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P. A. Esenbekova[2], I. I. Temreshev[1], A. M. Kenzhegaliev[2], A. M. Tursynkulov[1], T. M. Dosmukhambetov[2]

[1]LLP "Kazakh SRI of Plant Protection and Quarantine named after Zh. Zhiembayev"
Ministry of Agriculture of Republic of Kazakhstan, Almaty, Kazakhstan,
[2]"Training research and production center "Bayserke AGRO" LLP, Arkybay village, Almaty oblast, Kazakhstan.
E-mail: esenbekova_periz@mail.ru, temreshev76@mail.ru, arnur_1992@mail.ru,
askhat_t-26@mail.ru, seminar.bayserke-agro@mail.ru

TRUE BUGS (HEMIPTERA: HETEROPTERA) – ALFALFA PESTS (BARLEY, TRITICALE, WHEAT) OF «BAYSERKE-AGRO» LLP

Abstract. In the paper presents the composition of the species of hemiptera suborder of the true bugs - alfalfa pests of «Bayserke-Agro» LLP. As a result of studies conducted in 2018 on the fields of fodder crops (alfalfa) in Bayserke-Agro LLP, Almaty oblast of Kazakhstan, we noted 39 species of bugs belonging to 27 genera and 7 families. By species diversity of the identified true bugs, representatives of the family Miridae dominate - 17 species, followed by Coreidae - 7 species, Rhopalidae - 6 species, Pentatomidae - 4 species, Alydidae - 3 species. The least diverse Plataspidae - 2 species and Lygaeidae - 2 species. According to food relations, true bugs - alfalfa pests are herbivorous species with a wide range of food, of which polyphytophagous make up 55 % (24 species), wide oligophytophagous – 42 % (14 species), narrow oligophytophagous – 3 % (1 species). The most harmful types of alfalfa pest bugs belong to the families Miridae, Pentatomidae and Alydidae, which can periodically multiply in large quantities. Representatives of other families, as a rule, inflict local damage, and are not of great economic importance.

Keywords: Hemiptera, Heteroptera, pests, alfalfa, «Bayserke-Agro» LLP, Almaty oblast, Kazakhstan.

Introduction. Hemiptera - true bugs suborder of Hemiptera - one of the largest groups of insects in Kazakhstan (35 families, more than 1200 species), is of great importance in natural and anthropogenic biocenoses. Due to the species diversity, the body shape and size of the true bugs are very variable: some species of true bugs are very small and have a length of less than 1 mm, representatives of the largest species grow to 10-15 cm. Females are usually larger than males. Colouring of true bugs is of two types: protective colouring or display colouring. All parasites, as well as vulnerable species of true bugs, having ruduced or poorly developed odorous glands have a protective coloruring. Display colored true bugs with bright colors of combinations of red, black, blue, green and white colors are, as a rule, herbivorous species that have almost no natural enemies. A common feature of true bugs is a piercing-sucking type of oral apparatus. It is represented by an elongated lower lip, forming a long proboscis, inside which there is a deep groove with modified jaws, turned into prickly, thin and long bristles. Proboscis is divided into 2 channels: the upper and wider serves for the absorption of food, the lower-for saliva. On top of the proboscis is covered by the upper lip. The specific structure of the mouth allows the bug to easily pierce the skin of humans and animals, as well as the green parts of plants, sucking blood and cell juice. Herbivorous bugs have thin and long proboscis , at rest it is bent under the body and hidden in the groove, which is on the head and chest. Predators true bags have a short, thick and strong proboscis, with beak shape and curved in the form of an arc. Way of life is very diverse. Most true bugs are herbivorous. There are also predators which benefit from the destruction of caterpillars, aphids, larvae of beetles and many other pests. Some of them are used in biological plant protection, as well as riders and other entomophages [30]. In addition, among true bugs there are varieties with mixed type of feeding. The diet of

parasitic true bugs is the blood of humans and warm-blooded animals or birds. These include bed bugs - Cimicidae, as well as triatomic bed bugs (Triatominae). But still the basis of the fauna of true bugs are Terricole herbivorous species. Terrestrial Hemiptera of the suborder often live openly on plants, sometimes on soil surface and in its upper layer, in forest floor, on the banks of ponds, under tree bark, etc. They feed on plants juices, mainly on their genesic organs and seeds. Among herbivorous bugs there are many pests of agriculture and forestry. Therefore, their study is not only theoretical, but also practical.

