

LUCRĂRI ȘTIINȚIFICE SERIA HORTICULTURĂ, 61 (2) / 2018, USAMV IAȘI

**OBSERVATIONS ON THE EPIGENOUS FAUNA OF WHEAT CROP IN THE CONDITIONS OF 2017****OBSERVAȚII CU PRIVIRE LA FAUNA EPIGEE DIN CULTURILE DE GRÂU ÎN CONDIȚIILE ANULUI 2017****MOCANU Ionela<sup>1\*</sup>, TALMACIU M.<sup>1</sup>, HEREA Monica<sup>1</sup>, ANDRICI C.<sup>1</sup>**\*Corresponding author e-mail: [rares.mocanu@yahoo.com](mailto:rares.mocanu@yahoo.com)

*Abstract.* The observations were made in 2017, in a wheat crop located in the eastern area of Romania, in the county of Vaslui. The material was harvested using the soil traps type Barber and entomological mesh, during which several harvests of the material were made at intervals of 8 to 15 days. From the collected biological material, were retained all the species belonging to the epigee fauna, which were then determined by means of the determiners (Reitter, Panin, etc.). Following the records was established the specific structure from wheat crop, their dynamics and their abundance. The most frequently collected species were: Heteroptera, Hymenoptera, Diptera, Aracnidae, Orthoptera, and of course those belonging to the order of Coleoptera (Pseudophonus rufipes Mull., Dermestes lanarius Illig., Harpalus aeneus F., Harpalus distinendus Duft., Ophonus azureus F., Opatrum sabulosum L., Otiorrhynchus raucus F., Carabus violaceus L., Pseudophonus rufipes, Harpalus aeneus F. și Amara crenata Payk) etc..

**Key words:** wheat, epigenous fauna, species, pests

*Rezumat.* Observațiile au fost făcute în anul 2017, într-o cultură de grâu amplasată în zona de Est a României, din județul Vaslui. Colectarea materialului s-a făcut cu ajutorul capcanelor de sol tip Barber și a fileului entomologic, perioada în care s-au făcut mai multe recoltări ale materialului, la intervale de 8 -15 zile. Din materialul biologic colectat, au fost reținute toate speciile ce aparțin faunei epigee, care au fost apoi determinate cu ajutorul determinatoarelor (Reitter, Panin etc.). În urma înregistrărilor a fost stabilită structura specifică culturii de grâu, dinamica și abundența acestora. Speciile cel mai frecvent colectate au fost: Heteroptera, Hymenoptera, Diptera, Aracnidae, Orthoptera, și bineînțeles cele ce aparțin ordinului Coleoptera (Pseudophonus rufipes Mull., Dermestes lanarius Illig., Harpalus aeneus F., Harpalus distinendus Duft., Ophonus azureus F., Opatrum sabulosum L., Otiorrhynchus raucus F., Carabus violaceus L., Pseudophonus rufipes, Harpalus aeneus F. și Amara crenata Payk) etc..

**Cuvinte cheie:** grâu, fauna epigee, specii, dăunători.

**INTRODUCTION**

Different species of pests can cause damage both in terms of quantity and quality, the wheat was in any phase of vegetation. There are species of pests

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whose development cycle takes place entirely in cereal crops, such as cockroaches humpbacked flies cereals, some aphid species, the red worm straw, grain trips, wheat wasps, carabus cereals.

Wheat is the default host and favorite food for most species of pests specific cereal grains. Evolution wheat pests is influenced by ecological conditions in the wheat fields.

Data on specific diversity of entomofauna in the various crops in Romania were published by: Manolache and Boguleanu, 1967; Lăcătușu *et al.*, 1981; Voicu *et al.*, 1983; Boguleanu, 1994; Perju and Ghizdavu, 2001; Manole *et al.*, 2009; Bucur and Roșca, 2011; Tălmăciu & Tălmăciu, 2011; Bușmăchiu and Bacal, 2012 etc. Cultures of wheat in Romania are attacked by a number of pests, causing major damages.

## MATERIAL AND METHOD

For the collection of the traps were used Barber ground. They were located in the wheat crops in Vaslui county, with 6 traps per variant, namely:

- Wheat by wheat;
- wheat after sunflower;
- wheat per maize.

The traps were placed in two rows, each 3 row at spaced between 6 and 8 m and between two rows at the distance of about 10 m. For capturing and killing species collected using a solution of formalin in a concentration of 4 -5 %. The traps were operated from May to late July.



