

Main types of spider mites (tetranychidae) and entomophages in seed orchards type of composition

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Abstract

The article conducted research on the main species of spiders (tetranychidae) in seed orchards and monitoring their occurrence rates. According to him, a total of 6 species of mites are recorded from the species belonging to the family Tetranychidae of the class of mites. As a result of the analysis of the natural cousins of the mites, 9 types of cousins were recorded. The most common of these species are phytoseyulus, nabius, orius, stetorus beetle, metaseyulus and entomophagous. Based on the results obtained, conclusions and recommendations are given.

Keywords: spider, entomophagous, garden, species, pest, insect

Introduction

In orchards, several types of mites cause damage. They belong mainly to two families, the first being the four-legged mites (Tetranychidae) and the two-legged mites (Eriophyidae). These mites mitebe seen in the field under a special magnifying glass, in the laboratory under a microscope. The main mites in the orchards of the country are ordinary spiders, hawthorn mite and garden spider. In horticultural farms, several species of mites, mainly with high levels of damage, have been found to cause significant damage. These are the gray fruit mite (*Bryobia redikorzevi* Rech), the hawthorn mite (*Tetranychus viennensis* Zacher), the apple red mite (*Metatetranychus ulmi* Koch), the common spider mite (*Tetranychus urticae* Koch) and other gall-forming mites. Spider mites mainly develop and multiply under cobwebs. Spider mite (*Tetranychus urticae* Koch). Although several species of plant mites damage cotton and other agricultural crops in Uzbekistan, the most dangerous of them is the common spider. It is a herbivore belonging to the class of arachnids (Arachnida), a family of acariform mites.

The common spider is the most dangerous pest of cotton and other crops in Central Asia. This pest mite destroy more than half of the crop yield in some fields. In normal years, the spider kills 6-10% of the gross crop, and in some years even 14%.

The spider is more dangerous and harmful than other mites (*Tetranychus urticae*), the main pest of melons, industrial crops and horticulture, ornamental trees. Spiders have been recorded as the main pest of more than 150 species of crops worldwide. According to the research of other scientists, mites are distributed in almost all agricultural areas of the earth, and phytophagous mites, compared to other mites, all stages of its development are associated with plants. Spiders have been found to infect 1200 species of cultivated and other plants, and 150 species of these plants have been found to be at high economic risk. In our country, research has been conducted on the occurrence of mite in horticultural farms and their bioecological characteristics and systematic status, but not in-

depth study. For this reason, we aimed to conduct research on the mites encountered in the horticultural regions of the Republic and their species composition, damage.

Object and methods of research

Research Surveys were conducted in the existing local and intensive seed orchards in Tashkent Surkhandarya region in 2020-2021. The research has been conducted over the years in the horticultural areas of the provinces, collecting samples from the mites and their natural neighbors identified in the seed orchards during the season. The samples were systematically analyzed in the Plant Protection Laboratory of Tashkent State Agrarian University on the basis of various literary and Internet sources. Indicators such as mite location, systematic analysis, and their incidence rate were identified. In laboratory studies, the thermostat MEMMERT IPP IPP55 plus, microscope type XSZ-152 s was used to distinguish morphological features.

Research results and their discussion

In the study, areas affected mainly by mite s were isolated and monitored throughout the season. Initially, the collected channels in 2020-2021 were compared with each other, and their types were systematically clarified. According to him, encounter rates were determined for mites, apple, pear and quince trees, which are numerous and highly harmful. According to him, 6 species of mites were found in seed trees in the studied areas. However, not all of them had high levels of development and population density. In seed orchards, the species of spiders, mainly belonging to the family Tetranychidae, was found. Of these, the apple red mite (*Panonychus ulmi* Koch) Hawthorn mite - *Tetranychus viennensis* Zacher., Gray fruit mite - *Bryobia redikorzevi* Rech., Common spider - *Tetranychus urticae* Koch., Garden spider., Garden spider. turkey spider - *Tetranychus turkestanii* Ug. Et Nik. It was observed that the tribes met.

