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SEED GROWING OF GRAIN CROPS IS THE BASIS FOR HIGH YIELD

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Abstract
This article analyzes the importance of grain seed production and its impact on productivity. High-quality and efficient organization of seed production is considered a key factor in increasing grain yields. The article considers the pre-sowing preparation of seeds, selection of quality seeds, seed storage conditions, seed sowing technology, and the impact of seed production measures on productivity. Also, based on modern agronomic approaches and research results, the role of seed production in obtaining high yields and its contribution to sustainable development in agriculture are highlighted.

Keywords: Grain crops, seed production, productivity, seed quality, sowing technology, agronomic measures, agriculture, sustainable development.
New high-yielding varieties of grain crops are a crucial factor in intensifying agriculture. This is only possible with well-established seed production. The goal of seed production is the accelerated propagation of newly released varieties, as well as the improvement of their sowing qualities and yield during cultivation.
The primary object of seed production is the crop variety. Therefore, when developing measures, it is necessary to consider the biological properties of varieties. Varieties reliably retain their hereditary properties over several generations. However, during propagation and cultivation under industrial conditions, these qualities gradually deteriorate.
This is because the diversity of climatic conditions poses exceptionally complex challenges for agriculture. Soil conditions are also characterized by great diversity, with a predominance of saline and marginal soils. The distribution and intensity of meteorological and environmental factors is unstable from year to

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year, and sometimes even during the growing season, which is clearly caused by significant environmental changes. Proper variety selection for the agroclimatic zone, timely variety rotation, and variety renewal are integral to success in grain cultivation. Therefore, choosing the right variety for a given location and the desired grain use is paramount to success.

Seed cultivation differs technically from growing crops for food purposes. This primarily involves cultivating seeds with high varietal, sowing, and yield qualities in specialized seed farms.

Anthropogenic factors (human influence) are also considered important for achieving consistently high and high-quality grain yields [1].

The use of mineral fertilizers for winter crops has a positive effect on plant development: plants grow taller, have greater plant weight, have greater leaf area, and have a higher tillering capacity [2].

Winter wheat grown in the Republic of Karakalpakstan is highly susceptible to various adverse environmental factors. This is likely one of the reasons for their low and inconsistent yields and gross grain harvests from year to year [3].

In years with low relative humidity and high air temperatures, full maturity occurs earlier than usual, as grain drying occurs rapidly in such years [4].

In seed production, agricultural practices should be aimed at maximizing the expression of the variety's genotype. The main criterion for selecting initial plants is their typicality in terms of key morphological and biological characteristics [5].

The purity of the seed—the absence of foreign impurities—plays an important role. The higher the varietal purity of the seeds, the more fully their yield properties are expressed. In addition to high sowing qualities and high varietal purity, seeds must also possess high yielding properties. Seed germination is the main indicator of their sowing qualities. These requirements are dictated by the fact that when sowing seeds with reduced purity and germination, seeding rates must be increased.

Environmental and meteorological conditions have a significant impact on the sowing quality and yield of seeds. Temperature, precipitation, and soil type and

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texture play a significant role among environmental conditions that influence seed quality.

Field germination significantly influences the density of seedlings and the number of plants surviving until harvest. As field germination increases, their number increases.

Field germination is influenced by numerous factors, including soil properties, soil and climatic conditions of the area, meteorological conditions of individual years, diseases and pests, seed quality, and the level of agricultural practices.

Therefore, the primary objectives in cultivating elite seeds are to maintain and preserve all valuable agronomic and biological traits and properties of the variety, improve its disease resistance, and maintain high varietal purity through selection, weeding, and the prevention of biological and mechanical contamination. Therefore, improving the methods and techniques for cultivating elite seeds is of particular importance.

To increase the multiplication rate and yield of seeds, optimal seeding patterns are used in nurseries for progeny testing using wide-row plantings.

The growing conditions of seeds significantly influence their yield. The source material must be grown under agricultural conditions that promote the development of high-quality seeds.

Elite grain seeds are subject to strict requirements. They must have a varietal purity of at least 99.8%; be healthy, have good shape and uniformity, a high 1,000-seed weight, meet state standards for varietal and seed quality, and possess the typical characteristics and properties of the variety. To obtain such seeds, specialized breeding and seed production methods and techniques must be used in their cultivation.

Seed cropping technology should be aimed at producing varietal seeds with high sowing and yield properties. Such seeds can only be obtained through the use of a comprehensive set of scientifically sound agricultural practices. Not all practices used to increase grain yield in commercial crops will be justified when cultivating varietal seeds. The first factor to consider when developing seed cropping technology is the need to obtain uniform seed material. Therefore, their

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cultivation should be based on strict and consistent implementation of all technological operations, which should be developed taking into account the biological characteristics of each variety.

The sowing and yield properties of seeds are largely determined by the timeliness and quality of harvesting. Therefore, harvesting of seed crops should begin at the end of wax ripeness and the beginning of full grain maturity. This reduces grain damage during threshing.

The varietal qualities of seeds can be preserved by using effective measures to prevent mechanical and biological contamination in seed crops.

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