

CONTRIBUTIONS TO THE ENTOMOFAUNA STUDY OF SOME SWEET AND SOUR CHERRY ORCHARDS FROM VASLUI COUNTRY AFTER TO APPLYING THE DIFFERENT METHODS OF CONTROL

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Abstract

Entomofauna study to the sweet and sour cherry orchards took place during 2010 in plantations belonging the S.C Loturi Service S.R.L. Delești farm from Vaslui country, following the application of chemical treatments.

For to harvest the biological materials it was used the beeting method and the soil traps type Barber for to assess the structure and type of entomofauna.

The species with the highest number of collected specimens were: *Brachysomus echinatus* Bonsdorff., *Silpha carinata* Herbst., *Myllus rotundatus* F., *Harpalus distinguendus* Duft., *Forficula auricularia* L., *Chrysopa carnea* Steph., *Stethorus punctillum* Weise. and those belonging to families *Formicidae*, *Ichneumonidae*, *Cecidomyidae* și *Cicadellidae*.

Key words: *Coleoptera*, beetles, pest, entomophagus, predatory, chemical treatments

Fruit tree growing are of major importance in economic terms. Fruit trees growing is one of the most popular foods is essential in producing an adequate food rations.

Like all cherry and sour cherry fruit species are affected by many diseases and pests which attack fruit, leaves, shoots, flowers, branches, stems and roots. Affected trees were growing poor condition, is wholly or partly calamitează fruit depreciates their quality and longevity of trees decreases (Cârdei E., 2001).

Ideally, some species (predators and harmful) to be in balance so as not to produce pest damage.

MATERIAL AND METHOD

The research was conducted in 2010 in orchards of sweet and sour cherry belonging the S.C Loturi Service S.R.L. Delești farm from Vaslui country.

For harvesting of the biological materials I used the beeting method and the soil traps type Barber (Talmaciu M., 2004)., the objective reasons (heavy rains, thunderstorms, strong winds) was only possible to make five harvesting of material on the following dates: 28.05, 15.06, 08.07, 29.07, 11.08. Of material collected were selected species of beetles which were then determined.

RESULTS AND DISCUSSIONS

In 2010 at the farm SC Lots Delești Service SRL, Vaslui were applied a total of six treatments (tab1):

- The first treatment was applied at the beginning of vegetation on 09.04 for fungal and bacterial disease control using product Funguran-OH (0,065%);
- The second treatment was applied on 15.04., the petals shake, for combating the *Monilinia laxa*, *Cocomice hiemalis*, *Stigmina carpophila*, *Myzus cerasi* F. and for *Rhagoletis cerasi* L. using product 0,25%;
- The third treatment was applied on 04.05 for control of fungal and bacterial disease *Myzus cerasi* L. and using products Funguran(0,065%), Actara(0,01%), și Score (0,02%).
- The fourth treatment was applied on 14.05 for to combat *Monilinia laxa*, *Blumeriella jappii*, *Cocomices hiemalis*, *Myzus cerasi* F. and *Rhagoletis cerasi* L, using products Chorus 75 WG (0.02%), Funguran (0.065%) Actara (0.01%), Seizer 10EC (0.04%);
- The fifth treatment was applied on 22.05to fight *Monilinia laxa*, *Blumeriella jappii*, *Rhagoletis cerasi* L., using Score and Actara products;

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- The sixth treatment was applied on 18.06 for combating *Rhagoletis cerasi* L., *Myzus cerasi* F. and *Monilinia laxa* using products Karate Zeon (0.015%) and Chorus 75 WG (0.02%).

Following research carried out in plantations of sweet cherry and sour cherry belonging to S.C Loturi Service S.R.L. Delești farm from Vaslui country for used the beating method and soil traps type Barber we obtained the results.

Table 1

The situation regarding the chemical treatment to control pathogens and pests in orchards of cherry and sour cherry on the SC Loturi Service SRL , Delești-Vaslui farm in 2010

No.	During such treatment	Pest / disease agent	The product used	Dose or concentration used	The quantity of solution / ha
1	09.04.2009	Fungal and bacterial disease	Funguran - OH	3 kg	900 l
2	15.04.2009	<i>Monilinia laxa</i> , <i>Cocomice hiemalis</i> , <i>Stigmata carpophila</i> , <i>Myzus cerasi</i> F. and for <i>Rhagoletis cerasi</i> L.	Dithane	9 kg	1500 l
3	04.05.2009	Fungal and bacterial disease control <i>Myzus cerasi</i> L.	Funguran Score Actara	9 kg. 200gr. 150gr.	1500 l
4	14.05.2009	<i>Monilinia laxa</i> , <i>Blumeriella jappii</i> , <i>Cocomices hiemalis</i> , <i>Myzus cerasi</i> F. and <i>Rhagoletis cerasi</i> L.	Shorus Funguran Actara Seizer 10 EC	1kg 10kg 500gr 0,2 l.	1500 l
5	22.05.2009	<i>Monilinia laxa</i> , <i>Blumeriella jappii</i> , <i>Rhagoletis cerasi</i> L.	Score Actara	750ml 500ml	1500 l
6	18.06.2009	<i>Rhagoletis cerasi</i> L., <i>Myzus cerasi</i> F. and <i>Monilinia laxa</i>	Karate Zeon Chorus 75 WG	750 ml 600 gr 0,2kg/ha	1500 l

