

Chernihiv State Institute of Economics and Management

**INEFFICIENT USE OF AGRICULTURAL LAND****The actuality of the research.**

Ukraine is the country that has unique land resources and natural climatic conditions conducive to maintaining a high level of agricultural production. Almost a third part of the black soil reserves and 27% of arable land of Europe are in Ukraine. In Europe 0.25 ha is per capita, while 0.66 ha is in Ukraine, that is twice over. [7] Such a capacity for rational land use is able to provide a sustainable competitive economic development of the state. Our country has significant opportunities to create highly productive and intensive agricultural production, turning it into an export sector of economy and guaranteeing foodstuff security of the country.

However, it must be noted that the human pressure on the environment has led to a deterioration of the land resources quality. Today in Ukraine, most agricultural land transferred to a private ownership of the peasants. Unit certificates are replaced by state acts on the ground with its release. The perspective of modern technologies of agricultural production that is formed as a result of private ownership is not conducive to the effective use and preservation of fertility.

Our land is able to feed 300-320 million people by rational use and appropriate level of production, but it does much less. The reasons for this are varied - plowed, fertile soil depletion, land degradation.

**The basic problem of the research.** Rational use and protection of land resources is an important ecological and socioeconomic problem. At present one of the problems is the effective use of the land resources.

For agriculture has always been and still remains the question of providing highly efficient use of land resources and at the same time restoring and improving soil fertility. To a large extent it depends on the form of land use. Each of it has certain advantages and disadvantages. Accordingly there is a need to form its rational structure. However, this problem is not resolved in Ukraine yet. Agricultural businesses use mostly leased land, and the term of the leases are usually short. According to this soil fertility has decreased.

Deteriorating of the land quality can stop the agricultural use of the land. It can also break long-term ecological connections, change the water balance, lead to the destruction of wildlife, forest depletion, desertification, and finally it would lead to a climate change. All this manages a rational use and special protection of land granted for agricultural purposes, and generally suitable for this purpose.

Agricultural sector is the main polluter of the land. Fertilizers, pesticides and other chemicals are used wrongly and with industrial and radioactive pollution could make the ecological situation in Ukraine very complicated. It can also reduce the reproductive capacity of the biosphere and environmental sustainability of agro landscapes.

**Analysis of recent researches and publications.** The issue of land tenure and land use were studied in different aspects and areas that are reflected in the scientific writings A.H. Babenko [1], M.I. Buzdalova [2], D.S. Dobryaka, M.V. Komova,

O.B. Leppke, P.M. Makarenko, M.Y. Malik, V.Ya. Mesel-Veselyaka [5], I.R. Mikhasyuk, O.M. Onyshchenko, V.V. Radchenko, I.A. Rozumnoho, L. Romanova, P.T. Sabluk, P.A. Stolypin, A.M. Tretyak [6], O.V. Chayanov, H. Shmelova, A.V. Chupisa and others. I.E. Ovsynskyy advised to cultivate the land system, which was named bezornoyi ground, the essence of which is to avoid the mechanical tillage. Research Shlyahova V.A. shows the effectiveness of the use of drip irrigation in growing tomatoes and potatoes. The article Ukrainian researchers Adamchuk V.V. and Moyseenko V.K. research achievements in the field an analysis of the use of precision farming in Ukraine and Ukrainian.

**The main purpose.** To examine basic problems of irrational use of agricultural land. To develop knowledge of the resources of Ukraine. And find out what are the key measures of rational use and protection of land resources held in Ukraine.

**The main material.**

After the transfer of the land to private ownership, most owners and users of the land work on their own - without the projects of territory organization and also don't use land rationally.

Current land use of Ukraine does not meet environmental management. The environmental allowable ratio area of arable land, natural grasslands and forest plantations is transgressed, and this adversely affects the stability of agro landscapes. Plough land of Ukraine is the highest in the world. It is reaching 57 % of the country and almost 80 % of agricultural land. Intensive agricultural land use leads to a decrease of soil fertility due to their infringement, loss of lumpy, granular structure, permeability and aeration capacity with all ecological impacts.

