

Effect of certain agrotechnical measures on yellow rust disease when applied to winter wheat.

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Abstract. In the experiment, when several factors were applied to winter wheat and treated against honey rust, the thickness of the seedlings was close to each other according to the options, i.e. from 4600 to 4700 pcs. The best variety of the plant is the 7th irrigation variant of the "Navbakhor" variety. observed, the height of the wheat stalk was 19.5 cm higher than in the control. According to the biometric best indicators, he was registered as "Durdona". When fertilizing winter wheat seedlings with 250 kg of nitrogen fertilizer, in the control variant, among the variants, the variety "Chillaki and Durdona" was less infected by 12.3-15.3%, and in other variants, more crops were harvested than in the control. variant in both backgrounds. It has been established that the highest yield was obtained from 8.0 t/ha to -5.6 t/ha with 7-fold nitrogen irrigation at 250 kg/ha. The mass of 1000 grains was better in the "Durdona" variety compared to the control, that is, it was 1.9 ha more in the other variants, 0.7-1.3 g more.

Key words. Soil, nitrogen rate, irrigation, seedling thickness, growth and development, rust, biological productivity, biometric indicators, productivity.

Introduction. In the following years, grain yield, including winter wheat, is 1.5 times higher than in 2018. The main reason for this is that high and high-quality harvest is achieved due to the reliance on basic agrotechnics, which is used only when the quality of the seed is not taken into account. However, due to the spread of pests and rust disease in large areas of the crop, the grain productivity of the farms is greatly damaged. As a result of the close theoretical assistance of our scientists to the farms in the districts, using all their capabilities, the index of these farms has increased significantly.

At the same time, as a result of research, the use of various methods against winter wheat rust by our scientists reduces the effect of the disease spreader on the plant.

For example, in the data provided by M.Yahyokulova[1] and others, when winter wheat seedlings were fed at the rate of 180 kg/ha per hectare, an additional yield of 0.2-0.8 tons/ha was obtained compared to

the control option. It is known from the experiments carried out in the following years [2] winter wheat seedshow muchit was concluded that if planted early, in early spring, their growth and development are fast, so the disease resistance was higher than that of the control. It is said that the high quality reproduction of high productivity for a number of moderate years will not only lead to increased resistance to rust and fusarium disease, but also to obtain a high-quality grain harvest at the end of the growing season [3]. The effect of measures on rust disease when applied to winter wheat is being carried out. The experiment was carried out in the field of the training experimental farm of the Andijan Institute of Agriculture and Agrotechnologies.

The experiment was carried out in the following scheme.

Table 1
Scheme of the experiment.

№φ	Experience options	Number of waterings	Annual rate of mineral fertilizers		
			N	P ₂ O ₅	K ₂ O
1	Control	1-5-0	200	100	30
			250	100	30
		1-5-1	200	100	30
			250	100	30
2	Chillaki	1-5-0	200	100	30
			250	100	30
		1-5-1	200	100	30
			250	100	30
3	Durdona	1-5-0	200	100	30
			250	100	30
		1-5-1	200	100	30
			250	100	30
4	Navbahor	1-5-0	200	100	30
		1-5-1	250	100	30

Research was conducted on different winter wheat varieties, irrigation frequency, and the annual rate of nitrogen mineral fertilizer in the conditions of the gray soil of the experimental meadow. The phenological monitoring and accounting works in the experimental area were carried out based on the manuals published by the Scientific Research Institute of Plant Science of Uzbekistan, Scientific Research Institutes of Plant Protection. The observation and phenological observations were analyzed and the following results were obtained. Planting was carried out on October 17. As can be seen from the data in the given table, the germination rate of the seeds in both backgrounds was 63-72.4% in the variant where the Chillaki variety was planted 8 days after the seeds were planted. reached

Table 2
Effects of some agrotechnical measures on the germination dynamics of winter wheat seeds.

