



International Journal for Innovative Engineering and Management Research

A Peer Reviewed Open Access International Journal

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IJIEMR Transactions, online available on 22th March 2021. Link

<https://ijiemr.org/downloads/Volume-10/ISSUE-3>

DOI: 10.48047/IJIEMR/V10/I03/86

Title: **INFLUENCE OF SOME CHEMICAL SUBSTANCES ON RUST DISEASE OF WINTER WHEAT IN NATURALLY IMPAIRED AREAS**

Volume 10, Issue 03, Pages: 413-415.

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INFLUENCE OF SOME CHEMICAL SUBSTANCES ON RUST DISEASE OF WINTER WHEAT IN NATURALLY IMPAIRED AREAS

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Abstract: This article is focused on studying the influence of some chemical substances on rust disease of winter wheat in naturally impaired areas. 3 types of chemical substances were studied in the experiment and the one with strong fungicide ability influencing on the causatives of the rust disease was identified. The carried experiments showed that the version which was not worked out with main chemicals had wheat heads with 3.1-5.6cm length, 17.6-31.2 heads in a wheat and 9.7-12.0 grams of wheat in 1000 pieces. And all in all the harvest gained from it was 18.4-22.8 centners less than other versions. By using chemicals to the rust disease we were able to get 18.4-22.8 c/ha of additional crop as the fungicide ability was high towards the pathogen.

Keywords: Naturally harmed area, grain, Andijan-4, Triazole 50%, Raxil 60 F.S, Folikur 25%, crop.

Introduction

Supplying Uzbekistan's population with grain completely is still remaining as the main problem of today. Therefore practical works on developing grain growing is being carried highly. As a result of it 40-45 c/ha of grain is gained from winter wheat. Some leading farms are getting 55-65 centners of grain harvest.

If the farmers paid more attention to short rotative method of sowing, the harvest gained from it would be higher now.

Since gaining high crop from winter wheat is paid great attention, we think that protecting it from main diseases completely is considered to be important. Over the last years different kinds of rust disease is spreading in all the wheat sowing areas. The fungicides spreading this disease like humidity and has the ability to decrease the harvest due to impairing the whole surface of the land in 12-15°C. A number of researchers wrote about it in their investigations.

For example: [1] writes that *Plecinia graminis* which results brown rust disease impairs the areas with winter wheat, when they are irrigated much, 2-4 days earlier than the areas with low irrigation.

Nutrition the winter wheat in the period of its growing is considered to be an important index. If the winter wheat is not enriched with

enough mineral fertilizers, its growth and development lags behind and will have tendency to get diseased or if the grain in this field is enriched with excessive nitrogen fertilizers its growth and development becomes rapid and the tolerance to diseases decreases. Due to the reference given by [2] when the winter wheat was worked with nitrogen fertilizers only the plant had signs of a disease. It was observed that getting diseased with rust disease occurred 4-6 days later than the version worked out with nitrogen, phosphor and potassium mineral fertilizers. These kinds of references confirming each other were given by [3].

By studying this a number of investigations were carried out in order to study the influence of some chemical substances on fungicide ability of winter wheat against rust disease during 2018-2019 years. The experiment was carried out in an educational experimental field of Andijan branch of Tashkent state Agrarian University.

The experiment was carried in the following scheme:

1. Control version that is not worked out.
2. It was worked out with Raxil 60 FS sol. Etalon- 0,4 l/t a month before sowing the seeds.

3. Triazole 50% sol. – 0,17 l/ha was sprayed to the plant leaves when the first manifestation of the disease was observed.
4. Folikur 25% c.e 3 l/ha was sprayed to the plant leaves when the first manifestation of the disease was observed.

The experiment composed of 4 repetitions and 4 versions, all the versions were place into single tier. Raxil 60 FSsol. was taken as a sample in the carried experiment.

Phonological observations were carried out on the 1st and 15th of every month.

Andijan-4 type of winter wheat was chosen as the main type and its seeds were sown on October 20. 8 days after sowing it 80-85% of seeds appeared on the surface of the land in the grain field. The conditions were convenien for grain sowing and budding. If we look at the references taken on May 1, the thickness of plants was very close to each other i.e. 4.2-4.3 mln/ha.

However in further observations this sequence was broken and due to the references taken on May 15, the best results were registered in plants of the 3rd version. In this version the height of growing stem of winter wheat was 4.8cm. The references taken from the calculation on 1V₁ showed that the highest results belonged to the plants of the 3rd grain field. The height of growing stem of the gain in this version was relatively 11.9 cm higher than the control version. The difference in the leaves is that this version had 0.5 more leaves that the etalon version of winter wheat plants worked out with Triazole 50%.

