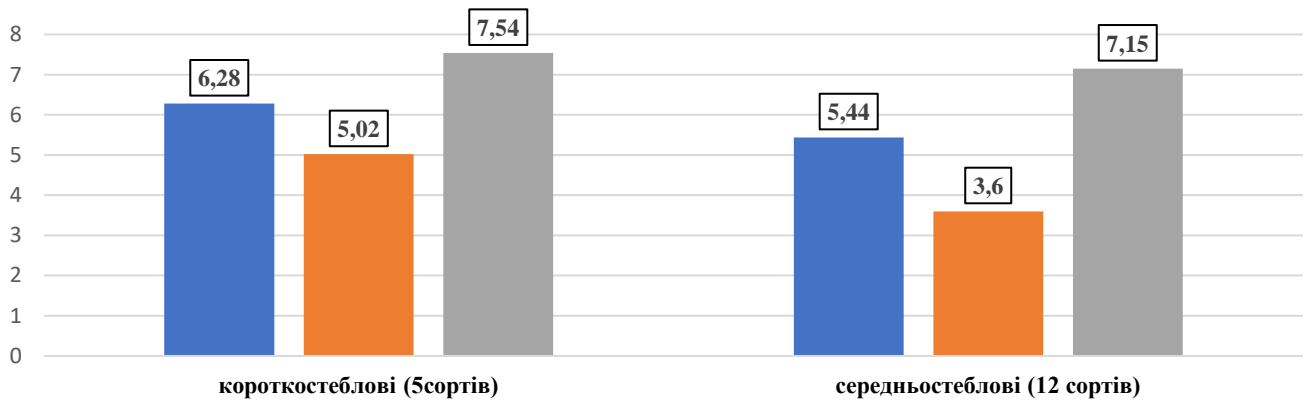


*Україна – понад усе! Ми – українці, і ми цим пишаємося!*

За результатами досліджень встановлено, що рівні врожаю та якості зерна пшениці озимої змінюються як за впливу погодних умов упродовж вегетації, так і в розрізі сортів. Так, за вирощування пшениці озимої в умовах навчально науково-практичного центру Миколаївського НАУ децю вищу продуктивність формували короткостеблові сорти – у середньому за 2020-2021 роки 5 взятими на вирощування сортами сформовано у середньому 6,28 т/га зерна, а 12 середньостебловими сортами – 5,44т/га (рис.1).



*Рис. 1. Залежність рівня врожайності зерна пшениці озимої залежно від типу висоти стебел(середнє за 2020-2021 рр.), т/га*

Примітки: ■ середня врожайність зерна по всіх досліджуваних сортах  
■ найнижча врожайність у розрізі сортів  
■ максимальна врожайність у розрізі сортів

Встановлено досить значні коливання у рівнях урожаїв у розрізі сортів: у короткостеблових – від 5,02 до 7,54 т/га, а у середньостеблових від 3,60 до 7,15 т/га. Аналогічно в зерні досліджуваних сортів.

## **TASKS AND CONDITIONS OF EFFECTIVE SEEDING FIELD CULTURES**

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According to various technologies of cultivation of agricultural crops, the leading role belongs to the variety. The features of the variety are determined by the level and stability of yield. In recent years, the main requirements for new varieties have not changed: they are high plasticity to environmental conditions and a significant potential for maximum yield in a high agro background.

However, the work with it does not end with the breeding of the variety. The variety accepted for production must be propagated in sizes that meet the need for sowing areas. The new variety should be protected from biological and mechanical clogging by weeds and cultivated plants, from damage by diseases and pests. It is necessary to constantly preserve varietal purity and typicality of the variety. These tasks are solved by a system of organizational and agrotechnical measures - seed production.

Today, seed production faces the following primary tasks:

- annual reproduction of seeds of varieties used in production;
- preservation in the process of reproduction of all morphological features, biological purity (absence of impurities) and varietal properties of the variety, disease resistance, winter hardiness, etc.;
- formation of high sowing and varietal indicators of seeds by special methods of processing.

Industrial seed production involves the production of seeds with high varietal and sowing qualities and yield properties using special technology in specialized seed farms (firms) on the basis of complex mechanization and automation of all processes with minimal manual labor costs

The object of modern seed production is not only a variety, but, more often, a heterozygous hybrid acting as a variety.

According to international standards for the definition of a variety - "*Cultivar*" means a group of cultivated plants that are clearly distinguished by the following characteristics: morphological, physiological, cytological and chemical; which retains its distinguishing features during reproduction. The biological features of the variety must correspond to the ecological resources of the regions [1].

A variety can be considered as a relatively stable (discrete) biological system. The stability of the variety is determined by the constancy of the pollination method, the level of modification and mutation variability. Self-pollination in such varieties contributes to the biological stability (uniformity) of the variety, and cross-pollination destroys it. Varieties of self-pollinated crops with long-term processing are stored for a long time, do not degenerate, provided that the variety is more or less strictly self-pollinating.

In crossbreeds, pollination causes high heterozygosity of populations and a certain number of mutations (lethal and semi-lethal) accumulate in them. Complex heterozygosity causes pronounced heterosis in such populations. But accidental close-

related pollination in such populations is not excluded, and during their long-term cultivation, the variety deteriorates due to the transition of recessive gene alleles to the homozygous state, which causes a sharp depression of quantitative traits.

