ABSTRACT

The rapid expansion of rape culture is probably due to the to the lack of fossil fuels, therefore being encouraged production of renewable energy crops such as oil seed plant especially rapeseed.

Rapid expansion of culture, mild winters with little snowthe installation extremely hot periods of drought and heat, in the spring - summer were particularly strong ecological factors that have led to changes in species composition, favoring the development of populations of pest species that became dominant, or even dangerous by increasing the numerical explosions by local invasion and powerful attacks.

This study aims to provide a contribution of scientific data obtained by conducting researches referring to the main pests of rape, their of parasites species identification and opportunity for use in biological control of pests.

The objectives is:

1. Knowing the current state of research on harmful fauna rape crops in the NE area of Moldova.
2. Knowing the current state of research on useful fauna rapeseed crops in the NE area of Moldova.
3. Identification of harmful fauna rape crops.
4. The analysis of pest attack on silicvelor Ceutorhynchus obstrictus L. rapeseed and its parasite species identification
5. Species identification useful rape crops.
6. Comparative study of useful and harmful fauna rape crops, depending on the technology used.
7. Statistical calculation of environmental parameters such as abundance (A), constant (C), dominance (D) and ecological significance index (W)

Entomological material was collected through several methods: using soil traps Barber, with entomological net by schake and yellow bowl traps type. There will also be numerous direct observations made in the field on plants.

The entomofauna collected from rape crops with soil traps Barber made periodically in two stationary: SC MOLDOVA Tiganasi S. A. Iasi and SC AGRO IND COM S.R.L. Botosani, using rape culture with treatments made from seed and during the growing season. In the groups studied, were placed by 6 traps per line from the edge to the inside in a straight line at a distance of 20 m from the edge and 6-8 m between traps at a time.

In 2011 the stationary SC MOLDOVA Tiganasi S. A. Iaşi were made a number of 7 harvests of entomological material on the following dates: 06.05, 10.05, 19.05, 30.05, 09.06, 15.06, 22.06. were collected insect 2193 samples belonging to 87 species / families. Collected species belonging to 6 orders. Orders with the largest number of specimens collected were *Coleoptera* (1270 samples), *Diptera* (621 samples), *Hymenoptera* (177 samples), *Heteroptera* (57 samples), *Arachnida* (42 samples) and *Homoptera* (26 samples).

In 2012 was made a number of 6 harvests on the following dates: 09.05, 16.05, 23.05, 30.05, 07.06, 29.06. Were collected insect 1607 samples belonging to 63 species / families. Collected species belonging to 6 orders. Orders with the largest number of specimens collected were *Coleoptera* (761 samples), *Diptera* (547 samples), *Hymenoptera* (161 samples), *Arachnida* (77 samples), *Heteroptera* (36 samples) and *Homoptera* (25 samples).

As regards the share of of the species collected in 1607 samples with 761 samples *Coleoptera* represent 47.3% of all species, *Diptera* with 547 samples representing 34% *Hymenoptera* with 161 samples representing 10.1%, *Arachnida* with 77 samples representing 4 8% to *Heteroptera* with 36 samples representing 2.3% and *Homoptera* with 25 samples 1.5%

Structure, dynamics and abundance entomofauna collected stationary SC AGRO IND COM S.R.L. Botosani

In 2011 rapeseed crop harvests were conducted in May: 12.05, 23.05, 31.05, 03.0609.06. Were collected insect 1160 samples belonging to 44 species / families. Orders with the largest number of samples collected were *Hymenoptera* (450 samples), *Coleoptera* (384 samples), *Arachnida* (189 samples), *Diptera* (96 samples), *Heteroptera* (31 samples), *Orthoptera* (8 samples) and *Homoptera* (2 samples).

In 2012 five harvests were conducted on the following dates: 10.05, 17.05, 24.05, 05.06, 21.06. Were collected insect 1078samples belonging to 37 species / families. Orders with the largest number of specimens collected were *Coleoptera* (459 samples), representing 42.6% of the total, *Hymenoptera* (311 samples) representing 28.8% of the total, *Arachnida* (153 samples), representing 14.3% of total *Diptera* (118 samples), representing 10.9% and *Heteroptera* (37 samples), representing 3.4% of total

Entomofauna collected from rape crops frapajului method

The shaking method was used to collect the plant the biological material by shaking them in different phenological phases of vegetation. Each sample was constituted by the sudden shaking of a plant, number of strokes being 5/plant. In laboratory insects were classified by orders, families and groups of arthropod pests and useful.

