

# TRITICALE VARIETIES DURING THE GERMINATION PERIOD EVALUATION OF DROUGHT TOLERANCE

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**Annotation:** In this article, 11 varieties of triticale were evaluated for drought tolerance in the laboratory, and 2 highly resistant varieties were selected and applied to selection work.

**Keywords:** Triticale, variety, drought, tolerance, starch, rye,

R.O. According to Oripov, N. Khalilov, triticale seeds germinate at 3-5 °C. As the temperature rises, the period of seed germination accelerates. Average optimum air temperature for germination is 20-22 °C. Seeds germinate in 6-8 days after sowing. If the temperature rises above 35 °C, the seeds will stop germinating. Autumn triticale can withstand cold temperatures of 18-20 °C. The frost resistance is higher than that of winter wheat, spring forms also winter well in the conditions of Uzbekistan. In Uzbekistan, triticale is harvested mainly in autumn and produces 2-6 stalks per plant. When the thickness of the bush is small, the clumping increases.[1,2]

According to D.T. Abdukarimov, triticale is more productive than wheat in most cases. But it is difficult to combine the multi-earedness of the rye ear with the multi-grain earedness characteristic of wheat. The spike of triticale is long, but the number of grains in the spikes is less compared to wheat.[3,8]

**Introduction:** In the agriculture of the southern arid region of our republic, the problem of drought resistance of crops in recent years has become a factor requiring the urgent development of new crop varieties that are resistant and resistant to drought conditions.

Obtaining drought-resistant, high-yield varieties of triticale is very important for the agriculture of our country and the whole world. In this regard,

triticale, a new grain crop suitable for traditional grain crop cultivation, combines the valuable qualities of wheat and rye, so it is economically effective to use it as a drought-resistant crop. A deeper study of the existing diversity in triticale germplasm can be used intensively in the selection of new genotypes. In the face of the developing new science of Uzbekistan, the optimal solution to reduce the impact of problems in the grain industry on the economy can be achieved by growing crops whose resistance to the new species is superior to that of the current crop. Triticale is a new and understudied cereal grain. Triticale is a promising crop for baking flour, starch, malt, balanced and nutritious animal feed, excellent grain hay, biofuel production - all this is not a complete list of crop performance. Triticale also exhibits characteristics not found in the original wheat and rye varieties.

Due to the abundance of proteins and individual amino acids, it is a widely used fodder crop due to its resistance to diseases. Triticale is one of the greatest achievements of genetic selection. The ability of triticale leaves to retain water is much higher than that of other cereal plants. Compared to other similar grain crops, triticale varieties have high potential for cultivation in arid zones. An important step in breeding and genetic work when choosing drought-resistant varieties is a comprehensive evaluation of genotypes according to their genetic, physiological, morphological and biochemical characteristics. For this purpose, we conducted physiological assessment of drought resistance of 11 varieties of triticale.

Experimental methodology: Seed germination was carried out in sterilized Petri dishes with pre-inserted filter paper, two cups for control and three cups for each experiment for one cultivar. A thermostat cabinet, cylinders, pipettes and various containers were used for germination.

Results. Analysis of triticale seed germination under drought-simulated conditions Long-term weather conditions with constant high temperatures and low precipitation reduce soil water reserves, which is especially dangerous for

spike crops. This leads to the death of seeds during germination, as well as to slow down the growth and development of the root, and subsequently to the withering of the whole plant. Soil and air drought conditions are very common in the southern part of Uzbekistan, which makes the task of growing drought-resistant triticale varieties urgent during the period of seed germination. We analyzed the drought tolerance of plants during seed germination. The ability of seeds to germinate in water deficit is an important biological characteristic. On the one hand, it reflects a genetically determined ability to germinate with its own amount of water, and on the other hand, it reflects a high suction power that ensures rapid absorption of sufficient water for germination. This allows for an objective description of the relative resistance of varieties at the initial stage of plant development, and also gives an idea of the degree of resistance of growing seeds to given stress conditions. The seeds of the samples were placed in sterilized Petri dishes in the amount of 50 seeds per dish. 10 mL of distilled water was added at a ratio of 250 units to two control beakers and nystatin was added to it. For the experiment (to create a pressure of 16 atmospheres), 10 ml of 17.6% sucrose solution was poured into three glasses. The prepared containers were placed in a thermostatic cabinet with a temperature of 21C for 5 days. The germination rate of control seeds was more than 96%. The germination of the experimental variants was determined as a percentage of the control, and according to the obtained data, the samples were divided according to the percentage of germination: group 1 - 0-20% (unstable); Group 2 - 21-40% (weakly resistant); Group 3 - 41-60% (moderately stable); Group 4 - 61-80% (resistant); Group 5 - 81-100% (highly resistant).

The work "Determining the relative drought resistance of triticale in osmotic solutions by seed germination and seedling growth" (Instruction - L., 1987.10

b.) It was carried out according to the VIR method. According to the germination of seeds under drought-simulating conditions, all tested samples

were divided into 4 groups: weakly resistant-2 variety samples, moderately resistant-3 variety samples, resistant-4 and It was found that there are 2 samples of highly resistant varieties. It should be noted that most of the studied triticale samples are resistant and characterized by high resistance. Sardar and Toyimli varieties were found to be highly resistant to drought. In sucrose solution (16 atm.), it was determined that the varieties of triticale, which are highly resistant to drought, have developed roots, and have 100% germination rate, are Sardar and Toyimli. These cultivars have been recommended for use in the breeding process as donor cultivars to create drought-resistant genotypes. Varieties Valentin and GulDu belong to the group of weak resistance, and the rate of seed germination did not exceed 41%.

In conclusion, the germination rate of Control seeds was more than 96%. The germination of the experimental variants was determined as a percentage of the control, and according to the obtained data, the samples were divided according to the percentage of germination: group 1 - 0-20% (unstable); Group 2 - 21-40% (weakly resistant); Group 3 -41-60% (moderately stable); Group 4 - 61-80% (resistant); Group 5 - 81-100% (highly resistant). Work "Determining the relative drought resistance of triticale in osmotic solutions by seed germination and seedling growth" (Instruction -L., 1987. - 10 p. ) was carried out according to the VIR method.

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