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Sweet Pepper Pests And Chemical Control Measures Against Them

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Abstract: This article presents the morphology and bioecology of the main pests of sweet pepper, spider mites, and greenhouse thrips. A chemical method of control against greenhouse thrips was used, in which Polo, 50% sus.c. (1.0 l/ha), Kapito, 50% em.c. (0.25 l/ha), and Desis, 2.5% em.c. (0.7 l/ha) were tested against the pest.
Keywords: Sweet pepper, plant, pest, spider mites, thrips, chemical preparation, effectiveness.

Relevance and importance of the topic: Due to the damage caused to sweet pepper by sucking and gnawing pests in the developed agricultural countries of the world, the taste, quality, useful chemical composition and yield of the fruits are decreasing. Therefore, in order to protect sweet pepper crops grown in our Republic from pests, it is important to predict the time of their appearance and study their damage, scientifically substantiate the measures taken to combat them, and create a set of economically efficient and environmentally friendly chemical agents.

In the cultivation of sweet pepper in our Republic, it is important to preserve the crop yield based on improving the pest protection system. In the cultivation of sweet pepper, from 10% to 85% of the total yield can be lost due to the effects of pests and diseases. Therefore, ensuring food security in our country and growing products based on scientifically and practically based technologies and tools that have a place in the world market are of great importance.

The main sucking pests of sweet peppers are: Spider mites, greenhouse thrips, peach aphis, and alfalfa aphis. The damage they cause in vegetable production is 15-20%, and in some years, up to 50-70% of the yield is lost.

Spider mite (*Tetranychis urticae* Koch) is an omnivorous pest that damages more than 248 plants. As a result of severe damage to the plant, the sweet pepper plant loses its leaves and dries up. It is reported in the literature that scientists have observed that when spider mites attack early, about 50% of the crop is lost.

The spring and summer members of the spider mite are yellowish-green, while the winter members are reddish-orange. The spider mite is 0.3-0.6 mm in size. The larva has 3 pairs of legs, and the nymphs and imagoes have 4 pairs of legs. The development of the mites occurs every 8-12 days in the summer, and up to 19 days in the fall and spring. It reproduces 18-20 times a year (Uspensky, 1970). Females overwinter in greenhouses and hothouses, singly or in groups, on plant debris. They are frost-resistant, half of them die at -20 ^{0}C, and 100% die when the temperature exceeds -30 ^{0}C.

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Thrips is a member of the incomplete metamorphosis (Holometabola) insect order Thysanoptera, such as greenhouse thrips (*Heliothrips haemorrhoidalis* Bouche.) and tobacco thrips (*Thrips tabaci* Lind.), have been causing serious damage to crops such as sweet and bitter peppers, bell peppers, cucumbers, and eggplants in greenhouses in recent years.

Thrips go through the stages of egg, larva, pronymph, nympha and adult. These pests are very difficult to distinguish with the naked eye when they are small.

The adult of the greenhouse thrips (*Heliothrips haemorrhoidalis* Bouche.) usually varies in color from dark brown to black with red interspersed between the segments. The female body is larger than the male, measuring 1.1-1.6 mm, while the male body length reaches 1.0-1.2 mm. However, the body size of this insect varies somewhat depending on the plant on which it feeds. The larvae are yellowish in color, with red eyes, and their color can change depending on the diet. The pronymphs are white to transparent, while the nymphs are light yellow or yellow-gray, and the adult larva reaches 0.9 mm. The nympha is pale in color, with long wing buds and antennae that extend completely over the head and back. The first and second instar nymphs do not feed or move. The greenhouse thrips is a polyphagous insect, feeding on the sap of 83 plant species belonging to 35 families.

Chemical control methods against pests of agricultural crops are constantly changing. That is, the achievements of world science in the field of plant protection are mainly based on the new requirements of today, and new types of insecticides of various groups are being used, which are less toxic to the environment and humans, have high economic and biological efficiency.

Table 1.

Biological efficacy of tested preparations against tobacco thrips in sweet pepper

№	Options	Drug con-sump-tion rate, l/ha	Average number of thrips per leaf, pcs.					Efficiency, % per day:			
			until processed	After processing, in days:							
				1	3	7	14	1	3	7	14
1.	Polo, 50% sus.c	1,0	8,4	5,3	9,0	13,7	16,0	60,0	71,2	86,5	90,5
2.	Kapito, 50% em.c.	0,25	10,2	7,2	12,2	18,5	19,2	67,1	78,4	96,1	89,2
3.	Desis, 2,5% em.k. (template)	0,7	7,6	6,1	9,4	13,0	13,8	75,4	82,2	90,7	86,4
4.	Control (*without processing*)	-	9,7	10,2	14,6	18,3	20,4				

Instead of the previously used insecticide-acaricides that showed some negative properties, insecticides belonging to the group of synthetic pyrethroids (Sumitsidin, Ambush, Simbush, Decis, Fastak) were first created, and later insectoacaricides (Danitol, Nurell-D, Karate, Talstar, etc.).

Against tobacco thrips on sweet pepper plants: Polo, 50% sus.c. (1.0 l/ha), Kapito, 50% em.c. (0.25 l/ha), and Decis, 2.5% em.c. (0.7 l/ha) were tested against greenhouse thrips as a reference (see Table 1).

Conclusion: Polo (1.0 l/ha) was effective on the 1st day of the calculation - 60.0%, on the 3rd day - 71.2%, on the 7th day - 86.5%; Capito (1.0 l/ha) was effective on the 1st day of the calculation - 67.1%, on

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the 3rd day - 78.4%, and on the 7th day - 96.1%. Decis (2.5% 0.7l/ha), which was taken as a standard, was effective on the 3rd day - 82.2%, and on the 7th day - 90.4%.

Thus, the experiment showed that among the drugs with different active ingredients against tobacco thrips: *diafenthiuron* and *indoxacarb + abamectin*, the effectiveness was the highest in the tested standards.

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