DYNAMICS AND FREQUENTS ATTACKS THE OF LEAF MINING MOTHS FROM APPLE PLANTATION BELONGING IN HUSI, VASLUI

DINAMICA SI FRECVENTA ATACULUI UNOR LEPIDOPTERE MINIERE DIN LIVEZI DE MAR SITUATE IN ZONA HUSI, VASLUI

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Rezumat : *Lepidopterele miniere sunt daunatori frecventi in plantatiile de mar. Observatiile au fost efectuate in anul 2004 si 2005 in plantatiile de mar la soiul Delicios auriu in 3 localitati din zona de cercetare si anume: Husi, Stalinesti si Munteni. In lucrare prezentam rezultate comparative privind dinamica si frecventa atacului lepidopterelor miniere Lyonetia clerckella L. si Leucoptera scitella Zell., specii dominante in plantatiile supuse tratamentelor conventionale de combatere.*

Abstract*: The leafminer moths are pests in most apple orchards. Studies conducted between 2004 and 2005 of apple orchards to type Delicios auriu in from 3 locations: Husi, Stalinesti and Munteni. In the paper there are presented the comparative result concerning dynamics and frequency of attack, the leafminer moths Leucoptera scitella Zell. and Lyonetia clerckella L. in the plantations which in applied the conventional treatments of control.*

Cuvinte cheie**:** *lepidoptere miniere, plantatii pomicole*
Keywords: *leafminer moths, apple orchards*

INTRODUCTION

This microlepidoptera, *Lionetia clerkella* L. (sinuous mining), belonging to the *Lepidoptera* class, *Lionetiidae* family, is spread all over Europe, Northern Africa, Little Asia, being known as a polyphagous pest, producing damages in the apple, pear, cherry, plum, peach, quince, rose plantations.

Leucoptera scitella Zell. (circular ore) is part of the *Lepidoptera* order, *Lyonetiidae* family, *Leucopteridae* subfamily, and it is spread all over Europe, being mentioned in speciality papers in Italy, Spain, the ex Iugoslavia, Bulgaria, Hungary, Polland, C.S.I. In our country, it was pointed out ever since 1957 in Suceava, Cluj and so on.

MATERIALS AND METHODES

For pursuit dynamics adults of *Lyonetia clerckella* L. si *Leucoptera scitella* Zell., the using of the traps with specific sexual ferromones ATRA-CLERK respectivle ATRA –SCIT.

The requent the attacks species *Lyonetia clerckella* L. and *Leucoptera scitella* Zell., followed to one 3 generations, in year 2004 and 2005, in the conditions in from 3 locations: Husi, Stalinesti and Munteni.

RESULTS AND DISCUTIONS

1.The dynamics adults fly of *Lyonetia clerckella* L., in the plantations of apple from the locality Husi in year 2004 and 2005

For pursuit dynamics adults of *Lyonetia clerckella* L., the using of the traps with specific sexual ferromones ATRA-CLERK. Using on the traps with specific sexual ferromones/ha, and replace ferromones be made monthly, from April feather in September, in 2004 and 2005. The notations concerning dynamics the adults fly they made of 3 or the week.

In sight correlation date obtained with one meteorological, they were calculating parallel in, sums degrees of active temperature (>9 ºC).

I fly maximum in the year 2004 (Table 1) to G_1 he registered to the date of 8.V., and the warning he launched for period 8.V-12.V; to G_2 the maximum were noted to date of 16.VII., and avertzarea he launched for period 16.VII-18.VII; and to G_3 the maximum were to date of 2.IX, and the warning he launched for period 2.IX-4.IX.

In the year 2005 (Table 2), fly the maximum to were to the date of 11.V., and the warning he gave the in period 11.V-12.V; to G_2, to date of 11.VII., registered the maximum flight, and the warning he gave for period 11.VII-13.VII; and to G_3, to date of 3.IX-a he registered the maximum flight and the warning he gave for period 3.IX-6.IX.

They did the recommendations, taking count of one presented, of treatment for G_1, in period 11.V-12.V., for adequately product.

