FACTORS OF SPREADING OF RUST DISEASE IN THE SOUTH OF UZBEKISTAN AND MEASURES OF CONTROL

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Abstract: In this article, in the harsh continental climate of the southern region of the Republic of Uzbekistan, the level of resistance of soft winter wheat varieties of the Krasondar selection to the rust disease in natural conditions and the adaptability of the varieties to the environment are studied. Also, the effectiveness of preventive spraying of highly effective fungicides during plant growth has been studied.

Keywords: Wheat, variety, Grom, Zvezda, Krasnodar, Tanya, Bardosh, disease, climate, yield, quality, environment, adaptability, Titul-Duo, yellow rust, brown rust, term, suspension, genetic, race, biotic, abiotic.

Despite the fact that the resistance of the winter wheat varieties recommended for planting in our republic to yellow and brown rust diseases is rated as medium and high, the wheat varieties planted in the main fields in recent years are affected by these diseases to various degrees, causing the loss of grain yield and low quality indicators.

Due to its geographical location, Surkhandarya region is the most favorable eco-environment for the introduction and spread of various diseases and pests of agricultural crops. At first, the risk and economic damage of this disease was not noticed and gained little importance due to the fact that autumn spike crops were not sown in the irrigated fields in our republic.

However, observations and analyzes show that as a result of the increase in the area of grain crops in the region, yellow and brown rust diseases have significantly affected the yield of autumn grain crops in the tuberting, earing-milk ripening phases every second year of the last twenty years. For example, during the 50 years of the last century, the effect of rust disease on autumn grain crops in the region (partial damage was observed in 1968, 1970, 1978, 1982) was not significant, but the yellow rust epidemic occurred 7 times during the years 1999-2016 (1999, 2001, 2005, 2009, 2010, 2013, 2016) caused significant economic damage to the grain harvest. Especially in 1999, 65-70% of grain harvest was lost due to rust disease in Surkhandarya region. In 2016, the damage of the yellow rust disease to autumn grain crops in all regions was great and caused a significant loss of the harvest.

The majority of grain crops grown in the irrigated areas of the republic are occupied by soft wheat varieties belonging to the Krasnodar selection, and most of the cultivated varieties are infected with yellow rust disease in the years of spring oil in field conditions, and the risk to the yield is significant. The above, in turn, requires an in-depth study of winter wheat varieties for disease resistance and quick adaptation to the environment.

It is known from sources that 45-50% of the grain yield was lost in years when yellow rust disease was common. This indicator certainly depends on the time of onset of the disease and the favorable weather conditions for the pathogen and its duration. That is, the earlier the disease starts and the longer it develops, the more the crop will be lost, and on the contrary, if the disease appears late, i.e., in the milk-wax ripening phase of the grain crop, it will not

seriously affect the loss of a large amount of the crop. Because in most years, the warming of the weather during this period is unfavorable for pathogen development.

Based on the above, in 2016, a number of observations and studies were conducted on the damage caused by rust disease in the grain fields of a number of farms in Angor district. In particular, in the observations made, it was observed that the level of yellow rust and other diseases of the cultivated varieties under natural conditions depends on the development phases of the varieties, including early, middle and late ripening, as well as the planting period. Also, symptoms of damage by yellow rust disease were less in early varieties, and more in middle and late varieties.

For example, in areas where preventive treatment with fungicides was not carried out, in the early local Bardosh variety of winter wheat, symptoms of yellow rust disease were partially observed in the earing-milk ripening phases, while in Tanya and Krasnodar-99 varieties belonging to the Krasnodar selection, tuber-tubering, and in Grom and Zvezda varieties, tubering- it was observed that the symptoms of the disease were strongly manifested in the peak phases.

It was observed that the disease does not allow the development of varieties in natural conditions in all varieties in the fields with timely and correct prophylactic treatment with the necessary fungicides.

In particular, in the grain field belonging to the "Shakhobuddin Angor" farm in Angor district, winter wheat varieties Grom and Zvezda were treated against rust in two periods, i.e. in the second ten days of February and the first half of March, with Titul-Duo fungicide (active ingredient Propiconozol-Tebuconazole). processed. Symptoms of the disease were observed in the two cultivars that were sprayed with fungicide in February, and even though repeated chemical treatments against the disease were applied in these variants, the disease had its effect on the yield and its quality indicators. In the end, compared to the control option, an additional yield of 7.9 t/ha (43.4 t/ha) of the Grom variety and 10.2 t/ha (45.7 t/ha) of the Zvezda variety was obtained. The weight of 1000 grains was 38.2-38.7 grams, respectively.

In the first half of March, disease symptoms were partially observed (up to 5-10%) in the varieties sprayed with fungicide in the milk-wax ripening phase of the grain. The yield in these areas was 3.3-4.6 centners higher than the fungicide-sprayed options in February, and the weight of 1000 grains was 40.6-41.1 grams, respectively.

In the case of Titul-Duo fungicide mixed with 10 kg of carbamide per hectare and sprinkled with 10 kg of carbamide per hectare in the tuber phase of grain, the symptoms of the disease did not appear on the surface of the leaves, and an additional yield of +13.5 centners per hectare was achieved compared to the control field.

In the non-fungicide-inoculated control variant, the disease severely damaged the lawns, causing yield loss and poor grain quality.

The results of research and observation show that in order to maintain a healthy ecosystem in the field, the first factor in the fight against rust disease is the elimination of wild spikelets on the edges of the field, which are the carriers and spreaders of the disease, and preventive treatment with fungicides in all grain fields in early spring. Proper treatment of diseases with the necessary fungicides during the growing season of grain prevents the development of diseases in the wheat crop and prevents crop loss. Also, it was observed that the resistance of the plant to biotic and abiotic factors increases sharply when the plants are fed with

carbamide in the amount of 10 kg per hectare before the preventive treatment against rust disease.

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