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Article



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MEASURES TO CONTROL ALMOND AND BASIC PESTS

Abstract: Almonds belong to the group of nut-like fruits and have been cultivated in our country for a long time. The Latin name of the almond tree (*Amygdalus cammunis* L.) is a tree and shrub belonging to the Anorgulaceae family. About 40 species are known. It is distributed in the north of Asia and Central America, in the south of Europe, in Central Asia. There are 5 types in Uzbekistan. One of them is sweet almond. (*A. comminis* L.) is planted. In addition to oil, protein, sugar, bald almonds contain 2-2.5% amygdalin, which is widely used in the perfume industry and medicine. Almond skin is used in the preparation of gas-absorbing clay, in winemaking, to give the wine its aroma, quality and fullness. Up to 40% of potassium is produced in the ash of almond pods and is used as a fertilizer. Almond wood is very hard and beautiful, so it is a valuable material in carpentry and engineering.

Key words: almonds, pest, crop, damage, wood.

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Introduction

Almonds belong to the group of nut-like fruits and have been cultivated in our country for a long time. The Latin name of the almond tree (*Amygdalus cammunis* L.) is a tree and shrub belonging to the Anorgulaceae family. About 40 species are known. It is distributed in the north of Asia and Central America, in the south of Europe, in Central Asia. There are 5 types in Uzbekistan. One of them is sweet almond. (*A. comminis* L.) is cultivated, the rest occur wild. It is grown in mountainous areas of Uzbekistan up to 1000-1200 m above sea level (Fergana Valley, Surkhandarya, Samarkand, Tashkent regions). The fruit is a hard-shelled pod (nut) covered with a husk (which cracks when ripe). It ripens in July and September. The core contains 35-67% fat, up to 30% protein, as well as sugar, glutinous substances (up to 2.5% amygdalin in bitter almonds). Depending on the variety, the pod is thin (bubble), medium and hard, and the core is sweet or bitter. Economic importance is great, almonds are grown mainly for their sweet pulp.

Today, a lot of attention is being paid to the establishment of almond groves in forestry and agricultural lands. Since almond is a heat-loving,

drought-resistant, xerophytic plant, it has been growing since ancient times on the mountain and sub-mountain slopes of Tashkent, Jizzakh, Samarkand, Kashkadarya, Surkhandarya regions, where annual rainfall exceeds 500-700 mm. In addition to newly planted almond groves, it also grows wild in natural forests. A number of varieties of almonds have been created today, including; Kolkhozchi local variety, Gozal local variety, Samarkand 56 local variety and others are grown in a number of regions of our republic.

Today, almonds are used in many sectors of the economy. It is useful to eat unshelled raw almonds by adding sugar or making jam. Sweet kernel almond has 40-70% fat, 20-25% protein, 6% sugar, is rich in various medicinals, organic substances and is considered a valuable raw material for confectionery industry. It contains up to 10% oil and proteins and carbohydrates. In addition to oil, protein, sugar, bald almonds contain 2-2.5% amygdalin, which is widely used in the perfume industry and medicine. Almond skin is used in the preparation of gas-absorbing clay, in winemaking, to give the wine its aroma, quality and fullness. Up to 40% of potassium is produced in the ash of almond pods and is used as a fertilizer. Almond

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wood is very hard and beautiful, so it is considered a valuable material in carpentry and engineering [1,2,3].

In recent times, there are several pests in almonds, and as a result of their damage, a large part of the crop is lost.

Literature analysis and methodology

The distribution and bioecological features of the almond fruit-eater Mohammed Mansour, Wearing A, Gehring Madsen, Horak and Brown, Van Der Geest and Evenhuis Ciglar, Lacey, Sauphanor, Boivinet, Bouvier, Brun-Barale, Lacey and Unruh, E. Chikman (Turkey), H .Ranji, Y.Karimpoor, A.Dosti (Azerbaijan), Abu Fazel Dosti (Iran), Melmans, Amsym (Belgium), H.Walfgong, C.L.Maria Luisa (Cuba), E.I.Araejo, C.H.Fiesota, A.V.Mishenko (Ukraine) , Tokumoro and Abe Kawahara (Japan) have studied.

In order to obtain a high and quality harvest from almond trees, to develop an integrated control system

with high biological and economic efficiency, determining the species composition, distribution, degree of damage, and bioecological characteristics of various pest insects that damage the plant and its harvest from early spring to ripening and putting it into practice is one of the important tasks of today.

Taking this into account, the following pests can be identified as the main pests of almonds. There are 20 species of almonds, including 3 species belonging to the Hemiptera family, 3 species belonging to the Homoptera family, 6 species belonging to the Coleoptera family, 5 species belonging to the Lepidoptera family. It has been found that species of insects cause damage [4,5].

Research object and methods.

In our research conducted in 2022-2023, more than 10 pests in the almond agobiocenosis were found to cause serious damage to the fruits, leaves and branches of almonds (Table 1).

Table 1. Types of pests encountered in almond agrobiocenosis.

