

A formation of the alfalfa entomofauna

A.D. Rixsikhodjaevna^{1,*}, R.A. Yusupovich², H.P. Bobakulovna¹

¹Tashkent State Pedagogical University Named After Nizami, Uzbekistan

²Karshi State University, Uzbekistan

*Corresponding author E-mail: khuzhanazarov74@mail.ru, shga2065@yandex.ru

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The paper involves data on alfalfa entomofauna, which was composed of the composition of entomocomplex of alfalfa, including 207 species of phytophagous and 159 species of entomophagous. The formation of the entomofauna of alfalfa agrobiocenosis was detected in alfalfa of different years. The nutritional specialization and nutritional characteristics of the phytophagous and entomophagous were determined.

Keywords: Alfalfa, insects, phytophages, entomophages, parasites, nutritional specialization, polyphages, ligophages, monophages.

Introduction

Alfalfa is an extremely valuable legume and plays an important role in terms of nutrition, agrothechnic, melioration, and phytosanitary. However, because alfalfa is infested with many invertebrates at different stages of development, not only is its large yield lost but also nutrients are drastically reduced. Importantly, alfalfa agrobiocenosis is aimed at maintaining natural entomophagous populations, creating favorable conditions for their reproduction and attracting them to the protected field, reducing the number of pests of alfalfa and other agricultural crops, preventing their mass reproduction. Because alfalfa agrobiocenosis is the primary source of beneficial insects (entomophagous, plant pollinators), it is also important to enrich agrocenoses against natural pest populations of high-yielding entomophagous against pests of other agricultural crops (Ellington et al., 1997; Hoch et al., 2001). In order to study the process of formation of the alfalfa agrocenosis entomofauna in the country, we carried out calculations on one-year, two-year and three-year alfalfa fields.

According to the nutritional properties of common phytophagous in annual alfalfa, monophages involve 7.9%, including *Sitona longulus* is dominant species, oligophages are 15.7%, *Sitona cylindricollis* is dominant species, polyphages are about 77.4%, as the dominant species we can note *Acyrtosiphon pisum* *Therioaphus trifolii*, *Lygus pratensis*, and they were recorded (Khamraev et al., 2000; 2001).

Materials and Methods

To study the ways of the formation of alfalfa entomofauna, accounting work was carried out on alfalfa and seedbeds of different ages (first, second, third, and more). The density of dominant species in alfalfa and weeds was determined by K.K. Fasulati method. We determined the population density according to the following formula:

$$V = \frac{R}{n}; \dots\dots\dots(1)$$

Here, V -the population density;

R -the total number of species in all samples;

n -the number of taken samples;

The occurrence of the species was studied according to the following formula.

$$P = \frac{n \times 100}{N} \dots\dots\dots(2)$$

where n is the type of sample found;

N -the total number of samples taken;

P - meeting

Dominance (predominance), relative abundance was determined in relation to the number of breeds of common species;

$$D = \frac{R \times 100}{K} \dots\dots\dots(3)$$

Here, D -dominance

K -the sum of species of species in all samples;

R -the sum of the species.

Calculations were also performed on plant residues using the soil sampling method (at least 32 samples measuring 25 × 25 cm in each variant).

By the method of F.M. Uspensky, the quantitative number of harmful species in foreign plants was calculated on average 1 m² depending on the stages of development.

$$X = \frac{K \times Z \times 100}{P} \dots\dots\dots(4)$$

In this case X-the number of pests per 1 m² area;

K-average number of weeds per 1 m²;

R-the total number of plants considered;

Z-the number of plants on which the pest is spread.

The number of wild arthropods in alien plants was determined according to the stage of development.

The species composition of weeds in irrigated agricultural areas was studied using a weed identifier (Khamraev, A.Sh., 1999).

Results and Discussion

Distribution of phytophagous plants by level of specialization in nutrition in one year (%)

According to nutritional specialty, 26.3% of the total phytophagous is fed on the roots of alfalfa, the dominant species are *Agriotes meticulosus* and *Sitona cylindricollis*. The productive organs of the plant are infested with 7.3% phytophages; the dominant species are *Lygus pratensis*, *L.gemellatus*, and *Adelphocoris lineolatus*.

