

## **OBSERVATIONS ON THE EPIGEOUS COLEOPTERS FAUNA IN SOME FRUIT APPLE ORCHARDS**

**ANDRON GEORGEL, TĂLMACIU MIHAI, HEREA MONICA, MANOLE LILIANA, TĂLMACIU NELA**

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### **ABSTRACT**

Observations were made at the SC Loturi Service SRL Delesti, Vaslui in a fruit tree apple orchards where a vegetal carpet is made especially of garlands between the rows of trees.

In the plantation it was chosen to maintain the interval between rows as a black the field and as an overworked interval that could influence the local ecosystem conditions, with multiple effects on the quantity and quality of the fruit and finally on the profitability of the apple culture.

To collect the biological material, were used six Barber soil traps which were arranged on a single row of trees at a distance of 10 m between them.

The traps worked for 5 days in each of the three months: April, May, June. In April between 25 and 30, in May between 5 and 10 and in June between 10 and 15

At each collection, the trap material was cleansed by plant debris, and the entomofauna collected was brought to the lab and then the useful and harmful species were identified.

### **INTRODUCTION**

Natural combat, that is population reduction of pests under the influence of factors in agriculture, which are directly adjusted by humans, is achieved due to unfavorable environmental factors and by biotic factors. Entomophagous in the adult or larval stadium attack a significant number of individuals from a species of pests or from several species, which leads to a reduction in pest populations (T. Baicu și A. Săvescu 1978).

In the present paper, observations have been made in the apple tree fruit orchards on entomophagous moving to the surface of the soil.

The second category includes a number of internal factors of the population itself and entomophagous (predators, parasites) and entomopathogens.

### **MATERIAL AND METHOD**

The observations were made in a apple fruit tree orchards belonging to SC Loturi Service SRL Delești, Vaslui County, in the year 2017.

For harvesting the material, we have been used the soil traps type Barber.

The traps were placed in the plantation from April to July, with 6 traps at a time using two variants.

V1- black field;

V2- The interval between rows it was grass area.

The traps worked for 5 days in each of the three months: April, May, June.

In April between 25 and 30, in May between 5 and 10 and in June between 10 and 15.

## RESULTS AND DISCUSSIONS

At Variant 1 (table 1), the black field, in April were collected the species of beetles in the total number of 101 specimens in the 6 traps belonging to a number of 14 species.

The species with the highest number of specimens collected were: *Anisodactylus binnotatus* F. with 38 specimens and *Harpalus distinguendus* Duft. with 32 specimens.

In Variant 2 (table 2), the grass area between interval rows were collected a number of 34 specimens of beetles belonging to a number of 10 species. The species with the highest number of specimens collected were *Anisodactylus binotatus* F., with 11 specimens and *Harpalus distinguendus* Duft. with 9 specimens.

In May, at 1<sup>st</sup> Variant (table 3), black field it was collected 90 specimens of beetles belonging to a number of 14 species. The species with the highest number of specimens were *Harpalus distinguendus* Duft. With 28 specimens, *Anisodactylus binotatus* with 24 specimens and *Paramalus parallelepipedicus* with 21 specimens.

In 2<sup>nd</sup> Variant (table 4), the grass area between interval rows were collected specimens as follows: 86 specimens belonging to 16 species. The species with the highest number of specimens were *Anisodactylus binotatus* with 48 specimens and *Harpalus distinguendus* with 8 samples.

In June at Variant 1 black field (table 5), a number of 59 specimens were collection, belonging to 21 species.

The species with the highest number of collected specimens were *Anisodactylus binotatus* and *Dermestes lanarius* with 12 specimens.

In Variant 2 (table 6), the grass area between interval rows were collected a number of 64 specimens of 18 species.

In the period of observations to the two variants, the situation shall be

presented as follows: at 1<sup>st</sup> Variant the black field the largest number of beetles were collected in April, 101 specimens, and at Variant 2 the highest number was collected in May, with 86 specimens. The largest number of species was collected in June in Variant 1, in total number 22, and at Variant 2 the highest number of species were collected also in June, in the total number of 20 (table 7, fig.1).