The method was used to collect two stationary entomofauna SC MOLDOVA Tiganasi S. A. Iasi and SC AGRO IND COM S.R.L. Botosani, using two variants: V1-rape of culture, which were

applied chemical treatments to prevent and control pests and V2 - rape of volunteer plants, which were not applied treatments.

Structure, dynamics and abundance entomofauna collected stationary SC MOLDOVA Tiganasi S. A. Iasi

The variant treated had been 7 collections were collected 187 samples belonging to 5 orders: *Coleoptera, Hymenoptera, Diptera, Arachnida* and *Heteroptera*. The species with the largest number of specimens were *Meligethes aeneus* (149 samples), *Epicometis hirta* (22 samples) and *Cantharis fusca* (10 samples). The other species had a smaller number of samples. Regarding the weight of the 187 species collected samples collected *Coleoptera* by 181 samples represents 96.8% of all species, *Diptera* 3 samples is 1.6%, *Hymenoptera*, *Arachnida* and *Heteroptera* with a copy represents 1.6%

Regarding the weight of the 187 species collected specimens collected Coleoptera by 181 samples represents 96.8% of all species, Diptera 3 samples represents 1.6%, Hymenoptera, Arachnida and Heteroptera with a copy represents 1.6%

In untreated variant were performed 6 collections were collected 344 samples belonging to 5 orders: *Coleoptera, Hymenoptera, Homoptera*, and *Heteroptera Arachnida*. The species with the largest number of specimens were *Meligethes aeneus* (178 samples), *Phylotreta atra* (116 samples), *Phylotreta vittula* (19 samples). Other species/families had a smaller number of of specimens between 9 and 2 samples. Regarding the share of species collected from untreated rapeseed crops in the 344 samples collected *Coleoptera* 316 samples represents 91.9% of all species collected, *Homoptera* 5 samples is 1.5%, *Hymenoptera* 9 samples represents 2.5 % *Arachnida* 2 samples represents 0.6% and *Heteroptera* 12 samples represents 3.5%

Structure, dynamics and abundance entomofauna collected stationary SC AGRO IND COM S.R.L. Botosani were performed by 5 collection.

The treated variant were collected 100 samples belonging to the order *Coleoptera*. *Meligethes aeneus* species had the largest number of specimens collected - 92 representing 92% of all species collected.

In untreated variant was collected 302 samples belonging to four orders: *Coleoptera, Hymenoptera, Diptera* and *Heteroptera*. Orders *Coleoptera* had the largest number of species with 274 samples.

Regarding the share of species collected from untreated rapeseed crops in the 302 specimens collected *Coleoptera* represents 90.8%, *Hymenoptera* represents 0.7%, *Diptera* represents 6.3% and *Heteroptera* represents 2.9%. In total, in the two ecosystems and the two versions, the order *Coleoptera* is dominant. The species with the largest number of specimens collected were

Meligethes aeneus followed species *Phyllotreta atra, Phyllotreta vittula, Epicometis hirta* and *Baris chlorizans*.

The two ecosystems, the untreated variant was collected the largest number of samples (344 respectively 302 samples,) compared with the variant treated where 187 samples were collected in stationary SC Tiganasi Iasi and 100 samples in stationary AGRO IND Botosani.

The analysis of the pest attack *Ceutorhynchus obstrictus* L. on canola pods

Weevil *Ceutorhynchus obstrictus* Marsh (seed weevil) belongs to the order *Coleoptera*, family *Curculionidae* and rape is a common pest throughout Europe. It is widely distributed and is one of the most important pests of crops rape (*Brassica napus* L.) in Europe and North America. It is a pest that attacks oligofag plants of the family *Brassicacea*e, with hosts including vegetable crops, mustard and weeds.