Some data have already been published by us before [1-5]. However, the overall summary is dedicated to bugs related to lucerne, did not exist. Hence is the relevance of this work.

Material and methods. Research was conducted in April-October 2015-2018 on forage crops fields in «Bayserke-Agro» LLP of Talgar district of Almaty region of Kazakhstan. When conducting research using techniques generally accepted in entomology [6-9] (capture with entomological net, manual collection, identification of species and placement in collection), visual observations, photographing, etc. To identify hemipterans, to clarify their biological characteristics and economic significance, we used summaries, guidelines and field guide from list of literature [10-29].

Research results. As a result of research we have compiled a list of species of true bugs noticed in «Bayserke-Agro»LLP Lucerne fields, Almaty oblast, given below. Some species are shown in figures 1-8.

Class Insecta - Insects

Order Hemiptera - Hemipterans

Suborder Heteropterans - True Bugs

Family Miridae - Capsid bugs

Adelphocoris lineolatus (Goeze, 1778). Polyphytophage (composites, goosefoot and legume, mostly prevail on legume); 2-3 generations per year; overwinters as eggs. Mass pest of legume. With a significant population of fields with this species, fall of generative organs to 75 % is observed, which leads to a sharp decrease in the lucerne seeds seed harvest [10].

Figure 1 – *Adelphocoris lineolatus* (Goeze)

Adelphocoris seticornis (Fabricius, 1775). Polyphytophage (live mainly on legume) clover, lucerne, astragalus, chin and many other herbaceous plants); 2 generations per year; wintering as eggs. It is a pest of legumes [11, 12].

Adelphocoris vandalicus (Rossi, 1790). Polyphytophage (legumes, Labiatae, including clovers *Trifolium*, alfalfa *Medicago*, sainfoin *Onobrychis gracilis*, *Glycyrrhiza licorice*, sage *Salvia*, etc.; 2 generations per year; overwinters as eggs. Harms crops of lucerne and sainfoin [13].

Brachycoleus decor Reuter, 1887. Polyphytophage (on various herbaceous plants: lucerne, wheat, corn etc. 6 feeds the generative organs of plants); monovoltine species; wintering as eggs.

Chlamydatus pullus (Reuter, 1870). Polyphytophage (on legume, composites, and other herbaceous plants; up to 3 generations per year; overwinters as eggs. It is known as a pest of legumes [16].

Euryopicoris nitidis Meyer-Dur, 1843. Polyphytophage (legumes grasses, especially, lucerne, clover and sainfoin); 1 generation per year; overwinters as eggs.

Globiceps flavomaculatus (Fabricius, 1794). Imago and larvae suck the juice of herbaceous plants, most often of the Legume family (Fabaceae). Overwinters at the egg stage.

Halticus apterus (Linnaeus, 1758). Wide oligo phytophage (on legumes: *Ononis, Vicia,* etc.); 1 generation per year; overwinters as eggs.

Heterotoma merioptera Scopoli, 1763. Polyphytophage. Prefers immature fruits, buds, juices and nectar of various plants.

Lygus adspersus (Schilling, 1937). Polyphytophage (on legumes,composites: *Artemisia* and other herbaceous plants); 2 generations per year [14]; overwinters as imago.

Lygus gemellatus (Herrich-Schaeffer, 1835). Polyphytophage harms grain, legumes.