According to the nutritional properties of phytophagous, it is composed of 13.6% monophages in two-year alfalfa, the dominant species are *Sitona longilus*, *Phytonomus variabilis*; oligophages are 20.7%, *Sitona cylindricollis*, *Agromyza mint* are dominant species; polyphages are 65.7%, *Austroagallia laevis*, *Cicadella viridis*, *Empoasca meridiana*, *Aphis crass*, *Lygus pratensis*, *Adelphocoris lineolatus* are the dominant species.

Nutritional distribution of phytophagous in 2-year-old hay alfalfa (%)

Depending on the specialty of nutrition, 60.23% of phytophages feed on alfalfa leaves, twigs and stems, so *Phytonomus variabilis*, *Sitona cylindricollis*, *Aphrodes fergansis*, *Cicadella viridis*, *Empoasca meridiana*, *Acyrtosiphon pisum*, *Heliothis virescens* and *Heliothis virescens* are dominant species, 9.3% of phytophages feed on the root system of alfalfa, *Sitona cylindricollis*, *S.longulus*, *Agriotes meticulosus* are the dominant species, 14.7% of phytophages are fed with alfalfa organs (combs, flowers, and legume), *Lygus pratensis*, *L.gemellatus*, *Adelphocoris lineolatus* are the dominant species and 16.77% of other phytophagous insects feed on the rests.

Nutritional distribution of phytophagous insects in 2-year-old hay alfalfa (%)

According to the nutritional characteristics of the three-year-old alfalfa, 10.7% of the phytophages are monophages, *Phytonomus variabilis* and *Sitona costipennis* are the dominant species, 12.11% are oligophagous, *Sitona cylindricollis* and *Agromyza mint* are the dominant species, 77.29% are polyphagous, *Calliptamus italicus*, *italicus*, *Cicadella viridis*, *Empoasca meridiana*, *Aphis craccivora*, *Thrips tabaci* are the dominant species.

Distribution of phytophages according to nutritional properties in 3-year-old hay alfalfa (%)

Depending on nutritional characteristics, 60.86% of alfalfa stems, twigs, and leaves are infested by phytophagous, so *Phytonomus variabilis*, *Sitona cylindricollis*, *Aphis craccivora* are dominant species. 6.89% of the alfalfa roots are infested by phytophages; *Gryllotalpa gryllotalpa* and *Agriotes meticulosus* are dominant species. 16.1% of pests are fed by the productive organs of alfalfa, and here *Lygus pratensis*, *L.gemellatus*, and *Adelphocoris lineolatus* are the dominant species.

Distribution of phytophagous on nutritional characteristics in 3-year-old hay alfalfa (%)

According to the nutritional characteristics of biennial alfalfa, monophages-28.2%, *Phytonomus variabilis*, *Bruchophagus roddi* are dominant species, oligophages-31.1%, *Therioaphis trifolii* and *Sitona cylindricollis* are dominant species, polyphages-40.7%, *Lygus pratensis*, *L.gemellatus*, *Adelphocoris lineolatus*, *Thrips tabaci* are the dominant species.

Distribution of phytophagous on nutritional characteristics in 2-year-old seed alfalfa (%)

Depending on nutritional characteristics, 61.9% of phytophages feed on alfalfa stems, twigs and leaves, *Aphis craccivora*, *Therioaphis trifolii*, *Phytonomus variabilis* are dominant species, 15.5% of phytophages feed on the root system with *Sitona cylindricollis* and *S. longulus* are dominant species, 22.6% of phytophages feed on plant reproductive organs with *Lygus pratensis*, *L.gemellatus*, *Adelphocoris lineolatus*, *Bruchophagus roddi* are the dominant species.

Distribution of phytophages according to nutritional characteristics in 2-year-old alfalfa (%)

Omnivorous pests are dominated according to the nutritional nature in the annual alfalfa, we observed an increase in the number of oligophagous and monophagous in biennials. In seed alfalfa, although the number of oligophages and monophages is significantly increased, the number of polyphages predominates.

According to nutritional specialization, phytophagous is dominated in alfalfa of all years that feed on the stems, twigs, and leaves of the plant. We observed an increase in phytophages in annual alfalfa due to the large number of species of the family *Cicadellidae*. In both two- and three-year-old alfalfa, representatives of the same family made up the majority, and the growth of specialized species of families such as *Curculionidae*, *Miridae* was found.

