

it is advisable to calculate the number of consumables (fertilizers, pesticides, etc.), which are loaded into the process tank.

Quarter parameters and cycle time are the initial data for calculating the productivity of machine-tractor units in the quarter.

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MEASURES TO PRESERVE SOIL FERTILITY AND EFFECTIVE USE OF MOISTURE IN THE ZONE OF THE SOUTHERN STEPPE OF UKRAINE

In recent years in the world of Ukraine and its zone In recent years in the world, Ukraine and the zone of its Southern Steppe in particular, both climatic conditions and the main indicators of soil fertility change significantly. First of all, they reduce the content of organic matter, humus, soil compact, lose the number of basic nutrients. This is due to non-compliance with the basic laws of agriculture. First of all, this concerns a violation of the alternation of crops in crop rotation and the return of nutrients to the soil. Adverse phenomena have already led and in the future lead to an aggravation of the problem of rational nature management and a decrease in the sustainability of agricultural productivity.

In the current conditions of farming, when the use of fertilizers and especially organic has decreased dramatically, it is necessary to use all available types of organic matter more widely, due to which it is possible not only to positively affect the fertility of the soil, but also to significantly reduce the need for mineral fertilizers. It is advisable to use sideral crops and straw cereals.

Our preliminary research has established that their role is extremely important for the preservation of water-physical properties of the soil. Under these conditions, the water absorption capacity improves

and the number of waterproof units increases [1,2]. Thus, for an average of three years of research, unproductive dark chestnut soil was absorbed 14.72 mm/h of water, according to the background of green fertilizer, this figure increases by 16.3; 20.6%, and straw - by 22.8 and 34.6% respectively in the year of action and aftermath.

In the last period, unfortunately, the vast majority of soils are quite compacted. This has negative manifestations of moisture absorption and keeping it in the soil even after a significant amount of precipitation. They evaporate excessively quickly, that is, they are lost unproductively, plants do not use them fully.

Optimization of plant nutrition leads to more efficient water consumption and increased efficiency of soil moisture reserves for the period of crop sowing and vegetation period precipitation. We received such confirmation for growing many crops in the Southern Steppe zone of Ukraine. Studies have determined that even with optimization of plant nutrition on the basis of resource-saving moisture, they use much more economical.

For example, in studies with three varieties of chickpeas, which are considered to be a drought-resistant plant, conducted in 2015-2016, it was found that on average, 4160 m³ of water was used by varieties in the control of 1 ton of grain of plants (for the treatment of seeds with water), and for the treatment of seeds and two fertilizers of sowing with biological preparations Biomag-chickpeas on the background of application to sowing N₁₅P₁₅K₁₅ indicator was 2663 m³/t, or decreased by 36%.

For the cultivation of low-spreading oil culture of spring rigid variety Steppe 1 during 2014-2016 years. for the treatment of seeds before sowing and sowing plants in the main phases of vegetation, Escort-bio moisture was used 45.3% more efficiently compared to control.

Similar results were obtained in studies with winter barley varieties, which were grown during 2016-2019 years. and used for feeding modern biological products Azotofit, Mycofrend, Melanorysis and Organic Balance (Fig.1).

Figure 1 data also indicate that the water consumption rate varies depending on the conditions of moisture year and in the context of varietal features.

The positive impact of optimization of nutrition on the basis of resource saving through the use of modern regulating substances on the peculiarities of water consumption is determined by us in the cultivation of a demanding sunflower culture to the conditions of moisture.

This plant is considered drought-resistant, although with a lack of moisture and especially during flowering-budding, its productivity is significantly reduced.

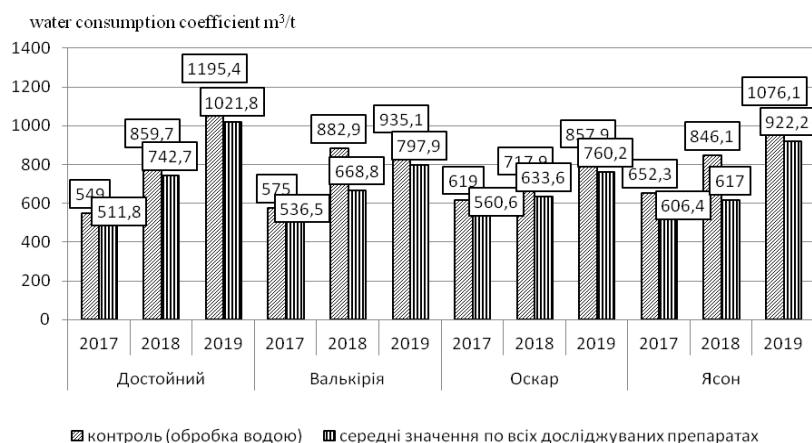


Fig.1. Coefficient of water consumption of winter barley varieties by plants depending on optimization of nutrition in years of research, m³/t

