

THE ROLE OF ENTOMOFAUNA IN THE COTTON'S AGROCENOSIS

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Cotton fiber is an essential and important oilseed crop. Its wide distribution is explained by its use as a raw material for the textile, chemical and food industries.

Enemies of cotton in Bulgaria with the economic importance are: cotton aphid - *Aphis gossypii* Glover (Hemiptera; Aphididae), tobacco trips - *Thrips tabaci* Lind. (Thysanoptera; Thripidae), *Tetranychus urticae* L. (Trombidiformes; Tetranychidae), *Helicoverpa armigera* Hub. (Lepidoptera; Noctuidae) and others. (Radev, 1972).

Key pest is cotton aphid, which even in years the least - attack leads to a reduction in yield to 10%.

Dimitrov and others., (1995, 1996) have found that an important role in regulating the population density of the cotton aphid, a family Nabidae, family Coccinellidae, family Chrysopidae and family Syrphidae. With the advent of aphids, species and family Nabidae - *Coccinella septempunctata* L. enter agroecosystem cotton and implement regulatory activity by the enemy falling into depression. Representatives of the family Chrysopidae, family Syrphidae u is multiply only during peak development of cotton aphid.

MATERIALS AND METHODS

Studies were conducted in 2009 – 2011 in the field of the Field Crops Institute – Chirpan. The species composition of enemies inhabiting cotton and aphidophag agroecosystem, we found by standard entomological methods – visual observations, soil excavation, route surveys, mowing with a bag and entomological laboratory definitions. The investigation conducted during the periods: outside the growing season of cotton; from stage of germination to flowering stage of cotton and from flowering stage to maturity stage of cotton.

RESULTS AND DISCUSSION

In areas for sowing cotton in the region of Chirpan were made soil excavations and were found: of the order Coleoptera, family Elateridae - *Agriotes lineatus* L., *Agriotes sputator* L. and *Agriotes obscurus* L. Representatives of the family Tenebrionidae - *Opatrum sabulosum* L. and family Chrysomelidae - *Phyllotreta atra* F. and of the order Heteroptera, family Pentatomidae - *Eurydema ornata* L., *Eurydema oleraceum* L. and *Dolycoris baccarum* L. were found at the end of March and beginning of April, weed - *Sinapis arvensis* L., *Cirsium arvensis* L. and *Capsella bursa-pastoris* Med. (Table 1).

Table 1
Insects established before sowing of cotton during
2009 - 2011

Order	Family/Species	
Order Coleoptera	Family Elateridae	<i>Agriotes lineatus</i> L. <i>Agriotes sputator</i> L. <i>Agriotes obscurus</i> L.
	Family Tenebrionidae	<i>Opatrum sabulosum</i> L.
	Family Chrysomelidae	<i>Phyllotreta atra</i> F.
Order Heteroptera	Family Pentatomidae	<i>Eurydema ornata</i> L. <i>Eurydema oleraceum</i> L. <i>Dolycoris baccarum</i> L.

Table 2
Insects found in cottonseed agroecosis from phase germination to flowering phase during 2009 - 2011

Order	Family/Species		
Order Coleoptera	Family Curculionidae	<i>Tarimecus palliatus</i> F.	
	Family Coccinellidae	<i>Subcoccinella vigintiquatuorpunktata</i> L.	
	Family Chrysomelidae	<i>Oulema melanopa</i> L. <i>Leptinotarsa decemlineata</i> Say. <i>Aphthona euphorbiae</i> Schrank <i>Spilosoma mentastri</i> Esp.	
Order Orthoptera	Family Acrididae	<i>Doclostaurus maroccanus</i> Thung	
	Family Tettigoniidae	<i>Tettigonia viridisima</i> L.	
Order Lepidoptera	Family Noctuidae	<i>Scotia segetum</i> Schiff. <i>Scotia ypsilon</i> Root <i>Euxoa temera</i> Hb. <i>Euxoa tritici</i> L. <i>Helicoverpa armigera</i> Hb. <i>Laphygma exigua</i> Hb.	
		Family Pyralidae	<i>Loxostege sticticalis</i> L. <i>Ostrinia nubilalis</i> Hb.
		Family Gelechiidae	<i>Pectinophora malwella</i> Hb.
		Order Hemiptera	Family Miridae
Family Aphididae	<i>Aphis gossypii</i> Glover		
Family Cicadellidae	<i>Empoasca</i> ssp.		
Family Membracidae	<i>Stictocephala bubalus</i> F.		
Order Thysanoptera	Family Thripidae	<i>Thrips tabaci</i> Lind.	
Order Trombidiformes	Family Tetranychidae	<i>Tetranychus urticae</i> Koch.	