The number of phytophages feeding on the roots of alfalfa is high in annual alfalfa (26.3%), a sharp decrease in phytophages was observed in alfalfa of two years (9.3%) and in alfalfa of three years (6.89%), which is directly related to the thinness of the roots.

In experiments, we studied the specialization of the food of species that live in wild plants as a source of pest formation. Among phytophages, we studied representatives of the Aphididae family to feed on a wide variety of plants, including alien plants belonging to 11 families (*Gramineae*, *Compositae*, *Legiminosae*, *Chenopodiceae*, *Cruciferae*, *Solanaceae*, *Betulaceae*). *Tetranychus urticae* feeds on representatives of five families (*compositae*, *Cruciferae*, *Leguminosae*, *Solansea*, *Chenopodiaceae*).

We determined the nutrition of phytophages in various plants. Representatives of *Tenebrionidae*, *Acrididae*, and *Gryllidae* feed on five family plants (*Gramineae*, *Compositae*, *Leguminosae*, *Chenopodicea*, and *Malvaceae*); Representatives of the families of *Miridae*, *Pentatomidae*, *Thripidae*, and *Chrysomellidae* feed on plant species belonging to three families of wild plants.

During our investigation, we identified 59 plant species belonging to 17 families of wild plants that grow near the edges of the field. In terms of species composition, the *Gramineae* family includes a more extensive species (17 plant species), 12 plant species belong to the *Campositae* family, and 5 plant species belong to the *Chenopodiaceae* family. Three plant species from both *Amaranthaceae* and *Cruciferae* families of *Amaranthaceae*, *Cruciferae* were defined, 1 plant species from each family was recorded, such as *Papavereceae*, *Ceratophyllaceae*, and *Plantaginaceae* families.

Representatives of the families *Cicadellidae*, *Acrididae*, *Buprestidae*, and *Aphididae* dominated in terms of the number of species in the diet. As phytophages emerge, entomophagous also begin to migrate to alfalfa. Representatives of the families *Coccinellidae*, *Chrysopidae*, and *Syrphidae* are common in alfalfa, which is used for different purposes (hay, seeds) in different years.

The formation of harmful entomofauna in annual alfalfa is directly related to the amount of nutrients. Due to the instability of the plant phytomass, all-consuming pests predominate. These species feed on weeds that grow in the field and in the alfalfa. Later, due to the formation of plant cover and the interaction between insects and the plant, oligophages begin to displace all species.

As the ecological environment stabilizes in the crop, monophages begin to displace oligophages. This is because old alfalfa is the source of monophagous, but some monophages that later migrate to alfalfa than oligophagous and polyphagous will later become the dominant species. Because alfalfa is their favorite plant, it leads to rapid multiplication and development of monophages due to favorable environmental conditions in the crop.

11 genera, 5 subgenera, 43 families, 158 seeds, and 207 species of phytophagous were recorded in the areas studied. The identified species were classified according to their nutritional characteristics and nutritional specialization (Table 1).

Table 1. Composition of species and nutritional characteristics of phytophagous alfalfa agrobiocenosis.

Name	Occurrence		Feature	Nutrition Specialty
	In alfalfa	In wild plants		
1	2	3	4	5
Type Mollusca				
Class Gastropoda				
Genera Stylommatophora				
<i>Siccinea putrus</i> L.	***	***	■	♣
<i>Vallonia pulchella</i> Mull.	***	***	■	♣
Type Arthropoda				
Class Arachnida				
Genera -Acariformes				
Familia Tetranychidae				
<i>Tetranychus urticae</i> Koch.	***	****	■	♣
Class Insecta				
Sub Class Apterigota				
Genera Podura				
<i>Sminthurus viridis</i> L.	***	***	■	♣
Sub Class Pterygota				
Genera Orthoptera				
Big Familia Tettigonioidae				
Familia Tettigoniidae				
<i>Tettigonia caudata</i> Charp.	***	***	■	♣
<i>viridissima</i> L.	***	***	■	♣
<i>Desticus albifrons</i> Fabr.	***	***	■	♣
<i>Phaneroptera falsata</i> Poda.	**	***	■	♣
<i>Platycleis intermedia turanica</i> Znr.	****	***	■	♣
Big Familia Grylloidea				
Familia Oecanthidae				
<i>Oecanthus turanicus</i> Uv.	**	**	■	♣
Familia Gryllidae				
<i>Gryllus bimaculatus</i> De.G.	***	****	■	♣ ⊗
<i>Tartarogryllus burdigalensis</i> Latr.	***	****	■	♣ ⊗
<i>Melanogryllus desertus</i> Pall.	***	****	■	♣
<i>Pteronemobius heydeni</i> P/Fisch.	**	***	■	♣ ⊗
Familia Gryllotalpidae				
<i>Gryllotalpa gryllotalpa</i> L.	**	***	■	♣ ⊗
Big Familia Acridoidae				
Familia Acrididae				

