



ELECTRICITY CONSUMPTION AS A FUNCTION OF EQUIPMENT IN POULTRY

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In the global context, Brazil's poultry industry is well developed thanks to the adoption of new technologies and breeding methods which enhances production. All this technological improvement is dependent on energy to show higher productivity and quality. The adoption of acclimatized poultry houses, with greater control and automation of the internal environment mitigating climate conditions and providing increased density imposed by the current conformation strain came unaccompanied by generators. Few producers joined the conditioned poultry system and adopted generators. Energy consumption growth fundamentally sustains itself in the increase of the consumption of scarce and exhaustible fossil energies. Therefore, in order to contribute to energy efficiency improvement, it is wise to consider a number of factors directly associated to the region's climate conditions as well as to the poultry demands regarding age, physiological state, and cost/efficiency ratio of the thermal conditioning equipment. Thus, this research aimed at collecting data from electricity consumption in different models of aviaries: dark house, negative pressure (yellow curtain) and positive pressure. These data were collected for six consecutive batches, depending on the equipment type (feeders and silo, furnace, lighting, fogging and ventilation system). The energy consumption was calculated by subtracting the amount recorded in the energy meter for each device at the batch entrance and exit. In energy terms the system with higher power consumption was the "dark house" aviary followed by the negative pressure (yellow curtain) and positive pressure aviaries, respectively. In "dark house" aviaries three times more energy was consumed/bird than in a negative pressure aviary and four times more energy/bird than a positive pressure aviary. In terms of equipment, more electricity is spent with ventilation system and lighting in dark house aviary; and for negative pressure (yellow curtain) and positive pressure aviaries the electricity spent is only due to ventilation system. Another fact to be considered is that especially during winter the electricity consumption of wood furnaces takes place. More electricity is consumed in this type of equipment than in feeding and fogging equipment and it is often overlooked by the producer. Just to mention, 3.5 more electricity is consumed to heat the "dark house" aviary than to heat a negative pressure (yellow curtain) aviary. The more the aviaries are closed, the greater becomes the system dependence on energy, because besides keeping the thermal conditions of the internal environment within the required conditions for maximum performance of birds, it is necessary to provide air renewal to achieve the desired air environment. Therefore, it is important to measure the electricity consumption to improve streamlining work and provide methods of their efficiency for not compromising animal performance.

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