Lygus pratensis (Linnaeus, 1758). Polyphytophage (harmful to fruit, grain, legumes and horticultural crops); bivoltine [15] or 3-4 generations per year; overwinter as imago.

Lygus rugulipennis Poppius, 1911. Horto-tamnobiont (occurs widely throughout, in floodplains, on many herbaceous and shrubby plants); poly phythophage (harmful to many crops: fruit, crops medicinal and other plants); 2 generations per year; overwinter as imago. Harmful to umbellate vegetable crops seeds.

Plagiognathus chrysantemi (Wolff, 1804). Polyphytophage (on composites,legume, grain crop and other herbaceous plants, sucks juvenile leaves, buds, flowers and green beans, 2 generations per year; overwinters as eggs [17].

Plagiognathus bicolor (Jakovlev, 1880). Polyphytophage (on composites, legume, grain crop and other herbaceous plants, sucks juvenile leaves, buds, flowers and green beans, 1 generations per year; overwinters as eggs [18].

Polymerus cognatus (Fieber, 1858). Polyphytophage (legumes, crucials ,composites (artemisia) and goosefoot); up to 4 generations per year; overwinter as eggs. Harmful to seeds and plants - alfalfa, potatoes, grain crops [16].

Polymerus vulneratus (Panzer, 1806). Poly phytophage (legumes, crucials, goosefoot, *Artemisia*) harm manyagriculture and medicinal plants [17]; 2 generations per year; overwinters as eggs.

Family Rhopalidae - Scentless plant bugs

Brachycarenus tigrinus (Schilling, 1829). Polyphytophage live on composites, crucials, and observed on plants of other families, it feeds the contents of the seeds.

Figure 2 – *Brachycarenus tigrinus* (Schilling)

Chorosoma schillingii (Schilling, 1829). Chortobiont; inhabits virgin areas, wide oligo phytophage (on grain crops: *Festuca, Poa, Koeleria, Stipa* and other); bivoltine; overwinter as eggs. Pest to grain crops, especially to wheat grass at hayfields and pastures [18]. It is noted on lucerne as alien species migrated from grain crop.

Corizus hyoscyami (Linnaeus, 1758). poly phytophage (at spring temporarily feeding on willow flowers, young shoots of birch, pine and other trees and shrubs; then move to sow-thistle, chamomile, Euphorbia and other herbaceous plants; main host plants:) Hyoscyamus niger, Tabacum, Ononis spinosa,

Erodium, considered harmful to legumes [18]; 2 generations per year; overwinter as imago. Widespread, dominant species.

Rhopalus parumpunctatus Schilling, 1829. Polyphytophage (on various herbaceous plants: (crucials, Labiatae, caryophyllaceous etc., is considered a secondary pest of perennial legumes grasses and grain legumes); 2 generations per year; overwinters as imago. Feeding on grain crops was observed in mountains of Central Asia [19].

Rhopalus subrufus (Gmelin, 1790). Polyphytophage (prefers Labiatae, sometimes legumes and plants from other families); 2-3 generations per year; overwinter as imago [18].

Stictopleurus punctatonervosus (Goeze, 1778). Wide oligo phytophage (on composites plants) found on cultivated legumes and grain crops and other similar biotope; 2-3 generations per year; overwinter as imago.

Family Lygaeidae - Milkweed bugs

Graptopeltus lynceus (Fabricius, 1775). Polyphytophage (it feeds the contents of seeds of legumes, Boraginaceae and Geraniaceae families).

Lygaeus equestris (Linnaeus, 1758). Polyphytophage (among wild grasses, grain crops, under different plants, fallen seeds of many plants and green parts juice) [21]; 1 generation per year, overwinter as imago [22].

Figure 3 – *Graptopeltus lynceus* (F.)

Family Coreidae - Leaf-footed bugs

Ceraleptus gracilicornis (Herrich-Schaffer, 1835). Polyphytophage (it feeds the contents of the seeds).