<i>Calliptamus barbarus cephalotus F.-W.</i>	***	•	■	♣	
<i>C. italicus italicus L.</i>	****	****	■	♣	
<i>C.turanicus Serg. Tarb.</i>	***	***	■	♣	
<i>Anacridium aegyptium L.</i>	***	***	■	♣	
<i>Acrida oxycephala Pall.</i>	**	***	■	♣	
<i>Truxalis eximia Eichwald.</i>	***	***	■	♣	
<i>Duroniella gracilis Uv.</i>	**	***	■	♣	
<i>D. kalmyka Ad.</i>	•	***	■	♣	
<i>Dociostaurus maracanus Thunb.</i>	****	****	■		♣
<i>D. tartarus Stshelk.</i>	**	**	■		♣
<i>D. kraussi nigoreniculatus Serg. Tarb.</i>	***	****	■		♣
<i>Eremipus persicus Uv.</i>	•	**	□		♣
<i>Chorthippus (s. str.) dichrous Ev.</i>	***	***	■		♣
<i>Ch. turanicus Serg. Tarb.</i>	***	****	■		♣
<i>Epacromius tergestinus Charp.</i>	***	****	■		♣
<i>Ailopus oxianus Uv.</i>	**	***	□		♣
<i>A. thalassinus Fabr.</i>	**	****	■		♣
<i>Locusta migratoria migratoria L.</i>	****	****	■		♣
<i>Oedipoda miniata miniata Pall.</i>	**	***	■		♣
<i>Sphingonotus satropes Sauss.</i>	**	***	■		♣
<i>Spingoderes carinatus Sauss.</i>	**	***	■		♣
<i>Oedaleus decorus Germ.</i>	**	***	■		♣
Genera Homoptera					
Sub Genera Auchenorrhyncha					
Familia Aphrophoridae					
<i>Lepyronia coleoptrata L.</i>	**	***	■		♣
<i>Philaenus spumarius L.</i>	**	***	■		♣
Familia Cicadellidae					
<i>Hephathus unicolor Lindb.</i>	***	***	■		□
<i>Austroagallia zachvatkini Vilb.</i>	***	****	■		♣
<i>Anaceratagallia venosa Fourc.</i>	**	***	■		♣ □
<i>A. aciculata Horv.</i>	**	***	■		□
<i>A. kingradica Dub.</i>	**	***	■		□
<i>A. laevis Rib.</i>	****	****	■		□
<i>A. acuteangulata Zachv.</i>	**	***	■		♣
<i>A. alabugensis Dub.</i>	**	***	■		□
<i>A. collicola Dub.</i>	**	***	■		□
<i>A. turanica Dub.</i>	**	***	■		♣
<i>A. carsia Mit.</i>	**	***	■		♣
<i>Batracomorhpus irroratus Lew.</i>	**	***	□		♣
<i>Eupelix cuspidata F.</i>	****	****	■		♣
<i>Aphrodes ferganensis Dub.</i>	****	****	■		♣
<i>Cicadella viridis L.</i>	****	****	■		♣
<i>Empoasca meridiana Zachv.</i>	****	****	■		♣
<i>E. minor Zachv.</i>	**	****	■		♣
<i>E. uzbekorum Zachv.</i>	**	***	■		♣
<i>Kyboasca bipunctata Osh.</i>	****	****	■		♣
<i>Chlorita aclydifera Dlab.</i>	**	***	□		♣
<i>Asianidia asiatica Kush.</i>	****	****	■		♣
<i>Pseudophlepsius binotatus Sign.</i>	**	***	■		♣ □
<i>Circulifer opacipensis Leth.</i>	**	***	■		♣ □
<i>C. haematoceps M.-R.</i>	**	**	■		♣
<i>C. tenellus Bak.</i>	**	***	■		♣
<i>Macrosteles laevis Rib.</i>	**	****	■		♣
<i>M. quadripunctulatus Kbm.</i>	**	***	●		♣
<i>Euscelidius mundus Hpt.</i>	**	***	■		♣
<i>Euscelis lineolatus Brulle.</i>	****	****	■		♣
<i>Eu. plebejus Fall.</i>	****	****	■		♣
<i>Psanemotetix striatus L.</i>	***	****	■		♣ □
<i>P. dubovskyi Vilb.</i>	**	***	■		♣ □
Familia Delphacidae					
<i>Asiraca clavicornis Latr.</i>	****	****	■		♣
<i>Laodelphax striatellus Fall.</i>	**	***	■		◆
<i>Toya propinqua Fieb.</i>	**	***	■		♣
<i>Ribautodelphax zeravshanicus Dub.</i>	**	***	■		♣
Familia Dictyopharidae					
<i>Distyophara europaea L.</i>	***	****	■		♣
<i>D. longirostris Wlk.</i>	**	***	●		♣
Familia Cixiidae					

