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BIOLOGICAL EFFECTIVENESS OF STRAZH KS FUNGICIDE AGAINST SCAB AND MONILOSE DISEASES OF APPLE

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Abstract:

In our 2020 study in apple orchards, we tested the development of scab and moniliosis apple diseases, as well as the fungicide Strazh KS (0.3-0.6 l/ha) in the fight against these diseases. According to the results of the experiment, the damage to the leaves by the scab disease was 12.0-10.0%, and the damage to the fruits was 10.3-8.3%. While the development of the disease was observed in leaves 5.1-3.8%, and in fruits - 4.6-3.1%, infection with moniliosis was 7.3-6.7% in leaves, varieties and fruits, and progression of the disease - 3.1-2.3% in leaves, varieties, fruits. The biological effectiveness of the fungicide Strazh KS (0.3-0.6 l/ha), used against squid disease, was 87.0-90.1%, while when using this drug against moniliosis disease, the biological effectiveness was 86.6 -91.0%.

Keywords: apple, disease, fungus, damage, disease development, fungicide and biological effectiveness.

INTRODUCTION. In the republic, apple trees are grown on large areas among orchards. Proper and timely organization of protective measures is important for protecting the grown crop from various diseases, its storage and delivery to the table in proper quality.

The USA and Turkey are the world's leading apple growers and exporters, while China and Iran are top performers on the Asian continent. For all countries of the world, it is important to conduct scientific research in priority areas, such as species composition, bioecological characteristics of diseases of apple orchards (scab, powdery mildew, moniliosis, etc.) and the creation of an advanced resource - effective control measures in the cultivation of apple trees, increasing productivity and improving quality fruits - one of the urgent problems of the day.

With the timely application of measures to combat any plant pests, including diseases, diseases are prevented in the first place, the quantity and quality of the crop is further increased. The method of chemical pest control is considered one of the main measures and gives a quick and high effect.

The quantity and quality of the fruit harvest caused by the scab disease is implicit (the fruits fall off, lose their marketable appearance, rot when stored in storage) (the development of trees slows down, and the fact that they become unstable to winter colds, penetrate through the wounds on the fruits by other insects and microorganisms and cause fruit rot) decreases. In spring, when there is cool weather and high humidity, up to 70% or more of the crop can be lost. The disease is also of great economic importance in Uzbekistan (and neighboring countries) [14, 2, 4].

2000, in the Kursk and Tula regions of Russia, the fungicides Euparen Multi (1.5 kg/ha), Bayleton (0.3 kg/ha) and Zato (0.15 kg/ha) against squid disease of apple trees of the Pamyat Michurina variety had a Prevalence of 11 .3% and a progression of 2.3% when applied three times consecutively during the growing season of the trees. The biological effectiveness of drugs reached 85.8% [3].

In Uzbekistan, moniliosis is a widespread and very harmful disease; it is noted that its susceptibility is higher than that of scab [13]. The causative agent of moniliosis is the fungus Monilinia fructigena.

Monilinia fructigena is less pathogenic than M. fructicola and M. laxa, but is the dominant pathogen of moniliosis, which is widespread in many European countries and causes large crop losses [15, 16, 17, 1].

According to researchers, fruit tree disease caused by M. fructigena occurs in all parts of the world [11]. According to available data, since 1990, there has been a spread and development of moniliosis in the apple orchards of Kazakhstan and an increase in the incidence[7, 8]. In particular, the distribution of the pathogenic fungus M. Fructigena in the gardens of the southeastern part of the country is the same as that of the scab fungus (V. Inaequalis), and the harmfulness is much greater than that of the scab [5, 7]. In 2008-2010, the spread of moniliosis

from 69.1% to 100% was noted in individual gardens of the Tashkent, Jizzakh and Samarkand regions of our republic. Damage to flowers ranged from 57 to 89.3%, leaves from 13.8 to 21.2%, fruits from 2.9 to 13.5% [10].

