References

1. Skliar R. Definition of priority tasks for agricultural development. Abstracts of XIV International Scientific and Practical Conference. «Multidisciplinary research». Bilbao, Spain 2020. Pp. 431–433.

2. Комар А.С. Доцільність використання паливних брикетів з відходів сільськогосподарського виробництва. Мат. VIII-ї Всеукр. наук.-техн. конф. «Технічний прогрес у тваринництві та кормовиробництві». Глеваха-Київ, 2020. С. 68–71.

3. Болтянська Н.І. Аналіз конструкцій пресів для приготування кормових гранул та паливних брикетів. Науковий вісник ТДАТУ: Мелітополь: ТДАТУ, 2018. Вип. 8, Т. 2. URL: http://www.tsatu.edu.ua/tstt/naukovyj-visnyk-tdatu/

4. Комар А.С. Доцільність гранулювання органічних відходів рослинного і тваринного походження. Технічне забезпечення інноваційних технологій в АПК: мат. II Міжнар. наук.-практ. конф. Мелітополь: ТДАТУ, 2020. С. 336–340. URL: http://www.tsatu.edu.ua/tstt/wp-content/uploads/sites/6/komar-1-2020.pdf

5. Болтянська Н.І. Сучасні методи і обладнання для гранулювання комбікормів. Технічне забезпечення інноваційних технологій в АПК: мат. II Міжнар. наук.-практ. конф. Мелітополь. ТДАТУ, 2020. С. 272–275. URL: http://www.tsatu.edu.ua/tstt/wp-content/uploads/sites/6/komar-2020.pdf

6. Boltianska N. Analysis of the positive aspects of the press technology – feed granulation. Мат. I Всеукр. наук.-практ. Інт.-конф. Мелітополь: ТДАТУ, 2020. С. 21–24.

7. Болтянська Н.І. Гранулювання органічних відходів рослинного походження на прикладі очерету. Науковий вісник ТДАТУ: Мелітополь. ТДАТУ, 2020. Вип. 10, том 1. URL: http://www.tsatu.edu.ua/tstt/naukovyj-visnyk-tdatu/

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USE OF NANOTECHNOLOGIES IN POULTRY

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In organizing the effective marketing of poultry products, their safety and high quality play an important role. The urgency of this problem is due to the increased attention of the population to a healthy lifestyle. Only clean food products of the industry, high quality and environmental friendliness of which are confirmed by international standards, can attract the consumer and provide the enterprise with profit, which has become a prerequisite for successful and effective entrepreneurship. It is high-quality products, especially enriched with nutrients and microelements, that are now becoming the defining criterion for the competitiveness of a poultry enterprise. The presence of a certificate is a kind of pass to the poultry products market, as well as a guarantee of the good quality and safety of the finished product for the buyer [1, 2]. The most reasonable way to improve the provision of the population with deficient nutrients is

the introduction of animal feed and feed with a naturally high content of biologically active substances into the diet of animals. In most European countries, in the USA, Canada, New Zealand and Japan, products enriched with various microelements, vitamins, essential fatty acids have been in steady demand for a long time. Our production of fortified products is just beginning to develop. In this regard, there is a problem of development of production technology and control of the appropriate range of fortified products. As you know, natural micronutrients in feed are assimilated quite well, but not fully [3, 4].

Experience shows that the use of bioresonance technology in the production of broilers makes it possible to activate the assimilation of natural microcomponents from feed, to obtain the best ratio of protein and fat in meat, as well as to increase the gains and reduce feed costs.