<i>Pentastiridius pallens</i>	**	***	■	♣
<i>P. formicarius</i>	**	***	■	♣
<i>Reptalus rufocarinatus</i>	**	***	■	♣
<i>R. nigronervosus</i>	**	***	■	♣
<i>Hyalesthes obsoletus</i>	****	****	■	♣
Familia Tettigometridae				
<i>Tettigometra varia</i>	**	**	□	♣
<i>T. vitellina</i>	**	***	■	♣
Familia Issidae				
<i>Scorlupaster asiaticus</i>	**	**	■	♣
<i>Brachyprosopa bicornis</i>	.	**	■	♣
<i>B. umnovi</i>	**	***	■	♣
Sub Genera Aphidinea				
Familia Callaphididae				
<i>Therioaphis trifolii</i>	**	***	■	♣
Familia Aphididae				
Triba Aphidini				
Sub Triba Aphidina				
<i>Aphis craccivora</i>	****	****	■	♣
Sub Triba Macrosiphina				
<i>Acyrosiphon pisum</i>	***	***	■	♣
Genera Hemiptera				
Familia Pentatomidae				
<i>Anthemina lunulata</i>	**	***	■	♣
<i>A. aliena</i>	**	***	■	♣
<i>Brachynema germarii</i>	**	***	■	♣
<i>Holcostethus peltatus</i>	***	****	□	♣□
<i>Dolycoris penicillatus</i>	***	****	■	♣
<i>Codophila varia</i>	**	****	■	♣
Familia Coreidae				
<i>Camptopus lateralis</i>	***	***	●	□
<i>Coroimeris vitticollis</i>	**	***	●	□
Familia Miridae				
<i>Adelphocoris jakovlevi</i>	***	***	□	♥
<i>A. lineolatus</i>	****	****	■	♥
<i>Brachycoleus decolor</i>	**	***	■	♥
<i>Camptobrochis punctulatus</i>	***	***	■	♣
<i>Campylomma verbasci</i>	**	***	■	♣
<i>Lygus gemellatus</i>	****	****	■	♥□
<i>L. pratensis</i>	****	****	■	♥□
<i>L. rugulipennis</i>	**	***	■	♥□
<i>Plagiognathus bipunctatus</i>	**	***	●	♥
<i>Poeciloscytus cognatus</i>	****	****	■	♥
<i>P. vulneratus</i>	***	****	■	♥
<i>Trigonotylus ruficornis</i>	**	****	■	♥
Genera Thysanoptera				
Sub Genera Terebrantia				
Familia Thripidae				
<i>Frankliniella intonza</i>	***	***	■	♥
<i>F. pallida</i>	***	****	■	♥
<i>Kakothrips robustus</i>	***	***	●	♣
<i>Odontothrips confusus</i>	**	***	●	♥
<i>O. phaleratus</i>	***	***	●	♥
<i>O. loti</i>	.	***	■	♥
<i>Thrips tabaci</i>	****	****	■	♥
Subgenera Tubulifera				
Familia Phloeothripidae				
<i>Haplothrips reuteri</i>	**	***	■	♥
Genera Coleoptera				
Familia Carabidae				
<i>Anisodactylus pseudoaeneus</i>	****	***	□	♣
<i>Amara similata</i>	***	****	■	♥
<i>Ditomus semicylindricus</i>	***	.	■	♣
<i>Ophonus calceatus</i>	***	***	■	♣
<i>O. rufipes</i>	****	***	■	♣
<i>Zabrus morio</i>	***	***	■	♣
Familia Silphidae				
<i>Aclypaea turkestanica</i>	**	***	□	♣
<i>Silpha tristis subsp. Costata</i>	**	***	□	♣

