

UDC 633.11:631.95:575.22

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**PRODUCTIVITY OF WINTER WHEAT VARIETIES UNDER
STEPPE CLIMATIC CONDITIONS**

Formulation of the problem. The analysis of particular genotypes, as well as procedures for the selection of breeding promising genotypes, is becoming more and more localized and requires more detailed and in-depth analysis precisely under the specific conditions of a particular region. First of all, it refers to such traits as quality, the presence of certain nutritional value components, genetically determined resistance to disease and pests to eliminate the pesticide pressure. Increasing attention is being paid not to increase grain yield as such, but to reduce the cost of planting technology due to variety properties, reduce the man-caused load, obtain a more valuable products. Considering the possibility of increasing these parameters, it is possible even to reduce yields (but not quality).

Therefore, analyze of peculiarities in shown of main grain productive and quality traits under local conditions according to differences on genotypes level was one of the most important problem.

The purpose of the research was to identify limits at variability of main yield and grain quality parameters of 14 winter wheat varieties under conditions of Northern Steppe of Ukraine and demonstrate higher adaptive genotypes by individual traits and at complex of agricultural-value traits.

The research task was to analyze yield an its structure at 14 winter wheat varieties, compared with standard, providing analyze of quality parameters, developing limits of variability of these traits, identifying better samples by peculiar traits and complex of these traits under regional conditions.

Materials and methods of research. Experiments were carried out on the experimental fields of Dnipro State Agrarian and Economic University. 14 winter wheat varieties have been analyzed. As check variety Podolyanka has been used. Evaluation of total grain yield per plot was calculated from 2016 to 2018 years. The trial of winter wheat varieties was set up at three replications and with a plot size of 1,5 m². Data on yield structure components were taken from 0,25 randomly selected plots of each variety. Protein, gluten and water content of the samples were measured by Near-

infrared Reflectance Spectroscopy (Spektran-IT). Triplicate data of each sample were averaged. Mathematical processing of the results was performed by the method of analysis of variance, Student's t-test, cluster analyses.

By the parameter of number of productive culms from m^2 the standard exceeded such varieties as Vinok Podillia and Zoloto Ukrainy, according to the number of grains from the main spike Balaton. By weight of grain from the main spike varieties Talisman, Pochaina, Zelenyi Hai, the weight of grain from m^2 Kalancha and Zoloto Ukrainy.

The yield was higher regarding higher productivity tillering, rather than an increase in the productivity of the main ear for the varieties of Gold Ukraine and Kalancha, but for the Nyva Odeska variety, usually, the reverse mechanism of yield formation is characteristic not at the expense of a greater number of productive spikes, but because of greater grain productivity of the main spike. High yield is characteristic for such varieties as Kalancha, Zoloto Ukrainy, Nyva Odeska (this parameter is higher than standard).

According to the percentage of grain in the total yield, many varieties have been identified, which indicates their predominantly intensive nature. As a result of the cluster analysis, the varieties were divided into three groups. The first group included varieties that consistently show yields higher than the standard (Kalancha, Zoloto Ukrainy, Nyva Odeska). The second group included varieties with yields at the level of the standard Podolyanka Balaton, Borovytsia, Talisman, Polianka, Pochaina, Zelenyi Hai. The third group included varieties Vinok Podillia, Zdobna Kyivska, Nasnaha, Vykhovanka Odeska, Nastia, which showed significantly lower yields in all years.

By the parameter of protein content in grain we can distinguish varieties Vinok Podillia, Polianka, Zelenyi Hai. Kalancha and Zoloto Ukrainy varieties have shown quality at the level of Podolyanka and requirements for strong wheat. Much worse protein content, lower than the standard showed the variety Nyva Odeska.

Conclusion. Thus, according to a set of parameters of grain quality and yields, such varieties as Kalancha and Zoloto Ukrainy were selected, which are most suitable for our region. Only the Nyva Odeska variety yielded, but it had significantly worse quality. The content of protein and gluten distinguished such varieties as Vinok Podillia, Polianka, Zelenyi Hai. By the content of gluten was Balaton.

Under our conditions, high grain yield could be formed either at the expense of high productive tillering (Kalancha and Zoloto Ukrainy), or due

to high grain productivity of the main spike (Nyva Odeska). No other possibilities were found. Depending on this, the key parameters were either the number of productive stems per m² and the weight of grain per m², or the weight of grain from the spike.

We are thankful to the Czech Development Cooperation support and to the Czech University of Life Sciences, which allowed this scientific cooperation to start for the project.

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**PRODUCTIVITY OF HAZZELNUT VARIETIES UNDER
STEPPE CLIMATIC CONDITIONS**

Global climate change provides the emergence of new opportunities for the introduction of new crops into horticultural production in the areas of insufficient precipitation. A worldwide trend is the rapid growth of hazelnut cultivation areas. Thus, between 2013 and 2020, the total area of hazelnuts plantations worldwide increased by 60%. In recent years, the number of people who consume hazelnuts more or less regularly (mainly in the form of confectionery) has risen rapidly from 200 million to 1 billion, according to FAO. FAO forecasts a doubling of the modern cultivation areas for this nut crop by 2035, as well as an increase in the number of consumers on a regular basis to 2 billion, with a significant increase in the number of people who use hazelnuts in their diet as a food additive, a source of valuable food elements, rather than consuming confectionery products. This trend is more characteristic of the North American and Western European countries.

The purpose of the research was to identify the most productive varieties of hazelnuts for cultivation in the northern part of the Steppe of Ukraine – a region with insufficient precipitation and a harsh continental climate, which was previously considered not quite suitable for planting.

The research was carried out during the period from 2020 to 2021 on the hazelnut plantations of TRANSREZERV LLC in the village of Shulhivka, Dnipropetrovsk region (geographic coordinates were 48°44'36" n.l. 34°23'33" e.l.). The soil is ordinary black soil on loess. The technology of hazelnut cultivation in the experiment corresponded to the generally