Ceraleptus lividus Stein, 1858. Wide oligophytophage (on legumes: type species *Trifolium, Medicago*); 1 generation per year; overwinter as imago [25].

Ceraleptus sartus Kiritshenko, 1912. Wide oligophytophage (on various legumes); 1 generation per year; overwinter as imago [23, 24].

Coriomeris denticulatus (Scopoli, 1763). Wide oligophytophage (it feeds on seeds of legumes, imago sometimes comes on herbaceous plants from other families); up to 2 generations per year; overwinter as eggs laying in plant tissue [27].

Figure 4 – *Coriomeris denticulatus* (Scopoli, 1763)

Coriomeris hirticornis (Fabricius, 1794). Wide oligophytophage (on legumes and grain crops, main food plant: alfalfa *Medicago minima* [24]; 1 generation per year, overwinter as imago.

Coriomeris scabrocornis scabrocornis (Panzer, 1805). Wide oligophytophage (on legumes, alfalfa *Medicago*, clover *Trifolium,* sainfoin *Onobrychus,* imago sometimes comes on herbaceous plants from other families); up to 2 generations per year[26]; overwinter as imago and larvae.

Ulmicola spinipes (Fallen, 1807). Narrow oligophytophage (on clovers *Trifolium* and other legumes [24, 26]; 1 generation per year; overwinter as imago.

Family Alydidae - Broad-headed bugs

Alydus calcaratus (Linnaeus, 1758). Wide oligophytophage (on legumes, suck buds, flowers and shoots); 2 generations per year; overwinter as eggs and larvae. Harmful to alfalfa seeds [24].

Camptopus lateralis (Germar, 1817). Wide oligophytophage (trophic connected with legumes: *Trifolium, Onobrychis, Lotus,* etc. It harms seed alfalfa); 2 generations per year; overwinter as imago. Adults meet from April to November, larvae - from May to September [24].

Figure 5 – *Camptopus lateralis* (Germar)

Megalotomus junceus (Scolopi, 1763). Wide oligophytophage (lives on various wild legumes, a pest of legumes and grain legumes)

Family Plataspidae - Hemispherical shield bugs

Coptosoma mucronatum Seidenstucker, 1963. Wide oligophytophage (perennial legumes, soy and beans); 1 generation per year; larvae of III-IV age; it was noted as pests of cultivated plants [23].

Coptosoma scutellatum (Geoffroy, 1785). Wide oligophytophage (permanent legumes grasses, soy and beans: *Onanis, Medicago, Trifolium, Lotus, Vicia, Astragalus, Onobrychis, Glycyrrhiza* etc.); 1 generation per year; larvae of III-IV age; it was noted as pests of cultivated plants [23].

Figure 6 – *Coptosoma scutellatum* (Geoffroy)

Pentatomidae family - Shield bugs

Dolycoris baccarum (Linneaus, 1758). Evrichortobiont; it can be found everywhere, in different mesophytic biotopes, including fields, gardens, along flood bed and river-valleys; polyphytophage (on different plants) after wintering imago feeds on shoots and buds of many tree species, and in autumn imago suck the contents of their seeds and fruits, crop pest; 1 generation per year, overwinter as imago. [21]. They feed on 58 plant species belonging to 24 plants [29]. Harm is observed on many cultivated plants [21].

Halyomorpha halys Stal, 1855. Dangerous invasive polyphagous pest. Polyphytophage. It harms more than 300 species of plants [5].

Figure 7 – *Halyomorpha halys* Stal

Peribalus (*Holcostethus*) *strictus vernalis* (Wolff, 1804). Polyphytophage feeds mainly on legume, composites, and figwort.

Piezodorus lituratus (Fabricius, 1794). Wide oligophytophage (on various legumes: *Vicia, Caragana* etc, young adults often are found on many species of trees and shrubs [28]; 1 generation per year; over-winter as imago.

Figure 8 – *Piezodorus lituratus* (F.)

