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OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2023 Issue: 01 Volume: 117

Published: 29.01.2023 <http://T-Science.org>

Issue



Article



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SPIDER MITES IS A SERIOUS PEST OF LEMON PLANTS

Abstract: In this article *Vertimayk duo*, em.k. (0.2 l/ha), *Vertimek*, KE (0.25-0.5 l/ha), and *Agroplan neo* 20% s.e.c. (0.3 l/ha) preparations were tested. According to the results of the conducted research, *Vertimayk duo*, em.k. 87.1% efficiency of the drug was observed by the 21st day, *Vertimek*, KE preparation up to 90.4% on the 21st day, *Agroplan neo* 20% s.e.c. and the drug was 86.0% effective by the 21st day.

Key words: Lemon plant, spider mite, development, distribution, damage, preparation and biological effectiveness.

Language: English

Citation: Boyjigitov, F. M., Holliiev, A. T., Nurjabov, A. U., & Niyozkulov, B. Kh. (2023). Spider mites is a serious pest of lemon plants. *ISJ Theoretical & Applied Science*, 01 (117), 669-671.

Soi: <http://s-o-i.org/1.1/TAS-01-117-56> **Doi:**  <https://dx.doi.org/10.15863/TAS.2023.01.117.56>

Scopus ASCC: 1100.

Introduction

UDC: 632: 632.5: 632.914

It is observed that citrus plants are severely damaged by several pests during the growing season, resulting in loss of yield and poor quality. Therefore, it is an urgent task to study the spread of pests in lemon plants grown in greenhouse conditions, to study the features of biological development and to determine the level of damage, and to develop effective measures to combat them.

Tetranychus urticae Koch belongs to the phylum Arthropoda, subphylum Chelicerophora, class Acaromorpha, order Acari, family Tetranychidae. This pest is widespread in the countries of Central

Asia, China, Australia, Africa, South and North America, Western Europe and causes serious damage to plants [2, 3, 4].

The body of the spider mite has an oval shape and is 0.3-0.6 mm long. Its joints in spring and summer are blue-yellow, and those that emerge in winter are orange-red. *Tetranychus urticae* Koch emerges in early spring when the average overnight air temperature exceeds 7.3°C. The first generation of the pest develops in weeds, such as weeds [6].

T. urticae Koch is a polyphagous pest affecting 248 plant species belonging to 62 families. Of these, 173 species are weeds and wild grasses, 38 species are trees and shrubs, and 37 species are field crops [1, 5].

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It settles on the back side of the leaves belonging to the spider mite and causes damage to it. On the upper roof of the affected leaves, pale spots are found, and brown and reddish spots are found in severely affected areas. Strongly broken leaves are woven, the plant becomes bare and becomes very weak [6].

In the fight against *T. urticae* Koch, the high efficiency of Spirodiclofen treatment preparations has been cleared during loads [9, 10].

Research location and methods.

The research was conducted in 2021-2022 in the greenhouses where lemon plants are grown belonging to Umidjon LLC located in Okdarya district of Samarkand region.

The tested drugs were used in 10 trees in 3 repetitions. Chemical treatment was carried out 3 times during the growing season, depending on the mechanism of action of the drugs used. Abbot's formula and methodological manuals on "Testing of insecticides, acaricides, biologically active substances and fungicides" were used to determine the biological effectiveness of drugs used against pests [7, 8].

Research results. Vertimek, KE 0.25-0.5 l/ha, against the spider mite found in lemon plants during research, Agroplan neo 20% s.e.c. Tested at a flow rate of 0.3 l/ha. As an example, Vertimayk dua, em.k. drug was selected (table). Anti-spider mite Vertimek, KE drug 0.25-0.5 l/ha 80.6-81.3% by the 3rd day, and 88.0-90.4% by the 21st day, biological efficiency was achieved.

Agroplan Neo 20% s.e.c. 77.8% biological efficiency was achieved on the 3rd day in the version where the drug was used at a consumption rate of 0.3 l/ha, and by the 21st day, this indicator was 86.0%.

Vertimayk dua in the template variation, em.k. 79.5% efficiency was achieved on the 3rd day when the drug was used at 0.2 l/ha, and on the 21st day this indicator was 87.1%.

In the control option, it was observed that the number of pests did not decrease. In short, Vertimek, KE (0.25-0.5 l/ha), Agroplan neo 20% s.e.c. (0.3 l/ha) and Vertimayk duo, em.k. (0.2 l/ha) allows to dramatically reduce the amount of pests when used correctly in the specified periods.

Table 1. Biological efficacy of preparations against spider mite on lemon plant field trial, Samarkand region, Akdarya district, Umidjon LLC, 2022.

| № | Options (name of drugs) | Consumption rate, l/ha | The average number of mites per leaf, pcs | | | | Biological efficiency in days, % | | | | |
|----|---------------------------------------|---------------------------|--|---------------------------------|------|-----|-------------------------------------|------|------|------|------|
| | | | before processing | in the days after processing | | | | 3 | 7 | 14 | 21 |
| | | | | 3 | 7 | 14 | 21 | | | | |
| 1. | Control (not processed) | - | 15,0 | 15,8 | 16,4 | 17 | 18,1 | - | - | - | - |
| 2. | Vertimayk prayer, em.k. (template) | 0,2 | 14,8 | 3,2 | 2,8 | 2,6 | 2,3 | 79,5 | 82,7 | 84,5 | 87,1 |
| 3. | Vertimek, KE | 0,25 | 15,2 | 3,1 | 2,8 | 2,4 | 2,2 | 80,6 | 83,1 | 86,1 | 88,0 |
| | | 0,5 | 14,7 | 2,9 | 2,5 | 2,2 | 1,7 | 81,3 | 84,4 | 86,7 | 90,4 |
| 4. | Agroplan neo 20% s.e.c. | 0,3 | 15,4 | 3,6 | 3,3 | 3,1 | 2,6 | 77,8 | 80,4 | 82,2 | 86,0 |

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