**Fig.1** Field placement of soil traps type Barber

Harvesting the collected material was done at intervals between 10 and 20 days, the year 2017. At each harvest collected from each variant species and trap were placed in gauze, prior to removing the plant debris, dirt particles or other impurities, and then labeled, on the label specifying:

- date of collection;
- variant;
- trap number.

The material was then brought to the laboratory and after washing under a stream of water, each species was identified, or counted the specimens collected for each trap, on variants and species.



**Fig.2** Selecting and identifying the species

Determination was done using the German determinant, Reitter, 1908, Rogojanu, Panin Sergiu, with the help of other determiners and the Internet, for comparison of the different species with the images on the internet.

## RESULTS AND DISCUSSIONS

In total, 3052 specimens belonging to 97 species (taxons) were collected in the three variants. On variants, the situation is as follows (tab. 1, fig. 3):

- wheat after wheat 1185 specimens belonging to a number of 58 species;
- in the case of wheat after sunflower, 987 specimens were collected in total, belonging to a number of 56 species (taxa);
- wheat after maize , 880 specimens were collected belonging to a number of 62 species (taxa).

Table 1

**The structure and abundance of species existing in wheat crops, in the Delești-Vaslui area**

No.	Scientific name	Variant			Total
		1	2	3	
1.	<i>Gryllus campestris</i> Gyll	438	136	80	654
2.	<i>Formicomus pedestris</i> Rossi	116	210	82	408
3.	<i>Dermestes lanarius</i> L.	165	168	60	393
4.	<i>Opatrum sabulosum</i> L.	123	75	116	314
5.	<i>Otiorrhynchus pinastri</i> Latreille	60	80	95	235
6.	Furnici	20	83	126	229
7.	Diptere	40	30	41	111
8.	<i>Idiochroma dorsalis</i> Pontopp.	11	13	61	85
9.	<i>Anthicus floralis</i> L.	20	14	13	47
10.	<i>Pteryngium crenatum</i> Fabricius	15	10	22	47
11.	<i>Anthicus humilis</i> Germ.	26	10	8	44
12.	<i>Conosoma bipunctatum</i> Gravenhorst	7	17	19	43
13.	<i>Coccinella 7 punctata</i> L.	14	7	16	37
14.	Hymenoptere	10	18	8	36
15.	Afide	6	11	14	31
16.	<i>Pentodon idiota</i> Hbst	6	12	8	26
17.	Heteroptere	7	10	8	25

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18.	<i>Otiorrhynchus orbicularis</i>	5	5	10	20
19.	<i>Pterostichus cupreus</i> L.	6	3	9	18
20.	Cicade	8	2	5	15
21.	<i>Agriotes lineatus</i> L.	4	3	6	13
22.	<i>Epicometis hirta</i> Poda	7	3	1	11
23.	<i>Harpalus distinguendus</i> Duft	4	4	3	11
24.	<i>Cycticus quisquilius</i> L.	2	8		10
25.	<i>Eurygaster</i> spp. Laporte	1	6	3	10
26.	<i>Micraspis 12 punctata</i> Linnaeus	5	3	2	10
27.	<i>Tanymecus dilaticollis</i> Gyll.		2	8	10
28.	<i>Aelia</i> spp.	9			9
29.	<i>Ophonus obscurus</i> Fabricius	9			9
30.	<i>Harpalus aeneus</i> Panzer	4	1	3	8
31.	<i>Metabletus truncatulus</i> L. L.	1	3	4	8
32.	<i>Agriotes ustulatus</i> Schaller	1	3	3	7
33.	<i>Hister stercorarius</i>	1	1	4	6
34.	<i>Letrus apterus</i>	3	1	2	6
35.	<i>Zabrus blapoides</i>		2	3	5
36.	<i>Anthicus quadriguttatus</i> Haldeman		4		4
37.	<i>Carabus coriaceus</i> Linnaeus	3	1		4
38.	<i>Amara eurynota</i> Panz.		2	1	3
39.	<i>Anisodactylus binotatus</i> F.			3	3
40.	<i>Cetonia aurata</i> L.	1	1	1	3
41.	<i>Harpalus tardus</i> Panzer	1	1	1	3
42.	<i>Pleurophorus caesus</i> Panz.		3		3
43.	<i>Pseudophonus griseus</i> Panzer	2		1	3
44.	<i>Podonta nigrita</i>		1	2	3
45.	<i>Tachyusa constricta</i> Erichson	1	2		3
46.	<i>Anisodactylus signatus</i>	2			2
47.	<i>Atomaria linearis</i> Stephens			2	2
48.	<i>Calathus fuscipes</i> Goeze			2	2
49.	<i>Cantharis fusca</i> L.	1		1	2
50.	<i>Carabus cupreus</i>		2		2
51.	<i>Cartodere ruficollis</i> Marsh		1	1	2
52.	<i>Cymindis axillaris</i> Fabricius			2	2
53.	<i>Dorcadion fulvum</i>		1	1	2
54.	<i>Exosoma lusitanicum</i> Linnaeus		2		2
55.	<i>Gryllotalpa gryllotalpa</i> Linnaeus			2	2
56.	<i>Ophonus azureus</i> F.		1	1	2
57.	<i>Otiorrhynchus laevigatus</i> Fabricius	1		1	2
58.	<i>Otho spondiloides</i>	1		1	2
59.	<i>Phyllotreta vittula</i> Redtenbacher	2			2
60.	<i>Pterostichus nigrita</i> Paykull	2			2
61.	<i>Silpha obscura</i> L.	1		1	2
62.	<i>Zabrus tenebrioides</i> Goeze.		2		2
63.	<i>Abax ovalis</i> Duftschmid	1			1
64.	<i>Amara aenea</i> Dejean	1			1
65.	<i>Apion tenue</i> Herbst.	1			1
66.	<i>Apion virens</i> Herbst			1	1
67.	<i>Apion urticarium</i> Herbst.			1	1

