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EVALUATION OF THE EFFICACY OF SELECTED CHEMICAL PREPARATIONS AGAINST SPIDER MITE (*TETRANYCHUS URTICAE* KOCH) ON SWEET CHERRY TREES

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Annotation. This article investigates the effectiveness of various chemical and biological preparations against the two-spotted spider mite (Tetranychus urticae Koch.) that spreads on cherry trees. The experiment was conducted in the Fergana region, and the number of pests, the percentage of damaged leaves, and the efficacy of the preparations were evaluated using the Abbott formula. Based on the obtained results, the most effective treatment was identified and practical recommendations were provided.

Keywords. Cherry, spider mite, Vertimek, Abbott, Fergana, Omite, Rishton, Uvertim, pesticide, Koch, imago, population

Annotatsiya. Ushbu maqolada gilos daraxtlarida tarqaluvchi o‘rgimchakkana (Tetranychus urticae Koch.) ga qarshi qo‘llanilgan turli kimyoviy va biologik preparatlarning samaradorligi o‘rganildi. Tajriba Farg‘ona viloyatida o‘tkazilib, zararkunanda soni, zararlangan barglar foizi va preparatlarning samaradorligi (Abbot formulasi asosida) baholandi. Olingan natijalar asosida eng samarali vosita aniqlanib, amaliy tavsiyalar berildi.

Kalit so‘zlar. Gilos, o‘rgimchakkana , vertimek, Abbot, Farg‘ona, omayt, Rishton, uvertim, preparat, Koch, imago, populyatsiya.

Аннотация. В данной статье изучена эффективность различных химических и биологических препаратов против паутинного клеща (Tetranychus urticae Koch.), распространённого на вишнёвых деревьях. Эксперимент проводился в Ферганской области, оценивались численность вредителя, процент повреждённых листьев и эффективность препаратов по формуле Аббота. На основании полученных результатов был определён наиболее эффективный препарат и даны практические рекомендации.

Ключевые слова. Вишня, паутинный клещ, Вертимек, Абботт, Фергана, Омайт, Риштан, Увертим, препарат, Кох, имаго, популяция.

Introduction. Sweet cherry (*Prunus avium* L.) occupies an important place among fruit trees. Ensuring a high-quality and stable yield largely depends on the timely and proper implementation of pest management measures. In sweet cherry orchards, the two-spotted spider mite — *Tetranychus urticae* Koch — is particularly widespread and suppresses plant growth and development by damaging the leaves. Therefore, identifying effective control measures against this pest is considered scientifically and practically relevant.

The spider mite belongs to the class Arachnida, order Acariformes, and family Tetranychidae. It is a very small arthropod that is barely visible to the naked eye. The body is oval in shape and measures approximately 0.3–0.6 mm in length. Summer generations are greenish-yellow in color, whereas overwintering individuals are dark orange to reddish. Two distinct dark spots are clearly visible on the lateral sides of the body.

The female undergoes several developmental stages, including egg, larva, protonymph, deutonymph, and adult (imago). The eggs are spherical in shape. The spider mite emerges from overwintering very early, when the average daily temperature exceeds 7.3 °C. The first generation develops on weeds, particularly on bindweed (*Convolvulus* spp.).

During the summer period (June–August), one generation develops within 8–12 days; in May, within 15–20 days; and in March–April, within 25–30 days. On the upper surface of infested leaves, light-colored spots appear, while heavily damaged areas develop brownish and reddish discoloration. Table 1 presents the phenological developmental stages of the spider mite.

