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Strategy of development of agroindustrial production at saving natural resources in zone of Polisya

Goal. Determine how to optimize the agro-landscape on the basis of balanced nature management. Methods. Systemological analysis of organizational, technological, environmental processes and relationships, as well as comparative, factor and structural analysis. Results The soil cover of the Polissya zone has been investigated for its qualitative state, the level of its use has been determined and the ways of optimization of land resources have been shown. The ratio of destabilizing and stabilizing lands for the establishment of an environmentally sustainable agroland landscape is substantiated. Conclusions The strategy of optimizing land resources in agricultural production must be realized through optimally balanced development of the branches of plant growing and animal husbandry.

Key words: hydromorphic soils, balanced use of nature, reclamation, radioactive contamination, adaptive-landscape farming, optimization of land use.

Formulation of the problem. At present, the world community is considering the efficiency of using land resources due to the harmonization of the interactions in the system "nature - economy-society", which is connected with the constant increase of the population, reduction of protected areas and deterioration of the ecological situation; soil degradation, deforestation, desertification, pollution of the environment with pesticides and industrial disasters [3].

The strategy of using reclaimed land in Ukraine resembles the requirements of a model of sustainable development, which combines techno-technological, natural and socio-economic aspects [10]. These directions are illustrated in the articles by VF. Saika, V.F. Kaminsky, SA Balyuk, MA Khvesika, OI Furdicka, Yu.O. Lupenko, V.M. Beetle, SM Kvasha, GM Kaletnik and others.

The purpose of the research is to assess the agricultural resource potential of Polissya, to determine level of its use and show the optimization method on the basis of balanced nature management.

Methodology of researches - methods of logical, system-logical analysis of organizational, technological, ecological processes and connections, as well as comparative, factor and structural analysis are used.

Research results. Technological and technological measures in agricultural production on the land plots should be developed taking into account the agro-resource potential of the territory, the meteorological conditions of the region and the impact of the measures developed on the improvement of the environment and socio-economic conditions of the living conditions of the local population [1, 10, 11]. This direction for the Steppe and Forest-steppe was substantiated by O.G. Tarariko, S.Yu. Bulygin, P.G. Kazmir, OI Kovalov, AG Martin, L.Ya. Novakovsky, MG Step, AM Tretyak, MK Shikula and others Realization of the direction of balanced land use for the Polissya of Ukraine today is relevant and requires modern additions to the methodological approaches, which at one time were formulated by VP Strelchenko [2]. Polissya is a unique natural landscape that makes up 19% of Ukraine's territory. This part plays an important role in the formation of water resources of Ukraine and occupies the 2nd place of afforestation after the Carpathians. Due to climatic features, it belongs to the zone of excessive moisture. The soil cover of the territory is represented by organogenic and sod-podzolic soils with different granulometric composition and fertility.

According to the NSC "Institute of Soil Science and Agrochemistry named after O.N. Sokolovsky [4], the proportion of soils with low and medium content of phosphorus and potassium is respectively 52.3 and

75.3%. In general, this zone is favorable for agricultural production, in particular livestock, provided that all plant life factors are optimized through various types of reclamation: hydrotechnical, cultural-technical, chemical, thermal, phytomelioration.

Regarding the agress resource potential of Polissya, in the course of 30 years (1965-1995), intensive land reclamation works in the humid zone commissioned 3200 thousand hectares of dehumidified land (55% of the total area of land), on which various types of meliorative systems: drained - 1,500 hectares (47%); combined (irrigation and irrigation) - 1100 thousand hectares (34%); closed (reverse) systems - 250 thousand hectares (8%) and polders - 350 thousand hectares (11%) with productivity of one hectare from 16 to 26 centners of feed units.

Today, the issue of efficient use of drained lands of Polissya is very relevant, taking into account all objective processes that have taken place on this territory in recent years. Since the system of drainage reclamation involves an integrated set of interactions: natural landscapes, the technical condition of the drained network, technologies for growing crops under certain weather conditions, the optimization of all plant life factors at a sufficiently high variety of soil cover remains the most important [5] After drainage, the Polissya landscape was 64.2% in Volyn, 70.6 in Rivne, 72.2 in Chernihiv and 77.9% in Zhytomyr oblast, which is relatively high compared to with the world - 11%. However, over the years of agrarian reforms, this indicator has significantly decreased, due to a number of objective and subjective factors: low level of natural soil fertility (24 - 42 points), suspension of all types of melioration works, low solvency of sub Business objects. The calculations made by us regarding the use of arable land as of 01.01.2014 showed that in the Rivne, Volyn, Chernihiv, Zhytomyr regions crop areas, as in 1990, decreased by 139.7 thousand hectares (35%), 174,8 thousand hectares (36%), 431,8 thousand hectares (36%) and 529,2 thousand hectares (40%). In general, 1275.5 thousand hectares of land are not used in these areas.