The level of productivity and quality of sunflower seeds over the years of cultivation is significantly determined by weather and climatic conditions. We have determined that conducting foliar feeding with modern regulating preparation Fresh Energy (0.5 l/ha) contributes to the more effective use of moisture by plants during vegetation. In addition, it should be noted that the value of nutrition optimization is especially positive in drier years, compared with favorable moisture, illustrating Fig. 2.

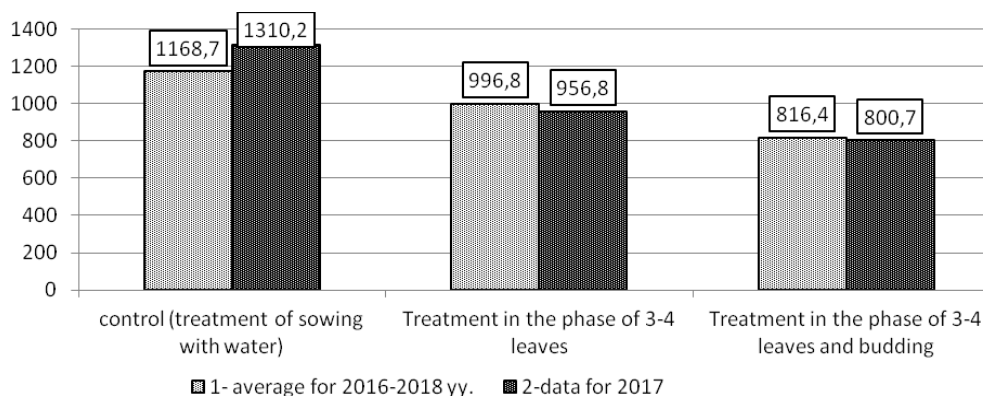


Fig. 2. Influence of foliar application of sunflower sowing with biopreparation Fresh Energy per water consumption coefficient, m³/t

Thus, the main task of the agricultural industry at this stage of management is the issue of preserving soil fertility, their ability to accumulate, retain moisture and ensure the most complete use of its cultivated culture. In the conditions of the Southern Steppe of Ukraine, this issue is extremely relevant, because moisture in this region is the first limiting factor and determines the level of harvest.

In addition to the systematic enrichment of the soil with organic matter, it is necessary to optimize the nutrition of plants. Even the use of modern biological preparations and growth regulating substances for the treatment of seeds and plants during the main phases of growing season without fertilizers (with medium and increased soil availability by moving NPKs), or on the

background of their low doses, contributes to a significant increase in water consumption efficiency. This property is especially manifested in adverse years of cultivation. After all, biological products increase the resistance of plants to adverse environmental conditions, improve their growth processes and crop levels.

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INTERMETALLIC CATALYSTS DEVELOPMENT TO REDUCE EMISSIONS OF MOTOR VEHICLES THROUGH CATALYTIC DISPOSAL OF POLLUTANTS

Annual emissions into the atmosphere of Ukraine amount to more than 6 million tons of harmful substances and carbon dioxide. The environment is mainly polluted by industrial enterprises. However, with the increase in the number of cars on the roads, the number of harmful emissions into the atmosphere has also increased. Over the past few years, the amount of exhaust gases entering the air in large cities has increased by 50-70%. More than half of the toxic substances are released into the atmosphere by personal cars: 1.7 million tons of toxic substances were released into the atmosphere in 2019, while the total amount of all automobile emissions was 2.3 million tons.

Today, the pollution of the environment with harmful substances from the exhaust gases of internal combustion engines is the biggest environmental problem for people and the environment. Exhaust gases contain about 280 different harmful substances, among which carcinogens, nitrogen oxides, lead, mercury, aldehydes, oxides of carbon and sulfur, soot and hydrocarbons are especially dangerous.

The increase in air pollution by nitrogen oxides, carbon dioxide and hydrocarbons causes the formation of the "greenhouse effect" as a result of rising average annual temperatures and the process of global warming.

Environmental performance of vehicles can be increased through comprehensive measures to improve the design and modes of operation. Environmental performance is improved through increased efficiency, the replacement of gasoline internal combustion engines with diesel, the use of catalytic converters and many other measures.