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THE EFFECT OF SOME BREEDERS AGAINST DRY ROT DISEASE OF WHEAT

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Abstract:

Among the agricultural crops grown in our republic, the area of winter wheat ranks first in terms of size. Therefore, in the first years of our republic's independence, the issue of fully supplying our population with domestically grown wheat grain was resolved. Also, several hundred tons of wheat, which is surplus beyond the needs of our population, is currently being exported to foreign countries. Currently, in our republic, due to the increase in wheat yield, the reduction of wheat areas is being carried out. One of the factors that prevent high yield from wheat is various diseases that occur in it. During the dry season, diseases, especially those caused by fungi, cause a large part of the crop to be lost if chemical control measures are not taken against them. This article presents data on the effects of some seed treatments against dry rot disease of winter wheat.

Keywords:

INTRODUCTION. Increasing the productivity of grain crops is mainly carried out due to the acceleration of plant science (intensive technology). Their important element is protection of crops from diseases. Part of this task is to produce high-quality, disease-free seed. Determining the composition, development and damage of diseases occurring in wheat seeds and germinating and maturing lawns is almost unexplored in the conditions of Uzbekistan, and carrying out these tasks is undoubtedly one of the most urgent tasks [1].

In the history of agricultural science, there is a lot of information about the tragic consequences of gross damage to cultural crops by diseases. Due to the availability of modern and reliable methods of protecting plants from epiphytotia - gross development of diseases in a certain area - such fatal consequences are rarely observed nowadays, but plant diseases still cause great damage to agriculture today. Root rot can be infectious or non-infectious. Non-infectious root rots are always associated with adverse environmental factors [2]. Wheat dry rot is one of the most common diseases. This disease is often caused by various fungi, usually they represent a group of semi-parasitic micromycetes [3,4]. For example, 30-40 percent of grain crops are lost due to rust diseases or spots, and 10-15 percent due to powdery mildew [5]. Academician of RASHN V.A. According to Zakharenko, 34% of the world's wheat harvest is lost due to harmful organisms, including 12.4% due to diseases. In developed countries, in the absence of science-based protective measures, only 10% of the wheat crop is lost due to diseases caused by fungi, and 20% in fields with intensive technology [6, 7,11]. In England and France, an average of 10% of the autumn barley crop and 35-40% of the spring barley die due to rhynchosporosis. If comprehensive control measures are not applied, the yield of grain crops due to common and fusarium root rot in Russia is 25-30% [8].

I. MATERIALS AND METOHODS. Universal seed preparations are tested against hard and powdery mildew of wheat and barley, stripe spotting of barley, grass and root rot diseases of grain crops in autumn and spring. The main task of researchers in testing seed drugs and biologically active substances is to objectively evaluate new foreign and domestic drugs and to create an assortment of seed drugs for major agricultural crops. In small field experiments, the biological efficiency of each drug in the test, the minimum and maximum consumption standards that are safe for the crop, the environment and humans, the convenience or inconvenience of using the medicinal form of the drug, the optimal treatment period for seeds, the effect of the drug on the quantity and quality of the protected plant crop are determined.

After treatment (even before planting early treated seeds), germination energy (speed) and germination of seeds are determined in the laboratory. For this, 100 seeds are grown in 4 replicates in Petri dishes or in special moist chambers, and their germination rate and germination are recorded every 2-3 days for three weeks. To determine the field fertility of seed grain, 100 grains are taken in each of 4 returns and they are sown by hand in the experimental field (separately from experimental variants). [9, 10,11].

II. RESULTS AND DISCUSSION. In the experiment, the development of dry rot caused by a fungus of the genus Penicillium in winter wheat seeds was studied. For this purpose, two types of soils (No. 1 and No. 2) brought from different irrigated lands of Boyovut district, Sirdarya region, pure culture of the fungus Penicillium sp., isolated from seeds infected with dry rot under natural conditions, and seeds of spring wheat variety were studied.

To determine the effectiveness of the chemical method against dry rot of wheat seeds, Scarlet 16% ME, active substance imazalil 10% + tebuconazole 6%, ZAO Shchyolkovo Agrokhim, Russian product) in three consumption amounts - 0.3 l/t, 0.6 l /t or 0.9 l/t or Vitavaks 200FF, 34% v.s.k. preparation (active element carboxin 17% + thiram 17%, American firm "Chemtura Corporation") was used in the consumption amount of 2.5 l/t. Untreated seed grain was taken as a control.