## CONCLUSIONS

The highest number of specimens and species were collected in Variant 1, the

Black the field during the period of observations 250 specimens belonging to 22 species, respectively 184 specimens and 20 species in Variant 2.

1. The species with the highest number of specimens collected were: *Anisodactylus binotatus* with 74 specimens to V1 and 29 specimens to Variant 2 and *Harpalus distinguendus* with 65 specimens to V1 and 29 specimens to V2.

## BIBLIOGRAPHY

1. **Baicu T. Săvescu A.**, 1978 - Combaterea integrată în protecția plantelor, Edit. Ceres București
2. **Panin S.**, 1951 - *Identification manual of harmful and useful beetles in R. P. R.* .. Publisher of State for scientific and didactic literature, Bucuresti.
3. **Reitter E.**, 1908-1916- *Fauna Germanica*. Die Kafer des Deutschland Reichs Lutz., Edit. Stuttgart, Stuttgart, 5., p. 246, p 392.; p 436.; p 236.; p 342.
4. **Tălmăciu M., Mocanu Ionela, Herea Monica, Tălmăciu Nela, Manole Liliana**, 2016 - *Observations on Invertebrates Fauna Encountered in Some Agricultural Crops*, Full Paper Proceeding NDMRP, Istanbul, 2, p. 119-129.
5. **Tălmăciu Nela, Tălmăciu M., Herea Monica**, 2010 - *Comparative research on the structure and abundance of beetles in some orchards*, Bulletin of University of Agricultural Sciences and veterinary medicine Cluj – Napoca, (vol 67 (1)/, p.156-164.

Table 1

**Situation of harvesting at V1 - 25.04 - 30.04**

No.	Name of species	Sample						Total
		1	2	3	4	5	6	
1.	<i>Oxypora vittata</i>	2	-	4	-	1	-	7
2.	<i>Agriotes</i> sp.	-	-	1	-	-	-	1
3.	<i>Anisodactylus binnotatus</i>	9	8	3	6	6	6	38
4.	<i>Harpalus distinguendus</i>	9	3	3	7	9	1	32
5.	<i>Cantharis fusca</i>	-	-	1	1	1	1	4
6.	<i>Pleurophorus caesus</i>	-	1	1	-	-	-	2
7.	<i>Otiorrhynchus pinastri</i>	-	-	1	-	-	-	1
8.	<i>Quedius alpestris</i>	-	2	4	1	1	-	8
9.	<i>Tachyusa coarctata</i>	2	1	-	-	-	-	3
10.	<i>Antichus humeralis</i>	1	-	-	-	-	-	1
11.	<i>Coccinella 7 punctata</i>	1	-	-	-	-	-	1
12.	<i>Metabletus truncatulus</i>	-	-	-	1	-	-	1
13.	<i>Aphthona euphorbiae</i>	-	-	-	1	-	-	1
14.	<i>Anthicus floralis</i>	-	-	-	1	-	-	1
14 species		24	15	18	18	18	8	101

Table 2

**Situation of harvesting V2-25.04 - 30.04**

No.	Name of species	Sample						Total
		1	2	3	4	5	6	
1.	<i>Metabletus truncatulus</i>	-	1	-	-	1	-	2
2.	<i>Harpalus distinguendus</i>	-	3	-	-	2	4	9
3.	<i>Epicometis hirta</i>	-	1	-	-	-	-	1
4.	<i>Otiorrhynchus pinastri</i>	-	1	-	-	2	-	3
5.	<i>Epurea obsoleta</i>	-	1	-	-	-	-	1
6.	<i>Oxytelus nitidulus</i>	-	2	-	-	-	-	2
7.	<i>Anisodactylus binnotatus</i>	-	3	-	-	1	7	11
8.	<i>Antichus humeralis</i>	-	-	-	-	-	1	1
9.	<i>Tachyusa coarctata</i>	-	-	-	-	-	3	3
10.	<i>Anisoplia</i> spp.	-	-	-	-	1	-	1
10 species		0	12	0	0	7	15	34