Discussion of research results. Table shows taxonomic composition of the Hemiptera phytophagous complex - pests of Lucerne of «Bayserke-Agro» LLP.

39 species of Hemiptera - true bugs suborder related to 27 genera and 7 families were discovered on forage crops fields (lucerne) in «Bayserke-Agro» LLP in Almaty oblast, Kazakhstan during our research.

Taxonomic composition of true bugs – pests of alfalfa of «Bayserke-Agro» LLP.

Miridae family		
Species	Found	The nature of the harm
Adelphocoris lineolatus (Goeze, 1778)	On alfalfa, triticale, prevail on alfalfa ++	Polyphytophage (composites, goosefoot and legume, mostly prevail on legume).
Adelphocoris seticornis (Fabricius, 1775)	On alfalfa, triticale, prevail on alfalfa ++	Polyphytophage (live mainly on legume) clover, lucerne, astragalus, chin and many other herbaceous plants).
Adelphocoris vandalicus (Rossi, 1790)	On alfalfa, triticale, prevail on alfalfa ++	Polyphytophage (legumes, Labiatae, including clovers *Trifolium*, lucerne*Medicago*, sainfoin *Onobrychis gracilis* etc.) Harms crops of lucerne and sainfoin.
Brachycoleus decolor Reuter, 1887	On alfalfa, wheat +	Polyphytophage (on various herbaceous plants: lucerne, wheat, corn, etc.).
Chlamydatus pullus (Reuter, 1870)	On alfalfa +	Polyphytophage (on legumes, composite and other herbaceous plants).
Euryopicoris nitidis Meyer-Dur, 1843	On alfalfa +	Polyphytophage (legumes grasses , especially, lucerne, clover and sainfoin).
Globiceps flavomaculatus (Fabricius, 1794)	On alfalfa, soy +	Imago and larvae suck the juice of herbaceous plants, most often of the Legume family (Fabaceae). Overwinters at the egg stage.
Halticus apterus apterus (Linnaeus, 1758)	On alfalfa +	Wide oligo phytophage (legumes grasses).
Heterotoma merioptera Scopoli, 1763.	On alfalfa, soy, barley, wheat ++	Polyphytophage. Prefers immature fruits, buds, juices and nectar of various plants.
Lygus adspersus (Schilling, 1937)	On alfalfa, soy +	Polyphytophage (on legumes, composite and other herbaceous plants).
Lygus gemellatus (Herrich-Schaeffer, 1835)	On lucerne, wheat ++	Polyphytophage harms grain, legumes.
Lygus pratensis (Linnaeus, 1758)	On alfalfa, triticale, wheat ++	Polyphytophage (harmful to grain, legumes and other crops).
Lygus rugulipennis Poppius, 1911	On alfalfa, wheat ++	Horto-tamnobiont (occurs widely throughout, in floodplains, on many herbaceous and shrubby plants); poly phythophage (harmful to many crops: fruit, crops medicinal and other plants); bivoltine; overwinter as imago. Harmful to umbellate vegetable crops seeds
Polymerus cognatus (Fieber, 1858)	On alfalfa, triticale, wheat ++	Polyphytophage (legumes, crucials, composites and goosefoot, harmful to seeds and plants - lucerne, grain crops.
Polymerus vulneratus (Panzer, 1806)	On alfalfa, triticale, wheat ++	Polyphytophage (legumes, crucials, goosefoot); harmful to manyagriculture and medicinal plants.
Plagiognathus chrysantemi (Wolff, 1804)	On alfalfa, triticale, wheat ++	Polyphytophage (on legume, grain crop and other herbaceous plants, sucks juvenile leaves, buds, flowers and green beans).
Plagiognathus bicolor (Jakovlev, 1880)	On alfalfa, triticale, wheat ++	Polyphytophage (on legume, grain crop and other herbaceous plants, sucks juvenile leaves, buds, flowers and green beans).
Coreidae		
Ceraleptus gracilicornis (Herrich-Schaffer, 1835)	On alfalfa +	Polyphytophage (it feeds the contents of the seeds).
Ceraleptus lividus Stein, 1858	On alfalfa +	Wide oligophytophage (on different legumes).
Ceraleptus sartus Kiritshenko, 1912	On alfalfa +	Wide oligophytophage (on different legumes).
Coriomeris denticulatus (Scopoli, 1763)	On alfalfa +	Wide oligophytophage (feeds on legumes seeds).
Coriomeris hirticornis (Fabricius, 1794)	On alfalfa ++	Wide oligophytophage (on legumes , main food plant: alfalfa).