The number of stems in 1 m² in the 3rd version was 35.8 pieces more than the control version. The fretile plants in the 3rd version were more than 19.7 pieces.

The main stage of farming is considered to be one of the factors of gaining high crop by germinating the wheat sorts tolerant to rust disease. Since the rust disease of winter wheat is considered to be very dangerous, taking perfected measures against it resulted in the decrease of this disease in some degress. If we pay attention to the below given table, we can see that using certain chemical substances was relatively noticable than the plants were worked out with other chemicals.

Table 1.
Influence of somme chemical substances on the thickness of wheat plant, its growth and development when they are used in winter wheat

№	Experiment Versions	Minimal plant s mln/ha	Height of growing stem, cm				Number of leaves		Number of total stems m ² pieces	Number of fertile stems m ² /piece
			1V	15V	1 V ₁	15 V ₁	1V	15 V ₁		
1	Control	4,3	13,7	38,9	57,5	78,3	4,1	4,5	508,4	372,4
2	Raxil 60FS sol (Etalon)	4,2	13,4	40,4	64,2	87,9	4,3	4,7	528,1	384,7
3	Triazole 30 l 50%sol	4,2	13,6	43,7	69,4	93,4	4,7	5,2	534,2	392,1
4	Folekur 25% c.e 3 l/ha	4,3	14,1	40,8	60,9	86,3	4,2	4,6	524,1	386,2

If we pay attention to the growth and development of winter wheat in the experiment, we can see that the height of growing stem of plants was 13.4-14.1 cm in all versions on May 1.

Table 2
Influence of certain chemical substances on teh rust disease of winter wheat

№	Experiment versions	Minimal plants	Calculated months				Number of weakly diseased plants	Number of strongly diseased plants
			15V	1V	15V	1V ₁		
1	Control/not given	4,3	3,3	5,7	12,2	19,6	10,4	9,2
2	Raxil 60FS sol (Etalon)	4,3	0	0,7	3,5	6,3	2,2	4,1
3	Triazole 30 l 50%sol.	4,1	0	0	0	1,2	1,2	0
4	Folekur 25% c.e 3 l/ha	4,2	0	0	0,9	4,9	0,7	3,2

As it is known the table 2, the rust disease of winter wheat firstly appeared in the

plants of the control version in the experimental field. On April 15 the plants of the control version had 3.3 % of disease and the disease in other versions was not observed. But on May 15, the number of impaired stems increased i.e. 12.2% and in the 2nd and 4th versions this case equal to 0.9% up to 3.5 %. The least harm was observed in the plants of the 3rd version. The plants in the versions where Triazole was applied had the disease 26-22 days later than the stems of winter wheat. From the reference taken from the wheat stems in the experimental field we can see that the most effective chemical among others was Triazole 50% sol. used in 1V₁ observation. Under the influence of this chemical substance the stems of winter wheat were diseased up to 1.2% due to the increase of tolerance to the disease. The length of heads in these wheats was high due to the increase of healthy plants in the number. The heads in them were great and numerous.

The main stage of grain growing is evaluated with the grain harvest formed in these plants. Due to the results of carried experiments the harvest in different versions was different.

Table 3
Influence of some chemical substances on qualitative indices and harvest of winter wheat

№	Experiment versions	Average length of a wheat head, cm	Average number of heads in a wheat	Total weight of 1000 pieces of grain, gr	Total harvest, c/ha	
					Total harvest	Difference from the control c/ha
1	Experimental	5,7	16,6	30,4	30,8	-
2	<u>Raxil</u> sol (Etalon) – 0,4 l/ha	8,8	34,2	40,1	49,2	+18,4
3	<u>Triazole</u> 50% sol	11,3	47,8	42,4	53,6	+22,8
4	<u>Folekur</u> 25% ca 3 l/ha	9,8	45,3	41,7	50,3	+19,5

The version which was not worked out with main chemicals showed the following indices: the length of a wheat head was less than 3.1-5.6 cm, the average number of heads composed less than 17.6-31.2 pieces, the weight of 1000 pieces of grain composed less

than 9.7-12.0 grams and the total harvest consisted of less than 18.4-22.8 centners relatively to other versions (table 3). The main reason for it is that this version was not grown due to the scientific experience. Since the results of the use of favorable chemical substances against the rust disease were high relatively to other versions of winter wheat, the growth and development of winter wheat in it were higher than the control version.

On the basis of the carried investigations we can conclude that due to the use of certain chemical substances we were able to achieve their high fungicide ability towards the causatives of the disease and to gain 18.4-22.8 c/ha of additional crop.

Literature

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