68.	<i>Aphthona euphorbia</i> Schrank	1			1
69.	<i>Carabus crenatus</i> Duftschmid		1		1
70.	<i>Ceutorhynchus scapularis</i> Germar			1	1
71.	<i>Cicindela campestris</i> Linnaeus		1		1
72.	<i>Combocerus glaber</i> Schaller			1	1
73.	<i>Cryptophagus subdepressus</i> Gyllenhal		1		1
74.	<i>Cynegetis punctata</i> Linnaeus		1		1
75.	<i>Dolicaon biguttatus</i>			1	1
76.	<i>Dorcadion pedestre</i> Poda		1		1
77.	<i>Dolichosoma lineare</i> Rossi			1	1
78.	<i>Harpalus calceatus</i> Duftschmid			1	1
79.	<i>Hister bimaculatus</i>		1		1
80.	<i>Hydrophorus vittula</i> Clairville		1		1
81.	<i>Malachius marginellus</i> Fabricius			1	1
82.	<i>Medon obsoletus</i>	1			1
83.	<i>Otiorrhynchus fuscipes</i> Stierlin & W.G.	1			1
84.	<i>Otiorrhynchus raucus</i>	1			1
85.	<i>Oxypora annularis</i>	1			1
86.	<i>Philontus speldens</i> Steph.		1		1
87.	<i>Phyllotreta atra</i> Fabricius	1			1
88.	<i>Platynaspis luteorubra</i> Goeze			1	1
89.	<i>Poecilus dimidiatus</i> G.A.Olivier	1			1
90.	<i>Pseudophonus rufipes</i> De Geer	1			1
91.	<i>Selatosomus bipustulatus</i>			1	1
92.	<i>Quedius cruentus</i> Olivier			1	1
93.	<i>Quedius molochinus</i>	1			1
94.	<i>Staphylinus caesareus</i> Cederhjelm			1	1
95.	<i>Stilicus angustatus</i>		1		1
96.	<i>Tachinus subterraneus</i> Linnaeus	1			1
97.	<i>Zyras collaris</i>			1	1
TOTAL		1185	987	880	3052