№	Experience options	Number of waterings	The annual rate of nitrogen fertilizer is kg/ha	Dates taken into account		
				25. X	30.X	5. XI
1	Control Oman	1-5-0	200	59.4	67.9	87.2

		1-5-1	250	61.7	72.4	91.5
2	Navbahor	1-5-0	200	60.3	67.9	87.2
		1-5-1	250	68.9	72.4	91.5
3	Durdona	1-5-0	200	58.7	76.2	93.8
		1-5-1	250	66.2	84.2	97.1
4	Chillaki	1-5-0	200	60.3	79.8	94.6
		1-5-1	250	72.4	86.5	98.3

In the remaining options, this view showed 58.7-68.9% of seedlings germinated, but this view changed with the data obtained at a later date. From the data on October 30, the highest rate was observed in variant 1, in which the degree of germination was 79.8-86.5%, while in variants 2 and 3 it was 73.5-84.2%. However, in the data obtained during this period, germination in all variants was close to each other.

It is known from grain industry that winter wheat nutrient uptake during the vegetation period changes depending on plant growth and age.

It is known from the nutritional environment during the vegetation that the lack of mineral substances and its negative impact on the growth and development of plants leads to the disturbance during the nutrition period.

Winter wheat does not show symptoms of stress in the absence of any of the fertilizers. Taking this into account, the demand of plants for mineral fertilizers will be satisfied by applying each mineral fertilizer to winter wheat depending on the origin of the varieties, in their rate and duration. Taking into account the periodicity of nutrient and moisture absorption of winter wheat, it should be provided within the framework of the influence of rust disease depending on the phase of plant development. According to the data obtained on the growth and development of some agrotechnical measures on the effect of some agrotechnical measures on different varieties in the experimental system, the effect of some agrotechnical measures on the rust disease when applied to wheat is presented in table 3.

Table 3
Effect of some agrotechnical measures on rust disease when applied to winter wheat.

No	Experience options	Watering the number of	The annual rate of nitrogen fertilizer is kg/ha	Seedling thickness million, pcs	The height of the plant stem, cm	Tubing	Date of spike	In the spike date of ripening of grains
1	Control Umanka	1-5-0	200	4.720	82.4	3. IV	7.V	20. VII
			250	4.714	87.1	1. IV	5.V	19. VII
		1-5-1	200	4.690	84.6	3. IV	7.V	20. VII
			250	4.667	91.3	2. IV	6.V	17. VII
2	Chillaki	1-5-0	200	4.720	82.4	3. IV	7.V	20. VII
			250	4.714	87.1	1 IV	5.V	19. VII
		1-5-1	200	4.690	84.6	3. IV	7.V	20. VII
			250	4.667	91.3	2. IV	6.V	17. VII
3	Durdona	1-5-0	200	4.668	88.3	3. IV	7.V	20. VII
			250	4,600	93.7	1. IV	6.V	18. VII

4	Navbahor	1-5-1	200	4.638	90.1	3. IV	7.V	20. VII
			250	4.623	96.5	3. IV	5.V	19. VII
		1-5-0	200	4.701	94.4	3. IV	7.V	20. VII
			250	4,700	100.6	2. IV	6.V	17. VII
1-5-1	200	4.763	98.7	3. IV	7.V	20. VII		
	250	4.698	106.5	1. IV	5.V	19. VII		

Table 3 shows that at the beginning of the growing season, the height of winter wheat stalks in all variants was close to each other. However, in the last year, this appearance has changed radically, and the best indicator was recorded in the version of Navbahor variety fed at the rate of 250 kg/ha. In other variants, this view was from 16.3 cm to 23.1 cm. The tuber phase differed by 1-2 days when comparing the variants with each other, and the index of spike emergence was observed in the variants that were watered 7 times for 2 days. It can be concluded that the growth of the plant could not have an excessive effect on their development. When some agrotechnical measures were applied to winter wheat varieties, it was found that the varieties differed in their resistance to rust disease, that is, it can be seen from Table 4.