Category	Uzbek name of the pest	The Latin name of the pest
<i>Coleoptera</i> (hard-liners)	Bodom kichik oltin qo'ng'izi	<i>Sphenoptera Kaznakom</i> Jak.
	Olti nuqtali zlatka	<i>Chrysobothris affinis subs nevsikii</i> Richt.
	Xipcha tanali pista zlatkasi	<i>Azputyc viridis</i> L.
	Hidli yog'och o'ymakori	<i>Cossus cossus</i> L.
<i>Lepidoptera</i> (coin winged)	Yong'oq mevaxo'ri	<i>Sarothrypus musculana</i> Ersch. (<i>Erschoviella musculana</i> Ersch.)
	Tengsiz ipakchi	<i>Lymantria dispar</i> L.
	Bodom mevaxo'ri	<i>Eurytoma samsonovi</i> Bass.
<i>Homoptera</i> (isosceles)	Shira (bitlar)	Aphididae (<i>medicaginis</i>) <i>craccivora</i> Koch.

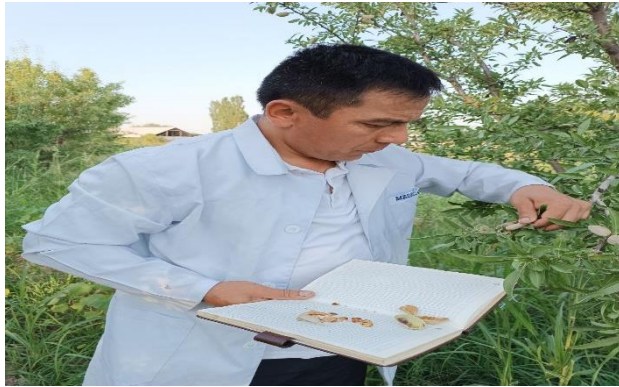
Nut borer - *Erschoviella musculana* Ersch., synonyms *Nycteola musculana* Ersch., *Sarothrypus musculana* Ersch., belongs to the *Lepidoptera* family, *Symatophoridae* family, and is a widespread pest in all regions of Central Asia. [2].

Usually 20-30% of almonds are damaged by this fruit-eater, and in some years up to 60-80%. There are two types of damage to fruits, i.e., in young fruits that have not hardened, the worm eats the center of the kernel, and the fruits fall off. In pitted fruits, the worm feeds only on the side of the fruit, eating the entire flesh and leaving only the outer skin, resulting in completely blackened fruit or dark brown streaks and spots. Worms of the 2nd-3rd generation of the pest hibernate in body crevices.

Eurytoma samsonovi. One of the most dangerous pests of almonds is the almond fruit borer (*Eurytoma samsonovi* Wass). The almond fruit borer

lays its eggs on the fruit. The larvae cause damage to the fruit and cause the fruit to drop. The fruit affected by the larva is different from the others (yellowing) and can be easily separated from them. The larva feeds inside the fruit, moves inside it and eats it completely, leaving the inside empty. Only the shell remains in the fruit. The presence of the pest can be known from the almost 2 mm hole that it makes in the shell. Larvae are white and legless. The almond borer spends the winter inside the almond as a mature larva. Large larvae leave the fruit in the spring. It will arrive after a certain period of time. Control: In winter, the wormy fruits left on the tree and spilled on the ground should be collected and burned. Countermeasures can also be implemented. Traps should be made and chemical treatment should be done when the first large female pest is detected.

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Picture- 1. Damage of fruits by almond fruit borer.



Picture- 2. Fruits infested with almond borer.

Taking into account the life cycle of the pest and the affected fruits, we tested the following chemical agents against the almond fruit borer.

Research results

When the almond blossoms and forms a panicle: Alfa toro 15% sus.c., Espero, sus.k. the first day - by

56.9%. the third day - by 77.2%; on the seventh day, the result was -85.4%: when treated with the drug Espero, sus.c (200+120 g/l), the biological efficiency was -67.7% on the first day; the third day - by 85.9%; and the seventh day was equal to -88.3% (Table 2).

Table 2. Biological effectiveness of chemical treatments against the almond borer
(Field experience, Toshloq district, 2022-2023 ys).

№	Options	The active substance of the pesticide	Consumption of working fluid in l/ha	The average number of pests on 1 bush of almonds, pcs			Biological efficiency in days.%			
				Before processing	Control days from the day of pesticide application					
					1	3	7	1	3	7
1	ALFA TORO 15% sus.c.	<i>Imidaklopid + abamektin</i>	0,2	33,0	14,2	7,5	4,8	56,9	77,2	85,4

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2	ESPERO, sus.c (200+120 g/l)	<i>Imidakloprid + alfa- sipermetrin</i>	0,2	38,5	12,4	5,4	4,5	67,7	85,9	88,3
3	Control (unprocessed)		-	48,4	52,1	50,7	54,2	-	-	-

Based on the results of the conducted research, Alfa toro 15% sus.k. (0.2 l/ha), Espero, sus.k (200+120 g/l) (0.2 l/ha), if used in the recommended

amount of consumption, up to 85.4-88.3% biological effectiveness is achieved and the damage of these pests is prevented.

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