

STRUCTURE, DYNAMICS AND ABUNDANCE OF SPECIES OF BEETLES (ORDER *Coleoptera*) FROM POTATO CROPS

George RACU¹, Mihai TĂLMACIU¹, Nela TĂLMACIU¹

e-mail: georgeraku@yahoo.com

Abstract

The insects are the essential components from the fauna from the interior of the agricultural biocenosis and ecosystems. Some species are harmful and other can be predatory for this and have a great importance in maintaining of the equilibrium in the agricultural biocenosis. The collecting of the material was made in the year 2012 from the one potato culture at the Agriculture Research and Development Station of Suceava and from other comparative culture where some chemical treatments were made at the same research station. The collecting method of the material was using the soil traps Barber type. Analyzing the obtained data, it can be observed that at the untreated variant it were three carbides species: *Anisodactylus signatus* Panz., *Aphtona euphorbiae* Scrhk., *Pterostichus cupreus* L. At the treated variant it was observed the same species, but with smaller number of species, the main species being *Aphtona euphorbiae* Scrhk.

Keywords: soil traps, potato cultures, carbides

Importance of potato cultivation is given, on the one hand, the large area allocated to this crop worldwide and in our country, and on the other hand the large amount of potato tubers consumed by the population. Proportion of the consumption of vegetables in the diet has the population is an indicator for assessing the standard of living of a people. For daily diet of an adult (~ 3000 calories) required 714g and 1225g animal foods such as vegetables, representing a total annual consumption of 110 - 148kg vegetables. Average consumption of vegetables in countries U.E. is 121 kg/year/head, while Romania, with an average of 149kg/year/head, is among the countries in the world consuming vegetables (Ciofu, 2003).

Although measures are taken in potato crops in Romania operates very damaging damaging several species, including species of beetles: *Anisodactylus signatus* Panz, *Aphtona euphorbiae* Scrhk, *Pterostichus cupreus* L etc.

The paper is a study of beetles found in potato crops in the Research and Development Station Suceava.

MATERIAL AND METHOD

The research was conducted in potato crops of Research and Development Station of Suceava in 2012, collecting material being made using ground traps Barber.

Setting traps Barber was made in early June, and harvesting was done until September. (table 1).

RESULTS AND DISCUSSION

In total, in 2012, the potato crops in Suceava County identified 280 specimens, belonging to a number of 27 species (table 2).

On harvesting, the situation was presented as follows:

Take harvesting, dated 06.06.2012, were collected a total of 82 specimens belonging to 19 species. The species collected were: *Anisodactylus signatus* (26 species); *Aphtona euphorbiae* (21 species); *Pterostichus cupreus* (17 species); *Harpalus distinguendus* (6 species); *Pterostichus niger* (5 species); *Pseudophonus rufipes* (2 species); *Harpalus tardus* (4 species); *Anthicus humilis* (1 species); *Leptinotarsa decemlineata* (6 species); other species are represented by one single;

Harvesting II dated 23.06.2012 were collected 31 specimens of beetles belonging to the following species: *Anisodactylus signatus* (14 species); *Aphtona euphorbiae* (9 species); *Pterostichus cupreus* (3 species); *Harpalus distinguendus* (6 species) și *Pseudophonus rufipes* (2 species);

Harvesting III, dated 03.07.2012, ten specimens were collected beetles belonging to 62 species, of which we have noted: *Anisodactylus signatus* (23 species); *Aphtona euphorbiae* (13 species); *Pterostichus cupreus* (8 species); *Leptinotarsa decemlineata* (2 species); *Metabletus obscurus* (4 species); *Ceuthorinchus floralis*

¹ University of Agronomy Sciences and Veterinary Medicine of Iași, M. Sadoveanu Alley, No 3, 700490, Iași, Romania

(2 species); other species are represented by only one specimen.

Table 1

Name of stationary, data collection and method of collection material		
Stationary	Date of harvest	The method of harvesting
		Barber traps
Suceava	6.06.2012	x
	23.06.2012	x
	3.07.2012	x
	16.07.2012	x
	09.08.2012	x
	20.08.2012	x
	29.08.2012	x
	5.09.2012	x

