SOME CHARACTERISTICS OF WINTER WHEAT UNDER SALINE CONDITIONS

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In recent years, to develop the economy of our republic, and to provide the population with quality food products, great attention is being paid to agricultural sectors. In order to satisfy the population's need for high-quality food products, the main goal is to obtain a high and high-quality harvest from winter wheat varieties even in the conditions of soil salinity. Climate change inevitably leads to the deterioration of the ecological situation, and the drying of fertile soils, in turn, leads to increased salinity, which causes large crop losses.

Saline soils are common in many countries of the world. They occupy a quarter of the land surface, including half of the irrigated land, and there is a gradual expansion of saline areas. In arid climates, almost all irrigation water evaporates and soil salinity gradually increases.[1-4].

Excessive accumulation of soluble salts in the soil has a harmful effect on plants. Salts, which do not have a negative effect in weak concentrations, accumulate in cells and become toxic after high concentrations. These include sodium chloride and sodium sulfate salts [1]. Studying the problem of salinity tolerance of plants in the world is of great theoretical and practical importance. The increase in soil salinity from year to year has a negative effect on obtaining high and quality crops from several agricultural plants. Saline soils are widespread in hot and dry climate zones, accounting for almost 25% of the earth's land [5-6].

Plants are divided into two main groups, halophytes and glycophytes, based on their relationship to soil salinity. Plants that grow in brackish lands and are adapted to the high salinity of the soil due to the characteristics and properties that appear in the process of evolution under the influence of living conditions during their ontogenesis are called halophytes[7-10].

Salt tolerance is variable according to the developmental stages of plants. Young plants are intolerant to salt, especially during the flowering stage, salt has a negative effect on plants. They grow weakly due to their sensitivity to salt, and as the plant grows, its resistance to salt increases [11-13]. Excessive accumulation of salts in the soil is harmful to most cultivated plants. Salt-tolerant plants called halophytes grow in brackish soils. They differ from other plants by their several anatomical and physiological features. Excessive salinity of the soil is harmful to plants in two ways. On the one hand, the accumulation of salts increases the osmotic

pressure of the soil solution. This pressure inhibits root movement and makes it difficult for plants to get water. At the same time, excessive accumulation of soluble salts in the soil, in addition to the osmotic effect, also has a toxic effect on plants. Even salts that are neutral at weak concentrations become toxic at high concentrations [14-16].

Winter wheat varieties were used during the experiments. The experiments were carried out in the fields belonging to the meadow-alluvial soil type with weak and moderate soil salinity. During the research, the amount of bound water, the water potential of the tissues, and the density of the cell sap, which characterizes the water exchange of the varieties, were determined [17-18].

The purpose of the study is to determine the physiological characteristics of the effect of salt stress on the physiological and productivity indicators of winter wheat varieties and to develop physiological methods for determining the resistance of wheat to this factor and increasing it. In experiments other than the ones investigating the irrigation regime, the soil moisture was maintained at not less than 70% of the limited moisture capacity. In the experiments other than the experiments studying the irrigation regime, the moisture in the soil was maintained at not less than 70% of the limited moisture capacity. All technological methods, except for the methods studied in the experiment, were carried out based on general agrotechnics adopted by the region.

Observations and biometric measurements are carried out on model plants at odd returns. Phenological observations are carried out according to the methodology of the Agricultural Crops Variety Testing Inspection. In all experiments, the options are triplicated and arranged consistently across tiers. Irrigation rates were determined based on soil moisture deficit (600-700m3/ha) [19-26].

Based on the resistance characteristics of the varieties, practical recommendations were developed for placing them in areas with strong salinity stress.

ResearchThe practical significance of the results is determined by the possibility of planting the varieties Starshina, Krasnodarskaya-99 and Grom, which are resistant to salt stress, in regions with medium-high salinity, and the varieties Antonina, Alekseevich, Vassa, which are moderately resistant, in regions where the effects of stress factors are relatively weak. The implementation of the recommendations will serve to improve the agrotechnology of growing winter wheat in areas with salinity.

According to the obtained data, the response of the studied wheat varieties to soil salinity levels was different. The growth and development of all wheat varieties grown in the control variant, the activation of a set of physiological processes were determined. In variants with weak and medium levels of soil salinity, it was observed that wheat varieties differed sharply from each other, especially water exchange indicators. With an increase in soil salinity, the amount of bound water and the density of cell sap increased in all varieties, while the tissue

water potential decreased. Such changes were different depending on the biological and individual characteristics of the varieties.

Based on the results obtained during the research, it is recommended to plant Starshina, Grom, and Krasnodar-99, which are resistant to stress factors and salt, in medium-high salinity areas, and Antonina, Alekseevich, and Vassa varieties in medium salinity areas.

Due to the low level of resistance to stress factors and soil salinity, it is recommended to plant Pervitsa and Asr varieties of winter wheat in non-saline or weak soil salinity areas. In order to increase the yield of winter wheat varieties, it is proposed to use physiological methods to quickly determine the level of salt tolerance and increase resistance to salt stress.

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