For this purpose in 2012, were made in the paperboard tube with a height of 63 cm and a diameter of 10 cm, in which placed number of 500 pods/tube. Also, were collected with 100 pods that have been placed in plastic cups covered with a cover provided with a the sieve, in which by the appearance of pests and parasites stages. have been analyzed 8 task, collections being made from two different data collection pods: 31.05 and 14.06. Following the comments made on the eight samples collected on 30.05 (four task) and 14.06 (four task) that:

On the 31.05 rape crops were harvested from the **plants of plot the middle**, a 400 pods that has been placed in four growing containers. After analyzing samples from the growth containers revealed the following: the first sample was recorded 5 adults and 4 larvae of *D. brassicae* and 11 samples of parasitoids, in the second task were registered 2 adults,on larva of *C. obstrictus*, 8 adults, 18 larvae of *D. brassicae* and 33 samples of parasitoids (order *Hymenoptera*, family *Pteromalidae*), in the three task were registered 6 adults, 9 larvae of the pest *C. obstrictus*, 2 adults and 18 larvae of *D. brassicae* and 4 samples of parasitoids, in the fourth sample were registered 23 adults, 23 larvae of the pest *C. obstrictus*, 4 adults and 86 larvae of *D. brassicae* and 27 samples of parasitoids.

On the 14.06 harvesting resulted in the following: the total sample were first registered larva of *C. obstrictus*, 10 adults and 6 larvae of *D. brassicae* and 23 samples of parasitoids, in the second sample was record 5 larvae of *C. obstrictus*, 3 adults, 14 larvae of *D. brassicae* and 12 samples of parasitoids, in the three sample were registered 12 adults, 2 larvae of the pest *C. obstrictus*, an adult and 37 larvae *D. brassicae* and 38 samples of parasitoids, in the fourth sample were registered 4 pest larvae of *C. obstrictus*, 6 adults and 37 larvae of *D. brassicae* and 11 samples of parasitoids.

In conclusion we can say that the 4 samples collected from rapeseed plants in the middle of the plot there were 12 adults, 12 larvae of the pest Ceutorhynchus obstrictus, 20 adults and 94 larvae Dasineura brassicae and 84 samples of parasitoids.

On the 31.05 pods rape crops harvested from **plants at the edge of the field**, resulted in the following: the first sample were registered 4 adults, 5 larvae pest *C. obstrictus*, 11 adults and 12 larvae of *D. brassicae* and 31 specimens of parasitoids, in the second sample were registered 4 larvae of *C. obstrictus*, 4 adults and 2 larvae of *D. brassicae* and 4 samples of parasitoids, in the three test were 3 adults 3 larvae of the pest *C. obstrictus*, 7 adults and 11 larvae of *D. brassicae*, and 27 samples of parasitoids, in the fourth sample were registered 2 adults, 4 larvae of the pest *C. obstrictus*, 21 adults and 48 larvae *D. brassicae*, and 24 parasitoids.

In conclusion we can say that the 4 samples collected from rapeseed plants at the edge of the plot there were 9 adults, 16 larvae of the pest Ceutorhynchus obstrictus, 43 adults, 73 larvae Dasineura brassicae and 86 samples parasitoids.

Harvesting 14.06 dated resulted in the following: the first sample were registered 19 adults, 14 larvae of the pest *C. obstrictus*, 60 adults and 88 larvae of *D. brassicae* and 154 specimens of parasitoids, in the second sample were recorded 27 adults, 28 larvae of *C. obstrictus*, 14 adults and 42 larvae of *D. brassicae*, 38 samples parasitoids, in the three sample were recorded 8 larvae of pest *C. obstrictus*, 8 adults and 53 larvae *D. brassicae* and 19 samples of parasitoids, in the fourth sample were registered 11 adults, 62 larvae of the pest *C. obstrictus*, 33 adults and 334 larvae of *D. brassicae* and 18 samples of parasitoids.

In conclusion we can say that the 4 samples collected from rape plants in the edge of the field there were 57 adult, 112 larvae of the pest Ceutorhynchus obstrictus, 115 adults and 517 larvae Dasineura brassicae and 229 samples of the parasitic

Structure and abundance of species of beetles collected and ecological values of their

In rape crops belonging to SC MOLDOVA Tiganasi S.A. Iasi collected and a total number of 1270 samples of beetles belonging to of 63 species. These species were calculated: Abundance (A), Constant (C), Dominance (D) and Ecological significance index (W).

Abundance (A) ranged between 303 samples (*Phyllotreta atra*) and one copy (16 species).