Coriomeris scabrocornis scabrocornis (Panzer, 1805).	On alfalfa +	Wide oligophytophage (on legumes).
Ulmicola spinipes (Fallen, 1807)	On alfalfa +	Narrow oligophytophage (on clovers *Trifolium* and other legumes).
Rhopalidae		
Brachycarenus tigrinus (Schilling, 1829)	On alfalfa, soy, wheat ++	Polyphytophage live on composites , crucials, and observed on plants of other families, it feeds the contents of the seeds
Chorosoma schillingii (Schilling, 1829)	On alfalfa, wheat +	Chortobiont; inhabits virgin areas, wide oligo phytophage (on grain crops: *Festuca, Poa, Koeleria, Stipa* and other); bivoltine; overwinter as eggs. Pest to grasses, especially to wheat grass at hayfields and pastures. It is noted on lucerne as alien species, incidental occurrence.
Corizus hyoscyami hyoscyami (Linnaeus, 1758)	On alfalfa, triticale, +++	Pest of legume, polyphytophage.
Rhopalus parumpunctatus Schilling, 1829	On alfalfa, triticale, ++	Polyphytophage (on various herbaceous plants, is considered a minor pest of perennial legumes and grains-legumes).
Rhopalus subrufus (Gmelin, 1790)	On alfalfa, triticale, ++	Polyphytophage (prefers labiate family, sometimes legumes and plants from other families).
Stictopleurus punctato-nervosus (Goeze, 1778)	On alfalfa, soy ++	Wide oligophytophagous (on composites).
Lygaeidae		
Graptopeltus lynceus (Fabricius, 1775)	On alfalfa, soy ++	Polyphytophage (it feeds the contents of seeds of legumes, Boraginaceae and Geraniaceae families).
Lygaeus equestris (Linnaeus, 1758).	On alfalfa, triticale, ++	Polyphytophage (fallen seeds of many plants and the juice of the green parts).
Alydidae		
Alydus calcaratus (Linnaeus, 1758)	On alfalfa +	Wide oligophytophage (on legumes, suck buds, flowers and shoots).
Camptopus lateralis (Germar, 1817).	On alfalfa, soy +++	Wide oligophytophage (trophic connected with legumes).
Megalotomus junceus (Scolopi, 1763)	On alfalfa +	Wide oligophytophage (lives on various wild legumes, a pest of legumes and grain legumes).
Plataspidae		
Coptosoma mucronatum Seidenstucker, 1963	On alfalfa, soy +	Wide oligophytophage (permanent legumes grasses, soy and beans).
Coptosoma scutellatum (Geoffroy, 1785)	On alfalfa, soy +	Wide oligophytophage (permanent legumes grasses, soy and beans).
Pentatomidae		
Dolycoris baccarum (Linneaus, 1758).	On alfalfa, triticale, +++	Polyphytophage (on different plants, imago suck the contents of their seeds and fruits, a pest of cultivated plants).
Halyomorpha halys Stal, 1855.	On alfalfa, soy +	Dangerous invasive polyphagous pest. It harms more than 300 species of plants.
Peribalus (Holcostethus) strictus vernalis (Wolff, 1804)	On alfalfa, soy +	Polyphytophage feeds mainly on legume, composites, and figwort.
Piezodorus lituratus (Fabricius, 1794)	On alfalfa, soy ++	Wide oligophytophage (on legumes).
Note: Occurence: + - low, ++ - medium, + + + - high.		

