

4TH INTERNATIONAL BLACK SEA MODERN SCIENTIFIC RESEARCH CONGRESS

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EDITOR

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ABSTRACTS BOOK

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ENSURING SUSTAINABLE GRAIN PRODUCTION IN THE CONDITIONS OF THE SOUTHERN STEPPE OF UKRAINE

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Ukraine is recognized in the world as a country that produces high-quality grain. It is in great demand in many countries of the world. In the regions that provide the largest volumes of grain production, which is mainly the Southern Steppe zone, in most of the territory it became impossible to grow and obtain stable volumes of grain of all grain crops as a result of military operations. In the last period, moreover, the price of grain and the possibility of its export have decreased, while the cost of all energy resources, on the contrary, has increased significantly.

The measures for growing grain crops developed by scientific institutions and tested in production were based on the introduction of valuable elements of intensive technologies. This made it possible to obtain stable productivity of grain crops with high grain quality at the same time. In the modern period, measures that do not require significant costs, but on the contrary, are based on the principles of resource conservation, are becoming expedient. First of all, this should include the use in production of such elements as the selection of varieties and hybrids most adapted to the conditions of the region, determination of optimal sowing dates for them, sowing rates, etc.

When growing all agricultural crops, the main attention should be paid to preserving and improving the main indicators of soil fertility, enriching them with organic matter. Soil is the main foundation of the agricultural industry. Its resistance to adverse environmental conditions and the level of crop yields depend on its fertility. Under favorable hydrophysical and structural indicators, the soil is able to accumulate and retain moisture [1, 2]. After all, both in the zone of the Southern Steppe, and in general in Ukraine and other countries of the world, especially in recent decades due to changes in climatic conditions, the supply of moisture to plants is of primary importance. It is this factor that limits crop yields to the greatest extent. The levels of the crop formed by them directly depend on the initial reserves of moisture in the soil during the sowing period and the amount of precipitation during the growing season of the plants.

Thus, during the three-year period of research conducted in the fields of the Educational and Scientific Practical Center of the Mykolaiv National University (2020-2022), the grain yield in the section of more than 50 varieties of winter wheat from various breeding institutions of Ukraine and

abroad ranged from 3.6 to 7, 24 t/ha. This once again confirms that under the same growing conditions (both soil and climate), variety selection is an extremely important element in ensuring grain production.

A significant share in providing the total amount of grain belongs to the most productive crop - corn. It is grown mainly on irrigated lands, but corn is a fairly drought-resistant plant. Research with corn, conducted in the same zone on the fields of the Institute of Irrigated Agriculture of the National Academy of Sciences of Ukraine (Kherson region) on dark chestnut soil, established that the level of grain yield fluctuated significantly depending on the components of cultivation and the maturity group of the hybrid. Thus, depending on the climatic conditions and the amount of precipitation during cultivation without irrigation, the grain productivity of corn in dry years ranged from 3.54 to 7.83 t/ha of grain, and in more favorable years, from 5.74 to 9.87 t/ha Ha. At the same time, it should be noted that in years with insufficient rainfall during the growing season, higher productivity is formed by corn hybrids of early ripening groups, and in years with favorable moisture and irrigation, on the contrary, mid-ripening and medium-late groups. Of course, the highest grain yield (17-20 t/ha and more) can be formed under drip irrigation, which fully satisfies the plants' need for moisture without excessive evaporation.

Optimizing their nutrition, which is based even on the principles of resource conservation, contributes to the effective use of moisture, increasing the productivity of all agricultural crops. We will show this on the example of growing corn hybrids of different maturity groups