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PESTS OF SESAME CROPS: SPECIES COMPOSITION AND DOMINANT TYPES

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Annotation

This article describes information about sesame insects and its main types of pests.

Keywords: Sesame, pest, order, species, agricultural crops.

In our country, significant attention is being paid to developing promising technologies for obtaining high-yield and high-quality agricultural crops and to the large-scale implementation of resource-saving agrotechnologies. In the decree PF-60 of January 2022, “New Uzbekistan Development Strategy for 2022–2026,” issued by the President of the Republic of Uzbekistan, one of the key objectives is “to double the income of farmers and dehqons through the intensive scientific development of agriculture and to ensure an annual growth of at least 5% in the agricultural sector” [1; 8; pp. 219–225]. To achieve these objectives, it is an important scientific task to study the species composition of insects affecting agricultural crops, particularly sesame, and to identify the dominant pest species causing the greatest damage.

Sesame is an oilseed crop belonging to the Pedaliaceae family and classified as an annual plant. In agriculture, only the species *Sesamum indicum* L. is cultivated [3; pp. 141–142], [4; pp. 40–44]. Its origin is in the countries of Asia and Africa. It is widely grown in India, China, and Myanmar [4; pp. 40–44], [6; pp. 65–66], [7; p. 34], [8; pp. 219–225].



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Since sesame has been cultivated for several thousand years in Egypt, India, and other countries of Asia, numerous studies have been conducted on its pests and on effective methods and means of controlling them [5; p. 150], [13; pp. 106–108], [12; pp. 1–19], [14; pp. 108–109], [15; pp. 163–271].

Analysis of scientific literature shows that, under Indian conditions, 65 insect species and 1 mite species are found in the sesame agroecosystem [16; pp. 428–434]. In Uganda, located in Africa, 38 pest species affect sesame crops [16; pp. 428–434], while in Bangladesh, 31 pest species have been reported to cause damage [18; pp. 1019–1025].

In Egypt, sesame crops are primarily damaged by 10 pest species, including *Heteracris littoralis* Ramb., *Acrotylus insubricus* Scopoli, *Nezara viridula* L., *Pyrrhocoris* sp., *Creontiades* sp., *Isochnura senegalensis* Ramb., *Crocothemis erythraea* Brullé, *Empoasca lybica* De Berg, *Bemisia tabaci* Gennadius, and *Myzus persicae* [2; p. 26], [4; pp. 40–44].

According to foreign literature, in many countries *Antigastra catalaunalis* Dup. and *Spilarctia obliqua* Walker are considered the main pests of sesame, causing damage to 10–70% of the yield [2; p. 26], [12; pp. 1–19], [20; pp. 10–135].

In some cases, sesame crops have been found to be damaged by gall-forming nematodes (*Heterodera cajani* Koshy) [13; pp. 106–108].

In Turkey, several species of leafhoppers cause damage to sesame [20; pp. 131–135], while under Turkmenistan conditions, sesame is primarily damaged by the sesame capsule borer [5; p. 150].

In irrigated farming conditions in our country, sesame crops are mostly affected by the autumn armyworm, cotton bollworm, *Karadrina*, and wireworms, whereas in rainfed farming conditions, the sesame stem weevil causes significant damage, according to literature data [17; pp. 7–39].

In 1931, scientific research conducted in the Jizzakh region on sesame varieties' susceptibility to the sesame stem weevil showed that varieties No. 957/112, 122, and 170 were most affected [20; pp. 10–135]. Observations in the Kamashi district revealed that, on average, 39.0% of sesame crops were damaged by the sesame stem weevil, with 13.2% completely destroyed [2; p. 26], [3; pp. 141–142].



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The sesame stem weevil overwinters in plant stem residues during its larval stage and pupates in the same location in the second half of April. The pupal stage lasts about one month. At the end of May, adult beetles emerge and begin feeding on the flowers of weeds. Adults can be found in the field until September. After feeding, the beetles mate and, a few days later, start laying eggs. The female punctures the stems of sesame and several weed species to deposit a single egg inside each stem, which complicates pest control measures. The sesame stem weevil prefers to lay eggs on plants that are lagging in growth, particularly dense sesame crops, where egg-laying is more frequent.