Such a variety of species composition can be explained that the high attractiveness of the fields of forage crops for different species of Hemipterous, as there is a rich food reserve, and also chemical insecticides are not used on forage crops fields of «Bayserke-Agro» LLP.

As can be seen from the data indicated in table 1, representatives of the family Miridae – 17 species are predominated as species diversity, followed by Coreidae - 7 species, Rhopalidae - 6 species, Pentatomidae - 4 species, Alydidae - 3 species. Plataspidae - 2 species and Lygaeidae - 2 species are least diverse.

As per food web, hemipterous - pests of forage crops (lucerne) of «Bayserke-Agro» LLP are herbivorous species. Polyphytophage is 55 % (24 species) and wide oligophytophagous - 42 % (14 species) narrow oligophytophagous - 3 % (1 species).

The most economically significant species of true bugs lucerne pests belong to Miridae, Pentatomidae and Alydidae. They are able to cause serious harm to grain crops during mass reproduction. Representatives of other families, as a rule, harm only locally, and have no great economic significance.

Results. 39 species of Hemiptera- true bugs suborder related to 27 genera and 7 families were discovered on alfalfa field in Bayserke-Agro LLP in Almaty region, Kazakhstan during our research. Family Miridae - 17 species are predominated as species diversity, followed by Coreidae - 7 species, Rhopalidae - 6 species, Pentatomidae - 4 species, Alydidae - 3 species, Plataspidae and Lygaeidae - only 2 species.

As per food web, hemipterous - pests of grain crop is phytophag species, Polyphytophage is 55 % (24 species) and wide oligophytophagous - 42 % (14 species) narrow oligophytophagous - 3 % (1 species).

The most harmful kinds of alfalfa bug pests are Miridae, Pentatomidae and Alydidae, which may occasionally reproduce in large numbers. Representatives of other families cause, as a rule, local harm, and do not have much economic significance.

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П. А. Есенбекова[2], И. И. Темрешев[1], А. М. Кенжегалиев[2],
А. М. Турсынкулов[1], Т. М. Досмухамбетов[2]

[1]ТОО Казахский научно-исследовательский институт защиты и карантина растений
им. Ж. Жиембаева МСХ РК, Алматы, Казахстан,
[2]ТОО «УНПЦ Байсерке-Агро», п. Аркыбай, Алматинская область, Казахстан

«БАЙСЕРКЕ-АГРО» ЖШС АЗЫҚТЫҚ ДАҚЫЛДАРДЫҢ (ЖОҢЫШҚА) ЗИЯНКЕСТЕРІ – ЖАРТЫЛАЙ ҚАТТЫҚАНАТТЫЛАР (HEMIPTERA: HETEROPTERA)

Аннотация. Жұмыс барысында Алматы облысындағы "Байсерке - Агро" ЖШС жоңышқа зиянкестерінің жартылай қатты қанатты кіші тобының түрлік құрамы келтіріледі. Алматы облысының "Байсерке-Агро" ЖШС-де жүргізілген зерттеулер нәтижесінде 27 түрге және 7 тұқымдастарға жататын қылқан жапырақты тұқымның 39 түрі анықталды. Олардың артынан Coreidae – 7 түр, Rhopalidae - 6 түр, Pentatomidae - 4 түр, Alydidae - 3 түр. Plataspidae - 2 түрі және Lygaeidae - 2 түрі. Тағамдық байланыстар бойынша жоңышқа - зиянкестері қоректендірудің кең спектрі бар өсімдік тектес түрлері болып табылады, оның ішінде полифитофагтар 55 % (24 түрі), кең олигофитофагтар – 42 % (14 түрі), тар олигофитофагтар – 3 % (1 түрі) құрайды. Жоңышқа зиянкестерінің ең зиянды түрлері жаппай мөлшерде дүркін-дүркін көбейтілетін Miridae, Pentatomidae және Alydidae тұқымдастарына жатады. Басқа тұқымдастардың өкілдері, әдетте, жергілікті зақым келтіреді және үлкен экономикалық мәні жоқ..