Table 1. Phenological developmental stages of *Tetranychus urticae*

months	Developmental stage	Main activity	population dynamics	Note
March	End of diapause	onset of activity	low	Females emerging from overwintering become active
April	Reproduction	oviposition	average	The number increases depending on the weather
May	Complete development	multivoltine development	increases	First generation emergence
June	maximum activity	rapid reproduction	high	Development of 2nd–3rd generations
July	maximum number	complete cycles	highest	Damage intensifies
August	decline in activity	number of generations decreases	decreases	Condition-dependent
September	preparation	entry into diapause	low	Activity declines
October	Diapause	entry into overwintering	low	Hides under leaves on the soil

Materials and Methods. The experiment was conducted in July 2025 in an industrial-type sweet cherry orchard located in Rishton district, Fergana region. The orchard is 10 years old, planted with the local variety *Buqa yuragi* adapted to local conditions, lacks a drip irrigation system, and the row spacing was managed according to standard agrotechnical requirements. The experimental site is typical in terms of soil and climatic conditions, with summer air temperatures ranging from 35 to 42 °C and relative humidity dropping to 30–40%.

The study aimed to determine the efficacy of various protective measures against the spider mite *Tetranychus urticae* Koch. The experiment included three treatments, each replicated four times. Each replicate consisted of five cherry trees, and protective spacing was maintained between trees to prevent cross-contamination.

Observations and assessments were carried out before the treatments, and on the 3rd, 7th, 14th, and 21st days after application. The level of infestation was assessed by counting the number of spider mites on the leaves, following the methodological guidelines for pest infestation assessment.

Table 2. Experimental treatments and names of preparations

№	Preparat nomi	Ta'sir etuvchi modda	Sarf me'yori
1	Nazorat (ishlov berilmagan)	—	—
2	Omayt	Propargite	3,0 l/ga
3	Uvertim	Spirodiclofen 120 g/l + Abamectin 60 g/l	0,175 l/ga
4	Vertimek (andoza)	Abamektin	0,4 l/ga

c



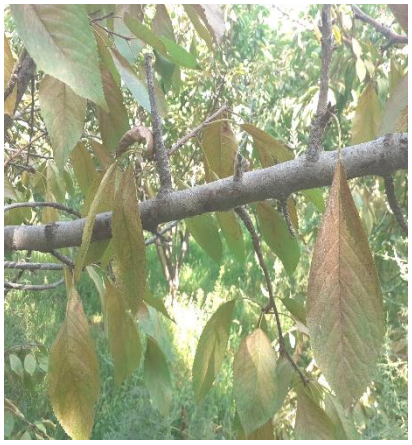


Table 3. Biological efficacy of pesticides against spider mites on sweet cherry trees

№	Treatments	Active ingredient	Preparation application rate (L/ha)	Average number of spider mites per 10 cm shoot					Efficacy (%) over observation days			
				Before treatment	Days after treatment							
					3	7	14	21	3	7	14	21
1.	Omayt	Propargite	3,0	123,3	15,6	7,4	4,0	5,2	87,3	94,0	96,7	95,7
2.	Uvertim	Spirodiclofen 120 g/l + Abamectin 60 g/l	0,3	125,5	20,2	10,2	7,1	4,0	83.9	91,8	94,3	96,8
3.	Vertimek (Template)	Abamektin	0,4	121,7	22,5	15,0	10,3	7,0	81,5	87,6	91,5	94,2
4.	Control (untreated)	-	-	120	150	200	260	320	-	-	-	-

Conclusion and Recommendations. The results of the experiment showed that among the tested treatments against the spider mite, the highest biological efficacy was observed with the Omite preparation on days 3, 7, and 14. Following application of this preparation, the pest population sharply decreased within 3 days, and even after 10 days, its numbers remained below the economic threshold. However, a slight increase in population was noted in the later stages of observation.

The Uvertim preparation also demonstrated high efficacy, producing results close to those of Omite in the initial period, but its protective effect was observed to be longer-lasting than Omite. In the case of Vertimek, efficacy was lower; although the pest population decreased during the first 3 days after application, it was not completely eliminated, indicating the need for additional treatments for long-term control.

These findings suggest that Omite can be recommended as the primary treatment against spider mites, Uvertim is effective for long-term protection, and Vertimek can also be utilized as part of an integrated pest management system.

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