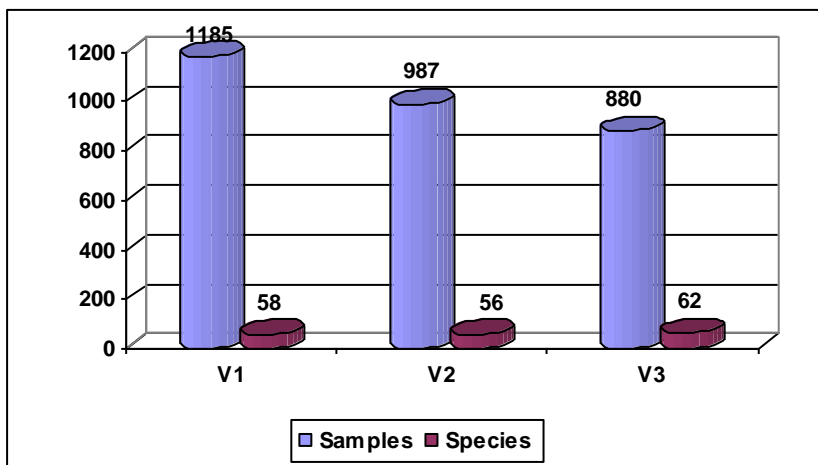


Fig.3 The number of individuals and the 3 species collected

A total of 32 species were collected in the three experimental variants common, these being: *Gryllus campestris* Gyll, *Formicomus pedestris* Rossi, *Dermestes lanarius* L., *Opatrum sabulosum* L., *Otiorrhynchus pinastri* Latreille, *Furnici*, *Diptere*, *Idiochroma dorsalis* Pontopp., *Anthicus floralis* L., *Pteryngium crenatum* Fabricius, *Anthicus humilis* Germ., *Conosoma bipunctatum* Gravenhorst, *Coccinella 7 punctata* L., *Hymenoptere*, *Afide*, *Pentodon idiota* Hbst, *Heteroptere*, *Otiorrhynchus orbicularis*, *Pterostichus cupreus* L., *Cicade*, *Agriotes lineatus* L., *Epicometis hirta* Poda, *Harpalus distinguendus* Duft, *Eurygaster* spp. Laporte, *Micraspis 12 punctata* Linnaeus, *Harpalus aeneus* Panzer, *Metabletus truncatulus* L., *Agriotes ustulatus* Schaller, *Hister stercorarius*, *Letrus apterus*, *Cetonia aurata* L., *Harpalus tardus* Panzer.

The largest number of specimens collected in the three variants, over 50 specimens, had a number of 18 species. Of these we mention (tab. 2): *Gryllus campestris* Gyll, with 654 copies representing 21.4% of the total; *Formicomus pedestris* Rossi, with a total of 408 copies, representing 13.4% of the total; *Dermestes lanarius* L., with 393 copies, representing 12.9% of the total; *Opatrum sabulosum* L., with a total of 314 copies, representing 10.3% of the total; *Otiorrhynchus pinastri* Latreille, with 235 copies, representing 7.7% of the total; *Ants*, with 229 copies, representing 7.5% of the total; *Diptere*, with 111 copies, representing 3.6% of the total; *Idiochroma dorsalis* Pontopp., with 85 copies, representing 2.8% of the total; *Anthicus floralis* L., with 47 copies, representing 1.5% of the total.

Tabel 2

**The structure of species (taxa) with the highest number of specimens collected**

No.	Scientific name	Total	%
1.	<i>Gryllus campestris</i> Gyll	654	21.4
2.	<i>Formicomus pedestris</i> Rossi	408	13.4
3.	<i>Dermestes lanarius</i> L.	393	12.9
4.	<i>Opatrum sabulosum</i> L.	314	10.3
5.	<i>Otiorrhynchus pinastri</i> Latreille	235	7.7
6.	<i>Furnici</i>	229	7.5
7.	<i>Diptere</i>	111	3.6
8.	<i>Idiochroma dorsalis</i> Pontopp.	85	2.8
9.	<i>Anthicus floralis</i> L.	47	1.5
10.	<i>Pteryngium crenatum</i> Fabricius	47	1.5
11.	<i>Anthicus humilis</i> Germ.	44	1.4
12.	<i>Conosoma bipunctatum</i> Gravenhorst	43	1.4
13.	<i>Coccinella 7 punctata</i> L.	37	1.2
14.	<i>Hymenoptere</i>	36	1.1
15.	<i>Afide</i>	31	1.0
16.	<i>Pentodon idiota</i> Hbst	26	0.9
17.	<i>Plosnita</i>	25	0.8
18.	<i>Otiorrhynchus orbicularis</i>	20	0.7
<b>TOTAL</b>	<b>3052</b>	<b>2131</b>	<b>100</b>

## CONCLUSIONS

1. In the three variants, 3052 specimens were collected from a number of 97 invertebrate species from wheat cultures. On variants, the situation is as follows:
  - At V1, wheat per wheat 1185 specimens belonging to a number of 58 species;
  - at V2, wheat after sunflower was collected 987 specimens in total, belonging to a number of 56 species (taxons);
  - at V3, wheat after maize was collected 880 specimens in total, belonging to a number of 62 species (taxons);
2. During the observation period, a total of 32 species were common to the three experimental variants.
3. A number of 18 species had 2131 copies. The species with the largest number of specimens were: *Gryllus campestris* Gyll, with 654 specimens; *Formicomus pedestris* Rossi, with a total of 408 copies; *Dermestes lanarius* L., with a number of 393 specimens; *Opatrum sabulosum* L., with a total of 314 specimens; *Otiorrhynchus pinastri* Latreille., With a number of 235 specimens; Ants, with 229 copies, representing 7.5% of the total; *Idiochroma dorsalis* Pontopp., With a total of 85 specimens; *Anthicus floralis* L., with a total of 47 specimens.

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