The top layer of the land particularly affected by improper farming, it leads to the losing of its self-renewable and self-clearable ability. Uncontrolled agricultural pressure on the soil resulted in profound changes in the natural properties of the land and led to the transformation of the internal soil processes. The usual things become degradation, erosion and man-made contamination. Water and wind erosion destroying more than 13.9 million ha of agricultural land or a third part of its total area. Eroded areas are annually increased by 80-90 ha, resulting in the loss of funds invested in the preparation of the soil for sowing, fertilizer, seeds, sowing and cultivation of crops. According to the data of different areas, losses due to replanting and washing away crops reach 200 million. In addition, soil erosion causes significant economic losses due to siltation of rivers and reservoirs.

Today, the degradation of soil fertility because of the deterioration of humus layer, can be called the most serious contemporary environmental problem. Thus, according to the calculations of Ukrainian Academy of Agrarian Sciences in this country each year is lost from 0.6 to 1 ton per 1 ha of the land. Also their mineral composition and agrophysical property worsens. There is a high level of contamination of the soil due to economic activity. Emissions to the air industry eventually concentrated and accumulated on land immediately adjacent to the building objects that was distributed through water and air at hundreds of miles from the source of emissions and fell to the earth with precipitation. Content of heavy metals in soils near cities, highways, industrial facilities exceeding maximum allowable concentrations in 5-10 times. But the greatest danger for the environment is the contamination of soil by chemical and biological components, including radionuclide, heavy metals, pesticides and pathogens of infectious diseases. Through the soil, this contaminants migrate into adjacent geographic environment - water, air, contaminate food [4].

Overall, taking into account the destruction agrosphere (erosion process, salting of land, bogging, clogging, manmade land pollution) caused by socialization of the land, the problem of protecting our national wealth, that is the land resources, has become a security problem of our country.

Due to various reasons the part of environmentally clear areas in Ukraine, according to experts is only 7 % of the land area of the state, and relatively clean areas that are characterized by more or less normal conditions of human habitation is about 8%. Less polluted areas covering 15 % of the country, but very dirty and polluted, where living conditions of the population has worsened are almost about 40 and 30%. Approximately 1.7 % of the territory of Ukraine is in an ecological disaster.

Many scientists have noticed that the current development of agriculture is needed in the "greening of society", this means the development of effective measures of agricultural land use and maintaining the quality of the environment.

All this makes it necessary to take immediate effective measures for the protection of land resources, including the help of the legal means.

Today Ukrainian land is protected from not rational economic use, unjustified withdrawal from agricultural turnover, degradation, water and wind erosion, flooding, bogging, landslides, second salting of the land, drainage, compaction, pollution, waste production, chemical and radioactive substances, overgrown weeds, exhaustion, bad technical cultivation of the soil, desertification and the effects of other negative factors.

The concept of protection of land is mentioned in the art. 162 of the Law of Ukraine. According to it, a system of legal, institutional, economic and other measures aimed at sustainable land use, prevent unreasonable seizure of agricultural land, protection from adverse human impacts, restoration and improvement of soil fertility, increase productivity of forest land, special treatment of environmental land use, health care, recreational, historical and cultural significance. According to the art. 163 of the Law of Ukraine the main aim is to ensure protection of land preservation and reproduction of land resources and environmental values of natural and acquired qualities of land.

Main areas of protection of agricultural land are shown on Pic. 1.

In addition, in the art. 36 of the Law of Ukraine "On Protection of Land" dated 19.06.2003 states that the protection of agricultural land is provided through the implementation of measures that preserve the productivity of agricultural land, improvement of their environmental sustainability and soil fertility (Pic. 2 ).

Land protection should only be considered in the context of the protection of the biosphere as the whole: the protection of water and plant resources, protection of air and mineral resources, nuclear safety, etc.. This demonstrates the integrated approach to the management and protection of natural resources.