Table 4
Effects of some agrotechnical measures on brown rust disease and biometric parameters when applied to winter wheat

№	Experience options	Watering the number of	The annual rate of nitrogen fertilizer is kg/ha	Dates considered rust disease		Spike length	The number of grains in one ear	Grain weight in one ear	1000 grain weight	Biological efficiency
				1.V	15.V					
1	Control Oman	1-5-0	200	33.6	41.6	10.2	42.9	1.8	39.1	
			250	24.2	47.5	11.1	46.2	2.0	39.8	
		1-5-1	200	36.8	45.2	10.9	44.7	1.9	40.2	
			250	39.3	51.4	11.4	46.8	2.1	40.7	
2	Navbahor	1-5-0	200	15.4	23.8	10.5	48.8	1.9	40.3	42.8
			250	20.5	27.3	11.0	50.2	2.1	40.9	42.5
		1-5-1	200	17.1	26.7	10.9	51.5	2.1	40.7	41.0
			250	22.7	29.2	12.2	53.1	2.2	42.1	43.2
3	Durdona	1-5-0	200	12.8	24.4	9.7	48.3	1.7	39.8	41.3
			250	21.6	29.2	10.4	50.1	1.9	40.4	38.5
		1-5-1	200	13.5	21.7	10.8	50.4	1.8	40.2	52.0
			250	27.0	32.4	11.2	52.6	2.1	41.7	37.0
4	Chillaki	1-5-0	200	14.6	29.2	9.8	47.8	1.8	38.8	29.8
			250	21.1	36.4	10.3	50.4	1.9	39.3	23.3
		1-5-1	200	17.3	34.1	10.4	51.1	2.0	39.7	24.6
			250	24.0	37.9	10.9	55.5	2.1	40.4	26.3

Table 5
Effect of certain agrotechnical measures on biometric indicators when applied to winter wheat.

No	Experience options	Watering the number of	The annual rate of nitrogen fertilizer is kg/ha	1 m ² seedling thickness	1 m ² rust incidence %	Productivity s/ha	Additional yield compared to control	Biological efficiency %
1	Control Oman	1-5-0	200	410.1	36.2	38.9		
			250	408.4	39.8	39.7		
		1-5-1	200	409.8	37.7	40.1		
			250	403.2	41.4	43.5		
2	Chillaki	1-5-0	200	397.5	29.6	40.3	+1.4	18.2
			250	392.8	26.3	42.7	+3.0	33.9
		1-5-1	200	396.8	18.7	44.6	+4.5	50.4
			250	393.4	22.4	46.1	+2.6	45.9
3	Durdona	1-5-0	200	397.2	18.3	43.4	+4.5	49.4
			250	396.5	22.4	42.5	+4.8	43.7
		1-5-1	200	403.8	27.1	45.7	+5.6	28.1
			250	401.1	28.4	48.1	+8.0	31.4
4	Navbahor	1-5-0	200	394.4	21.3	41.9	+1.8	47.0
			250	392.8	25.2	45.2	+1.7	36.7
		1-5-1	200	403.2	23.1	43.8	+3.7	38.7
			250	401.7	28.4	48.1	+4.6	31.4

It is known from the given table that when the annual rate of mineral fertilizer was increased by 50 kg/day and 7 irrigations were carried out, in all options, according to the indicators, the seedlings in 1 sq.m. From 12% to 19% incidence was observed. The yield is 250kg/ha and when winter wheat is irrigated 7 times, compared to the control option, an additional yield from 1.7 t/ha to 8.0 t/ha was obtained, biological efficiency was recorded in the Chillaki variety, and in the rest of the options, this appearance was in the Durdona variety. From 28.1-43.7%, it is distinguished by the fact that it is 31.4-36.4% in the Navbahor variety.

Conclusions. In order to reduce the amount of infection in naturally damaged fields, where the rust fungus has spread, we believe that it is appropriate to change the varieties every two years.

Planning the winter wheat planting area at least a year in advance, along with increasing the annual rate of nitrogen mineral fertilizer, will all lead to an increase in their disease resistance.

We believe that it is necessary to correctly set the ratio of mineral fertilizers with 7 irrigations depending on the conditions of the meadow gray soil due to the replacement of varieties.

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