Dominance (D) depending on the percentage calculated species are distributed in the following classes: 52 species are subrecedente, 4 species are recedente, 2 species of beetles are subdominant, one species is dominant, 4 species are eudominant value above 10% (*Phyllotreta atra, Amara eurynota, Brachynus crepitans* and *Pterosthicus cupreus*).

***Constant* (C)** - depending on the value of this indicator, the species is distributed in the following classes: 29 accidental species, 28 species accessories, 4 species are constant and 2 species are euconstante between 75.1 to 100% value (*Phyllotreta atra* and *Amara eurynota*)

***Ecological significance index* (W)** depending on the percentage calculated species are distributed in the following classes: 39 accidental species, 17 species are accessories, 3 species are accessories with values between 1.1 to 5.0% (*Brachynus psophia, Cantharis fusca* and *Dermestes*

frischi), 2 species are characteristic values from 5.1 to 10.0% (*Pterosthicus cupreus* and *Brachynus crepitans*), 2 species are characteristic values above 10.0% (*Phyllotreta atra* and *Amara eurynota*)

In rape crops belonging to SC AGRO IND Botoşani was collected a total of 1270 samples of beetlebelonging to a number of 63 species.

Abundance (A) had values between 161 samples (*Opatrum sabulosum*) and 1 samples (8 species).

Dominance (D) depending on the percentage calculated species are distributed in the following classes: 15 species are subrecedente, 2 species are recedente, 5 species are subdominant, 4 species are dominant (*Amara eurynota, Harpalus azureus, Dermestes frischi* and *Harpalus aeneus*) , a species is eudominant (*Opatrum sabulosum* - 43.51%).

Constant (C) - depending on the value of this indicator, the species is distributed in the following classes: 14 species are accidental, 5 species accessories, 2 species are constant, 5 species are euconstante of between 75.1 to 100% (*Opatrum sabulosum, Amara eurynota, Dermestes frisch, Pterosthicus cupreus* and *Carabus cancellatus*)

Ecological significance index (W) depending on the percentage calculated species are distributed in the following classes: 8 species are accidental, 11 species are accessories, 5 species are accessories with values between 1.1 to 5.0% (*Brachynus psophia, Cantharis fusca* and *Dermestes frischi*), 2 species are characteristic values from 5.1 to 10.0% (*Amara eurynota* and *Dermestes frischi*), a species is characteristic with values above 10.0% (*Opatrum sabulosum*)

Warnings issued and the applied for pest control treatments rape crops during research

In 2011 and 2012 to control the main pests of rape crops, Center prognosis and warning Iasi has issued a warning number 2 and were applied 4 chemical treatments using products: Cruiser OSR, Decis 0.2 l / ha, Proteus 0.6 l / ha.

Entomofauna harmful rape crops in 2012 belongs to the order *Coleoptera* which includes species *Meligethes aeneus* F., *Phyllotreta atra* L. *Phyllotreta vittula*, *Epicometis hirta, Ceuthorrhynchus turnips, Ceuthorrhynchus assimilis, Tanymecus dilaticollis*, the order *Diptera*, family *Anthomyidae* and order *Hymenoptera* with *Athalia rosae* species. Fauna useful belongs to the order *Coleoptera* families *Carabidae*, and order *Hymenoptera*, family *Ichneumonidae, Formicidae* and *Pteromalidae*. In the period research following observations, Stationary SC Tiganasi Iasi after chemical treatments, that products applied to control the main pests of oilseed rape crops have had good and very good efficacy and good selectivity for entomofauna useful both in terms of species abundance and families to which they belong.

In 2011 the county Botosani, to control the main pests of oilseed rape crops have been issued 3 warnings, and in 2012 have been issued 4 warnings and were applied number of 3 chemical treatments using products: Decis 0.2 l / ha, Karate Zeon 0.15 l / ha, Proteus OD 0.6 l / ha.

Entomofauna harmful rape crops belongs to the order *Coleoptera* which includes species *Meligethes aeneus* F., *Phyllotreta atra* L., *Tanymecus dilaticollis* and *Opatrum sabulosum*, order *Diptera*, family *Anthomyidae* and order *Hymenoptera* the *Athalia rosae* species.

Useful fauna belongs to the order *Coleoptera* families *Coccinellidae* and *Carabidae* and order *Hymenoptera* families *Ichneumonidae, Formicidae* and *Pteromalidae*.