APPLICATION TECHNOLOGY FOR INCREASING THE YIELD OF AGRICULTURAL PRODUCTS FROM MINERAL FERTILIZERS PREPARED ON THE BASIS OF LOCAL PRODUCTS

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https://doi.org/10.5281/zenodo.8405914

Introduction

Land is the most important condition for the existence of human society, an indispensable means of satisfying its various needs.

Agricultural production is associated with land, which acts as the main and irreplaceable means of production, being at the same time the spatial basis for the location and development of all sectors of the national economy. It is important to note that in agriculture, land is both an object and a means of labor. Land is an active means of production. Unlike other means of production, which wear out as they are used and eventually fail, land can constantly improve, acquire new qualities, and increase its fertility, which is what happens when it is used correctly. The task of the land user is to make the most complete and rational use of the natural and economic fertility of the land, the latest achievements of science and technology in order to obtain the highest yields of all crops at the lowest cost per unit of production. The role of the earth is huge and diverse. Rational use of land resources is of great importance in agricultural economics. In agriculture, the production of products is connected precisely with the quality of the land, with the nature and conditions of its use. The objectives of this work are to identify factors affecting the efficiency of land use and ways to improve it. Economic (effective) soil fertility is a synthesis of natural and artificial fertility. It is formed as a result of using the natural resources of the soil and replenishing missing nutrients, improving its physical and other properties.

Indicators of the level of efficiency of land use. The results of agricultural production depend on the efficiency of use of production resources, primarily land. The economic efficiency of using land as a means of production is determined by comparing the results of production with the area or cost of land. But, given the special nature of this resource, determining the efficiency of land use has its own specifics. In modern conditions, the use of land in agriculture is considered effective and rational when not only does the yield per unit area increase, its quality improves, and the cost of producing a unit of product decreases, but also when soil fertility is maintained or increased and environmental protection is ensured

Economic efficiency and level of intensity of land use.

The economic efficiency of land use is measured in natural and cost terms.

Table 1 – natural indicators of economic efficiency of land use.

Index	Organization			Deviation (+, -)
	2020	2021	2022	
Produced on 100 hectares Arable lands: Grains Live weight gain of cattle	82.9 19.1	327.2 12.3	429.4 18.7	346.5 -0.4
Produced on 100 hectares of agricultural land Milk Live weight gain of cattle	114.6 18.4	146.3 11.8	115.3 18.1	0.7 -0.3
Degree of land development %	79	83	97	18
Degree of plowed land %	81	85	94	13
Share of crops in arable land area %	96	97	99	3

Table 2 – cost indicatorseconomic efficiency of land use.

Index	organization			Deviation (+, -)
	2020	2021	2022	
Produced per 100 hectares of agricultural land, thousand sum: Gross agricultural output Gross income Profits from sales of products	399.8 11.09 45.3	526.9 28.45 41.42	696.7 34.81 38.7	296.9 23.72 -6.6
Gross output Gross income	112.7 3.12	108.5 5.86	107.3 5.36	-5.4 2.24

Ways to improve the efficiency of land use. Improving the use of land resources is a large complex problem. It comes down to solving the following 4 problems, each of which corresponds to a system of measures, namely:

-protection of soil from erosion and other destructive processes;

-reduction of areas that, for various reasons, are falling out of economic circulation, bringing previously unused areas into circulation;

-increasing land fertility;

-more efficient use of economic soil fertility.

The expansion of agricultural land is facilitated by reclamation - bringing into suitable condition areas that were previously used for mining and other purposes, returning them to agriculture. The successful solution of all problems to improve the use of soils is associated with the development of a rational farming system. It is a complex of agrotechnical, reclamation and organizational and economic measures aimed at the rational use of land, conservation, restoration and improvement of soil fertility. The farming system includes the following main elements:

-introduction and development of crop rotations;
-methods of combating soil erosion and their rational treatment;
-machinery and fertilizer systems;
- soil liming;
-drainage and irrigation;
-seed growing
-cultivation of natural hayfields and pastures;
-fighting weeds, pests and plant diseases;
-organizational, economic and social activities.

At the present stage of agricultural development, correct crop rotation is the basis of rational farming. Crop rotation is a scientifically based alternation of crops and pure fallow in time and placement on the fields. Crop rotation is the background against which the positive influence of all other elements of the farming system is most effectively manifested.

Table 3 – Efficiency of introducing crop rotation

Cultures	2023	Project
Winter rye	24.4	27.4
Spring wheat	26.3	29.3
Sunflower for grain	22.3	15.3
Silos	35	38
Barley	20.3	23.3
Oats	15.5	18.5

With the correct organization of crop rotation, an increase in crop yields is observed, which in turn has a positive effect on the gross yield. The main feature of the correct organization of crop rotation is the least removal of nutrients from the soil.

Conclusions.

All these concepts of fertilizer application systems - on the farm, in crop rotation and individual crops - are closely interrelated and require special consideration. The fertilizer system on the farm is a set of agronomic, organizational and economic measures for the rational use of mineral and organic fertilizers, as well as chemical ameliorants (lime, gypsum, etc.) in order to optimize soil fertility, increase the productivity of agricultural crops, improve the quality of crop products, and ultimately - increasing labor productivity in agriculture.

References:

1.Vinnichek L.B., Dukhanina G.A., Palatkina I.V. Drawing up technological maps in crop production: Guidelines. - 2nd ed., revision - Penza: RIO PGSHA, 2005. - 30 p.
2. Dolbilin, A.V. Technology of production, storage and processing of crop products: guidelines / A.V. Dolbilin, O.A. Tkachuk, S.V. Bogdanov. - Penza: RIO PGSHA, 2006.-107p.
3.Crop production / P.P. Vavilov, V.S. Kuznetsov et al. Ed. A.P. Vavilova. – 5th ed. reworked and additional – M.: Agropromizdat, 1986. – 512 p.;
4.Vinnichek L.B., Dukhanina G.A., Panashkina I.V. Drawing up technological maps in crop production: Guidelines - 2nd ed. corr. – Penza: Rio PGSHA, 2005. – 30 p.
5. Klemikov V.P., Galkin A.S., Dukhanina G.A., Savvateeva S.A. Handbook of standards for drawing up technological maps in crop production / ed. 2, revised and additional
6. Plant growing with the basics of selection and seed production / G.V. Korneva – 3rd ed. reworked and additional: Agroproizdat. 1990 – 575 p.
7. Lichko N.M. Technology of processing of crop products. - M.: Kolos, 2000.-552p.
8. Semina S.A. Course design on the technology of storage and processing of crop products: textbook / S.A. Semina, N.I. Ostroborodova. – Penza: RIO PGSHA, 2007. – 145 p.
9. Trisvyatsky L.A. Storage and technology of agricultural products.-4th ed., revised. and additional - M.: Agropromizdat, 1991.-415 p.
10. Collection of standard production standards for mechanized work in crop production / L.B. Vinnichek, G.A. Dukhanina.- Penza: RIO PGSHA, 2009.- 204 p.