This testifies that tenants of these lands, newly formed agroformations, especially with high economic potential, use arable land with medium and high levels of agrochemical support, in which the drained systems work satisfactorily. They favor the cultivation of commercially attractive, export-oriented crops (corn for grains, winter wheat, sunflower, and soybean), which occupy, respectively, the crop area: in Rivne - 21; 10; 3 and 12%, Volyn - 9; 13; 1.5 and 11%, Chernihiv - 34; 4; 10 and 5%, Zhytomyr - 35; 5; 6 and 13%, and in some farms, these indicators increase by 6 - 15%, which respectively affected the structure of the crop area of the entire zone.

Building on the methodological foundations of balanced nature use, first of all, it is necessary to bring the correlation between the destabilizing and stabilizing factors - arable land to fodder lands, which, according to VV Dokuchaev should be in the ratio of 1.0: 1.6. In the Polissia area, realizing such an approach in practice is possible with the use of the model of the adaptive-landscape organization of land use developed by V.P. Strelchenko, 2004 [8], which is based on the correspondence of the properties of the soil to the requirements of agricultural crops and the ability of the latter to protect the soil from degradation. Such a model can optimize land use in the landscape-regional, agro-landscape, livelihood, and soil ecosystem. With this approach to creating a sustainable agro-landscape in the territory of Zhytomyr Oblast, one fourth of the arable land should be transferred to forage lands, forest plantations and forest bands [6]. As a result, the correlation of destabilizing and stabilizing lands in the agrarian landscape of the Polissya zone area should be 1.0: 2.0, transitional - 1.0: 1.6, forest steppe - 1.0: 0.8 (table) With such a distribution of land in arable lands (702.8 thousand hectares), soils of fairly high quality will be concentrated, where managers can realize different models of crop rotation, taking into account the demand on the market for food grain, vegetable fats, and for fodder products for animal husbandry.

The withdrawal from the arable land of low-yielding land and their further use as forage lands (hayfields and pastures, seedlings of multi-grain and legume grasses) will enable to stabilize the ecological situation and form a reliable forage base for the development of livestock breeding. The livestock sector has all the grounds for a gradual reproduction due to the low cost of forage grown on natural meadows, and for the planned step-by-step radical improvement of hayfields and pastures. The Polissya Institute of Agriculture of the National Academy of Sciences has developed the foundations of cattle breeding in the Polish zone, where the leading place should belong to dairy cattle breeding, which provides the main volume of milk production and beef production [5].

The scientists of the Institute of Rural Management of the Polissya National Academy of Sciences have also worked out the methodology of the adaptive-landscape system of agriculture on a radioactive contaminated site, which is based on the development and introduction of land management projects for individual farms and territories of village councils by the method of agroecological grouping of land, which simultaneously take into account the soil fertility, the density of contamination by radionuclides, the suitability of the soil for the cultivation of certain crops, the spatial placement of structural elements of an optimized agro-landscape. Depending on the composition of the groups according to the soil changes and the density of the contamination of the territory, radionuclides determine the direction of use. Land with a density of radionuclide contamination of less than 1 Ki / km2 is considered to be radiologically clean and therefore used for all crops without limitations. The rally belonging to the 2nd group has some restrictions on the cultivation of lupine. On the lands of group 3, these reservations should apply to all legume crops. In areas contaminated with radionuclides with a density of 10 - 15 Ki / km2, it is necessary to sow leguminous cultures only on siderates. In addition, it is not recommended to grow flax fiber on fiber, potatoes and table root crops for food purposes. Land with a density of radionuclide contamination of more than 15 Ki / km2 should be withdrawn from intensive cultivation with the subsequent cultivation of perennial herbs on seeds. This involves the mandatory implementation of measures for optimization of water-physical (humidity control on the system to be removed) and agrochemical (liming) of soil properties and introduction a complex system of measures that ensure the receipt of normatively pure products.

The issue of preservation and rational ecologically safe use of peat soils is of relevance to Polissya. R.S. Truskavetsky substantiated directions of use of peat-land resource: cultural and agricultural; resource and raw materials; nature protection; restorative (recultivation and renaturalization) and named possible ways of its purposeful use within each direction, which makes it possible to preserve this resource in its original natural state [9].

Conclusions

The Polissya zone is a stabilizing factor for water resources and biodiversity in Ukraine, and therefore requires an urgent implementation of the strategy for optimizing the use of land resources in agro-industrial production in the context of world sustainable development. In the conditions of agro-landscapes of Zhytomyr oblast for an adaptive land-use organization of land use an ecologically grounded structure of land plots that is capable of optimizing land use in landscape-regional, agro-landscape-local and soil-ecosystem-level levels has been identified. According to this approach, 25% of arable land was transferred to forage lands, forest plantations and forest bands, resulting in a ratio of destabilizing and stabilizing lands in the agrarian landscape of the Polissian zone of the region is 1.0: 2.0, transitional - 1.0: 1, 6, the likopoie is 1.0: 0.8.

It is necessary to eliminate asymmetries in the modern development of agrarian production through the provision of benefits to a mixed type of management (specialization), in which the development of the branches of crop and livestock production would be optimally balanced and secured: by normative and legal, legislative acts; stable state support and a consistency in its implementation; realization of innovative scientific developments in mobile, ecological and environmentally sound management of land reclamation resources of the country; commercial interest of owners in the implementation of nature conservation, land reclamation and technological innovations.

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