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NATURAL RESOURCES MANAGEMENT IN AGRICULTURE OF UKRAINE

SUMMARY

The natural resources management or environmental management aimed at harmonizing of society and nature relationship. The environmental crisis of natural resources using led to natural resources management as an important ecological function of the government.

The article considers the theoretical and methodological foundations of natural resources management in the agriculture. Ecological and economic situations of environmental management in the agriculture were analyzed. The management functions separation in three social levels: government, business (production) and public were done touching upon a new conceptual approach to environmental management in the agriculture. In the outcome the authors' researches reject the proposals in creation and operation of coordinated natural resources management system in the agriculture based on organizational and structural, scientific and informational, legal and regulatory, financial and economic supports.

The results indicate that the natural resources management is effective in optimal correlation of administrative and economic methods.

Key words: Natural resources, environmental, management, agriculture, ecological

INTRODUCTION

The natural resources management is an important ecological state function and was caused by ecological crisis and need to change the environmental potential using. Ukraine has poor environmental condition of water and land resources and extensive agriculture. The implementation of sustainable development principles in the environmental management in agriculture of Ukraine has the special attention.

The problems of agriculture land management were studied by Ukrainian and foreign scientists, such as Budzyak V., 2011; Horlachuk V., Garkusha A., Vyun V., 2006; Dobryak D., Tyhonov A., Hrebenyuk N., 2004; Tretyak A., Dorosh O., 2006; Piasecki B., Fletcher K., Mendelson F., 1999 and others. The researches of leading scientists were devoted to problems of water management in the agriculture: Hvesyk M., Golyan V., Hvesyk Y., 2005; Kalinichenko L.,

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2002; Markovitts P., 2002; Opalov O., 2002 and others. The sustainable agricultural production were described in research works of Kovaleva O., 2008; Pidlisnyuk V., 2008 and others.

However, the organizational and economic mechanism of ecological management in agriculture are incomplite and development the activities of its improvement is the goal of this research.

MATERIAL AND METHODS

The information base of research consists of legislative and regulatory framework of Ukraine, researches of Ukrainian and foreign scientists, reports of State Statistics Service of Ukraine, Internet resources, personal observations materials of author.

According to the purpose of article the different scientific methods were used. The dialectical, abstract and logical, scientific analyses methods were used in the study of theoretical and methodological aspects of agricultural environmental management and sustainable development strategy, and formulation of conclusions.

The various methods of statistical studding, calculation and constructive and also economic and mathematical, logical and analytical methods were used for the analysis of the agricultural land and water use.

RESULTS AND DISCUSSION

Ukraine has a high involvement of land and water resources in agriculture. According to statistical data of 2013 the agricultural land in Ukraine was 42756.0 thousand hectares (or 70.84% of the total land area) and the farm water consumption – 1988 million m^3 (18.34% of the total water using) (table 1).

Table 1. Natural resources using in agriculture of Ukraine

Index	Years						
	2001	2006	2009	2010	2011	2012	2013
Total land area, *thousand hectares*	60354.8	60354.8	60354.8	60354.8	60354.8	60354.9	60354.9
agricultural land, - *thousand hectares*	43057.8	42942.6	42844.8	42813.7	42792.8	42776.9	42756.0
- *%*	71.34	71.15	70.99	70.94	70.90	70.88	70.84
Total water using, *million* m^3	12991	10188	9513	9817	10086	10507	10840
farm water consumption, - *million* m^3	2212	1435	1615	1566	1818	1920	1988
- *%*	17.03	14.09	16.98	15.95	18.02	18.27	18.34

Calculated on the official data of The State Land Resources Agency of Ukraine and the State Water Resources Agency of Ukraine (Statistical Yearbook: Environment of Ukraine, 2013).

According to the official statistic data and researches of Ukrainian scientists the current ecological problems of agriculture are:

- High level of tilled farmland (within 80%) and inefficient using of high biopotential fertile land *(Myahchenko O., 2010);*
- The increasing the acreage of export-oriented technical crops. For example, from 2000 to 2012 the sunflower acreage increased by 3 times *(Statistical Yearbook: Environment of Ukraine, 2013);*
- The profitability of crop production is low: reduction a decrease of 20% from 2007 to 2012 *(Statistical Yearbook: Environment of Ukraine, 2013).* As a result is the reducing of basic agricultural food products for the population;
- Unjustified using of pesticides and mineral fertilizers – 1343 million kg mineral fertilizers, fertilizers 78 % of the cultivated area in 2012 (*Statistical Yearbook: Mineral Fertilizes in Ukraine in 2012, 2013)*;
- The water and wind erosions: loss of soil from wind erosion in Ukraine range from 7.19 to 66.44 ton / hectares per year (*Horlachuk V., Garkusha A., Vyun V., 2006)*;
- A significant radionuclide contamination (^{137}Cs, ^{90}Sr) of agricultural land from the Chernobyl disaster (*Horlachuk V., Garkusha A., Vyun V., 2006)*;
- The using of fresh water for irrigation and other agricultural needs *(Hvesyk M., Golyan V., Hvesyk Y., 2005);*
- The contamination of drinking water sources located closer farmland (increasing nitrates, phosphorus, organic compounds and bacteriological pollution). The results of analysis of one agricultural region in Central Ukraine showed 75% of studied samples of wells had high nitrate content (*Sokol L., Pidlisnyuk V., 2008*).