The development of appropriate methods of preservation and reproduction of the variety depends mainly on the method of pollination and reproduction of the population and isolation from foreign pollen. This is a very important factor for crops that require a high degree of seed set.

The specificity of the variety must be constantly maintained by preserving its original genetic structure. Changes in the frequency of genes can lead to the loss of unique properties of the variety, such as resistance to diseases, adaptability to environmental conditions, product quality, etc.

Such relationships should be established between the variety and the environment, which would contribute to the most complete realization of its potential. These relationships are expressed as the adaptive value of the variety or its individual genotypes. The adaptive value of a variety depends on its genetic structure. Varieties are distinguished: pure lines, populations, hybrids, synthetics, pure varieties, multiline varieties, variety mixtures, polyploid varieties and clones [2].

A variety is a pure line that is the offspring of one homozygous self-pollinated plant. Individuals of the same variety have the same genotype and react in the same way to environmental conditions. However, this state does not last long, because natural mutations, hybrid forms, etc. can occur. Such varieties exist only in self-pollinating plants: wheat, barley, soybeans, rice, peas, etc.

Varieties-populations represent a collection of a large number of different genotypes. Population implies heterogeneity. Such varieties exist in crossovers and self-pollinators. In self-pollinators, they are morphologically heterogeneous. Any genotype in such a population is in a homozygous state and with a certain frequency. In crossbreed varieties, populations are more balanced due to cross-pollination where each plant is heterozygous.

Hybrid varieties are the F1 generation from the crossing of two inbred lines or a population from the crossing of three or four parental forms. Hybrids obtained with the participation of two parental forms are called simple and interlineal hybrids. They are homogeneous, all plants are heterozygous. Trilinear hybrids are obtained in two stages from the crossing of three inbred lines. They are not homogeneous genetically, splitting is possible. Double interline hybrids are obtained with the participation of four inbred lines. Such hybrids are also produced in two stages: first simple ones, from the crossing of which double interline ones are obtained.

Knowledge of the genetic structure of the variety is important, as it can be used in the process of seed production.

In production, any variety is for reproduction in the form of seeds. The seed plays an important role in the preservation of the variety. The concepts of seeds in seed breeding and botany do not coincide. In general, these are specialized organs of plants, with the help of which they reproduce: their own seeds, fruits, co-fruits, parts of complex fruits, bulbs, tubers, rhizomes, etc.

In the production of agricultural products of any crops, only varietal seeds are used. Varietal seed of a certain variety has a document that confirms its belonging to

this variety and meets the necessary quality requirements. Varietal seeds should have high varietal and sowing qualities, as well as high yield properties [3].

Varietal qualities of seeds are determined by the set of signs and properties that characterize the seed's belonging to a certain variety of agricultural plants. The quality of varietal seeds is expressed in pureness for self-pollinators and typicality for crosses.

In sunflower, for example, the typicality of seeds is taken into account, such as color (gray, dark-striped, black-cornered, white, etc.), in corn - the typicality of cobs (color of grain and stem, etc.).

Seed purity, germination, moisture, pollution, diseases determine the sowing qualities of seeds and characterize the degree of their suitability for sowing. The indicated indicators are standardized by the state standard. One of them is similarity. Indicators that are not regulated by state standards are also important for the characteristics of seeds - the energy of seed germination, the strength of initial growth, size, fullness, injury.

Yield properties mean the ability of seeds of a variety to produce productive offspring. The genotype of the seed is of particular importance in this, that is, if the seed belongs to a high-yielding variety, its potential allows growing a larger crop than, compared to a low-yielding variety. But the yield properties of seeds have a modifying character, depending on climatic and meteorological factors, agricultural techniques, seed production technology - all this forms the yield properties.

Seed production is conventionally divided into primary and secondary. Primary seed production involves the production of elite seeds. It is carried out according to certain schemes, which are built taking into account the biological features of the culture, selection methods and specific conditions of the zone. These schemes resemble the selection process, since continuous selection is used, this work is carried out under the control of the breeder [4].

Depending on the stage of reproduction of varieties of cultivated plants, the following categories of seeds are defined: original, elite and reproduction. The originators of varieties provide seed material to producers of elite seeds. The seed stock is the smallest unit that a breeder uses to maintain his variety from which all the seed of the variety intended for production in one or more generations is grown. So, the initial seed of the variety is a product of selection. Secondary seeding is directed reproduction of the elite, i.e. obtaining reproductive seeds.

In the process of propagation and cultivation of varieties, the quality of seeds can deteriorate for various reasons. One of them is mechanical clogging of sowing with other plants and even varieties. Such clogging can occur in a planter, container, combine, on the stream, in a warehouse, etc. It is better not to allow it, because certain costs will be required for carrying out specific and varietal weeding.

Mechanical clogging, in turn, leads to biological clogging, which occurs as a result of cross-pollination of different varieties. Open flowering is characteristic even of such strict self-pollinators as peas and barley. Such clogging is very dangerous.

A particularly dangerous admixture is close in morphology to the main variety. It is difficult to remove such an admixture and you can lose the grade. It is necessary to avoid cross-pollination, which is ensured by spatial isolation of crops. Spatial isolation norms are established for crucifers: 1000 m for sunflower and corn, 200 m for