

Abstracts of PH. D. Theses

Title: The Elaboration of Simulation Systems in sustainable agriculture

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Abstract

This thesis describes the organized structure of simulation computer systems of economic and ecological (energy) estimation of agriculture crop technologies. The system consists of five blocks, which are connected among them: mathematics optimization model block, databases block, block of algorithms, simulator and analyzer. The linear, non-linear and stochastic mathematical models of the machinery's sizing and selection for using to farm-level cropping systems is presented in the first block of computer system.

The agricultural multiply cropping systems are characterized to be complex, dynamic, ecological and stochastic. The cultivation activities of agricultural crops are performed according to the season, so it is necessary to examine their fulfillment every day. The agricultural system is stochastically because it strongly depends on the weather conditions. The method of simulation is very often applied during the estimation and analyzing of agricultural systems.

Conception of sustainable agriculture in Republic of Moldova is based, first of all, on the calculations of the estimation of ecological (energy) influence of the agricultural technologies upon the environment. Computer calculations show that technologies utilizing in the large collective agricultural enterprises are very energy consuming, and as a result, are of the negative influence upon the environment.