



---

## **PROSPECTS FOR ORGANIZING SEED PRODUCTION OF AGRICULTURAL CROPS AND INTRODUCTION OF NEW VARIETIES**

Guzal Kholmurodova

Doctor of Agricultural Sciences (DSc), Professor,  
Department of Genetics, Breeding and Seed Production of  
Agricultural Crops Tashkent State Agrarian University

Sirojiddin Jurayev

Doctor of Biological Sciences (DSc), professor

Bobumirzo Isakov

Master, Tashkent State Agrarian University

---

### **Abstract**

This article analyzes the issues of effective organization of seed production of agricultural crops, development of high-yielding and stress-resistant new varieties, and their introduction into practice. In addition, modern achievements in plant breeding, ways to improve the seed production system, and prospects for their application under the conditions of the republic are considered.

**Keywords:** Seed production, breeding, new varieties, agrotechnology, productivity, genetic resources, innovation, agriculture

### **Introduction**

The effective organization of seed production of agricultural crops and the introduction of breeding achievements into production are among the key factors for the sustainable development of the agricultural sector. High-quality seeds play an important role in increasing crop productivity, ensuring resistance to biotic and abiotic stress factors, and strengthening food security. Today, achieving high



## ***Modern American Journal of Biological and Environmental Sciences***

**ISSN (E):** 3067-7920

Volume 2, Issue 3, March, 2026

**Website:** [usajournals.org](http://usajournals.org)

***This work is Licensed under CC BY 4.0 a Creative Commons Attribution 4.0 International License.***

---

yields, ensuring food security, and increasing export potential largely depend on the use of quality seed materials. In this regard, seed production is considered a guarantee of productivity, and its proper organization along with the introduction of new varieties into practice remains a pressing task. It is well known that crop yield primarily depends on seed quality. Scientific studies show that the use of high-quality and certified seeds can increase yields by 20–30%. Therefore, special attention is being paid to improving the seed production system in our country. Seed production is not just seed growing, but a complex and step-by-step process. It includes the production, storage, and distribution of original, elite, and reproduction seeds. In this process, strict adherence to agrotechnical requirements, preservation of varietal purity, and ensuring high germination are of great importance.

### **Discussion**

In recent years, significant achievements have been made in the field of plant breeding. Scientists have developed new varieties that are drought-resistant, disease-resistant, and high-yielding. Especially under climate change conditions, the importance of such varieties is increasing, as stable yields in limited natural resource conditions depend largely on them. However, there are some challenges in introducing new varieties into practice. In particular, insufficient dissemination of information among farmers, interruptions in the supply of quality seeds, and недостаточная материально-техническая база slow down this process. In some cases, farmers are forced to use low-quality seeds, which do not provide the expected results. To overcome these challenges, a comprehensive approach is required. First, it is necessary to strengthen cooperation between research institutions and farms. Disseminating information about new varieties through mass media and digital platforms is also essential. In addition, expanding the participation of the private sector, modernizing seed enterprises, and introducing modern technologies can significantly increase efficiency in this field. Digital technologies can be used to control seed circulation, monitor quality, and improve logistics systems.



## ***Modern American Journal of Biological and Environmental Sciences***

**ISSN (E):** 3067-7920

Volume 2, Issue 3, March, 2026

**Website:** [usajournals.org](http://usajournals.org)

***This work is Licensed under CC BY 4.0 a Creative Commons Attribution 4.0 International License.***

---

In the future, biotechnology and genetic research will usher in a new stage in seed production. This will create opportunities for developing more efficient and competitive varieties. It should be emphasized that the development of seed production and the introduction of new varieties are key factors in agricultural development.

Seed production and new varieties are the main drivers of agricultural progress. In the context of global changes, ensuring sustainable agricultural development, providing the population with food, and increasing export potential are important tasks for every country. In this process, effective organization of seed production and the introduction of new varieties into production are crucial. The organization of seed production is the basis for stable yields. According to experts, at least 25–30% of crop yield directly depends on seed quality. Therefore, the seed production system is considered one of the most important components of agriculture. Seed production involves not only growing seeds but also quality control, cleaning, storage, and delivery to farmers. It includes the step-by-step multiplication of original, elite, and reproduction seeds. If this system is scientifically organized, productivity increases significantly. Currently, reforms aimed at developing the seed production sector are being implemented in our country. Modern seed enterprises are being established, laboratories are being equipped, and certification systems are being improved. Breeding is a source of new opportunities.

Scientists are conducting extensive research to develop high-yielding, climate-adapted, and disease-resistant varieties. Today, there is increasing demand for varieties resistant to water scarcity, drought, salinity, and extreme heat, as well as early-maturing and high-yielding crops. Modern biotechnology and genetic research accelerate the breeding process, allowing the development of new and competitive varieties in a shorter time. However, there are challenges in the practical implementation of newly developed varieties. One of the main issues is the lack of information among farmers. Often, they are not sufficiently aware of the advantages of new varieties. Another problem is the insufficient supply of quality seeds in some regions, leading to lower productivity. Additionally,



## *Modern American Journal of Biological and Environmental Sciences*

ISSN (E): 3067-7920

Volume 2, Issue 3, March, 2026

Website: [usajournals.org](http://usajournals.org)

*This work is Licensed under CC BY 4.0 a Creative Commons Attribution 4.0 International License.*

---

недостаточная материально-техническая база, limited access to financial resources, and low adoption of modern technologies negatively affect this process.

In the future, innovation and cooperation will be key solutions. To address existing challenges and further develop the sector, several priority tasks must be implemented. First, it is necessary to strengthen the links between research institutions and production sectors. New varieties should be rapidly introduced into practice. Second, it is important to widely implement digital technologies to control seed quality, optimize distribution systems, and improve efficiency. Third, special attention should be paid to improving farmers' knowledge and skills through seminars, training, and practical sessions. Expanding private sector participation, attracting investments, and studying international experience will help bring the sector to a new level.

### **Conclusion**

Achieving high results in agriculture largely depends on an effective seed production system and efficient breeding work. The widespread introduction of new varieties will not only increase productivity but also ensure sustainable agriculture adapted to climate change. Therefore, the development of seed production and the широкое внедрение инновационных подходов remain among the most important tasks today.

### **REFERENCES:**

1. Food and Agriculture Organization of the United Nations. (2006). Quality Declared Seed System. Rome: FAO.
2. Louwaars, N. (2010). Seed Systems and Plant Genetic Resources for Food and Agriculture. Rome: Food and Agriculture Organization of the United Nations.
3. OECD. (2024). OECD Seed Schemes: Rules and Regulations. Paris: Organisation for Economic Co-operation and Development.



***Modern American Journal of Biological and Environmental Sciences***

**ISSN (E):** 3067-7920

Volume 2, Issue 3, March, 2026

**Website:** [usajournals.org](http://usajournals.org)

***This work is Licensed under CC BY 4.0 a Creative Commons Attribution 4.0 International License.***

- 
4. International Seed Testing Association. (2026). International Rules for Seed Testing. Wallisellen: ISTA.
  5. Xiong, W., Reynolds, M. P., Crossa, J., Schulthess, U., Sonder, K., Montes, C., & Cooper, M. (2022). Climate change challenges plant breeding. *Trends in Plant Science*, 27(11), 1085–1098.
  6. Haug, R., Reddy, B. V. S., Mudege, N. N., & Westengen, O. T. (2023). Seed systems development to navigate multiple sustainability challenges. *Outlook on Agriculture*, 52(4), 335–345.