In the first experiment, Petri dishes with a diameter of 10 cm were filled with 6 mm of soil and leveled on top, and 30 wheat seeds were placed on the surface of the soil and another 10 mm of soil was placed on top. Soil moisture was found to be lower than the moisture required for wheat seed germination. Petri dishes were placed in polyethylene bags to prevent the soil from drying out. Bags with Petri dishes were kept for incubation on the lower floor of the refrigerator at a temperature of 5±1oC for 60 days. The experiment was repeated 4 times. After 30 and 60 days of incubation, two plates of each variant were removed from the bag and the seeds were inoculated with Penicillium sp. the presence of mold was observed and their viability (20 ml per 1 plate) when pre-moistened with water was determined (Table 1).

Table 1

Effects of fungicides on retention of dry rot in wheat grain after 30 and 60 days of incubation at 5±1oC in soil and on grain decay.

Experience options	*Penicillium sp. Seed grain with (%) in days*				Seed grain germination (%) in days			
	Soil № 1		Soil № 2		Soil № 1		Soil № 2	
	30	**60**	**30**	**60**	**30**	**60**	**30**	**60**
1. Scarlet, 0.3 l/t	0,1	0,0	0,2	0,0	89,7	91,1	87,9	88,9
2. Scarlet, 0.6 l/t	0,0	0,1	0,0	0,1	91,2	91,9	90,2	93,9
3. Scarlet, 0.9 l/t	0,0	0,0	0,0	0,0	91,0	93,7	91,7	93,5
4. Vitavaks 200 ФФ, 2.5 l/t	1,1	0,5	2,9	0,7	90,3	94,0	90,4	91,1
5. Control - untreated	18,3	6,6	24,3	9,2	62,5	83,9	58,7	77,6

In this experiment, it was noted that the best performance was shown in Scarlet 0.6 l/t and Scarlet 0.9 l/t options.

In the second experiment, the soil was artificially infested with conidia of the fungus Penicillium sp., grown in autoclaved oat seeds (150 g of grain + 100 ml of distilled water in 1 l glass containers) for 2 weeks. The rate of consumption was 1 g of fungal conidia per kg of soil. Further studies were conducted similarly to the first experiment (Table 2).

Table 2

Effect of fungicides on retention of dry rot pathogen and grain germination in wheat grain incubated in soil for 30 and 60 days at 5±1oC

Experience options	*Penicillium sp. Seed grain with (%) in days*				Seed germination (%)			
	Soil № 1		Soil № 2		Soil № 1		Soil № 2	
	30	**60**	**30**	**60**	**30**	**60**	**30**	**60**
1. Scarlet, 0.3 l/t	0,7	1,4	0,0	0,0	87,5	86,5	87,0	86,0
2. Scarlet, 0.6 l/t	0,5	0,7	0,1	0,2	85,9	88,1	87,8	86,0
3. Scarlet, 0.9 l/t	0,2	0,2	0,0	0,0	88,9	88,0	87,5	87,6
4. Vitavaks 200 ФФ, 2.5 l/t	7,4	8,1	2,7	2,9	78,6	78,0	85,0	84,5
5. Control - untreated	31,5	33,8	19,1	22,3	55,3	52,0	76,1	71,3

Inoculated with conidia of the fungus Penicillium sp.*

According to the results of the experiment, Penicillium sp. dry rot disease caused by a fungus reduces the fertility of winter wheat planted in dry soil. When the seeds treated with fungicides before planting, their germination increased and disease damage decreased. In the experiment, Scarlet 16% ME, used in the amount of 0.3-0.9 l/t, showed high efficiency, and Penicillium sp. almost completely eliminated the infection of the fungus not only in seeds naturally infected with this fungus, but also in artificially infected seed grains. It was also found that 34% Vitavaks 200 ФФ drug against dry rot disease of wheat showed high efficiency when applied in the amount of 2.5 l/t.

III. CONCLUSIONS. It can be concluded from the conducted researches that the treatment of wheat seeds before planting against dry rot and other diseases with highly effective seed treatments is not only effective against Penicillium sp. it protects against fungus, but also against diseases caused by many fungi and bacteria and causes full germination of seedlings in the fields.

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