

# **DEFINITION OF PERFORMANCE CRITERIA FOR BIOLOGICAL ACTION OF OPTICAL RADIATION ON THE LIVING ORGANISM**

*L Chervinsky, I. Radko*

Theoretically grounded the mathematical expressions to determine the effective dose of ultraviolet radiation of farm animals, particularly taking into account the breed of animals, their weight differences, the health, the optical properties of the outer cover, and especially conditions.

The irradiation of biological objects and study of photobiological reactions occurring in them the criterion for determining the efficacy of optical radiation are the concept of dose or exposure. Doza optical radiation determines the energy of the optical radiation, which is absorbed in the volume of the irradiated biological object and carries out education of those or other products.

A common approach to the definition of the efficiency of the optical radiation is incorrect, because these regulatory dose has mediated, generalized and do not take account of any characteristic of the breed animals or their weight differences, or health, or the optical properties of the outer cover or features of their conditions of detention at growing.

In establishing the standards for the use of optical radiation energy in agriculture, not enough attention is paid to the definition and use of biological action spectra and optical emission spectra agreed with them radiation sources used in these technologies produce products.

To date, this approach has been implemented only in the technologies of plant production. In animal husbandry, the method is not used because of the absence of both the specific quantitative results on the interaction of optical radiation with an animal body, and a mathematical model of quantifying the energy spectrum of action of optical radiation on the living organism. Most modern photobiological studies determining criterion is the potential dose (exposure) of radiant energy, ie, energy incident on the surface of the exposed body.

These regulatory dose has mediated, generalized and do not include any characteristic of the breed animals or their weight differences, or health, or the optical

properties of the outer cover or features of their conditions for growing. Therefore, we carried out the development of a mathematical model of quantifying the energy spectrum of action of optical radiation on the living organism for a particular animal species in the known optical characteristics of their cover and photobiological action spectra of the light sources used.

The use of this formula makes it possible to choose the most efficient source of optical radiation to ensure optimum passage of the photoreaction in the animal body. For example, for the recovery of the animal with ultraviolet radiation.

When using our model has had an opportunity to predict the qualitative and quantitative results of exposure for a given range of biological action of both animals and plants.