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Article

Species Composition and Distribution of the Main Pests in the Agrobiocenosis of Vegetable Soybean Crops

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Abstract: The article presents the results of monitoring on soybean plants, where 31 species of entomophages belonging to 2 classes, 7 genera and 31 species were identified. Of these entomophages, 9 species were found to be more common, 8 species were in average abundance, and the remaining species were in smaller abundance.

Keywords: plant, butanization, flowering, vegetables, soybean, pest, entomophage, species composition, entomofauna, agrobiocenosis

1. Introduction

In 2021 - 2023, the pests of soybean crops were studied. According to the literature, many studies were conducted on the study of pests and diseases of soybean crops on a global scale, including in the research conducted in the years 1962 - 1964 in the conditions of our republic, more than 83 species of pests were found in legume and soybean crops [1], [2].

In the conditions of our republic, in the scientific studies of most scientists, information is given that leguminous grain crops can be damaged by more than 100 species of pests [1-7].

In the list of entomofauna species composition of soybean biocenosis in Kirovograd region, the following pest species are listed: alfalfa weevil, grass weevil, leafhoppers, ola bula hard hairy knotweed long-nosed beetles, weevils, alfalfa pyadenitsa, etc. [8].

82 species of legumes and 58 species of soybeans found in Uzbekistan caused pests. According to the authors, pests damage soybeans at different stages of their development. Planted seeds are damaged by the larvae of the clicker, beetle and dust eater, grass fly, autumn nymph and other nymphs [1], [2].

According to Mavlyanova R., Zuev R. F., Kim V.V. and others, they recommended planting periods and agrotechnology of vegetable soybean "Ilkhom", "Universal" and "Sultan" for planting in the republic. The vegetable soybean crop is distinguished from other crops by its protein-rich, sufficient amount of amino acids, lignin, tryptophan and methionine substances useful for human and animal bodies, drought resistance, and soil fertility improvement [9].

From our preliminary observations, it became clear that the harmful entomofauna occurring in soybean biocenosis is very diverse. It was noted that most of the pests that cause aggressive damage to plants in agriculture meet in this biocenosis. During the years

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of our research, in our research, various insect samples were collected and reared in laboratory conditions until mature. As a result, more than 30 species of pests were found in this biocenosis.

2. Materials and Methods

Taking this into account, we conducted preliminary research to study harmful organisms that damage soybeans in our observations in 2021-2023. Observations and researches were carried out in experimental plots and cultivated fields of the Institute of Vegetable, Melons Crops and Potato growing.

Other methodical manuals were used to consider the pests of soybean crops [1], [2], [10], [11], [12].

3. Results and Discussion

Therefore, one of the urgent problems of today is to reduce the damage caused by pests to leguminous crops in order to obtain a high yield from them and satisfy the population's demand for food products.

Soybean insect pests were determined based on the phase of plant development. 10 samples were taken from every 50 places per hectare, and insects found in the upper layer of the soil and at a depth of 5-10 cm, depending on the hectare (50x50 cm) number was calculated. After the worms and sponges taken for the sample were reared and brought to adulthood in laboratory conditions, their species were determined (Table 1).

Table 1. Species of pests in soybeans and their occurrence in agrobiocenosis

No.	Species of insects	Appearance
1.	*Tetranychus urticae* Koch.	+ ++
2.	*Colliptamus italicus* L.	+
3.	*Colliptamus turanicus* Tarb.	+
4.	*Tettigonia viridissima L.*	+
5.	*Tettigonia caudate* Charp.	+
6.	*Setona crinitus Hbst*	++
7.	*Setona cylindricollis* Fahr.	+
8.	*Clon cerambycinus Sem.*	++
9.	*Agriotes meticulosus Cond.*	+
10.	*Lethrus pygmaecus Ball.*	+
11.	*Opatrum Sabulasum L.*	+
12.	*Mulovzis bigutkata Gelb.*	+ +
13.	*Dailognatha nasute Men.*	+
14.	*Blapsholaphila F.W.*	+
15.	*Acanthoscelides altectus Sag*	+
16.	*Callosebruchus maculates Z*	+++
17.	*Acyrthosiphon onobrychis.*	+++
18.	*Aphis medicaginis craccivora Koch.*	++
19.	*Rhizoecus falcifer*	+
20.	*Aphis gossupi* Glon.	+++
21.	*Trialeurodes vaporariorum* Westw	+++
22.	*Thrips tabaci* Lind.	+++
23.	*Creontiades pallidus* Rfmb.	++
24.	*Lygus pratensis* L.	+++
25.	*Adelphocoris lineolatus Goes*	++
26.	*Agrotis segetum* Schiff	++

27.	*Heliothis armigera* Hb.	+++
28.	*Phytometra confuse* Steph	+++
29.	*Agrotis conspicua* Hb	+
30.	*Agrotis eclamationis* L	+
31.	*Cicadella virdis* L.	+

Entomological traps were used to count insects during pruning and flowering. In this case, samples were taken from 4 locations by moving 25 times diagonally every 25 meters, and the number of insects in 100 sampled plants was calculated. A special guide was used to identify the species of insects.

During our observations, it was observed that soybean crops were damaged by several specialized and omnivorous pests during field conditions, grain storage in warehouses and private homes. These pests are mainly aphids, spider mites, click beetles, aphids, humpback beetles, caterpillars, weevils, mealybugs, and cicadas (cankerworms), which have been found to severely damage soybean crops. The results of our observations are presented in the Table 1.

From the information presented in the Table 1, it can be seen that the first of the encountered pests are belonging to the *Asariphormes* class of the *Arachnoidea* genus, 5 species to the *Orthoptera* genus, 11 species to the *Soleoptera* genus, 5 species to the *Homoptera* genus, 3 species to the *Heteroptera* genus, and 5 species to the *Lepidoptera* genus. In the course of our research, it was found that 31 species of pests belonging to 2 classes and 7 genera meet in the biocenosis of soybean crops. As a result of our observations, it was confirmed that 9 species of these pests are found in soybean biocenosis in large quantities and 8 species are found in moderate quantities, while the remaining species are found in small numbers.

4. Conclusion

The obtained studies revealed that 31 species of pests belonging to 2 classes and 7 genera were encountered during the monitoring of the agrobiocenosis of vegetable and soybean crops. It was observed that 9 species of these pests are found in the shade in large quantities and 8 species in moderate quantities, while the remaining types are found in small quantities.

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