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**Investigation of the influence of various chemical substances on the field of natural damage to the cold disease of the autumn wheat.**

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**Abstract**

It is reported that yellow rust in the winter wheat is the most dangerous disease in the Ferghana Valley and is widespread in high humidity conditions. In recent years, the disease has spread to the irrigated grain fields of the Republic, which has significantly affected the quality and quantity of grain grown and its effective fungicidal effect.

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## Introduction

Protection of plants against harmful organisms is one of the major problems of the state. It is now clear that protection is impossible without objective knowledge of pests, diseases and weeds on the one hand, and on the other, without objective knowledge of the environment and the tendency to change.

Planning of protective measures against grain pests and diseases has its own peculiarities. These characteristics are influenced by biological laws of growth and development of harmful organisms, seasonality of production processes, the influence of natural conditions on the results of agricultural production and other factors. This requires that the processing time be carried out at the most precise time of the year and at the optimum time, as failure to safeguard agricultural crops from harmful organisms would result in large crop losses.

In the climatic conditions of Uzbekistan, the crop is affected by pests such as pests, grain juices, trips, mites and about 10 diseases. It has been observed that during the last few years, these harmful organisms have spread on the irrigated grain fields of the Republic, and significantly affect the quality and quantity of grain grown. It has been established that this group of harmful organisms can lose up to 15-20% of their annual yield and up to 45-50% when the climate is favorable for their reproduction.

## Main parts

The main diseases in grain crops are yellow and brown rust, flour-dew, yellow dirt helminthosporiosis), dust and severe scabies.

In the climate of Uzbekistan, April is a crucial time for grain cultivation, including protection against pests and diseases. During this period there is a rapid development of flour-dew, yellow and brown rust diseases, as well as pests and other pests.

The winter wheat rust disease is widespread in all districts of Andijan due to the weather. With this in mind, the following scheme was carried out to reduce the impact of *Puccinia striiformis* fungi on the conditions of Altinkul, Pakhtaabad and Markhamat districts.

1. Control
2. 1% lm copper powder - 4 kg / ha
3. Folecure 25% k.e. - 0.3
4. Bumper 25% k.e. - 1,

The Chillaki variety was planted as the main variety based on the conditions of these districts. The experiment consisted of 4 returns and 4 variants.

**Table 1** Effects of various chemicals on the growth and development of winter wheat

№	Experie nce options	Height of growth stem, cm				Number of bush		The number of leaves		The number of plants that have been sown	
		1IV	15IV	1V	15V	1IV	15IV	1IV	15IV	1V	15V
Oltinkul region											
1	Control	12,2	28,7	54,5	67,8	2,8	3,3	1,8	2,3	3,4	3,5
2	Copper Cube	12,6	31,4	62,1	76,4	3,3	4,0	1,8	2,6	4,1	4,3
3	Folio	13,0	36,5	66,2	82,9	3,7	4,6	1,9	3,6	4,3	4,5
4	Bamper	13,3	38,3	70,4	93,4	4,0	5,3	2,0	3,9	4,5	4,7
Paxtaobod Region											
1	Control	12,0	29,9	56,8	70,4	2,7	3,3	1,9	2,3	3,4	3,6
2	Copper Cube	12,0	33,4	64,3	77,8	3,5	4,2	1,9	2,7	4,0	4,3
3	Folio	12,9	38,7	68,7	87,4	3,6	4,5	2,0	3,6	4,3	4,5
4	Bumper	12,8	40,2	73,9	98,3	4,1	5,3	2,2	4,0	4,6	4,7
Markamat region											
1	Control	11,9	30,1	54,1	71,2	2,8	3,2	1,8	2,4	3,3	3,4
2	Copper Cube	12,1	32,2	66,3	76,9	3,5	4,2	1,8	2,9	4,2	4,3
3	Molecul e	12,4	34,8	71,3	86,5	3,7	4,6	1,8	4,0	4,4	4,5



4	Bumper	12,7	37,8	77,5	94,7	4,0	5,4	1,9	4,2	4,5	4,8
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**Table 1.**

Experimental calculations were made on the basis of guidelines published by the Scientific Research Institute of Winter Wheat and Leguminous Cultivation on Irrigated Fields, the Republican State Chemical Union of the Republic of Uzbekistan. The seeds were sown 12 days later in the areas planted under the experimental conditions.

From April 1 of the next year, records were made on winter wheat seedlings at the experimental site.

Phenological observations showed that on April 1 in all experimental areas in all districts the height of the growth horn was 11.9 - 13.3 cm.

**Table 2.** Effect of various chemicals on winter wheat in rust%

№	Results of experience	1IV		15IV		1V		15V	
		General disease%	Severe illness%	General disease %	Severe illness %	General disease %	Severe illness %	General disease %	Severe illness%
Oltinkul region									
1	Control	0,4	0	20	0	13,3	2,7	16,8	4,4
2	Copper Cube	0	0	0,3	0	4,7	0,8	7,9	1,6
3	Folio	0	0	0	0	2,1	0	3,5	0,4
4	Bumper	0	0	0	0	0,6	0	1,8	0
Paxtaobod Region									
1	Control	0,6	0	2,3	0	16,4	5,1	21,4	5,3
2	Copper Cube	0	0	0,7	0	6,6	1,3	12,1	3,3
3	Folio	0	0	0,3	0	3,4	0,2	6,8	1,2
4	Bumper	0	0	0	0	0,8	0	2,4	
Markamat region									
1	Control	0	0	0,6	0	11,2	3,8	14,4	3,8
2	Copper Cube	0	0	0,8	0	3,5	0,3	8,6	1,7
3	Folio	0	0	0	0	0,9	0	3,7	0,3
4	Bumper	0	0	0	0	0	0	0,6	0

**Table 2.**

However, in subsequent observations, this law has gradually been violated, especially in the May 1 follow-up survey, with the best of four options. In this variant, the height of the plant growth stem was 70.4-77.5 cm, in the control variant was 54.1-56.8 cm, and the difference was 10.7-16.3 cm.

Three days after the application of the chemical against rust, the development of uredospores on the plant leaf plate decreased by 75-80%, and the pustules began to dry and change with color. Phenological observations indicate that winter wheat sown in Altinkul and Pakhtaabad districts began to contract with *Puccinia striiformis* fungi 3-5 days earlier than in Markhamat district.

As of May 1, Pakhtaabad district reported that the most variants of control variants were infected, that is, up to 14.6-19% less than other variants and 4.9-5.0% of the plants were seriously infected. From this we can conclude that Bumper is 25% k.e. Application of 1.0 l / ha may cause the disease to reduce the ability of the pathogen to affect the plant from 2 to 8 days. The decrease in the disease caused by this drug has led to an increase in the yield of winter wheat.

## Conclusion

The highest yield was obtained from plant 4 variants. Additional yield compared to the control variant was 12.9-13,6 cent / ha. Bumper is the most chemically acceptable due to prolonging plant life, with a maximum of 1 l / ha.



Rational planning and the proper organization of grain harvesting chemicals is an important factor in crop protection. In particular, in Andijan region, the target will be achieved through the development of optimal timing and standards for the protection of winter wheat against rust on affected areas.

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