

METHODS USED IN ONION SELECTION

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Abstract: The research methods used in onion selection are highlighted in the article.

Key words: onion, vegetable, introduction, hybrid, productivity, method, selection.

Enter. Onion (*Allium cepa* L.) is a vegetable that is widespread in many countries and occupies an important place in the national economy. It is rich in vitamins and minerals and is of great importance for human health. One of the main goals of breeders is to create new varieties, increase productivity and ensure resistance to diseases through onion selection. This article considers the main methods and methods used in onion selection, analyzes their practical importance.

1. Genetic and selection characteristics of onion.

Genetic characteristics of onions play an important role in the selection process. Onion is a diploid plant with 8 pairs of chromosomes. The genetic diversity of onion serves as the main resource for the creation of high-yield and high-quality products that are adaptable to different climatic conditions. Through genetic diversity, it is possible to improve plant growth period, yield, disease resistance and other characteristics.

2. Methods used in onion selection.

2.1 Traditional selection methods. Traditional selection methods have been used since ancient times. Their main types are:

- Selection: In this method, breeders create new varieties by selecting onions with good characteristics. In the process of selection, factors such as general onion quality, productivity, disease resistance, and growth rate are taken

into account. This method is mainly used to preserve and improve the natural diversity of onions.

- **Artificial Pollination:** New genetic combinations are created by artificial pollination of onion varieties. With the help of artificial pollination, new hybrids can be created, which often have higher yields and improved quality indicators. This method is effective in improving the quality of new generations.

2.2 Heterosis selection (Hybridization). Through heterosis selection, a new generation is created using different genetic types or cultivars to create new hybrid varieties. Hybrids often have higher yields, improved quality and disease resistance. This method:

- **Hybridization:** New hybrid varieties are created by crossing offspring from different genetic sources. Hybrids often have high yield and good quality indicators using the heterosis effect.

- **Backcross:** It is done in order to preserve desired characteristics by crossbreeding newly created hybrids with re-varieties. This method helps to further improve the genetic characteristics of new generations.

2.3 Genetic modification and biotechnology. Modern technologies are used to improve onion varieties through genetic modification and biotechnology. These methods are:

- **Genetic engineering:** With the help of genetic engineering, it is possible to create varieties with new characteristics by making changes to the genetic material of onions. For example, creating disease-resistant or water-saving varieties.

- **Biotechnology:** It is possible to obtain new generations by multiplying, regenerating, and carrying out genetic manipulations of plant cells in laboratory conditions. Through this method, it is possible to create new varieties and improve their quality.

- **Molecular markers:** The genetic characteristics of plants can be determined with the help of molecular markers. This method is used to speed up the selection process and get more accurate results.

2.4 Ecological and phenotypic selection.

- **Phenotypic Selection:** Selection based on the appearance and physical characteristics of plants. With the help of phenotypic selection, it is possible to determine characteristics such as onion growth rate, productivity and resistance to diseases.
- **Ecological Breeding:** Testing the adaptability of onions in different climatic and soil conditions. By this method, it is possible to choose varieties of onions that are suitable for ecological conditions.

3. Practical significance and results of Onion Breeding

Creation of new varieties through onion selection plays an important role in increasing productivity, improving quality and ensuring resistance to diseases. High yield and good quality varieties are economically beneficial because the cost of improving product quality and fighting diseases is reduced. Also, new varieties adapt to climatic conditions and ensure continuous production.

Summary. Onion breeding is developed through genetic and biotechnological methods and helps to create new varieties with high yield, good quality and disease resistance characteristics. In the future, the selection process will continue to evolve with the help of genetic research and modern technology.

Literature

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