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Feed intake and digestibility of nutrients in broiler chickens for the use of feed with different levels of metabolizable energy

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The average daily consumption of feed guinea birds increases with age, and depends on the content of metabolizable energy in it. The lower the nutritional value of feed, the more it consumes bird. Feeding broiler chickens from 7th to 14th, from 15th to 28th and from 29th to 42nd day of feed containing metabolizable energy MJ respectively 1.26 MJ, 1.35 and 1.44 MJ/100 g accompanied by increased nutrient digestibility of feed.

Broiler chickens, feed, metabolizable energy, feed intake, digestibility of nutrients

Ensure the power is not only a major aspect that determines the cost of rations and economics of broiler meat production, but also one of the main factors influencing the dry matter intake of nutrients and feed, as well as the formation of physiological and biochemical parameters of broiler body.

It is believed that the use of poultry industry, in most cases, depending on the conditions of feeding, as one of the most important areas of science and practice is to improve various aspects of full feeding birds. The higher the needs of poultry feed and essential nutrients, the higher feed conversion into products.

Today in modern poultry rations used more deficient in metabolizable energy content than protein or other nutrients. If a diet of nutrient its effectiveness depends on the energy content. The main factor in reducing bird performance is the lack of energy in the diet. Due to exchange energy is all the inner workings of the body associated with the processes of digestion, respiration, blood, intercellular exchange and more.

It is known that the content of metabolizable energy in the feed is one of the significant factors affecting the poultry feed consumption. Found that the elevated levels of metabolizable energy in the fodder consumption will drop his bird, which in

turn leads to a decrease intakes of food remaining nutrients. However, for low energy level in the diet, consumption will be higher, leading to inefficient from an economic point of view, the use of feeds.

In broiler chickens gradually decreases with age energy efficiency for the formation of muscle tissue. In the first period of growing utilization rate of energy exchange in formation in young broiler production is 32–33 %. Found that broilers are used to increase 153-250 kcal metabolizable energy per 1 kg of metabolic weight per day, depending on the different levels of power supply.

In assessing the nutritional needs of poultry and animal feed energy to take into account the peculiarities of metabolism in accordance with the age and productivity.

It is known that lack of energy causes metabolic changes, including the use and release of protein metabolic products in the form of uric acid salts that can cause urine acid diathesis, decreased productivity, poor feathering and reduction of live weight poultry.

However, increasing the level of metabolizable energy in diets of broiler chickens to 1318–1464 kJ (330–350 kcal) leads to wastage of plastic material and energy feed does not contribute to the deposition of protein nitrogen in the body and affects the quality of meat and chemical composition some parts of the carcass, through the accumulation of uric acid in the tissues.

Brazilian scientists conducted a series of experiments to determine the needs of broiler chickens in the exchange of energy. The largest biological efficiency was obtained when feeding starter Forage mixture of 1^{st} to 21^{st} day – 1287 kJ (307.5 kcal); of 22^{nd} to 42^{nd} day – 1255–1381 kJ (300–330 kcal) and hoardings – from 1^{st} to 21^{st} day – 1255 kJ (300 kcal); of 22^{nd} to 42^{nd} day – 1297 kJ (310 kcal).

Currently in our country and abroad accumulated large enough material to determine the optimal levels of metabolizable energy in feed for poultry. Experiments were conducted on birds of different species, age and sex. Some researchers say that age has a significant impact on the level of metabolizable energy. For example, 3-week-old chicks absorb energy from feed less than the 7-week and adult chickens. Other researchers attribute this gradual improvement chickens ability to digest food

and get energy from it. As the growth of young animals feed intake increases more than the loss of metabolic fecal and urinary endogenous energy.

One of the main factors affecting energy feed is characteristic rations. Thus, the use of diets balanced for all nutrients and their digestibility is higher, and the energy loss of droppings minimal. The lower digestibility of feed indicates a lower concentration of available energy in it.

Thus, the study of adaptive capacity and degree of implementation of the genetic potential productivity of broiler chickens to new generations of currently existing recommendations on their feeding relates to topical issues as periodization rules do not fully meet the dynamic needs of the organism in chickens factors necessary power. Permanent intense selection process of poultry meat requires relevant experimental studies on the specification and requirements of broiler chickens in energy and nutrients. Individual research in this direction in our country indicate promising, scientific and practical importance of the energy supply options study broiler chickens.

Feed intake and digestibility of its nutrients broiler chickens cross Cobb-500 was studied in scientific and economic experiment in terms of bad research laboratories of the P. D. Pshenychnyi Department of Animal Nutrition and Feed Technology National University of Life and Environmental Science of Ukraine.

For the experiment were selected heads 400 day-old chicks, which were divided according to the principle of balanced analog groups into 4 groups – control and 3 experimental, 100 heads each.

Subjects broiler chickens during the experiment were fed complete feed. The composition of feed regulated so that the level of metabolizable energy in him responsible energy supply requirements specified in the scheme of the experiment.

Average daily consumption of poultry feed subjects increased with age, and is directly dependent on the content of metabolizable energy in it. Thus, the lower level of metabolizable energy was fodder, especially chicken feed consumed. On average for the entire period of growing the least feed per head per day eating chicken 2 experimental group – 108.6 g/day.

Results physiological studies conducted in broiler chickens at different ages, indicate some differences in the digestibility of nutrients of animal feed, depending on the period of growth and MA content in the diet.

Feeding chickens during cultivation of 7^{th} to 14^{th} day ME feed containing 1.26 MJ/100 g promotes a slight increase digestibility of protein, fat and nitrogen-free extractives, while consumption of poultry feed containing 1.40 ME MJ opposite – reduce the digestibility of nutrients above 1.2 %, respectively ($p<0.05$); 1.1 and 2.1 % ($p<0.01$). Between 15^{th} to 28^{th} day broiler chickens treated with diet containing ME 1.35 MJ/100 g characterized by significantly ($p<0,05–0,001$) higher digestibility of nutrients feed than those fed feed the level of 1.20 MJ ME; 1.28 and 1.42 MJ.

In the final period of growth, the highest digestibility of feed nutrients observed in birds, which fed feed containing ME 1.44 MJ/100 g difference in protein, fat and nitrogen-free extractives compared to chickens that consumed feed from ME level 1.37 MJ/100 g of 1.1 %; 2.5 ($p<0.001$) and 1.5 % ($p<0.01$).

Thus, the average daily consumption of feed guinea birds increases with age, and depends on the content of metabolizable energy in it. The lower the nutritional value of feed, the more it consumes bird. Feeding broiler chickens from 7^{th} to 14^{th}, from 15^{th} to 28^{th} and from 29^{th} to 42^{th} day of feed containing metabolizable energy respectively 1.26, 1.35 and 1.44 MJ/100 g accompanied by increased digestibility of feed nutrients that positively affect their performance and physiological and biochemical parameters of the body.

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