Global Scientific Review
A Peer Reviewed, Open Access, International Journal
www.scienticreview.com
Volume 8, October 2022 ISSN (E): 2795-4951

Assessment of Drought Tolerance of Varieties and Samples of Spring Soft Wheats Based on the Length of the Root System

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Abstract: This article presents data on the drought resistance of spring varieties and samples of soft wheat based on the study of the length of the root system under conditions of a provacation background. Based on the study, drought-resistant samples with longer root systems were selected and transferred to the next stages of selection.

Keywords: Plant, root, drought resistance, variety, sample, spring, resistance, selection.

Introduction. Worldwide, the main stratigic crop is wheat. In world agriculture, 17% of the area used by agriculture is wheat and the gross harvest is about 750 million tons. In a number of increases in the world's population, the demand for wheat grain is growing.

Given global climate change, weather conditions are becoming less volatile each year. It is very important to meet the needs of the world's population in environmentally friendly and high-quality products.

It is very important for the full provision of the population of our country with bread and bakery products, it is necessary to increase the efficiency of the use of rainfed zones and, if it is necessary, to create new varieties and lines of spring soft wheat for these zones that are resistant to external stresses. environmental factors.

Annual frequent droughts duringthe period of atsiand wheat vegetatives have a great impact on the plant, causing a decrease in yield and grain quality. In this situationatsiand in order to reduce losses in agriculture, breeders are tasked with creating drought-resistant spring varieties, for rainfed agriculture.

The diversity of drought types makes it difficult to assess the drought tolerance of plants. Drought tolerance is due to different signs in different plants, sometimes one

trait is the leading one, sometimes their combination shows a number of seemingly imperceptible signs that help to resist adverse conditions.

As a result of global climate change and rising temperatures in recent years, the rainfall conditions of the rainfed zone have decreased.At the same time, one of the urgent tasks is the creation and introduction into production of new spring (two-handed) varieties of soft wheat, resistant to drought and rust, productive and with high grain quality.

In nature, there is an atmospheric and soil drought. Atmospheric drought is characterized by a relative decrease in air humidity (10-20%), dryness and an increase in temperature. Very dangerous for plants is atmospheric drought caused by hot and dry winds (garmsel). During a drought, despite the presence of water in the soil, the water in the above-ground organs of the plant is consumed more and the plants die. Soil drought is closely related to atmospheric droughts. As a result of the arrival of atmospheric drought, water from the soil quickly evaporates from the surface of the earth, the soil dries up, that is, soil drought begins.

Drought itself is also a cause of plant drought tolerance. The degree of resistance to drought is determined by the presence of a strong root system. The root is considered one of the main organs of plants and serves to deliver water and nutrients to other parts of plants.

A steep of being studied. Drought is a major environmental factor that significantly affects the growth and productivity of plants. Dry weather in the tillering phase of wheat negatively affects the number of spikelets and reduces the number of spikelets in the ear and the size of the ear[1.; 2].

Drought-resistant varieties have the ability to effectively use the moisture reserves in the soil due to a highly developed root system. In this regard, one of the urgent tasks facing breeders is the creation of drought-resistant varieties with a highly developed root system and effective use of moisture and nutrients accumulated in the lower layers of the soil.

The root, which is the main part of wheat plants, mainly suffers from a lack of water. A powerful and long root system confirms the presence of moisture in the depths of the soil and helps to adapt to conditions of water scarcity[3].

Root length is related to plant growth and is described as a key parameter for selecting wheat genotypes that are effective in drought conditions [4].

The study of root length is of great importance in increasing the yield of wheat, especially when growing wheat in areas with insufficient moisture.

Scientific research is carried out by the Research Institute of Southern Agriculture within the framework of scientific projects of the topic No PZ-2020103083 for 2021-2023 "Creation of new drought-resistant and rust-resistant varieties of two-handed (Spring) soft wheat with high quality grain for rainfed agriculture".

Studying the development of roots in the field is difficult, so to study the length of the roots of varieties and samples of two-handed (spring) soft wheat, a trench up to 2 meters deep was dug, and the soil was brought from the field and bags. were filled in, and the bags of soil were compacted and laid in a trench.

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Photo-1. Sowing of varieties and specimens of dry resistance on the basis. study of the length of the root onthe prov atsifield.

Seeds of varieties and samplesof spring wheat from the controlnursery were sown into these bags according to the recommended norm on March 5, and the length of the root was determined during the period of waxy ripeness of the plant. To determine the length of the roots of plants in bags planted with varieties and samples, the bags were soaked in water for a certain time, and then washed in running water. According to the results of studies, Conducted within the framework of the project, it was found that the lowest indicator of root length in varieties and samples was 49 cm, the highest figure - 90 cm.