Larvae emerging from the eggs feed on the stem pith, burrowing downward through the stem. The larvae are sparsely covered with hairs and are yellowish or whitish in color. The anterior segment of the larva is greatly expanded, with the head extending into the anterior thoracic segment. Two small humps are present on each side of the first abdominal segment, which aid in movement. The sesame stem weevil produces one generation per year [2; p. 26].

Table 1 Species composition of insects found on sesame crops in irrigated areas (Tashkent Region, Qibray and O‘rtachirchiq districts, 2024)

Group	Family	Species	Occurrence of pests	
			Based on literature in rainfed areas (1931–1957, 2009–2014)	Our research in irrigated areas (2024)
1	2	3	4	5
Coleoptera (Beetles)	Scarabaeidae (Dung beetles)	Turkmen maize dung beetle (<i>Pentodon dubius</i> Ball.)	+	
		Strong-horned beetle (<i>Rhizotrogus fortis</i> Rtt.)	+	+
		Grain dung beetle (<i>Cyriopertha glabra</i> Gebl.)	+	+
	Click beetles (<i>Elateridae</i>)	Rainfed click beetle (<i>Agriotes nadari</i> Buys.)	+	



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	Jewel beetles) (<i>Buprestidae</i>)	Sesame stem weevil (<i>Acmaeodera ballionis</i> Gangb.) Chickpea stem weevil (<i>Acmaeodera cuprinula</i> Rtt.)	+++ +	++ +
	Blister beetles (<i>Meloidae</i>)	Two-spotted blister beetle (<i>Mylabris biguttata</i> Gebl.)	+	+
True bugs (Homoptera)	Cicadas (<i>Cicadidae</i>)	Yellow cicada (<i>Cicada traochreata</i> Mel.)	+	
	Whiteflies (<i>Alcyrodidae</i>)	Greenhouse whitefly (<i>Trialeurodes vaporariorum</i> Westw.) Tobacco whitefly (<i>Bemisia tabaci</i> Gen.)		+++ ++
Grasshoppers & Katydid (Orthoptera)	Short-horned grasshoppers (<i>Acrididae</i>)	Italian or oasis grasshopper (<i>Calliptamus italicus</i> L.) Melon grasshopper (<i>Heteracris pterosticha</i> F.-W.)		+ ++
	Long-horned grasshoppers / Katydid (<i>Tettigonidae</i>)	Green katydid (<i>Tettigonia viridissima</i> L.) White-fronted katydid (<i>Decticus albifrons</i> F.) Gray katydid (<i>Tettigonia caudate</i> Charp.)	+ + +	+ + +
	Crickets (<i>Gryllidae</i>)	Turan cricket (<i>Oecantus turanicus</i> Uv.)	+	+

The data indicate that, under the conditions of our country, the sesame stem weevil is one of the economically significant pest insects. In some areas where sesame is grown in rainfed conditions, the crop has also been severely damaged by the grain dung beetle, with 16–20% of the yield reported as lost [8; pp. 10–135].

According to Sh.B. Amanov, when studying the systematic affiliation of pests damaging sesame grown in rainfed areas, it was found that 7 insect species belong



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to Coleoptera (beetles), 4 species to Orthoptera (grasshoppers), and 2 species to Homoptera (true bugs) [2; p. 26].

Analysis of the literature indicates that, under the conditions of our country, it is necessary to conduct an in-depth study of the distribution and developmental characteristics of the harmful entomofauna of sesame crops not only in rainfed areas but also in irrigated regions, and to develop effective pest management measures.

In 2024, in our studies on sesame crops grown in irrigated areas of Qibray and O'rtachirchiq districts of Tashkent region, the species composition and dominant insect pests were recorded. A total of 3 groups, 7 families, and 13 insect species were observed (Table 1). Among the identified insects, greenhouse and tobacco whiteflies were found to cause significant damage to sesame crops.

In future studies, we plan to continue investigating the species composition of insects on sesame crops in other irrigated regions of the country and to identify the dominant pest species.

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