

Biological effectiveness of hamla-550 EC against spider mite (*Tetranychus urticae* koch) on apple orchard

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Abstract

The article presents materials on the study of the effectiveness of Hamla-550 EC (a.v., Chlorpyrifos 50% + Cypermethrin 5% EC) against common spider mite on an apple tree. The preparation was tested at a consumption rate of 1.0 l/ha. Ramboll high rates against thin spider mites on apple trees; biological effectiveness after treatment with the drug at a rate of 1.0 l / ha was 74.6%; the maximum effect was observed on day 7 and amounted to 86.2%. Standard Nurel-D 55% fee at a rate of 1.0 l/ha showed a biological efficiency of not more than 75.8-70.8%.

Keywords: spider mite, apple, orchard, pest, the effectiveness of the drug, biological, hamla-550 EC

Introduction

Ticks belong to the subclass Acari, the class of arachnids (Arachnida), the subtype of chelicerae (Chelicerata), and the type of arthropods (Arthropoda) [2, 9]. These are small, often microscopic arthropods, with characteristic isolation of a very peculiar part of the body - gnathosoma, bearing a complex of mouthparts [4, 8].

The meaning of ticks is manifold. First of all, several species cause serious damage to human and animal health. In addition to the general oppression of the host organism, many ticks are carriers and long-term keepers of pathogens of several dangerous diseases [6, 12].

Superfamily Tetranychidae The respiratory openings in ticks open externally into long paired peritremes located at the base of the chelicerae [1, 13]. The propodosome is often separated from the hysteroscope by an inconspicuous groove. The chelicerae are transformed into a stylophone at the base, and their movable fingers form stylets, which serve to pierce the plant tissue [10, 12].

The body is medium in size, 0.3-0.5 mm long, greenish-yellow, brown, bright red. There are often dark spots on the sides of the body [9, 13]. The family includes such serious plant pests as the common spiderweb (*Tetranychus urticae* Koch), hawthorn (*Tetranychus viennensis* Zacher), red fruit (*Panonychus ulmi* Koch), garden spider (*Schizotetranychus pruni* Oud), and other species [3, 10].

Red spider mite (*Tetranychus cinnabarinus*) - belongs to the group of serious pests of almost all garden trees.

The adult tick is very small - females -0.5 mm, males -0.3 mm. Females are purple-red, males are bright red. Tick reproduction increases with increasing temperature [7, 9].

In addition to the red flat tick, the common spider mite (*Tetranychus urticae*) and the Atlantic spider mite (*Tetranychus atlanticus*) are also common. Ticks settle on the upper and lower side of the leaf, on shoots, on branches, and in mass reproduction on fruits [5, 7, 11].

Damaged plants are distinguished by a pale yellow color. A thin transparent web appears between the leaves and stems of plants. The surface of damaged leaves is first covered with pale dots from sucking out cell sap, but later the spots increase and form continuous whitish spots, the leaves fall off prematurely. The plant weakens, becomes bare, fruiting decreases.

Place and method of testing

Hamla-550 EC production trials (a.w., Chlorpyrifos 50% + Cypermethrin 5% EC). were carried out on stationary garden, "Galaba" farms of the Sariasijsky district of the Surkhandarin region.

The preparatory work, setting up and conducting the experiment corresponded to the "Methodological instructions of the State Chemical Commission." (2004).

The biological efficiency of the treatments was calculated according to the well-known Abbat formula (1925), which provides for the correction of experimental data for control.

Eph \u003d Av - Ba * 100

Av

Where: Ef - biological efficiency, in %

A - the average number of pests in the experiment before treatment.

a - the same after processing

B - the average number of pests in the control before treatment.

in - the same after processing

Test Results

Experiments to test the effectiveness of the insecticide Hamla-550 EC (a.w., Chlorpyrifos 50% + Cypermethrin 5% EC) were carried out on stationary garden plots, with different densities of leafworm pest, apple mite. The drug was tested at a consumption rate of 1.0 l/ha.

Hamla-550 EC(a.i., Chlorpyrifos 50% +Cypermetrin 5% EC) at a rate of 1.0 l/ha, respectively, is noted in the tables below 1.

Table 1: Biological efficacy of Hamla-550 EC (a.w., Chlorpyrifos 50% + Cypermethrin 5% EC) against apple mites. Production experience ("Galaba" farm of the Sariasi district of the Surkhandarin region 05.06. 2019)

№	Control	Using l/ha	The average number of mites on the 1st infected leaf, and					Biological efficiency, %, per day			
			before using	after treatment, per day				3	7	14	21
				3	7	14	21				
1.	Hamla-550 EC (Hamla* 550% em.c.)	1,0	24,3	6,5	4,3	7,7	10,5	74,6	86,2	77,1	72,4
2.	Nurell D. 55% a.e. (reference)	1,5	27,6	7,8	5,8	9,2	12,6	73,2	83,1	75,8	70,8
3.	Control (no processing)	-	34,8	36,7	43,4	48,1	4,5	-	-	-	-

Spider mite (*Tetranychus urticae* Koch). From where it can be seen that the highest rates against the poutine mite on the apple tree, the biological effects on the 3rd day after treatment with the drug at a rate of 1.0 l / ha was 74.6%, the maximum effect was noted on the 7th day and amounted to 86.2%. On the 14-21st day, the efficiency of 77.1-72.4% decreased sharply and equaled, respectively.

Standard Nurell-D 55% a.e. at a rate of 1.0 l/ha, the biological efficiency on the 3rd day after treatment with the drug was 73.2%. The maximum effect was noted on the 7th day and amounted to 83.1%. On the 14th-21st day, the biological efficiency is 75.8% -70.8%.

Conclusions

1. Insecticide Hamla-550 EC (a.w., Chlorpyrifos 50% + Cypermethrin 5% EC) showed high biological efficiency in the control of spider mites (*Tetranychus urticae* Koch) in the apple tree at a consumption rate of 1.0 l/ha.
2. The drug has a convenient, safe preparative form, easy to use.
3. During the period of the experiments, no phytotoxicity was noted about the apple tree.

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