



## Research Article

# BIOLOGICAL EFFECTIVENESS OF KVADRIO IKS FUNGICIDE AGAINST MILDUE DISEASE OF GRAPES

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## ABSTRACT

In this article, measures to fight against mildew of vines, monitoring the development of diseases in vines and mildew KVADRIO IKS, 30% s.c. Research work on determining the biological effectiveness of fungicide is highlighted.

## KEYWORDS

Vine, fungus, disease, fungicide, mildew, biological efficiency.

## INTRODUCTION

When the grapes are infected, the taste of the fruits and the quality of the appearance of the product are lost, the shelf life and productivity are reduced. As a result, these lead to a sharp increase in the cost of production and negatively affect the profitability of farms.

Timely preventive and agrotechnical measures against plant diseases have a positive effect on the reduction

of the population of pathogens, but they are not enough when the diseases develop strongly. Therefore, expansion of the types of fungicides allowed for use in the Republic of Uzbekistan and their effective use is one of the important tasks in viticulture.

Currently, the preparations offered by pesticide manufacturers for use in vineyards successfully protect

against pests and diseases if they are used before and after flowering in the growing season with proper observance of the rules of usefulness.

Viticulture is one of the priority areas of agriculture of the Republic of Uzbekistan. One of the important factors limiting the sustainable development of viticulture is vine diseases and their development can lead to a decrease in the quality of the grape fruit, partial or complete loss of the crop. In the group of diseases that cause great damage to the yield of grapes, there is an epiphytic threat - mildew (*Plasmopara viticola* Berl. et Toni), anthracnose (*Gloeosporium ampelophagum*) and oidium (*Uncinula necator* Burrill.) diseases occur [1, 9].

In order to guarantee the stable yield of grapes, chemical treatments are usually carried out ten to twelve times during the growing season. This practice has a number of disadvantages:

- a multi-faceted (holistic) negative impact on the ecosystem and on the agrocenosis of vineyards is observed;
- new types and strains of pathogens resistant to fungicides are formed [4, 10].

In recent years, in many developed countries of the world and the Russian Federation, the rational use of nature, the production of ecologically safe agricultural products, including environmentally friendly grape products, have become a priority. Therefore, from year to year, there is an increasing interest in protection methods based on environmentally friendly technologies and biological methods in the fight against vine diseases. The use of microbiological preparations or substances of biological origin is one of the main directions of these protection methods [5, 7].

In our previous researches, lower biological efficiency was achieved when only biofungicides were used to protect vines from mildew and oidium throughout the growing season in Crimean vineyards. It is advisable to use these drugs in the weak and moderately developed period of the above-mentioned diseases [2, 3, 8].

Research location and methodology. Researches were conducted in 2021 in the vineyards of the Khorezm scientific experimental station of the academician M.Mirzayev horticulture, viticulture and winemaking research system, located in Urganch district, Khorezm region. The vine yards are 8 years old, they have come into harvest, and the "Toyfi" variety has been planted on the symbagaz.

The tested fungicide was applied in 3 returns. Chemical treatment 3 times during the growing season; until the flowering period, after flowering, 14 days after the 2nd chemical treatment, it was carried out at the expense of 1000 l/ha working solution.

Scheme of experiment:

Control - no chemical treatment

Kvadriz 25% s.c. (template) – 0.8 l/ha.

KVADRIO IKS 30% s.c. – 0.6 l/ha.

Research results and analysis. The method of combating diseases caused by fungi in vineyards is fast and highly effective. KVADRIO IKS 30% s.c. fungicide was tested at consumption rates of 0.6 l/ha. As an example, Kvadriz 25% s.c.

(0.8 l/ha) fungicide was selected (table).

According to the results of the experimental test, KVADRIO IKS 30% s.c. when the fungicide is used at a consumption rate of 0.6 l/ha, damage is up to 7.3% on leaves, up to 3.3% on branches and up to 4.7% was

observed in grapes. The development of the disease was recorded up to 3.5%. Biological efficiency was up to 88.3%. Kvadris 25% s.c. (0.8 l/ha) of the fungicide was 6.3% on leaves, 3.0% on branches and 4.7% on vines, biological efficiency was 90.8%.

At the same time, timely agrotechnical measures against vine mildew, i.e. inter-row processing in gardens, meeting the plant's demand for nutrients and water, will prevent the strong development of this disease.

Table

**KVADRIO IKS 30% s.c. used against grape downy mildew biological efficiency of fungicide. Field test-experience, Khorezm region, named after academician M.Mirzayev Research Institute of Horticulture, Viticulture and Winemaking, Khorezm scientific-experimental station, 2021, Uzbekistan**

No	Options	Application rate, l/ha	Damaged plant parts	damage, %	disease progression, %	biological efficiency, %
1.	<i>Control (not processed)</i>	-	<i>leaves</i>	46,0	26,0	-
			<i>branches</i>	20,3	10,9	-
			<i>grapes</i>	36,0	17,3	-
2.	<i>Kvadris 25% s.c. (template)</i>	0,8	<i>leaves</i>	6,3	2,4	90,8
			<i>branches</i>	3,0	1,2	89,0
			<i>grapes</i>	4,7	1,9	88,8
3.	<i>KVADRIO IKS 30% s.c.</i>	0,6	<i>leaves</i>	7,3	3,5	86,7
			<i>branches</i>	3,3	1,3	88,3
			<i>grapes</i>	4,7	2,1	87,6

**CONCLUSION**

KVADRIO IKS 30% s.c. (0.06%) application of fungicides is required. Also, in order to prevent the sudden development of the disease, it is necessary to remove the diseased organs from the field and quickly destroy them. It is recommended to apply chemical control measures 4 times during the growing season: when trees are budding, during flowering, after flowering, 3 times after 14 days of chemical treatment, 1000 l working solution per hectare in the morning or evening cool.

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