Түйін сөздер: Hemiptera, Heteroptera, жартылай қаттықанаттылар, зиянкестер, жоңышқа, ЖШС «Байсерке-Агро», Алматы облысы, Қазақстан.

**П. А. Есенбекова[2], И. И. Темрешев[1], А. М. Кенжегалиев[2],
А. М. Турсынкулов[1], Т. М. Досмухамбетов[2]**

[1]ТОО Казахский научно-исследовательский институт защиты и карантина растений
им. Ж. Жиембаева МСХ РК, Алматы, Казахстан,
[2]ТОО «УНПЦ Байсерке-Агро», п. Аркыбай, Алматинская область, Казахстан

КЛОПЫ (HEMIPTERA: HETEROPTERA) – ВРЕДИТЕЛИ ЛЮЦЕРНЫ ТОО «БАЙСЕРКЕ-АГРО»

Аннотация. В работе приводится состав видового состава полужесткокрылых подотряда клопов - вредителей люцерны ТОО «Байсерке-Агро» в Алматинской области. В результате проведенных исследований в 2018 г. на полях кормовых (люцерна) культур в ТОО «Байсерке-Агро» Алматинской области Казахстана в результате проведенных исследований нами было отмечено 39 видов клопов, относящихся к 27 родам и 7 семействам. По видовому разнообразию из выявленных клопов преобладают представители семейства Miridae – 17 видов, за ними следуют Coreidae - 7 видов, Rhopalidae - 6 вида, Pentatomidae - 4 вида, Alydidae - 3 вида. Наименее разнообразны Plataspidae - 2 вида и Lygaeidae - 2 вида. По пищевым связям клопы - вредители люцерны являются растительноядными видами с широким спектром питания, из них полифитофаги составляют 55 % (24 вида), широкие олигофитофаги – 42 % (14 видов), узкие олигофитофаги - 3 % (1 вид). Наиболее вредоносные виды клопов-вредителей люцерны относятся к семействам Miridae, Pentatomidae и Alydidae, которые могут периодически размножаться в массовом количестве. Представители прочих семейств наносят, как правило, локальные повреждения, и не имеют большого экономического значения.

Ключевые слова: Hemiptera, Heteroptera, вредители, люцерна, ТОО «Байсерке-Агро», Алматинская область, Казахстан.

Information about authors:

Esenbekova P. A., "Training research and production center "Bayserke AGRO" LLP, Arkybay village, Almaty oblast, Kazakhstan; esenbekova_periz@mail.ru; https://orcid.org/0000-0002-5947-8514

Temreshev I. I., LLP "Kazakh SRI of Plant Protection and Quarantine named after Zh. Zhiembayev" Ministry of Agriculture of Republic of Kazakhstan, Almaty, Kazakhstan; temreshev76@mail.ru; https://orcid.org/0000-0003-0004-4399

Kenzhegaliev A. M., "Training research and production center "Bayserke AGRO" LLP, Arkybay village, Almaty oblast, Kazakhstan; arnur_1992@mail.ru; https://orcid.org/0000-0002-0308-222X

Tursynkulov A. M., LLP "Kazakh SRI of Plant Protection and Quarantine named after Zh. Zhiembayev" Ministry of Agriculture of Republic of Kazakhstan, Almaty, Kazakhstan; askhat_t-26@mail.ru; https://orcid.org/0000-0003-1108-8506

Dosmukhambetov T. M., "Training research and production center "Bayserke AGRO" LLP, Arkybay village, Almaty oblast, Kazakhstan; seminar.bayserke-agro@mail.ru; https://orcid.org/0000-0002-0373-8321

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