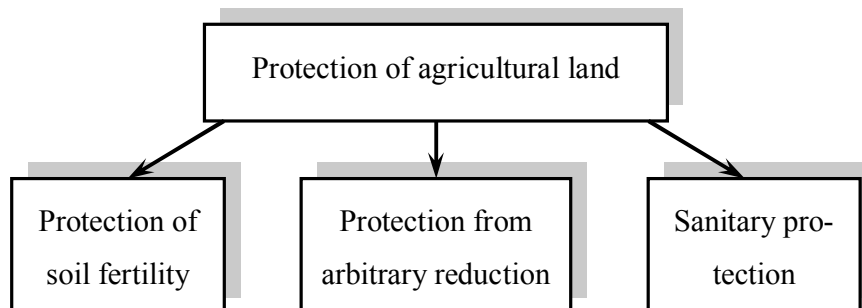


Fig. 1. The ways of protection of agricultural land

Therefore, on the 17<sup>th</sup> of September, in 1996 the Cabinet of Ministers of Ukraine adopted the Resolution "On approval of the list of activities relating to environmental protection measures." According to this Regulation environmental activities in the field of land use and management include:

- implementation of soil farming systems with the contour reclamation of the territory;
- conducting agro technical measures in ravines, gullies and other dangerous erosion territory;
- reclamation of disturbed lands and use of topsoil during the work related to land disturbance;
- conservation of degraded, unproductive and contaminated land;
- improving the unproductive lands;
- development of technology and equipment for disinfection, cleaning of land contaminated with pesticides and agricultural chemicals, and others.

Widespread use of conservation lands acquired as a special way for their protection, temporarily exclude land from economic circulation, which is done to prevent the development and eliminate degradation of soil fertility restoration and rehabilitation of contaminated areas.

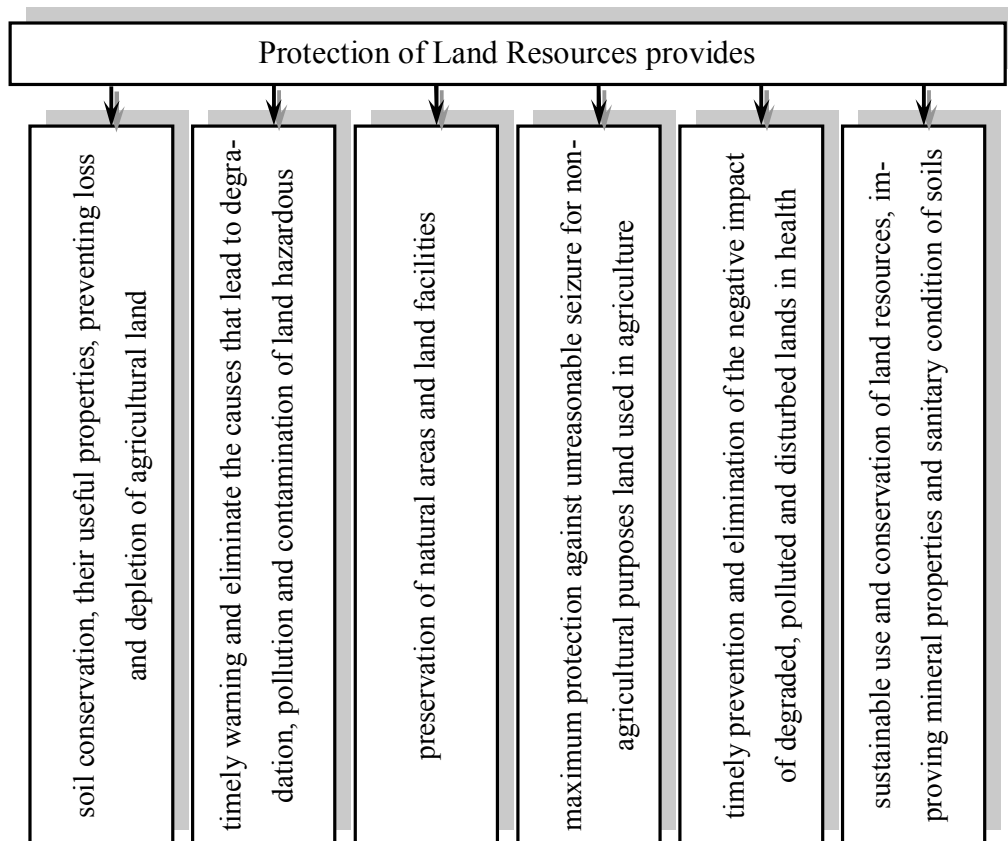


Fig. 2. The set of measures that ensure the protection of land resources

Degraded and unproductive lands should be under conservation, commercial use of them is environmentally unsafe and uneconomical. Also it must be done to a polluted land on which is impossible to obtain environmentally pure products that can cause a threat to human health.