Table 2

Species of beetles collected soil traps potato crops belonging Research and Development Station Suceava 2012							
No. crt.	Species name	No. harvest / date of collection					
		I 6.06	II 23.06	III 3.07	IV 16.07	V 09.08	VI 20.08
1	<i>Anisodactylus signatus</i>	26	14	23	8	0	3
2	<i>Aphthona euphorbiae</i>	21	9	13	4	2	0
3	<i>Pterostichus cupreus</i>	17	3	8	6	3	4
4	<i>Harpalus distinguendus</i>	6	5	0	0	0	2
5	<i>Pterostichus niger</i>	5	0	0	3	0	2
6	<i>Pseudophonus rufipes</i>	2	0	0	3	4	1
7	<i>Leptinotarsa decemlineata</i>	6	0	2	0	0	1
8	<i>Harpalus tardus</i>	4	0	0	2	0	1
9	<i>Cicindela germanica</i>	1	0	0	0	5	5
10	<i>Staphylinus caesareus</i>	1	0	0	0	6	7
11	<i>Metabletus obscurus</i>	3	0	4	0	0	2
12	<i>Dichyrus thoracicus</i>	4	0	0	1	1	1
13	<i>Pseudophonus rufipes</i>	4	2	0	1	1	0
14	<i>Trisagus elateroides</i>	1	0	0	0	0	0
15	<i>Anthicus floralis</i>	1	0	5	0	2	0
16	<i>Zabrus tenebrioides</i>	2	0	0	2		0
17	<i>Bembidion quadripustulatum</i>	2	0	0	0	4	0
18	<i>Bembidion properans</i>	3	0	0	0	2	0
19	<i>Anthicus humilis</i>	2	0	1	0	2	0
20	<i>Tachinus elongatus</i>	0	0	1	0	0	0
21	<i>Anisodactylus binotatus</i>	0	0	0	1	4	0
22	<i>Heterothopos praevia</i>	0	0	0	1	0	0
23	<i>Phyllotreta vittata</i>	0	1	0	0	1	0
24	<i>Ceuthorinus floralis</i>	0	0	2	0	0	1
25	<i>Poecilus cupreus</i>	0	0	0	2	0	1
25	<i>Longitarsus anchusae</i>	0	0	1	0	0	1
27	<i>Amphimallon solstitialis</i>	0	0	0	1	0	1
	Total	82	31	62	35	37	34
Total of six harvests		280 species					

Tabelul 3

Dynamics and the number of copies of beetles collected in stationary the SCDA Suceava								
No crt.	Method of collecting	Data collection and number of specimens collected						Total species
		I 06.06	II 23.06	III 03.07	IV 16.07	V 09.08	VI 20.08	
1	Barber traps soil	82	31	62	35	37	34	280

Harvesting IV dated 16.07.2012 were collected 35 copies of the following species: *Anisodactylus signatus* (8 species); *Aphthona euphorbiae* (4 species); *Pterostichus cupreus* (6 species); *Pterostichus niger* (3 species), *Harpalus tardus* (2 species) *Zabrus tenebrioides* (2 species), other species are represented by one single.

The collection of V, dated 09.08.2012, was collected 37 specimens of beetles belonging to 13 species of which the most important are: *Aphthona euphorbiae* (2 species); *Pterostichus cupreus* (3 species); *Pseudaphonus rufipes* (4 species); *Cicindela germanica* (5 species); with 2 copies were represented species *Bembidion properans* and

Anthichus floralis and species *Dychirus thoracicus* and *Phyllotreta vittata* were represented by only one specimen.

Harvesting VI dated 20.08.2012 were collected 34 specimens of beetles belonging to 15 species: *Anisodactylus signatus* (3 species); *Pterostichus cupreus* (4 species); *Cicindela germanica* (5 species); *Staphylinus caesareus* (7 species); with two species were represented species *Harpalus distinguendus* (2 species), and species *Ceuthorynchus floralis* *Poecilus cupreus*;; *Longitarsus anchusae*; *Amphimallon solstitialis* were represented by only one specimen.

On the total number of specimens collected by means of soil traps Barber, the situation is as follows:

In Stationary of the SCDA Suceava (Table 3) were collected at six harvests, some 280 copies of beetles;

CONCLUSIONS

In 2012, the potato plantations of Research and Development Station Suceava, Suceava County were collected using ground traps Barber, 280 specimens of beetles belonging to 27 species, the highest number specimens being recorded species: *Anisodactylus signatus*, *Aphthona euphorbiae*, *Pterostichus cupreus*, *Harpalus distinguendus*, *Pterostichus niger*, *Pseudoophonus rufipes*.

The largest number of specimens (280) were collected using ground traps potato plantations in the Station of Research and Development Station Suceava.

In 2012 the potato plantations mentioned were performed twice a month, a number of six sampling method Barber traps during June to August.

REFERENCES

- Boguleanu, Gh., Bobîrnac, B., Costescu, C., Duvlea, I., Filipescu, C., Pașol, P., Peiu, M., Perju, T., 1980** – *Entomologie agricolă*, Editura Didactica și pedagogică, București, pag 252-253.
- Brudea V., Rîșca I.M., Enea C., Tomescu C.V., 2008** - *Cercetări privind eficacitatea unor metaboliți vegetali în combaterea gândacului din Colorado (Coleoptera - Leptinotarsa decemlineata Say)*, U.S.A.M.V Iași.
- Chatenedu Gaetan, 1990** - *Guide des Coleopteres d'Europe. Delacroix et Niestlé*, Paris.
- Georgescu, T., 2006** - *Entomologie horticolă*, Editura Dosoftei, Iași, pag 242.
- Manole Liliana, M.Tălmăciu; Nela Tălmăciu, 2009** - *Some aspects on the structure and abundance of species coleoptere for rapeseed crop-autumn*. Annals of the University of Craiova, Series Agriculture, Vol. 39:216-222.
- Manolache, C.I., 1953** - *Gândacul din Colorado (Leptinotarsa decemlineata Say)*, Editura Agro - Silvică de Stat, București, pag.12.
- Panin I., 1951** - *Determinatorul Coleopterelor dăunătoare și folositoare din R.P.R. (Identification Manual harmful and useful Coleoptera Popular Republic of Romania)*. Editura de Stat, București.
- Rogojanu V., Perju T., 1979** - *Determinator pentru recunoașterea dăunătorilor plantelor cultivate. (Determinator for crop pests recognition)*. Editura Ceres, București.