Table 3

**Situation of harvesting V1-05-10.05**

No.	Name of species	Sample						Total
		1	2	3	4	5	6	
1.	<i>Harpalus calceatus</i>	-	-	-	3	-	-	3
2.	<i>Anisodactylus binnotatus</i>	-	-	13	11	-	-	24
3.	<i>Harpalus distinguendus</i>	-	-	17	11	-	-	28
4.	<i>Dermestes lanarius</i>	-	-	-	1	-	-	1
5.	<i>Otiorrhynchus pinastri</i>	-	-	-	1	-	-	1
6.	<i>Harpalus tardus</i>	-	-	-	1	-	-	1
7.	<i>Cantharis fusca</i>	-	-	1	2	-	-	3
8.	<i>Paramalus parallelipipedicus</i>	-	-	-	21	-	-	21
9.	<i>Sticticallis tobias</i>	-	-	-	1	-	-	1
10.	<i>Dorcadion pedestre</i>	-	-	1	-	-	-	1
11.	<i>Amara crenata</i>	-	-	1	-	-	-	1
12.	<i>Acrulia inflata</i>	-	-	1	-	-	-	1
13.	<i>Pseudophonus rufipes</i>	-	-	2	-	-	-	2
14.	<i>Harpalus griseus</i>	-	-	2	-	-	-	2
14 species		0	0	38	52	0	0	90

Table 4

**Situation of harvesting V2-05-10.05**

No.	Name of species	Samples						Total
		1	2	3	4	5	6	
1.	Anisodactylus binnotatus	-	9	4	16	10	9	48
2.	Harpalus distinguendus	-	2	5	2	9	-	18
3.	Aphodius granarius	-	-	-	1	-	-	1
4.	Metabletus truncatulus	-	-	-	1	1	2	4
5.	Siparia circularis	-	-	-	3	1	-	4
6.	Ceuthorrhynchus troglodytes	-	-	-	1	-	-	1
7.	Epicometis hirta	-	-	-	-	1	-	1
8.	Harpalus aeneus	-	-	-	-	1	-	1
9.	Valgus hemipterus	-	1	-	-	-	-	1
10.	Harpalus tardus	-	1	-	-	-	-	1
11.	Pseudocleanus cinereus	-	-	1	-	-	-	1
12.	Dorcadion pedestre	-	-	1	-	-	-	1
13.	Colodera aetiops	-	-	1	-	-	-	1
14.	Monotoma picipes	-	-	1	-	-	-	1
15.	Tachyusa coarctata	-	-	-	-	-	1	1
16.	Atomaria nigripennis	-	-	-	-	-	1	1
16 species		0	13	13	24	23	13	86

Table 5

**Situation of harvesting V1-10-15.06**

No.	Name of species	Samples						Total
		1	2	3	4	5	6	
1.	Anisodactylus binnotatus	1	4	-	3	2	2	12
2.	Harpalus distinguendus	-	1	1	3	-	-	5
3.	Dermestes lanarius	4	1	4	1	1	2	13
4.	Amara crenata	-	1	-	-	-	1	2
5.	Phyllotreta atra	-	1	2	-	-	1	4
6.	Antichus humeralis	-	1	-	-	-	-	1
7.	Crypticus quisquilius	-	1	-	-	-	-	1
8.	Anthicus floralis	-	-	-	-	1	-	1
9.	Coccinella 7 punctata	-	-	-	-	1	-	1
10.	Ophonus sabulicola	-	-	-	-	2	-	2
11.	Brachynus explodens	-	-	-	-	1	-	1
12.	Paramalus parallelipedicus	-	-	-	1	-	2	3
13.	Phalacrus corruscus	-	-	-	-	-	1	1
14.	Harpalus pubescens	-	-	1	1	-	-	2
15.	Pterostichus cupreus	-	-	-	1	-	-	1
16.	Aphthona euphorbiae	-	-	1	-	-	-	1
17.	Pterostichus niger	-	-	2	-	-	-	2
18.	Otiorrhynchus pinastris	3	-	-	-	-	-	3
19.	Argopus bicolor	1	-	-	-	-	-	1
20.	Ceutorhynchus pyrrhorhynchus	1	-	-	-	-	-	1
21.	Tachyporus abdominalis	1	-	-	-	-	-	1
21 species		11	10	11	10	8	9	59

