transfer of electromagnetic oscillations of biologically active substances to a secondary carrier (water that is drunk by the bird).

Production trials of the new method were carried out at Fenix Poultry Farm, Krasnoarmeisky District, Krasnodar Territory, using Ross 308 broiler chickens. Were involved two identical poultry houses, each with a capacity of 13 thousand broilers, one of which was experimental, the other - control. The conditions of keeping, feeding and age of broiler chickens were the same. The difference was that in the experimental building, in order to increase the conversion of protein and microcomponents of the feed, bioresonance technology was used.

At the end of the feeding period, samples of pectoral muscles of control and experimental chickens were examined and the nutritional value of meat and its biochemical composition were determined (Table 1).

Table 1

Biochemical composition of meat of broiler chickens at the age of 35 days

Indicators	Need an adult human *, mg / day	Controle	An experience	An experience/ the control, %
Protein, %	-	22.57	24.17	107
Fat, %	-	2.93	0.77	26
Ash, %	-	1.25	1.25	-
Macro and microelements:				
calcium, g / kg	800-1000	0.80	0.90	112.5
phosphorus, g / kg	1000-1500	2.92	3.00	103
iron, mg / kg	fifteen	4.67	6.38	136.6
copper, mg / kg	2	0.13	0.37	285
zinc, mg / kg	10-15	3.79	4.15	110
manganese, mg / kg	5-10	0.01	0.04	400
magnesium, mg / kg	300-500	137.5	143.0	104

As can be seen from table 1, the meat of chickens raised using bioresonance technology has an advantage over control in almost all the studied parameters.

Of particular interest is the ratio of protein to fat in the test sample. Thanks to the use of the new method, the protein content of the meat increased by 7%, and the fat content decreased by up to 26% compared to the control. In addition, more deficient micro- and macroelements were identified in the experimental sample: the level of calcium increased by 12.5%, iron - by 36.6%, copper - 185%, sodium - 44%, and manganese - 4 times.

It should be noted that when using the bioresonance effect, the advantages of the experimental bird in the growth rate and feed conversion were recorded in all growing periods (Tables 2 and 3).

table 2

Live weight and average daily gain of boiler chickens

Age, days	Live weight, g			Average daily gain, g experience		
	the control	an experience	the control	control	role experience	
0	46.5	46	- 0.5	-	-	-
7	156	166	+ 10	15.57	17.4	+ 1.57
fourteen	412	458	+ 46	36.57	41.71	+ 5.14
21	845	904	+ 59	61.86	63.71	+ 1.85
28	1321	1394	+ 73	68.00	70.00	+ 2
35	1916	1983	+ 67	85.00	83.43	- 1.57
Average values of indicators for the period of feeding				53.4	55.3	+ 1.9

Table 2 shows that the average daily gain in live weight of experimental chickens at the age of 14 days was 5.14 g more than the control indicator. In the third and fourth weeks of feeding, the advantage of the experimental group in the average daily gain was preserved. A slight decrease in the rate at the final, fifth, feeding week did not affect the overall positive picture of this indicator for the entire growing period. The average value of the average daily gain in the control was 53.4 g, while in the experiment - 55.3 g, which is 1.9 g more. At the end of fattening in the experimental building, an additional 67 g of live weight was obtained from each head.

It should be noted that in this experiment, the advantage of the new technology was revealed against the background of already existing high indicators of production efficiency (the average daily gain in live weight in the control group was 53.4 g, while the average indicator for the Krasnodar Territory in 2006 was 42.5 g and the standard gain for cross "Ross 308" - 52.6 g).

The use of bioresonance effects helps the chicks to better absorb the nutrients in the feed and, accordingly, convert them into products. So, during the period of broiler growing, the average conversion rate in the experiment improved by 0.05 (experiment - 1.46, control - 1.51), and feeding 1 centner of feed provided 68.5 kg of production, while in the control - only 66 , 2 kg. The best feed conversion rate was obtained at the age of 14 days of broilers and was 1.23 in the experiment and 1.34 in the control.

Table 3

Feed consumption per unit of production

Age, days	Feed conversion		
	the control	an experience	± to control
fourteen	1.34	1.23	- 0.115
21	1.45	1.37	- 0.08
28	1.55	1.48	- 0.07
35	1.73	1.69	- 0.04
Average values of indicators for the period of feeding	1.51	1.46	- 0.05

Based on the experimentally obtained data, design calculation was performed efficiency of production of broiler chickens in 2007 with the use of new and traditional technologies (Table 4).

Table 4

Efficiency of production of broiler chickens of the Ross 308 cross (per 13 thous.
Goal.)

Indicators	Traditional technology	Bioresonic technology	New technology / traditional dietary technology
Total investments, thousand rubles, including: into the apparatus "Transfer-Agro" for bioresonance effects	-	30.0	+ 30.0
in scientific support and professional development of personnel	-	20.0	+ 20
	-	10.0	+ 10
Livestock safety, %	92.3	94.4	+ 2.1
Average daily gain, g	53.4	55.3	+ 1.9
Live weight of one broiler at the end of growing, g	1916	1983	+ 67
Live weight gain per year (5 revolutions), kg	114950	121677	+ 6727
Feed costs for 1 kg of live weight gain, kg	1.51	1.46	- 0.05
Payment for feed with products, kg / c Production costs:	66.2	68.5	+ 2.3
by 5 rotations of the head-catch per year,	2919.7	3005.4	+ 85.7
thousand rubles per 1 kg of live weight gain, rub.	25.4	24.7	- 1.2

The calculation showed that the return on investment in bioresonance technology is just over 2 months. For the year, the new technology allows an additional 6.7 tons of live weight gain, an increase in feed conversion by 3.4% and an increase in net income by 169.6 thousand rubles. with a livestock of 13 thousand broilers. At the same time, the profitability of production increases by 4.2%.

The new technology is applicable to various systems of poultry keeping, the equipment for it is compact and convenient to use, and, if necessary, the processes of bioresonance exposure can be automated. In addition, the new method allows you to influence the biochemical composition of the produced product, contributing to its enrichment with nutrients and microelements, thereby significantly increasing the competitiveness.

Improving the quality and environmental safety of products, rational use of raw materials are the main goals of using bioresonance technology. Thus, the use of the new method makes it possible to reduce the level of fat in meat and increase the content of the main macro- and microelements, which are not additionally introduced into the diet, but are better absorbed by the bird from the available feed.

The use of the new technology will make it possible to modernize poultry production in a short time, which will contribute to the growth of the competitiveness of domestic products in the global agricultural market and accelerate the implementation of the priority national project "Development of the agro-industrial complex".

Literature

1. Avakova A.G., Gotovsky Yu.V. Development directions of bioinformation technology in poultry // Bulletin of the Russian Academy of Agricultural Sciences, No. 2. - 2005. - P. 84-86.

2. Bobileva G.A. Problems of increasing the intensification of poultry farming. <http://www.rps.ru>.

3. Nechaev V.I., Avakova A.G. Artemova E.I. Experience in implementing bioresonance technology in broiler production. MNPk, "Problems of increasing the efficiency of livestock production" abstracts. (October 12-13, 2007). Zhodino, 2007. - S. 289-290.

4. Organic Poultry in the USA // Foreign Commercial Bulletin information, No. 93, 18.08.2007. - 6 p.

A.G. Avakova, M. Yu. Gotovsky Nanotechnology in broiler meat production // XIV " - M ." IMEDIS ", 2008, v.1 - C.306-312