Photo-2. Analysis of root length by drought tolerance.

Nav va tismalarning ildiz uzunligi taxlyl қilinganda, eng past kўrsatkić andose Fallacor 49 cm va Janub Gavҳari 54 cm navlarida kuzatilda. Andosa Janub Gavҳari va Fallakor navlariga nisbatan 23 and nav va tismalarning ildiz uzunligi uzunligi uzun bўlganligi anikdy.

When analyzing the length of the root of varieties and samples, the lowest rate was noted in the varieties Gallakor 49 cm and Janub Gavhari 54 cm. In 23 varieties and samples had longer roots compared to the standard varieties Janub Gavhari and Gallakor.

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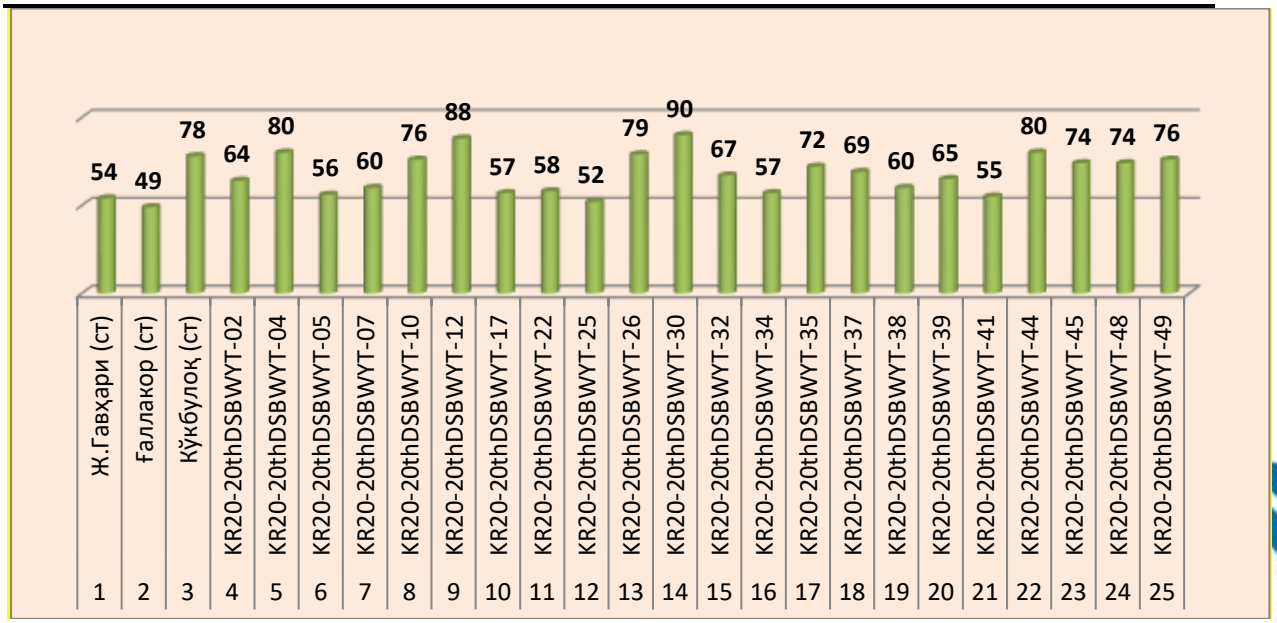

Photo-3. Indicators of root length in the studied varieties and samples for drought resistance.

It is noted that the root length of the standard Cuckoolk variety is much higher than that of other standard varieties. It was found that the root length of the Kukbulok variety was 78 cm. Compared to this variety, the root length of 5 samples was higher, and in 17 samples it was short. Of the studied samples, the root length of the sample KP20-20thDSBWYT-26B was 79 cm, in the samples KR20-20thDSBWYT-04 and KR20-20thDSBWYT-44-80 cm, in the sample KR20-20thDSBWYT-12 88 cm the highest value in the sample KR20-20thDSBWYT-30 was 90 cm.

Findings.

As a result of the study, conducted in arid conditions by the method of atsi provocationand in artificial conditions, 25 samplesof spring wheat were evaluated, among which samples with a highly developed root system were isolated compared to standard varieties.

These lines were purposefully selected for the next stages of breeding to create drought-resistant varieties (two-handed) of spring wheat.

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