<i>Familia Scarabaeidae</i>				
<i>Lethrus appendiculatus</i>	...	...	■	⊠
<i>L. costatus</i>	...	...	■	⊠
<i>L. rosmarus</i>	..	...	■	⊠
<i>L. microbuccus</i>	...	...	■	⊠
<i>L. superbus</i>	...	....	■	⊠
<i>L. pygmaeus</i>	...	....	■	⊠
<i>Small Familia Rutelinae</i>				
<i>Cyriopertha glabra</i>	...		■	◆
<i>Small Familia Melolonthinae</i>				
<i>Cryphaeobius brunneus</i>	...	...	■	◆
<i>Lasiexis dilaticollis</i>	..	...	■	◆
<i>Panotrogus myschenkovi</i>	...		■	◆
<i>Xanthotrogus fortis</i>	...	...	■	◆
<i>Small Familia Cetoniinae</i>				
<i>Cetonia aurata</i>	...	....	■	♥
<i>Epicometis turanica</i>	...	....	■	⊠
<i>Oxythyrea cinctella</i>	...	...	■	♠
<i>Familia Melyridae</i>				
<i>Malachius aeneus</i>	..	...	■	♠
<i>M. ambiguus</i>	.	..	□	♠♥
<i>Familia Elateridae</i>				
<i>Adelocera funebris</i>	..	...	■	◆
<i>Agriotes caspicus</i>	...	...	■	◆
<i>A. meticulosus</i>	...	...	■	◆
<i>Familia Buprestidae</i>				
<i>Julodis variolaris</i>	..	...	■	◆
<i>Sphenoptera (s.str.) laticeps</i>	...	...	□	◆
<i>S. (s.str.) mohtana</i>	....	..	□	◆
<i>Familia Nitidulidae</i>				
<i>Melygethes planisculus</i>	..	...	□	♥
<i>Familia Mordellidae</i>				
<i>Mordellistena pumilla</i>	..	..	□	♠
<i>Familia Tenebrionidae</i>				
<i>Gonocephalum rusticum</i>	...	...	■	⊠
<i>Tenebrio obscurus</i>	...	...	■	⊠
<i>Familia Meloidae</i>				
<i>Epicauta erythrocephala</i>	...	..	■	♥
<i>Mylabris biguttata</i>	...	....	■	♥
<i>M. calida</i>	..	...	■	♥
<i>M. crocata</i>	..	..	■	♥
<i>M. monnerheimi</i>	..	..	■	♥
<i>M. scabiosae</i>	...	....	■	♥
<i>Familia Cerambycidae</i>				
<i>Agapanthia violacea</i>	..	..	■	♠
<i>Familia Chrysomelidae</i>				
<i>Small Familia Clytrinae</i>				
<i>Labidostomis metallica centrisculpta</i>	....	...	■	♠
<i>Familia Curculionidae</i>				
<i>Apion facetum</i>	..		■	♠♥
<i>A. filirostre</i>	...	...	□	♠
<i>A. flavofemaratum</i>	..		●	◆
<i>A. seniculus</i>	..	...	●	◆
<i>A. tenue</i>	...	...	●	♠
<i>Eusomus ovulum</i>	..	...	■	♠
<i>Myllocerus benignus</i>	..	...	■	♠
<i>Phytonomus variabilis</i>	....	.	□	♠
<i>Sitona callosus</i>	..	...	●	♠⊠
<i>S. costipennis</i>	..	...	□	⊠
<i>S. crinitus</i>	..	...	■	⊠
<i>S. cylindricollis</i>	....	...	●	⊠
<i>S. flavescens</i>	...	...	●	⊠
<i>S. fronto</i>	...		□	
<i>S. humeralis</i>	...	...	●	◆
<i>S. inops</i>	...	..	●	♠
<i>S. lineellus</i>	...	..	●	♠
<i>S. longulus</i>	...		●	♠♠
<i>S. sulcifrons</i>	..	.	●	♠♠
<i>Tychius aureolus ssp. femoralis</i>	...	...	●	□