Table 6

**Situation of harvesting V2-10-15.06**

No.	Name of species	Samples						Total
		1	2	3	4	5	6	
1.	Metabletus truncatulus	-	-	2	1	-	1	4
2.	Anisodactylus binnotatus	-	2	3	1	-	2	8
3.	Harpalus distinguendus	-	-	1	1	-	1	3
4.	Dermestes lanarius	-	-	-	-	-	1	1
5.	Monotoma picipes	1	-	-	-	-	1	2

Continued Table 6								
6.	<i>Otiorrhynchus pinastri</i>	2	3	3	6	-	-	14
7.	<i>Xylodromus concinnus</i>	-	-	1		-	-	1
8.	<i>Paramalus parallelipipedicus</i>	-	-	-	3	3	-	6
9.	<i>Amara crenata</i>	1	5		1	1		8
10.	<i>Phalacrus corruscus</i>	-	-	-	-	1	-	1
11.	<i>Antichus floralis</i>	1	-	-	1	-	-	2
12.	<i>Pteringium crenatum</i>	2	-	-	1	-	-	3
13.	<i>Malachius bipustulatus</i>	-	-	-	2	-	-	2
14.	<i>Coccinella bipunctata</i>	-	-	-	1	-	-	1
15.	<i>Scimnus auritus</i>	-	-	-	3	-	-	3
16.	<i>Ceuthorrhynchus troglodytes</i>	-	-	-	1	-	-	1
17.	<i>Aphthona euphorbiae</i>	-	1	-	2	-	-	3
18.	<i>Hygrotus inequalis</i>	1	-	-	-	-	-	1
18 species		8	11	10	24	5	6	64

Table 7

**Species with the highest number of specimens collected**

Variant	No.	Name of species	Month			Total
			April	May	June	
V1	1	<i>Anisodactylus binnotatus</i>	38	24	12	74
	2	<i>Harpalus distinguendus</i>	32	28	5	65
V2	1	<i>Anisodactylus binnotatus</i>	11	48	8	67
	2	<i>Harpalus distinguendus</i>	9	18	2	29

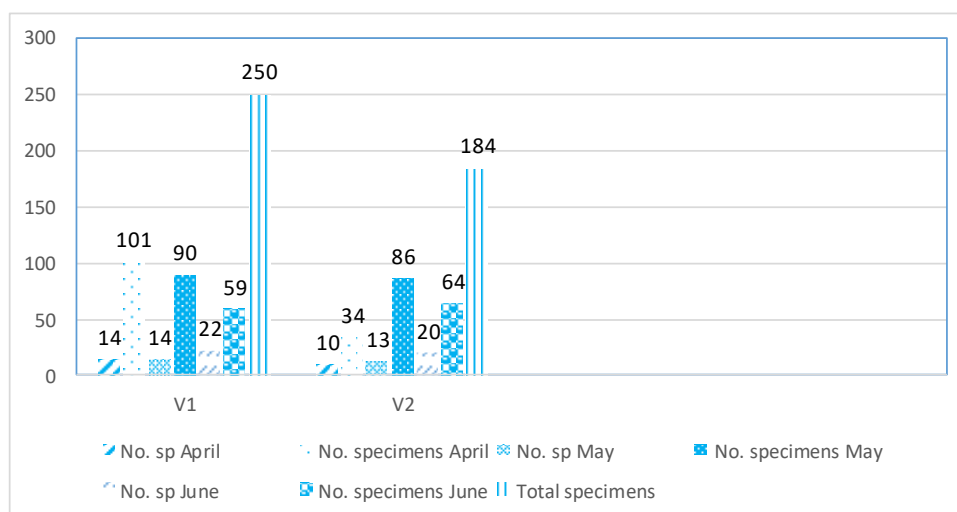


Fig. 1. Evolution of the number of specimens and species per month and by variants