COMPUTER MATHEMATICAL MODELING OF MASS TRANSFER AND HEAT EXCHANGE VENTILATION IN POULTRY HOUSES

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Thermal regime of the building is installed in heat transfer processes occurring both indoors and through his outer fence. There is influenced by the heating and ventilation depending on meteorological parameters outside air i thermal performance of building structures.

The essence of the work is to carry out theoretical studies related to the regulation of the heat transfer processes in the poultry houses, occurring both indoors and through the outer fence depending on meteorological parameters ambient air and thermal characteristics. The obtained data calculations give the opportunity to make the right choice of building structures for systems of heating and ventilation of poultry houses. In addition, the paper shows the development of a new method of cooling livestock buildings, particularly houses with heat exchanger-recuperator (heat carrier - air-water) without increasing the relative humidity in the room. While the new design of the heat exchanger, which is to use a compact tube bundles that can significantly reduce the weight and dimensions of heat exchanger with the same heat capacity.

There is obtained velocity field, temperature and pressure in the house and is analyzed their impact on the bird using the software product CAD ANSYS Fluent 14.0. There is created a method of cooling livestock buildings, in particular poultry in the warm period of the year without raising the relative humidity indoors. Computer simulation provides an opportunity to examine the distribution of temperatures and velocities in the house. For normalization of the temperature parameters in poultry houses in the warm season ventilation-cooling system includes an exhaust ventilation units, mounted in the outer wall and the inlet window, which is mounted heat exchangers-heat exchangers, providing cooling

supply air without increasing relative humidity. Thus, the use of this method can reduce the supply air temperature in the room housing up to 20 ° C, due to the use of a heat exchanger has a corresponding heat output.