MORPHOGENESIS OF THE LUNGS IN ROSS-308 CROSSBREED BROILER CHICKS (LITERATURE REVIEW)

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Introduction. In order to further develop poultry farming in our country, it is essential to monitor and control the growth coefficients of all organs in chicks from the earliest stages of their postnatal ontogenesis. This involves inspecting and ensuring the proper development of these organs, conducting experiments with various types of feed, and, most importantly, organizing them into groups for within-group and inter-group comparisons. The purpose is to conduct research aimed at developing and improving accurate and relevant recommendations for optimized production, ensuring a comprehensive and scientifically grounded approach to this field.

Currently, the physiological condition of broiler chicks plays a critical role in their growth and development. Broilers, which are specifically bred for meat production, are characterized by rapid growth, efficient meat and egg production, and high productivity. In this process, the morphological and physiological characteristics of the lungs—particularly in Ross-308 crossbreed chicks—are among the most important factors. The lungs, as the primary organs of respiration and metabolism in birds, including broilers, play a pivotal role; therefore, their morphogenesis directly influences broiler productivity.

Due to the relatively small size of avian lungs and the presence of air sacs, the respiratory system in birds displays unique anatomical and functional features that facilitate intensive gas exchange [6].

In industrial poultry production, it is essential to understand the morphology and function of the respiratory system under various environmental and physiological conditions. Identifying age-related morphological features, morphogenetic patterns, and mechanisms makes it possible to determine the critical developmental periods of specific organ systems [7].

A review of the literature reveals that numerous studies have been devoted to the morphological structure of the avian respiratory system [4–5].

However, an analysis of the literature revealed that there is a lack of necessary sources on the study of the respiratory system's morphology in Ross-308 crossbreed broiler chicks.

The internal systems of broilers (including the lungs, heart, digestive system, and others) and their developmental processes have been analyzed. Factors influencing the

physiological processes in chickens, such as nutrition, microclimate, age, and metabolism, are also significant. As Smith and Brown (2020) emphasized, it is of great importance to conduct a thorough analysis of lung development and the process of pneumatisation in chicks. Their research mainly focuses on observing the formation of lung tissues during the embryonic stage [9].

The relationship between the meat productivity of broiler chicks and their respiratory system has been studied. The connection between the respiratory system (lungs, bronchi, airways) and meat productivity suggests that meat quality can be improved through the systematic regulation of physical growth, the enhancement of metabolic processes, or improving the efficiency of the respiratory process [1, 2, 3].

General characteristics of lung morphogenesis. Lung morphogenesis, that is, the development of the lungs and subsequent changes after birth, has a significant impact on the function of the respiratory system in birds. The lungs are the primary respiratory organ in birds, responsible for oxygen intake and carbon dioxide removal, as well as promoting various metabolic processes. Studying lung morphogenesis in birds helps in understanding their physical development, metabolic processes, and their ability to digest food.

Lung morphogenesis and development in ross-308 crossbreed broiler chicks. The morphogenesis of the lungs in Ross-308 crossbreed broiler chicks significantly influences their physical growth and metabolic processes. This crossbreed is known for its high feed conversion ability, which means their lung system also develops rapidly. During the growth period, several morphological and physiological changes in the lung system of the broiler chicks are observed.

The development of the lung system is also influenced by internal ecology and the microclimate. Over time, the chicks' lungs improve their ability to move and fill with air. Additionally, between the 7–10 day period, the size and weight of the lungs increase rapidly. This process enhances their ability to absorb oxygen and accelerates metabolic processes [8].

Conclusion

The morphogenesis of the lungs in Ross-308 crossbreed broiler chicks is one of the key factors influencing their growth and development. The development of the lung system aids in enhancing the chicks' respiratory capacity, ensures efficient oxygen absorption, and systematically improves metabolic processes. These factors directly impact the high productivity of the broilers.

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