

# **MODELING FACTORS ON PLANT LIFE-SUPPORT SYSTEM IN THE PLANT - SOIL - AIR.**

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The influence of environmental factors on plant life-support system in the plant - soil - air. The modeling of the main factors of life support plants that significantly influence growth and yield of plants.

**Modelling, coefficient life support plants, light maintenance, providing moisture, heating supply, providing nutrients, gas-supply.**

Consider the general model, which reflects the dependence of crop harvests of heat and mass transfer processes occurring in the object glass. This is the optimal harvest of the culture through the most favorable combination of various complex set of properties and state of the environment, soil and air surrounding the plant.

**The purpose of research** - based on the combined physical and statistical circuit analysis and evaluation of events occurring in the system of the plant - soil - air modeling of factors affecting plant life support.

**Materials and methods research.** Analysis of the literature [1, 3, 4] indicates that the whole number of factors that affect the plant can be reduced to *svitlozabezpechennya* (t) *volohozabezpechennya* (c) supplies (c), providing nutrients (r), gas supply (s). All these factors plant absorbs from the environment, processes, and then learns partially formed harvest. It is natural that all this energy and mass flow supplied to the plants, plant absorbed in optimal quantities. For plants are equally bad, very small and very large portions of water, nutrients, heat and so on. D. Note that each of these factors is quite complex and multi-component, and their simultaneous combination leads to a very complex system, which leads to the formation of the crop as a whole. In order to understand this system should determine how important and characteristic parameters for plants

and the environment can be evaluated each of these factors must be such as parameters and how many of them must necessarily take into account.

Each of these factors is a fraction, the denominator of which listed all revenues greenhouse definite form factor, and the numerator - that part of it which, net of all costs, that factor of undigested remains in the system, and it is used for forming modes heat, moisture, light, nutrients and carbon dioxide, ie modes of an environment that determine the nature and condition of the crop at each stage of its development. The structure of such factors, they ranges from zero to one and a reduction factor leads to reduced yields in general, the principle of the law of the minimum.

Law minimum indicates that all factors yields equally useful plants and can not replace each other. In the absence or lack of a sharply reduced yields. It is therefore necessary to ensure all plants without exception conditions for growth and yield, taking into account their interaction. Just create optimal conditions for plant growth can provide crop yields.

Considering the concept of yield  $Y$ , and should take into account the principle of limiting factors because it facilitates the implementation of physical or combined research method of growing plants. Based on the specific circumstances that affect the yield, the method of growing plants species, weather and climatic impact, it is necessary to assess the value relevance major and minor factors yields.

**Conclusions.** Established that the main factors that significantly affect the growth and yield of plants include: svitlozabezpechennya, volohozabezpechennya supplies, providing nutrients and gas supply. Mathematical models of the main environmental factors in plant form factors of their life support system plant - soil - air.