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The Efficiency of Land Use of Agriculture in Import Substitution.

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ABSTRACT

Unlike other means of production, which as wear and eventually fail, the land can be continuously improved, to acquire new qualifications, improve their fertility, what happens when its proper application. World experience clearly shows that land reform to be successful, must be based on scientifically based state program. The absence of such a program inevitably creates a whole heap of problems. The aim of this work is to analyze the efficiency of land use. The objective of this work is to identify the factors influencing efficiency of land use and ways of its improvement.

Keywords: efficiency of land resources management, agriculture

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INTRODUCTION

Land in agricultural production is the main means of production, and how rationally it is used, depends on the solution of problems facing the industry. The task of the land - the most complete and rational use of natural and economic (the actual fertility of the soil, formed of natural and artificial fertility, created under the influence of human labor) fertility of the land, a maximum of the latest achievements of science and technology in order to obtain higher yields of all crops with the lowest cost per unit of output.

Technique: Evaluation of soil fertility must be bi - objective properties and yield of certain crops. Economic evaluation involves obtaining ROI, return of lands, their value. Correlational analysis is designed primarily to answer the question of how to choose taking into account the specifics and nature of the analyzed variables suitable for measuring statistical relations. In the study of the land Fund are allocated to the statistical population of two interpenetrating types:

1. Enterprises, farms and organizations that use land for different purposes. The units for these populations is key to statistics — have a number of economic characteristics of land (in nature of ownership, possession, use, cultivation methods, productivity, intensity and efficiency, etc.) and signs natural history of the state of the land (size, shape, properties and biological processes in the soil).

2. Plots of land of different types (paths, fields, areas, varieties, subtypes and soil types, etc.), in addition to the properties of the economic organizations use them, too, possess a complex of characteristics, a generalization which allows to have aggregated characteristics of longer enterprises and households, as in the first case, and of the earth itself.

Analysis of existing methods:

We will analyze the existing methods used to assess the efficiency of land resources management and will bring out their drawbacks. Unfortunately, the methods suggested for assessment of land resources management efficiency by E. A. Varlamova (2006), N. G. Filatova (2009), R. V. Zhdanova (2010), D. V. Naumchev (2010), Yalyalieva T. V. (2014) etc. appear too specific sometimes, so they do not allow examination of the other efficiency aspects of the management aimed at public economic supervision (Yalyalieva T.V., Murzina E.A., Larionova N.I., 2015),. Formation of natural resource-based multiclusters at the regional level may, on the whole, be regarded as a response to excessive transaction costs (Larionova, *et al,* 2014*)*.

DATA AND METHODS

Table 1: Dimensions of agricultural production economy for 2013-2015

Показатели Indicators	2013 г.	2014 г.	2015 г.	average over 3 years
Gross output price of sale	20728	34266	38093	31029
Sales volume,	15183	26796	24969	22316
Fixed assets, тыс. р.	5008	6117	25497	12207
The average annual number of employees, persons	119	102	99	107
The area of agricultural land, га	8089	8089	8089	8089
including:				
arable land	8089	8089	8089	8089

According to the table 1 it can be concluded that the gross output in prices, sales volume and production assets to grow every year, while the average annual number of employees is gradually reduced. Agriculture does not have the financial means to expand production and therefore the area of agricultural land over the last three years has not changed, table. 2.

Table 2: The composition and structure of the sales of economy

Indicators	2013 г.	2014 г.	2015 г.	Average	
				The cost	Structure, %
Grain	6709	14055	13912	11559,0	51,800
including					
wheat	4671	12706	12327	9901,0	44,400
buckwheat	265	727	1585	859,0	3,800
Rye	53	-	-	18,0	0,100
Corn	-	1	-	0,3	0,001
barley	1680	621	-	767,0	3,400
Output of industrial crops	8380	12632	11026	10679,0	47,900
Crop production own production	53	75	-	43,0	0,200
Other crop production	41	34	31	35,0	0,200
Total growing	15183	26796	24969	22316,0	100,000
Total agricultural production	15183	26796	24969	22316,0	100,000

Table 3: Correlation analysis of yield of grain and industrial crops

moving average of the 3 members Productivity	cereal yields	material cash costs per 1 hectare of grain	sunflower yield	material cash costs per 1 hectare of sunflower
2008	15,90	2,03	8,90	1,81
2009	15,30	1,98	9,00	1,87
2010	16,10	2,02	9,30	1,93
2011	16,30	2,11	9,61	2,13
2012	16,90	2,19	10,32	2,36
2013	17,20	2,45	10,80	2,40
2014	16,00	3,13	14,20	5,41
2015	22,60	3,36	16,71	5,43

After correlation analysis, we obtained the following data for cereals, table. 4:

Table 4: Data analysis for crops

Parameter	Average	standard deviation	Coefficient of variation
0 y	17,04	2,17	12,76
1 x	2,41	0,51	20,98

Regression equation: y = 9,559+3,105 x
The coefficient of variation: 0,7216
T-student test: 3,9839 and the sunflower table. 5:

Table 5: The data for sunflower

Parameter	Average	standard deviation	Coefficient of variation
0 y	11,10	2,66	23,93
1 x	2,92	1,46	50,05

After analyzing the results in the tables are obtained by conducting the correlation analysis, we can draw the following conclusions: in equations with a pair regression coefficient for x (3,12 and 1.76, respectively) is called the coefficient of the full regression, which indicates how many units on average will change the variable when you change x per unit, provided that the influence of other factors not taken into

account. When the value of the correlation coefficient of 0.72, the relationship between the signs is considered to be close, because r2 = 0,52, that is, half the total variation of the resultant sign is determined by factor basis. For r=0.97 and r2 =0.94 connection is very close. This suggests that productivity depends on material and monetary costs. Next, you will receive the indicators of land utilization, table. 6.

Table 6: The indicators of efficiency of use of land

Parameter	Base year	Fiscal year	Index
Produced on 100 hectares of arable land			
Grain	0,85	2,06	2,42
The value of gross output (in prices) per 100 hectares of agricultural land,	2,56	4,71	1,84

After finding the indexes of land utilization, we can conclude that the products in the reporting (2015)year increased two times (from 0.85 kg to 2.06 kg), compared with baseline (2013) year. The value of gross output (in prices) per 100 hectares of agricultural land has also increased twice (from 2.56 thousand. p. in 2013. to 4.71 thousand rubles, in 2015). Such significant changes to the economy could occur because the area of agricultural land (including arable land) does not increase.

Now you need to find the index of efficiency of use of land:

$$J = \frac{\sum q_1 p}{\sum S_1} \div \frac{\sum q_0 p}{\sum S_0}$$

Substitute indicators for agriculture:

$$J = \frac{20728}{8089} \div \frac{38093}{8089} = 0{,}54$$

CONCLUSION

In order to improve the fertility of soils occurred more rapidly, it is primarily necessary to improve the efficiency of land use is the basis for increasing agricultural productivity. According to the study, the farm must, to the extent possible to carry out the following activities:

- to provide the most complete use of available equipment;
- to consider the possibility of entering new markets;
- to analyze the costs provided by the farm third-party organizations;
- to consider the possibility of renting individual plots of land to rent.

The mechanisms for government regulation considered in this article were used by the city administration of Yoshkar-Ola in the process of formation of a local natural resource-based innovation cluster. It is planned to implement future research findings into the practice of public administration in Russia through long-term programs of collaboration between the Volga State University of Technology and government agencies of the Mari El Republic.

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