Bioresonance technology is a particular aspect of nanotechnology, which is based on the effect of the spectrum of electromagnetic frequencies of biologically active substances – vitamins, trace elements, hormones, enzymes, etc. This spectrum of electromagnetic waves coincides with the same spectrum of the same substances in a living organism and leads to resonance (bioresonance), which activates the absorption and assimilation from feed of the substance to which the organism is evolutionarily adapted [5]. Today bioresonance technology can be used on a production scale. It is realized with the help of the "Transfer-Agro" equipment, in principle of which the phenomenon of energy-information transfer of the spectrum of electromagnetic oscillations from biologically active substances to the secondary carrier (water) is used. The quality of chicken meat obtained using bioresonance technology has an advantage in all the studied parameters. Of particular interest is the protein to fat ratio, where the protein content has increased by 7 % and the fat content has decreased to 26 % of the traditional level. The mass of deficient micro- and macroelements has increased; assimilation of calcium improved by 12,5 %, iron – by 36,6 %, sodium – by 44 %, as well as manganese and zinc [6,7].

Moreover, with bioresonance exposure, an advantage is recorded during all growing periods in growth rate and feed conversion. At the age of 14 days, the average daily gain was 42 g, which is 5 g more than with traditional cultivation. For the entire growing period – 35 days, the average daily gains in the control were 53.4 g, while with the new technology – 55,2 g, which made it possible to obtain an additional 67 g of live weight per head. It should be noted that the advantage of this technology was revealed against the background of already existing high economic indicators. The bioresonance effect helps to better assimilate the nutrients in the feed, which will certainly affect the conversion of feed into products. So, during the period of feeding, the average conversion rate in the experiment improved by 0,08 and was 1,44 with the new technology, and 1,52 with the traditional one.

The calculation of the economic efficiency of production using a new technology in comparison with traditional technology shows that the payback pe-

riod for investments in bioresonance technology is a little more than 2 months, taking into account the costs of technical and scientific support. The new technology makes it possible to additionally provide an increase in net income of 170 thousand rubles per livestock of 13 thousand broilers per year. Production profitability increases by 4,2 %. The data presented testify to the effectiveness of the proposed technology, which is characterized by low development costs, and in conditions of a shortage of investment resources, it is the short payback period that is of fundamental importance.

The need to use environmentally friendly, resource-saving management methods will contribute to the introduction of bioresonance technology, which involves a frequency-resonant effect on poultry and is today a promising area of the nanoindustry.

It makes it possible not only to better realize the genetic potential of poultry, reduce feed costs, but also improve the quality of the products. The new technology will make it possible to modernize poultry production, which will contribute to ensuring the competitiveness of domestic products in the world agricultural market in the near future.

Reference

1. Boltianska N, Manita I., Podashevskaya H. Areas of application of nanotechnologies in animal husbandry. Технічне забезпечення інноваційних технологій в агропромисловому комплексі: Мат. II Міжнар. наук.-практ. конф. Мелітополь: ТДАТУ, 2020. С. 357–361. URL: http://www.tsatu.edu.ua/tstt/conf/

2. Маніта І.Ю. Інноваційний розвиток техніки для молочного скотарства. Науковий вісник ТДАТУ. Мелітополь: ТДАТУ, 2020. Вип. 10, том 2. URL: http://www.tsatu.edu.ua/tstt/naukovyj-visnyk-tdatu/

3. Komar A. Definition of priority tasks for agricultural development. Abstracts of XIV International Scientific Practical Conference. «Multidisciplinary research». Bilbao, Spain 2020. Pp. 431–433.

4. Podashevskaya H., Sklar R. Directions of automation of technological processes in the agricultural complex of Ukraine. Минск: БГАТУ, 2020. С. 519–522.

5. Serebryakova N. Use of three-dimensional computer visualization in the study of nanostructures. Минск: БГАТУ, 2020. С. 517–519.

6. Podashevskaya H., Manita I. Application of nanotechnology in technological processes of animal husbandry in Ukraine. Інженерія природокористування. Харків: ХНУСГ, 2020. №2(16). С. 33–37.

7. Podashevskaya H., Manita I. Selection of optimal modes of heat treatment of grain. Технічне забезпечення інноваційних технологій в агропромисловому комплексі: Мат. II Міжнар. наук.-практ. конф. Мелітополь: ТДАТУ, 2020. С. 20–24. URL: http://www.tsatu.edu.ua/tstt/conf/