THE QUESTION OF PARAMETER IDENTIFICATION
BIOTECHNOLOGICAL SYSTEMS

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The questions that create a problematic situation in the application of automatic control to complex organizational and technical systems for the maintenance of biological origin.

Theory of automatic control, biotechnical systems, intelligence-cial management system.

Research in biotechnical process control systems concerned perturbations in the system mediated influence on biological objects, such as temperature. It should be noted that, taking into account the impact of ambient temperature outside technical object especially important if the technical object thermal resistance low. Modern building technologies can significantly reduce this impact, in addition, the modern trend is the conversion of buildings with energy efficient for power generation.

Defining features of influence of abiotic factors together directly on biological objects in a technical facility is a key issue. The maintenance of biological objects need to consider homeostasis of biological objects and features self-kinetics biophysical processes and industrial production needs to take into account economic factors and also important is to achieve maximum productive state of biological objects subject minimizing resource costs at the level of practical application.

These issues combine to generate a problematic situation determining optimal control which stimulates the search for technical solutions in improving theoretical positions of intelligent control systems when applying them in biotechnical systems and monitoring the effects of abiotic factors.

In particular, the development of effective management systems associated with the following objectives:

1. primary data on the biological properties of plants based adaptive behavior of biological synthesis facility and appropriate technical means electrophysical

control and management of agricultural technology.

2. Improving the degree of adequacy of mathematical description biotechnical system, which can be achieved through the incorporation of space-time distribution model parameters. The identification system with distributed parameters belong to the class of inverse problems which is important to obtain quality primary data that provides stability decision regarding errors primary data.

3. Installing the impact of identified parameters to control the production process of biological objects taking into account self-setting and the level of efficiency of agricultural technology.

The purpose of research - to establish methods of solving these problems that contribute to the synthesis of highly efficient control systems.

The results of the study. There are different methods and approaches to monitoring and diagnostics of the system of dynamic control. Nez'yasovanist options available and the lack of measured data encourages the use of certain techniques used in conditions of uncertainty, including methods of fuzzy logic by which can be considered invariant approach to improve the dynamic characteristics of the control system.

Preliminary analysis indicates a promising application for the synthesis of control systems using the method of fuzzy cognitive maps. Defining concepts and identification of parameters associated abiotic factors as a map of relationships.

To implement fuzzy regulator should establish linguistic weight between concepts. In theory it looks like drawing a matrix of relationships in a quantitative form using experts and relevant expertise. Subjective evaluation component is very influential, so formalizing this process is the problem that it is desirable to decide based database on biological matrix. Potential openness cognitive map provides complementary to map new concepts, for example, to determine the impact of the identified parameters to control the production process of biological objects and installation efficiency level of agricultural technology. Promising is the definition of sustainable productive state by experimental determination of efficiency criterion agricultural technologies using the method exergic analysis. In the method analyzes bioperetvoren energy and natural energy set value accumulated in a production

process of photosynthesis or bioconversion technological and energy expended in its production, and identification parameters BPS is by setting speed change parameters and obtain the criterion of influence on production process. This makes it possible to make hypothetical assumptions about the possibility of rate of change parameters as linguistic weight.

Development of the method towards obtaining quantitative estimates are subject to further study.

Conclusions

As a result of the study revealed the following:

- Existing methods of analysis and synthesis of functional elements BPS unable to fully ensure the creation of energy efficient technologies resulting lack of scientific research aimed at increasing the use of bioenergy opportunities BPS;

- Lack of information identified parameters influence the production process of biological objects in the installation of energy efficiency technologies requires the synthesis of invariant fuzzy controller and methodology based on the general properties of functional systems which take into account ekser °-energy performance;

- Consideration of the rate of change of identified parameters distributed BTS can be the basis for technical solutions invariant fuzzy controller to optimize power technology processes BPS.