For application the beating method the situation following (tab.2):

- the first harvesting, on 28.05., were collected a total of 22 samples, 3 belonging of harmful fauna species, and 5 species belonging to the useful fauna. In terms of systematically collected species belong to 4 orders Coleoptera Hymenoptera, Homoptera și Diptera, and 8 families (*Latridiidae*, *Curculionidae*, *Chrysomelidae*, *Formicidae*, *Encyrtidae*, *Braconidae*, *Aphididae* and *Chloropidae*);
- to the second harvesting, made on 15.06., were collected in a total number of 26 samples of insects represented by six species belonging to the useful fauna and two species of belonging harmful fauna. With references to their systematic, species collected belong to a number of 4 orders (Coleoptera, Hymenoptera, Homoptera, și Diptera) and 8 families: *Latridiidae*, *Curculionidae*, *Formicidae*, *Ichneumonidae*, *Cynipidae*, *Aphididae* și *Anthomyidae*;
- at the third harvesting, performed on 8.07., were collected a total of 13 specimens, 3 species of useful fauna, and 4 species belong of harmful fauna. In terms of systematically species collected belong to the orders Coleoptera, Hymenoptera, Homoptera, Diptera and 7 families *Latridiidae*, *Formicidae*, *Encyrtidae*,

Cicadelidae, *Aphididae*, *Anthomyidae* and *Chloropidae*;

- the fourth harvesting, on 29.07., were collected a total of 61 samples, 6 species belonging to the harmful fauna and 10 species belonging to the fauna useful. In terms of the collected species systematically belonging to 5 orders (*Coleoptera*, *Hymenoptera*, *Homoptera*, *Neuroptera* and *Diptera*) and 16 families among which *Latridiidae*, *Coccinellidae*, *Curculionidae*, *Formicidae*, *Cynipidae*, *Eurytomidae*, *Aphididae*, *Cicadelidae*, *Chloropidae*, *Cecidomyidae* and *Culicidae*;
- at the fifth harvesting, made on 30.07., were collected a total of 8 samples, three of the species belong to the useful fauna, and 2 species to belong of the harmful fauna. In terms of systematically collected species belong to orders: Coleoptera and Hymenoptera, and 5 families, including: *Chrysomelidae*, *Curculionidae*, *Latridiidae*, *Coccinellidae* și *Braconidae*.

Throughout the observation period of 2010, the S.C Loturi Service S.R.L. Delești farm were collected 130 samples of insects, of which 43 copies belong harmful fauna, representing 33% of the total and 87 samples belonging useful fauna, representing 67% of the total fauna collected.

For application the soil traps type Barber, the situation following (tab. 3):

Table 2

The structure, dynamics, abundance and type of fauna collected by beating method- Delești 2010

Order	No.	Name of species and Name of Families	Data harvesting and number of sample collected					Total	Type of fauna
			28.05.2010	15.06.2010	08.07.2010	29.07.2010	11.08.2010		
Coleoptera	1.	Cartodere elongata Curtis. / Latridiidae	2	4	1	4	1	12	Pd
	2.	Stethourus punctillum Weise./ Coccinellidae	-	1	-	3	4	8	Pd
	3.	Melighetes aeneus F/ Nitidulidae	-	1	-	-	-	1	D
	4.	Apion apicans Herbst./ Curculionidae	4	-	-	1	1	6	D
	5.	Chaetocnema compressa Letzner/ Chrysomelidae	1	-	-	1	-	2	D
	6.	Longitarsus tabidus F./ Chrysomelidae	-	-	-	-	1	1	D
Hymenoptera	1.	Formicidae	4	4	2	8	-	18	Pd
	2.	Ichneumonidae	-	4	-	-	-	4	Pz
	3.	Cynipidae	-	1	-	2	-	3	Pz
	4.	Encyrtidae	2	-	1	2	-	5	Pz
	5.	Eurytomidae	-	-	-	3	-	3	Pz
	6.	Braconidae	1	-	-	-	1	2	Pz
Homoptera	1.	Aphididae	6	10	1	4	-	12	Pz
	2.	Cicadinea	-	-	1	3	-	4	D
Neuroptera	1.	Chrysopa carnea / Chrysopidae	-	-	-	4	-	4	Pd
	1.	Anthomyidae	-	1	2	1	-	4	D
Diptera	2.	Chloropidae	2	-	5	3	-	10	D
	3.	Cecidomyidae	-	-	-	10	-	10	D
	4.	Culicidae	-	-	-	11	-	11	D
5 order		20 families	22	26	13	61	8	130	81 U= 62,31% 49 H= 37,69%