These mites are infested by fruit tree species and their incidence varies, and in some cases co-development of several mite species in fruit trees of the same species has been observed. These cases were mainly observed in apple and pear trees. Apple red mite, a common spider, and hawthorn mite,

gray fruit mite, and garden spider were found to be medium-infested mite. As a rare species compared to other mites, Turkestan was found to be a spider. In the apple tree, a gray mite was also found along with the red apple mite at the same time (Table 1).

Table 1: Meeting rate and systematic analysis of mites in seed orchard (Tashkent, Samarkand and Surkhandarya regions, 2020-2021)

No	Types of mites	Family	Meeting rate
In the apple tree (<i>Malus domestica</i>)			
1.	Apple red mite - <i>Panonychus ulmi</i> Koch.	<i>Tetranychidae</i>	+++
2.	Hawthorn mite - <i>Tetranychus viennensis</i> Zacher.	<i>Tetranychidae</i>	+++
3.	Gray fruit mite - <i>Bryobia redikorzevi</i> Rech.	<i>Tetranychidae</i>	+++
4.	Simple spider mite - <i>Tetranychus urticae</i> Koch.	<i>Tetranychidae</i>	+
5.	Garden spider mite- <i>Schizotetranychus pruni</i> Oudms.	<i>Tetranychidae</i>	+++
6.	Turkestan spider mite - <i>Tetranychus turkestanii</i> Ug. Et Nik.	<i>Tetranychidae</i>	+
In the pear tree (<i>Pyrus communis</i> L.)			
1.	Apple red mite - <i>Panonychus ulmi</i> Koch, 1836. (<i>Metatetranychus ulmi</i> Koch.)	<i>Tetranychidae</i>	+
2.	Hawthorn mite - <i>Tetranychus viennensis</i> Zacher.	<i>Tetranychidae</i>	+
3.	Gray fruit mite - <i>Bryobia redikorzevi</i> Rech.	<i>Tetranychidae</i>	+++
4.	Simple spider mite - <i>Tetranychus urticae</i> Koch.	<i>Tetranychidae</i>	+++
5.	Turkestan spider mite - <i>Tetranychus turkestanii</i> Ug. Et Nik.	<i>Tetranychidae</i>	-
In the quince tree (<i>Cydonia oblonga</i> Mill)			
1.	Apple red mite - <i>Panonychus ulmi</i> Koch, 1836. (<i>Metatetranychus ulmi</i> Koch.)	<i>Tetranychidae</i>	+
2.	Gray fruit mite - <i>Bryobia redikorzevi</i> Rech.	<i>Tetranychidae</i>	+
3.	Simple spider mite - <i>Tetranychus urticae</i> Koch.	<i>Tetranychidae</i>	+

Comment: (+++) – many, (++) – middle, (+) – few

Pear fruit trees were observed in moderate amounts with red apple mite, gray mite, hawthorn mite and spider mite during the season. The Turkestan spider was found in very small numbers. The quince tree was also found to have a high incidence of mite infestation, mainly as a simple spider with a high level of infestation. However, in some places, apple red mite and gray fruit mites were also moderately damaged.

In the orchards of Uzbekistan, 16 species of predatory mites feed on phytophagous mites and insects. Most species of arachnids live only in the wild, and wild arachnids are divided into 2 groups: parasitiform and acariform [2, 4].

The biological method of pest control in orchards is based on the use of natural relatives and entomophagous organisms of pests. The natural cousins of arthropods are divided into entomophagous (insectivorous) or acariphagous (mite-feeding) in terms of their nutritional properties. In practice, the biological method is carried out by artificially inseminating the insects of certain insects and mites in areas where there is a risk of reproduction of a pest. There are 2 ways to use entomophages on a large scale, the first is to find local species of entomophagous and use them effectively, and the second is to introduce aggressive species from abroad (introduction) to local conditions [5, 7].

In nature, acariphages play an important role in managing the number of mites. The actual reduction in the quantitative number of mites by acariphages depends on many factors, including climate and weather conditions, the physiological state of the population, various biocenotic connections, and so on. Therefore, it is not always possible to determine the negative quantitative relationship between the total quantitative number of channels and acariphages. In Uzbekistan, 43 native species of wild mites belonging to 11 families and 27 genera have been identified. Most of these species are found mainly in garden biotopes where insecticides

are rarely used, as well as in grasses around field crops [6, 9].