Table 3
Pests found in cottonseed agroecosis flowering phase to phase ripening period 2009 - 2011

Order	Family/Species	
Order Orthoptera	Family Tettigoniidae	<i>Tettigonia viridisima</i> L.
Order Hemiptera	Family Aphididae	<i>Aphis gossypii</i> Glover
	Family Membracidae	<i>Stictocephala bubalus</i> F.
Order Trombidiformes	Family Tetranychidae	<i>Tetranychus urticae</i> Koch.

During the study of the fauna in cotton areas there were identified thirty-two species of harmful insects and mites belonging to seven orders: Coleoptera, Heteroptera, Hemiptera, Thysanoptera, Trombidiformes, Lepidoptera and Orthoptera and seventeen families: Elateridae, Tenebrionidae, Chrysomelidae, Pentatomidae, Aphididae, Thripidae, Tetranychidae, Noctuidae, Gelechiidae, Acrididae, Tettigoniidae, Curculionidae, Coccinellidae, Pyralidae, Miridae, Cicadellidae and Membracidae.

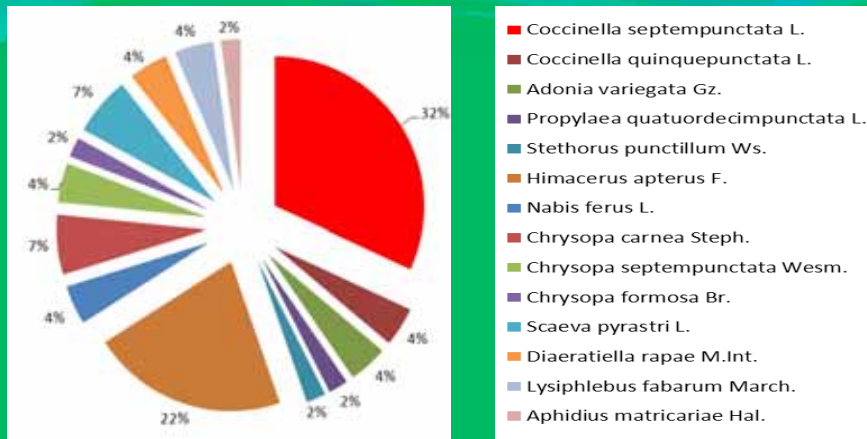


Figure 1. Useful entomofauna in cotton agroecosystem period 2009 - 2011



In cotton agroecosystem there are identified fourteen species of beneficial insects belonging to

five orders: Coleoptera, Heteroptera,
Neuroptera,

Diptera and Hymenoptera

five families: Coccinellidae, Nabidae,
Chrysopidae,

Syrphidae and Aphidiidae.

CONCLUSIONS

In cotton agroecosystem there are established forty-six species: thirty-two of which are harmful insects and mites belonging to seven orders: Coleoptera, Heteroptera, Hemiptera, Thysanoptera, Trombidiformes, Lepidoptera and Orthoptera and seventeen families: Elateridae, Tenebrionidae, Chrysomelidae, Curculionidae, Coccinellidae, Pentatomidae, Aphididae, Miridae, Cicadellidae, Membracidae, Thripidae, Tetranychidae, Noctuidae, Pyralidae, Gelechiidae, Acrididae and Tettigoniidae .

and fourteen beneficial insects belonging to five orders: Coleoptera, Heteroptera, Neuroptera, Diptera and Hymenoptera and five families: Coccinellidae, Nabidae , Chrysopidae, Syrphidae and Aphidiidae.

The survey of entomofauna in cotton agroecosystem will help to develop good plant protection practice. Protection of cotton pests a prerequisite for increasing interest in its cultivation.

Thank You!