The researchers concluded that M. Fructigena usually damages seed trees, while M. Fructicola and M. Laxa damage fruit trees; M. Laxa infects more flowers and branches, while M. Fructicola infects fruits more. In addition, M. Laxa damages apricots and almonds more, while M. Fructicola damages peaches, nectarines, and plums [15]. Khodzhaev's method [12] was used to determine the biological effectiveness of fungicides against apple squid diseases and moniliosis.

RESEARCH METHODS. The study was conducted in 2020 in the apple orchards of the Research Institute of Horticulture, Viticulture and Winemaking named after academician M. Mirzaev located in the Tashkent region, Tashkent district. The apple tree is 5 years old, the Fuji variety is staggered.

The test fungicide was applied to 5 trees in 3 repetitions. Chemical treatment 3 times during the growing season; during the period of tree budding, after flowering, after 14 days of the 2nd chemical treatment, 1000 l/ha of the working solution were applied.

RESEARCH RESULTS. In 2020, the fungicide Strazh KS was tested at a consumption rate of 0.3-0.6 l/ha against apple scab and moniliosis. The fungicide Chorus s.d.g. was chosen as a template.

According to the results of the experiment, the application rate of 0.3 l/ha was used against squid apple disease. Strazh KS fungicide showed good results. Damage was observed up to 12.0% in leaves and 10.3% in fruits. In the leaves, the development of the disease was noted up to 5.1%, in the fruits up to 4.6%. Biological efficiency was up to 86.6% (table 1.).

Table 1.
Biological efficacy of the fungicide Strazh KS used against apple scab disease
(Field experience, Tashkent region, Scientific Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev, 2020)

№	Options	Application rate, kg/ha or l/ha	Leaves			Fruit		
			Damage,%	Disease progression, %	Biological efficiency, %	Damage,%	Disease progression, %	Biological efficiency, %
1.	*Control (not processed)*	-	57,0	25,7	-	55,0	22,5	-
2.	*Chorus s.d.g. (sample)*	0,4	7,0	3.4	90,6	7,3	2,8	91,8
3.	*Strazh KS*	0,3	12,0	5.1	85,9	10,3	4,6	86,6
		0,6	10,0	3,8	89,4	8,3	3,1	91,0

According to the results of experimental tests against moniliosis of the apple tree, the fungicide Strazh KS, used at the expense 0.3 l/ha. Infection with leaves, varieties, fruits was observed at 7.3%. The development of the disease was noted in the leaf, variety, fruit up to 3.1%. Biological efficiency was up to 87.0% (table 2.).

Against apple moniliosis, the fungicide Strazh KS, applied at a rate of 0.6 l/ha, showed a good effect. The defeat was observed in the leaf, variety, fruit up to 6.7%. The development of the disease was observed in leaves, varieties, fruits in 2.3% of cases. Biological efficiency was up to 90.1%.

When using the fungicide Horus s.d.g (0.4 kg/ha) as a standard, the susceptibility of leaves was 7.0%, fruits - 3.5%, and the biological efficiency reached 85.4%.

Table 2.
Biological efficacy of the fungicide Strazh KS used against apple moniliosis disease
(Field experience, Tashkent region, Scientific Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzaev, 2020)

№	Options	Application rate, kg/ha or l/ha	Damage,%	Disease progression, %	Biological efficiency, %
1.	*Control (not processed)*	-	41,3	23,7	-
2.	*Chorus s.d.g. (sample)*	0,4	7,0	3,5	85,4
3.	*Strazh KS*	0,3	7,3	3,1	87,0
		0,6	6,7	2,3	90,1

Thus, the fungicide Strazh KS, used for squid and apple moniliosis at the rate of 0.3-0.6 l/ha, is used in moderate amounts 3 times during the entire growing season; at bud break, after flowering, 2-14 days after chemical treatment, if 1000 l/ha of the working solution is subjected to chemical treatment, the resulting crop will be protected from diseases, and the quality of the product will increase.

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