FROM THE LAND IN THE FARM USE EFFICIENCY CALCULATION MATHEMATICS FOR MODELS WORKING EXIT

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Abstract
Currently, mathematical models are being developed to improve the efficiency of land use by developing agricultural land and reducing the area of land suitable for use. This work is also devoted to the development of mathematical models for calculating the efficiency of land use.

Keywords: Mathematical models, agro-industrial complex, productivity, efficiency, quantitative factors, regression coefficient.

Introduction

The word method is a Greek word meaning "to show the way." The concept of "educational method" and current time methodology and didactics in the sciences main is one of the concepts, but this concept has been used in various methodological literatures with different meanings until recently. using bride was. XIX to the century until was methodical In the literature, the concept of "method" is used to describe the main content of a mathematics course. description as is used. For example, "The numbers "learning method", "Method of studying geometric figures", etc.

References analysis and methodology. The objects in the mathematical object being studied are similar and The method of identifying differences is called the comparison method. The comparison method is also one of the scientific research methods. When applying the comparison method to the subject materials studied in mathematics lessons, the following principles are followed:

being compared mathematician concepts one gender to be necessary;

The comparison should be relative to the basic properties of the things in the mathematical object being studied.

Mathematics in teaching scientific research methods.

Irrational use of agricultural land remains a priority problem in Uzbekistan today. As a result of the practice of irrational use of agricultural land, the amount of unusable land is increasing. Village farm from their lands irrational use as a result

man-made and anthropogenic processes usable under the influence of the fields shrinkage and lack usability are observed.

As is known, the object of study of mathematics is the spatial arrangement of objects in matter. forms and they between from quantitative relationships consists of. That this Mathematicians use scientific methods of inquiry as a tool in the process of determining quantitative relationships between forms. Scientific research in mathematics methods simultaneously serve as scientific research methods in teaching mathematics. Scientific research methods in teaching include the following.

experience and observation.

comparison.

analysis and synthesis.

generalization.

abstraction.

clarification.

classification.

One of the important indicators characterizing the efficiency of agricultural land use is the condition of reclamation lands. They provide a several-fold increase in crop yields, increase the stability of production in adverse meteorological conditions, and serve as the basis for growing valuable grain, vegetables, fodder, technical and other crops. It should be noted that the level of implementation of existing planning and forecasting methods in the study of land use mechanisms is low.

Research in the development, application, and improvement of mathematical models of agricultural land use is also relevant for land use theory and practice.

When analyzing land use trends and directions and identifying factors influencing specific land use decisions, it is necessary to use mathematical models that determine the efficiency of use and predict the intensity of land use.

The earth management efficiency calculation for mathematician and Multifactorial models should be used. Such models allow us to describe the process of land resource use and provide a forecast for the future.

Model create for to you the following need will be:
- ✓ to the model to be included factors choice;
- ✓ object analysis in doing possible was features detection;
- ✓ information schedule to compile;
- ✓ information analysis transfer;
- ✓ model's adjectives assessment.

Attention giving if we are all factors quantity and to quality divided.

The efficiency of land use is influenced by qualitative factors, including: market conditions, environmental and legal standards, state policy, implementation of planned indicators, land quality, and state support through targeted programs. [3].

The factors included in the mathematical model must be quantitatively measured, that is, they must have an estimate. Such factors include: economic, environmental, socio-demographic, technological and natural-geographic. Quantitative factors can be used to create models of agricultural land use efficiency [2].

Efficiency indicator - village farm lands per unit right gross income village farm product size. Additional efficiency the indicators include: integral efficiency index, size of cultivated areas, average annual costs for land acquisition and sale, etc.

All of the above factors affecting the efficiency and cadastral value of agricultural land fall into optimization problems, for which it is advisable to use mathematical modeling.

According to IA Khabarova, the process of building a metamathematical model of agricultural land use to determine the cadastral value of land involves the use of two methods. The first provides for the selection of factors, and the second determines the structure, parameters and output data of the model [2].

To calculate land use efficiency, we use a multivariate model, which is constructed as a multiple linear regression model.

