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ECONOMICALLY OPTIMAL CONTROL INTERMITTENT LIGHTING IN POULTRY

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In this article the author discusses the computerization and automation technologies in poultry. Production is carried out in automatic mode on the feasibility criterion.

At comparable values of changes of costs of lighting and a gain of the price of the realized production, more precisely, costs of the made production in the realization prices, economic optimization of the faltering mode of lighting can be economically expedient. There is an essential balance between the specified changes. The filling coefficient (an inverse value of porosity of impulses) corresponds actually on the ratio of light and dark time accepted in poultry farming. Realization of this balance at economically optimum control of faltering lighting in size of coefficient of filling develops into shift of value of this coefficient towards reduction: from technologically optimum (criterion of efficiency of a livestock) to economically optimum (criterion of profit) to the mode of faltering lighting. There is an economy of the electric power on lighting exceeding inevitable some decrease in efficiency of a livestock. As a result of such management there is an innovative economic efficiency of management by economic criterion of technological process of faltering illumination of hen house in relation to usual automatic maintenance even the most successful mode of faltering lighting by technological criterion.

The illustration of technical and economic characteristics on process of faltering illumination of industrial hen house depending on porosity of impulses of lighting and from the technical parameter of illumination is given. In the course of long-term and numerous technological tests by poultry breeders standard requirements to constant illumination of a bird of different types and age are established, now is groped and already in some special cases even quantitative communication between coefficient of filling of faltering lighting and efficiency of a

bird is normalized. For management of faltering lighting by economic criterion it is necessary to arrive thus. It is necessary to have mathematical model of efficiency of a bird depending on illumination size at faltering lighting with the changing value of coefficient of filling. It is required to impose restrictions on changes of the operated parameters. It is necessary to carry out imitating mathematical modeling and to construct exact quantitative ratios in the form of the presented function graphs. At the solution of an optimizing task economically optimum modes of lighting and switching in illuminants of hen house are defined. The way of specification of mathematical model of influence of faltering lighting on efficiency of a bird on the basis of known model of the author V.A. Grabaurov for technologically optimum control of a microclimate of hen house is shown.

The function chart of a control unit by faltering lighting by economic criterion is given. The block of optimization of porosity of lighting establishes the found optimum value of settlement coefficient of filling at the exit. Zadatchik of a variable signal of coefficient of filling establishes value of coefficient of filling the signal about which is compared in the shaper of impulses of lighting to variable coefficient of filling (in essence in functional analog of the usual scheme of comparison) with a signal of settlement economically optimum coefficient of filling. The output signal of the shaper allows passing through the scheme of coincidence of the signal of standard illumination adjusted in the regulator of illumination to illuminants of hen house. The device works in the mode of standard faltering illumination of hen house, or a certain production technological zone in hen house, with economically optimum value of coefficient of filling. The highest profitability of technological process of faltering illumination of a livestock of a bird is reached.