



**The Effectiveness of a New Preparative Form of Sulfur Containing  
“Surfactant” in the Fight Against Spider Mites on Cotton in the  
Bukhara Region**

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**Abstract:** *The development and introduction into production of the most highly effective and environmentally toxic chemical plant protection products, including against cotton pests, is an integral part of the intensification of agricultural production.*

**Keywords:** *drug, sulfur, spider mite, Omite, danger, sucking pests, cotton.*

At present, in the fight against one of the dangerous pests of cotton, the spider mite, certain successes have already been achieved: a system has been put into production to combat this pest and other sucking pests of cotton, which has reduced the resistance of the spider mite to pesticides. In this system, the use of sulfur preparations is of particular importance in reducing the risk of environmental pollution. However, it is known that sulfur and its preparations have a number of negative properties, namely: a shorter duration of action (8-10 days) on cotton pests, poor retention on the plant, and some of them (ground sulfur) are not wetted by water and therefore do not form stable suspension, and colloidal sulfur quickly clumps, 80% w.p. sulfur is not always available to farms. In connection with the above, there is a need to improve the manufacture and use of sulfur preparations. The Department of Agronomy and Soil Science of BukhSU together with the Institute of Bioorganic Chemistry is carrying out some work to obtain stabilized sulfur preparations. It has been established that under the action of "surfactants" it is possible to obtain a stable suspension of ground sulfur. In this regard, in 2020 we have set the task to study the following issues:

1. Determine the optimal consumption rate and concentration of the working suspension of the sulfur preparation with spider mites on cotton.
2. To study the effect of a sulfur preparation containing “surfactant” on the development and yield of cotton.

Field experiments were carried out in the conditions of "Jondorlik Olimjon zamini" Humin MCC of the Jondor district of the Bukhara region during 2020-2022.

Accounting for the number of spider mites, as well as the economic efficiency of the drug was carried out according to the method.

Spraying of cotton plants was carried out using a tractor sprayer ovx-14 in the following options:

1. Spraying cotton plants with a 1% suspension of a sulfuric preparation containing “surfactant” with a consumption rate of the working suspension of 600 l/ha.

2. Also - 1% 800 l / ha.
3. Also - 2% 600 l / ha.
4. Also - 2% 800 l / ha.
5. Also - 3% 600 l / ha.
6. Also - 3% 800 l / ha.

Spraying cotton plants with a 2% suspension of 80% w.p. sulfur, with a consumption rate of the working suspension of 800 l / ha (standard).

Spraying cotton plants with a 0.5% suspension, 30% w.p. Omite with a working fluid consumption rate of 600 l / ha (standard)

The control was treated with water.

The preparations were applied on an area of 45 hectares of cotton. The results of studies on the effectiveness of the sulfur preparation containing “surfactant” are shown in Table No. 1. From the above, it can be seen that the sulfur preparation containing “surfactant” in the fight against spider mites on cotton surpassed the reference preparations of 80% w.p. sulfur and 57% c. .em.k (5) Omite. The optimal concentration of a sulfur preparation containing “surfactant” in the fight against spider mites on cotton is set at 2% or 3% concentration with the application rate of the working suspension, respectively, 800 l / ha and 600 l / ha. variants of experiments with the presence of 80% d.p. sulfur and 57% s.e.k. applications 57% s.em.k (5) Omite only for 5 days the spider mite was below the threshold of harmfulness and after the specified period the number of the pest was constantly increasing, which required re-treatment.

**Table 1. Influence of the sulfuric preparation stabilized by “surfactant” on the growth and development of cotton. Field experience in Bukhara region. Processing is tractor, OVKh-28. 12.UP.20 cotton variety Bukhara-6**

№	Experience options	Consumption rate		Main Height cotton stalk, cm			Number of buds 1 plant (PC)			Quantity flowers per plant		Number of boxes per 1 plant (PC)		Of which opening the box
		Sulfur kg/ha	Working fluid l/ha	11VI I	1VII I	11 X	11VI I	1VII I	11 X	11VI I	1VII I	1VII I	11 X	
1	2	3		4	5	6	7	8	9	10	11	12	13	14
1.	Control (treated with water)	-	600	56,9	minted	re- minted	10,7	7,2	0	1,0	1,4	3,6	3,2	3
2.	Spraying cotton plants with 2% suspensions of sulfur 80% w.p. reference	16,0	800	54,4			3,6	2,6	0	1,8	2,5	4,9	5	2,0
3.	Spraying cotton plants with 0.5% Omite suspension 30% Standard	1,5	600	60,9			7,0	5,7	0	1,7	5,2	4,8	4	2,9

4.	Spraying cotton plants with a 3% suspension of sulfur stabilized "surfactant"	18,0	600	64,3			4,6	6,1	0	2,0	5,4	7,1	2,2	4,8
5.	also 30%	24,0	800	60,8			6,8	5,0	0	1,1	4,1	6,1	1,4	5,8
6.	also 2%	12,0	600	62,4			4,9	3,7	0	1,6	4,0	5,4	2	5,1
7.	also 2%	16,0	800	61,1			6,2	4,6	0	1,3	3,9	5,6	5,2	2,1
8.	also 1%	6,0	600	58,1			5,9	2,8	0	1,2	2,7	4,2	3,9	3
9.	also 1%	8,0	800	53,6			6,3	3,3	0	0,5	3,5	3,5	1,1	6

**Table 2. Influence of the sulfur preparation stabilized "surfactant" on the development and productivity of cotton. (Processing tractor OVKh-28 July 12, 2020 cotton variety Bukhara-6)**

№	Experience options	Consumption rate		Weight of one box in gr.	Number of boxes on one branch (pcs)	Density of the plants in a thousand (pcs)	Yield per hectare, centner/ha	
		Sulfur kg/ha	working fluid l/ha				Yield	Yield increase
1	2	3	4	5	6	7	8	9
1	Control treated with water	-	600	4,4	6,2	99470	26,4	-
2	Spraying cotton plants with 2% sulfur suspensions, 80% w.p. (reference)	16,0	800	4,6	7,0	94784	30,5	3,4
3	Spraying cotton plants with a 0.5% suspension of Omite 30% w.p.	1,5	600	4,7	6,9	97100	31,4	4,3
4	Spraying cotton plants with a 3% suspension of sulfur stabilized "surfactant"	18,0	600	5,0	7,3	93003	33,9	6,8
5	Also 3% "surfactant"	24,0	800	5,1	7,2	95360	35,0	7,9

A new preparative form of sulfur with the content of "surfactants" in the studied consumption rates stimulated the development of cotton and increased fruiting, resulting in an increase in cotton yield by 1.6-3.6 q/ha per hectare compared to the reference preparation. (table 2)

**Conclusion.** All of the above allows us to say that the drug we studied showed only on the positive side, the drug is superior in efficiency to the reference drug of 80% w.p. sulfur and 30% w.p. Omite also has a longer duration of action than the reference drug.

It should be noted that, given the above positive aspects, in 2023 a new formulation of sulfur containing "surfactants" will be widely tested in production.

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