Research The survey was conducted in 2020-2021 in existing local and intensive seed orchards in Tashkent and Surkhandarya regions. The study followed years of observations of the horticultural areas of the provinces, identified and sampled the natural neighbors of the seed-bearing garden mites during the season. The research was carried out on the basis of generally accepted methods in determining the species composition, distribution and damage of sucking pests and entomophagous in orchards and collecting samples.

In the study, areas with mainly natural cousins (entomoacariphages) were observed separately and observed throughout the season. Initially, the kushans collected in 2018–2019 were compared with each other, and their types were systematically clarified. According to him, encounter rates were found for cousins, apple, pear and quince trees with high levels of usefulness. According to him, 9 species of natural cousins were found in fruit trees in the studied areas. However, not all of them had high levels of development and population density. In the orchards were found species and other cousins, mainly members of the family Coccinellidae. Of these, the Stetorus beetle is *Stethorus punctillum* Ws, *Orius albidipennis* Reut of the orius caterpillar. and *Orius niger* Wolff, nabius *Nabis fesus* L, thrips *Thysanoptera*, phytoseiulus *Phytoseiulus corniger* W., Neuroptera family, Chrysopidae family *Chrysopa septempunctata* Wes.kabi species were observed [8, 10].

These kushans have different levels of occurrence in fruit tree species, and in some cases separate development of several kushanda species has been observed in fruit trees of the same species. These cases were mainly observed in apple and quince trees. *Phytoseiulus*, nabius, *oriuskandalasi*, stetorus beetle, and other metaseyulus were found in the pear tree at the same time as *phytoseiulus* (Table 2).

Table 2: In seed orchards are the main species of mites in nature (Tashkent and Surkhandarya regions, 2020-2021)

№	Useful arthropods	Meeting	
		Tashkent region	Surkhandarya region
Order of Parasitiformes, Family <i>Phytoseiidae</i>			
1	<i>Phytoseiulus spoofi</i> Oud.	+++	++
Order of Coleoptera, <i>Coccinellidae</i> оиласи			
2	<i>Coccinella sempenpunctata</i> L.	+++	++
3	<i>Adalia bipunctata</i> L.	++	++
4	<i>Propylaea quatuordecimpunctata</i> L.	++	++
5	<i>Chilocorus bipunctulatus</i> L.	++	-
6	<i>Stethorus punctillum</i> Weise.	++	++
Order of Hemiptera, <i>Antocoridae</i> оиласи			
7	<i>Orius albidipennis</i> Reut.	+	++
8	<i>Orius niger</i> Wolff.	+	++
9	<i>Nabis ferus</i> L.	++	++
Order of Neuroptera, <i>Chrysopidae</i> оиласи			
10	<i>Chrysopa septempunctata</i> Wes.	+++	+++

Comment: +++many, ++ middle, + few, – don't meet

The mites encountered in the studies differed from one another in terms of development and distribution. According to him, the most common mites are *Adalia bipunctata* L., *Propylaea quatuordecimpunctata* L., *Phytoseiulus spoofi* Oud., *Nabis ferus* L., *Chrysopa septempunctata* Wes. such species are found in both regions and have been found to be important in reducing the number of mites in orchards. The migration of wild bloodsucking insects and mites was observed to vary depending on climatic conditions, and a sharp increase in air temperature led to a decrease in the number of acariphages.

Conclusion

Studies have shown that in seed trees (apple, pear, quince) a total of 6 species of mites belonging to the family Tetranychidae are found. Of these, 3 species were identified as the most pests and predators. Of these, apple red beetle, gray fruit beetle, and common spider were observed to damage the leaves, young twigs, and fruits of fruit trees to a high degree. The branches of the damaged trees were manifested by cold blows, the shedding of the leaves, and the appearance of various spots on the fruit.

During the study, a total of 9 species of mite species were found in orchards. The most common of these were *Phytoseiulus*, *Nabis*, *Orius*, *Stethorus* beetle, *Metaseiulus*. These entomophages have been found to play an important role in managing the amount of mites in gardens.

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