Table 2 shows the dynamics of ecological and economic indicators of land and water resources management in the agricultural sphere in Ukraine. That analysis revealed the shortcomings of the modern environmental management of agricultural production.

From 2009 to 2012 the financial expenses for the protection, rational use and restoration of natural resources in the agricultural sphere increased by 59.1% and environmental payments in agriculture - by 53.8%. The main problems of natural resources management in agriculture of Ukraine are the absence of sustainable agricultural development strategy and governmental institutional support, administrative territorial principle and centralized management (Pashkov I., 2009; Piasecki B., Fletcher K., Mendelson F., 1999).

The new improved concept of environment management in agriculture should be based on distribution management functions at three society levels: governmental, business (production) and public (figure 1) (Sokol L., 2012).

Table 2. The dynamics of ecological and economic indicators of the modern environmental management of agricultural production of Ukraine

Indicator	Years				2012 to 2009, %
	2009	2010	2011	2012	
The cost of agricultural GDP, *million hryvnas*	197935.9	194886.5	233696.3	223254.8	112.8
Financial expenses for the protection, rational using and restoration of natural resources in agriculture, *thousand hryvnas*	125780.8	96167.3	147150.6	200108.4	159.1
Environmental payments in agriculture, *thousand hryvnas*	17081.6	19794.3	19846.9	26273.0	153.8
Environmental payments in agriculture to the cost of agricultural GDP $^{x}10^{-3}$, *%*	0.09	0.10	0.09	0.12	+0.03
Environmental payments to financial expenses in agriculture, *hryvnas*	0.14	0.21	0.13	0.13	92.6

Calculated on the official data of The State Statistics Service of Ukraine (Statistical Yearbook: Environment of Ukraine, 2013).

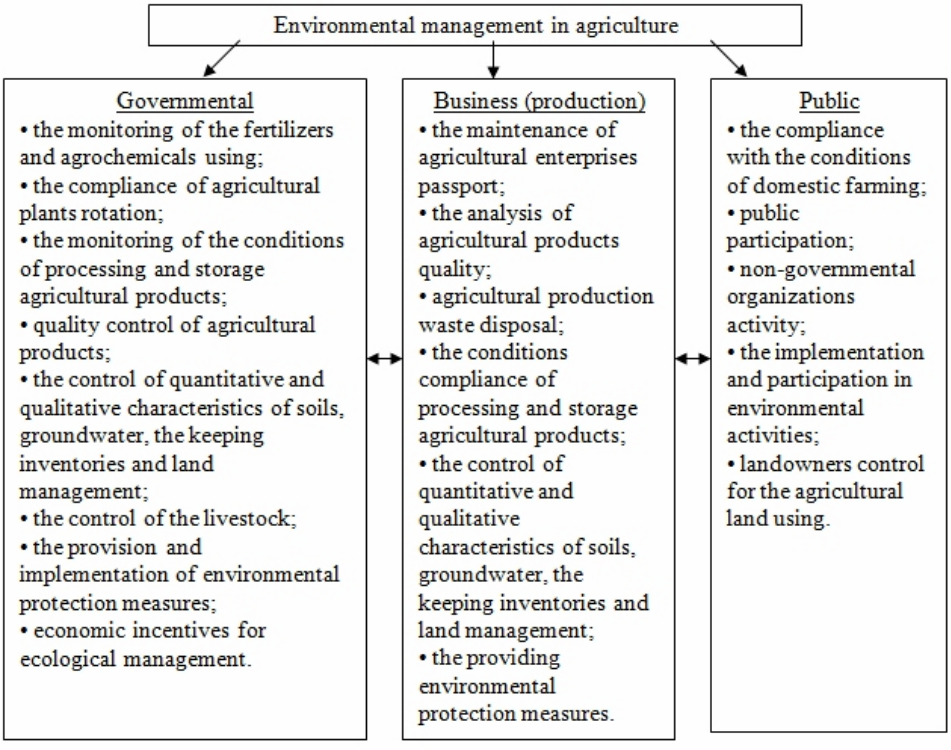

Figure 1. The environmental management functions on different social levels in agriculture of Ukraine (developed by author).

The natural resources management in agriculture includes organizational, legal and economic supports for rational using, protection and restoration of natural objects. Organizational part includes following provide: institutional support, personnel management, innovative and educational activities, extension service, control and analytical support. Legal part consists from appropriate codes, laws and regulations. And economic support includes the economic incentives, financial component and limiting mechanism.

CONCLUSIONS

Experience of developed countries indicates the importance of institutional support for environmental management. Today in Ukraine created the National Council for Sustainable Development, which is limited only advisory functions. The expansion of the powers and functions of the Council and the application of recommended measures will increase the effectiveness of natural resources management in the agricultural.

Recommended measures to improve the water and land resources management are: the decentralization of governmental infrastructure environmental management to the local level; the organization of educational and training processes on sustainable development and environmental management; the organization of state analytical information complexes; the improving of agricultural extension service; the improving of land and water resources' payment system for the environment protection; the developing of organic farming; the creating of natural pollution rights market and the competitive trade licenses; the introduction of environmental insurance, risk management; the formation of targeted environmental funds and other.

So the using such recommendations in environmental agricultural management improves the efficiency of agricultural production and quality and status of agroecosystem.

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