<i>T. flavus</i>	****		■	□
<i>T. junceus</i>	**	***	●	□
<i>Genera Lepidoptera</i>				
<i>Familia Lithocolletidae</i>				
<i>Lethocolletius insignitella</i>	***	**	■	♣
<i>Familia Tortricidae</i>				
<i>Clepsis strigona</i>	***	**	■	♣
<i>Familia Crambidae</i>				
<i>Nyctegretis achatinella</i>	**		●	♣
<i>Familia Noctuidae</i>				
<i>Agrotis segetum</i>	****	****	■	♣ □
<i>A. exclamationis</i>	***	****	■	♣
<i>A. ipsilon</i>	***	****	■	♣
<i>Xestia c-nigrum</i>	***	***	■	♣
<i>Discestra trifolii</i>	***	***	■	♣♥
<i>Mamestra aleracea</i>	**	***	■	♣
<i>Mythimma unipuncta</i>	**	***	■	♣
<i>Spodoptera exigua</i>	****	****	■	♣
<i>Heliothis virescens</i>	****	***	■	♣
<i>H. peltigera</i>	**	***	■	♣
<i>Helicoverpa armigera</i>	***	***	■	♣
<i>Syngnatha circumflexa</i>	***	****	■	♣
<i>Autographa gamma</i>	***	***	■	♣
<i>Familia Pieridae</i>				
<i>Colias erate</i>	**	***	●	♣
<i>Familia Lycaenidae</i>				
<i>Palyommatus icarus</i>	***	***	■	♣
<i>Familia Geometridae</i>				
<i>Tephrina avenacera</i>	***	***	■	♣♥
<i>Anaitis (Aplocera) plagiata</i>	**		■	♣♥
<i>Genera Hymenoptera</i>				
<i>Sub Genera Apocrita</i>				
<i>Big Familia Chalcidoidea</i>				
<i>Familia Eurytomidae</i>				
<i>Bruchophagus roddi</i>	****		●	□
<i>Big Familia Apoidea</i>				
<i>Familia Megachilidae</i>				
<i>Megachile pacifica</i>	***		■	♣♥
<i>Genera Diptera</i>				
<i>Familia Cecidomyiidae</i>				
<i>Contarinia loti</i>	***		●	♥
<i>C. medicaginis</i>	***		□	♥
<i>Dasyneura ignorata</i>	***		□	♣

Note: en masse-****, usual-***; occasionally-**; random-*; monophages-■; oligophages-●; polyphagous-■; alfalfa leaves, twigs and stems-♣; the root of the alfalfa-♦; alfalfa stalks, flowers and pods-♥; alfalfa seed-□; seedling period of alfalfa-▣.

Conclusion

The study of the formation of alfalfa entomofauna showed that it directly related the formation of harmful entomofauna in annual alfalfa to the amount of food. Because of the instability of the plant phytomass, all-consuming pests predominate in the crop. These species feed on weeds that growing in the field and in the alfalfa. Later, due to the formation of plant (alfalfa) cover, oligophages displace all species. This is because the old alfalfa is the primary source for the transition of monophages to the crop.

We observe the process of formation of beneficial entomofauna of alfalfa due to transferring entomophagous plants from weeds around the crop. However, the process of formation of entomofauna, including beneficial fauna, can be influenced by agrotechnical measures applied to the cultivation of alfalfa and cotton rotation.

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