The linear relationship equation has the following form: [4, 5, 6]:

$$y = a_0 + a_1 x_1 + a_2 x_2 + \cdots + a_n x_n \quad (1)$$

Here;

x_1 - gross territorial product (million rubles),

x_2 - grain and legume crops planted fields (thousand hectare),

x_3 - gross grain harvest (thousand tons),

x_4 - vegetable gross harvest (thousand tons),

x_5 - fruit and berries gross harvest (thousand tons),

x_6 - sugar beet gross harvest (thousand tons),

y - village farm their husbands cadastre value (per hectare) rubles),

$a_1, a_2, \ldots, a_n$ - regression coefficients.

Table – 1 Jizzakh province initial information

Years	Factors						
	y	x_1	x_2	x_3	x_4	x_5	x_6
2008	82700	147052.4	3669.5	89.7	72	239.2	40
2009	83080	190403.7	3765	90.9	73	260.3	45
2010	83700	230288	3749.8	91.7	69	286.9	49
2011	84400	266863.1	3694.5	88.3	64	304.8	53
2012	85100	325811.2	3639.2	87.2	76	300.9	53
2013	86500	372929.8	3531.7	57.2	87	297	54
2014	87100	483950.7	3581.5	54.1	94	320	54
2015	87990	648211.3	3657.4	52.1	83	367.9	66
2016	88700	803834.1	3689.1	52.9	104	378.4	69
2017	89200	857527.3	3657.5	56.9	108	375.5	69
2018	90800	1028308.4	3634.4	59	101	394	73
2019	91690	1244652.8	3621	59.9	190	428.6	76
2020	92500	1459490.8	3600.2	59.1	161	411.8	79
2021	93540	1662969.1	3657.1	56.2	198	336.3	81
2022	96546	1792048.2	3657.7	56.2	171	339.7	81

As a result of calculating the regression analysis, a_0, a_1, a_2, a_3, a_4, a_5, a_6 We obtained regression coefficients, correlation coefficient r = 0.993 (strong relationship), and effect sizes of the factors.

Substituting the regression coefficients into equation (1), we get:

u=99080.13+0.013 x_1 −2.07 x_2 −35.37 x_3 −31.81 x_4 +15.34 x_5 −198.01 x_6 (2)

Factors' influence shares: x_1 − 57.89%, x_2 − 0.82%, x_3 − 3.85%, x_4 − 10.7%, x_5 − 5.77%, x_6 − 19.57%.

That's why for mathematician models and from methods used without included in the model the influence of factors on the result obtained price To keep land use models up to date, it is necessary to regularly update the source data, i.e. conduct land monitoring.

The soil pollution level coefficient was used in monitoring. without of the earth in the state changes determination and all It is necessary to ensure that interested individuals and organizations have access to information on the state of the soil and the level of its contamination. The information obtained can be used to predict changes in the state of the land and its subsequent use.

Conclusion and Suggestions

As we know, the discipline of mathematics teaching methodology is a part of the discipline of pedagogy. is a specific department that studies the rules for teaching mathematics. Mathematics teaching methodology is closely related to the disciplines of pedagogy, logic, psychology, mathematics, linguistics, and philosophy in the process of studying the laws of teaching mathematics. In other words, the problems of teaching mathematics at school are solved in close connection with the disciplines of logic, psychology, pedagogy, mathematics and philosophy. The methodological basis of mathematics teaching methodology is based on the theory of knowledge. The discipline of mathematical methodology studies the principles of the purpose, content, form, style and means of mathematical education, as well as the application of them to the teaching process. The discipline of mathematics is also closely related to the disciplines of physics, drawing, chemistry and astronomy. The close relationship of the discipline of mathematics with other disciplines is implemented in the following two ways:

1) Adapting subject curricula to study without violating the integrity of the mathematical system.

Using materials related to the study of mathematical laws, formulas, and theorems in other disciplines in the mathematics course. Currently, the issue of harmonizing the mathematics curriculum with other disciplines has been successfully resolved. It is difficult to clearly indicate the use of other subjects in mathematics lessons in the syllabus; this is implemented by the teacher himself, that is, it should be taken into account when planning the teaching material and preparing for the lesson. For example, during the study of equations, equations reflecting the relationships between physical quantities, namely the heat balance equation, the equation of linear expansion due to heat, etc. and so similar equations yes solution possible. Any one science

Thus, the mathematical model of land use allows for:

- village farm from their lands effective use and cadastre to the value analysis of influencing factors;
- from the ground use efficiency assessment;
- selecting and modifying factors to be taken into account in regression equations when making approximate calculations;
- Formation of short, medium and long-term forecasts of land resource use.

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