Lands that are under conservation usually eroded, damaged by ravines, landslides, stony, strongly acidic, saline and have radioactive, chemical and biological pollution. It is clear that these negative factors make it impossible to obtain environmentally safe products from the land. So they need special measures of protection, preservation and restoration of their fertility.

Conservation of the land is done by cutting the economic use of degraded and unproductive lands for a fixed term and their covering by meadows or forests. In most cases, it leads to irreversible transformation of farmland. For example, plowed lands converted to pasture and hay. This should lead to a gradual reproduction of soil by natural ecological processes.

In addition, due to the fact that the use of such land for agricultural production requires substantial financial, economic, organizational and other expenses and these costs are not recouped getting the harvest and even threatened pollution products of erosion. So appears urgent and justified necessity in removing such land from plowing and cultivation for conservation and focusing on the cultivation of fertile land with high efficiency.

So we should mention some measures for land protection. These are the introduction of soil protecting farming, building of the erosion control structures, conducting chemical soil reclamation, creation of the protective forest plantations on eroded lands along water bodies and shelter belts, conservation of degraded and contaminated land, improvements of unproductive lands, development of the technology from hot weather, cleaning of the land contaminated by pesticides and agrochemicals.

That's why, the essence of land protection is to ensure implementation of the set of measures for the land protection. All measures as for land protection aimed for preserving their quantity and their quality status. This should be remembered because, according to the art. 170 of the Law of Ukraine polluted agricultural land, which can not provide products that comply for the requirements should be withdrawn from circulation and agricultural preservation.

In order to protect agricultural land, landowners and land users at their own expense should execute measures to prevent overgrowth of the land weeds, bushes and undergrowth. And also they should take measures for the protection and reproduction of land productivity, taking in account actual physical and chemical indicators of soil quality.

This tendency of protection by the land owners and land users in the literature is known as security of land tenure. Therefore, the primary purpose of protecting agricultural land is: maintaining soil fertility, preventing the maximum possible loss and depletion of agricultural land, and limiting diversion of productive land for non-agricultural purposes.

### **Conclusions**

Scale factor for regional deterioration of ecological and geochemical environment in the last decade is the chemical pollution of lands, it causes a steady and long-term income of nitrates and pesticides in groundwater of Ukrainian region with the increasing penetration depth from ten to hundreds of meters.

Today Ukrainian land is protected from economic use of irrational, unjustified withdrawal, also from agricultural turnover, degradation, water and wind erosion, flooding, bogging, landslides, salting of land, drainage, compaction, pollution with the waste production, chemical and radioactive substances, overgrown weeds, exhaustion, dehumification, poor work of machines on the land, desertification and the effects of other negative factors.

The essence of land protection is to ensure implementation of complex measures of the protection of lands that are aimed at preserving the quantitative and qualitative state.

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#### INEFFICIENT USE OF AGRICULTURAL LAND

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*This article discusses the basic problems of irrational use of agricultural land. These include problems of conservation land resource potential of agriculture - land degradation, soil degradation, reducing soil fertility.*

*The generated knowledge resources of Ukraine, presented the main measures of rational use and protection land resources, which are held in Ukraine.*

**Keywords.** *Greening society, land protection, conservation land, degraded land, technogenic pollution of land, security of land use.*

#### ПРОБЛЕМА НЕРАЦИОНАЛЬНОГО ИСПОЛЬЗОВАНИЯ СЕЛЬСКОХОЗЯЙСТВЕННЫХ ЗЕМЕЛЬ

*A. Наровлянская, А. Терещук*

*В данной статье рассматриваются основные проблемы нерационального использования земель сельскохозяйственного назначения. Среди них проблемы сохранения земельно-ресурсного потенциала сельского хозяйства - деградация почв, ухудшение состояния почв, снижение плодородия почв.*

*Сформированы знания о ресурсах Украины, представлены основные меры рационального использования и охраны земельных ресурсов, которые проводятся в Украине.*

**Ключевые слова.** *Экологизация общества, охрана земель, консервация земель, деградированные земли, техногенное загрязнение земель, охранное землепользование.*