Table 2

The structure, dynamics, abundance and type of fauna collected by beating method- Delești 2010

Order	No.	Name of species and Name of Families	Data harvesting and number of sample collected					Total	Type of fauna
			28.05.2010	15.06.2010	08.07.2010	29.07.2010	11.08.2010		
Coleoptera	7.	Carlodere elongata Curtis. / Latridiidae	2	4	1	4	1	12	Pd
	8.	Stethourus punctillum Weise. / Coccinellidae	-	1	-	3	4	8	Pd
	9.	Melighetes aeneus F/ Nitidulidae	-	1	-	-	-	1	D
	10.	Apion apicans Herbst. / Curculionidae	4	-	-	1	1	6	D
	11.	Chaetocnema compressa Letzner/ Chrysomelidae	1	-	-	1	-	2	D
	12.	Longitarsus tabidus F. / Chrysomelidae	-	-	-	-	1	1	D
Hymenoptera	7.	Formicidae	4	4	2	8	-	18	Pd
	8.	Ichneumonidae	-	4	-	-	-	4	Pz
	9.	Cynipidae	-	1	-	2	-	3	Pz
	10.	Encyrtidae	2	-	1	2	-	5	Pz
	11.	Eurytomidae	-	-	-	3	-	3	Pz
	12.	Braconidae	1	-	-	-	1	2	Pz
Homoptera	3.	Aphididae	6	10	1	4	-	12	Pz
Neuroptera	4.	Cicadina	-	-	1	3	-	4	D
	2.	Chrysopa carnea / Chrysopidae	-	-	-	4	-	4	Pd
Diptera	5.	Anthomyidae	-	1	2	1	-	4	D
	6.	Chloropidae	2	-	5	3	-	10	D
	7.	Cecidomyidae	-	-	-	10	-	10	D
	8.	Culicidae	-	-	-	11	-	11	D
5 order		20 families	22	26	13	61	8	130	81 U= 62,31% 49 H= 37,69%

In the S.C Loturi Service S.R.L. Delești stationary in 2010 were made a number of 4 harvesting on the following dates: 28.05, 5.06, 8.07 and 29.07, were we collected a total of 45 samplings of beetles belonging to 21 species.

Of the 21 samplings collected, a total of 13 species representing 61.90% are belong useful fauna (predatory) and 8 species representing 38.10% of harmful fauna.

Regarding the number of samplings in relation to the type of fauna, 33 samplings belonging to predatory fauna representing 73.33%

of the total, while 12 samplings belonging harmful fauna, representing 26.67% of the total entomofauna collected.

The predatory species with the largest number of samplings collected were: *Harpalus distinguendus* (Fam. *Carabidae*) 6 samplings, *Harpalus calceatus* (Fam. *Carabidae*) with 4 samples, and *Calathus fuscipes* (fam. *Carabidae*) all with 4 samplings collected. Pest, with the largest number of samplings were: *Meligethes maurus*, with 4 samples and *Otiorrhynchus ovatus* with 2 samples collected.

Table 4

The situation regarding the collection of entomofauna from Delești Vaslui stationary

Year	Barber method			„Frapaj” method			Total
	Total number	Number of useful specimens	Number of harmful specimens	Total number	Number of useful specimens	Number of harmful specimens	
2010	45	32	13	130	72	58	175
%	-	71,1	28,9	-	55,38	44,61	-

In 2010 (tab. 4) the total number of samples collected by soil traps type Barber was collected 45 samples, of which 32 species to belong of the useful entomofauna and 13 samples belong the harmful fauna. By the beating method in the crown of the trees during the vegetation period we collected a total of 130 samples of which 72 samples belong to the useful insect fauna and 58 samples belonging to harmful fauna.

CONCLUSIONS

In 2010 at the farm SC Lots Delești Service SRL, Vaslui were applied a total of six treatments for combating the fungal and bacterial disease, *Myzus cerasi* F. and *Rhagoletis cerasi* L.

For the beating method we apply 5 harvesting at dates: 28.05, 15.06, 08.07, 29.07, 11.08, and the biological material collected it is represented by 5 order *Coleoptera*, *Hymenoptera*, *Homoptera*, *Neuroptera*, *Diptera* and 20 family, of which most important are: *Formicidae*, *Aphididae*, *Chloropidae*, *Culicidae*, *Latridiidae*, *Coccinellidae*, *Cecidomyidae*.

The collections using the method traps type Barber were made four times, and the situation is the following: of the 21 species collected, a total of 13 species representing 61.90% are belong useful fauna (predatory) and 8 species representing 38.10% of harmful fauna; regarding the number of samplings in relation to the type of fauna, 33

ssamplings belonging to predatory fauna representing 73.33% of the total, while 12 samplings belonging harmful fauna, representing 26.67% of the total entomofauna collected.

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