Table 1

The dynamics adults of *Lyonetia clerckella* L.,
to traps with ferromones ATRA-CLERCK, in the year 2004

G_1		G_2		G_3	
Appearance adults	**Adults capture**	**Appearance adults**	**Adults capture**	**Appearance adults**	**Adults capture**
28.IV	3	6.VII	1	21.VIII	3
30.IV	6	8.VII	2	23.VIII	6
2.V	9	10.VII	16	25.VIII	7
4.V	8	12.VII	19	27.VIII	14
6.V	17	14.VII	22	29.VIII	16
8.V	18	16.VII	23	2.IX	18
10.V	15	18.VII	20	4.IX	15
12.V	11	20.VII	17	6.IX	10
14.V	10	22.VII	11	8.IX	9
10.VI	1	28.VII	3	11.IX	1

Table 2

The dynamics adults of *Lyonetia clerckella* L.,
to traps with ferromones ATRA-CLERCK, in the year 2005

G_1		G_2		G_3	
Appearance adults	**Adults capture**	**Appearance adults**	**Adults capture**	**Appearance adults**	**Adults capture**
1.V	1	30.Vi	2	26.VIII	2
3.V	7	8.VII	11	28.VIII	5
5.V	13	4.VII	17	31.VIIi	12
7.V	19	6.VII	18	3.IX	22
9.V	22	9.VII	24	6.IX	14
11.V	24	11.VII	36	8.IX	10
13.V	7	13.VII	13	10.IX	2
19.V	6	15.VII	8	16.IX	1
22.V	5	17.VII	7		
24.V	1	19.VII	1		

The frequence of the attack (F%) of the species *Lyonetia clerckella* L. in different localities from Husi-Vaslui research area, in 2004-2005

The researches they effectuated in the plantations of apple to type golden Delicios, in 3 localities from zone Husi -Vaslui: Husi, Stalinesti and Munteni, how much in parcela, of how much 4 rows, on how much 10 trees, from each row, sample of leaf be prelevate from each tree

from all one 4 cardinal point the si from different floor, the registered number from each attacked leaf.

The frequence of the attack of species *Lyonetia clerckella* L., followed to one 3 generation, in year 2004 and 2005, and from date obtained remarked (Table 3, Diagram 1):

The frequence of the attack on G_1 of *Lyonetia clerckella* L., in Husi city was of 11,37 % in 2004 and was of 18,12 % in 2005; in G_2 was of 14,10 % in 2004 and was of 14,92 % in 2005 and to G_3 was of 14,37 % in year 2004 and was of 18,40 % in 2005. The frequence most big attacks was of 13,28 % in year 2004 and was of 17,46 % in year 2005.

In the locality Stalinesti, frequence of the attack of *Lyonetia clerckella* L., on G_1 was of 11,52 % in 2004 and was of 17,72 % in 2005; on G_2 was of 13,75 % in 2004 and was of 15,25 % in 2005. In the mean, frequency of the attacks this in were of 12,69 % in 2004 and was of 15,84 % in 2005.

In the locality Munteni, frequence of the attack on G_1 was of 11,05 % in 2004 and was of 16,67 % in 2005; on G_2 was of 15,72 % in 2004 and was of 15,72 % in 2005; on G_3 was of 14,22 % in 2004 and was of 15,40 % in 2005. In mean, frequence of the attack this in were of 13,60 % in 2004 and 15,48 % in 2005.

Table 3

The frequence of the attack (F%) of the species *Lyonetia clerckella* L., in different localities from Husi-Vaslui research area, in 2004 and 2005

Localities	G_1		G_2		G_3		Mean %	
	2004	2005	2004	2005	2004	2005	2004	2005
Husi	11,37	18,12	14,10	14,92	14,37	18,40	13,28	17,46
Stalinesti	11,52	17,72	13,75	14,55	12,82	15,25	12,69	15,84
Munteni	11,05	16,67	15,72	14,37	14,22	15,40	13,66	15,48

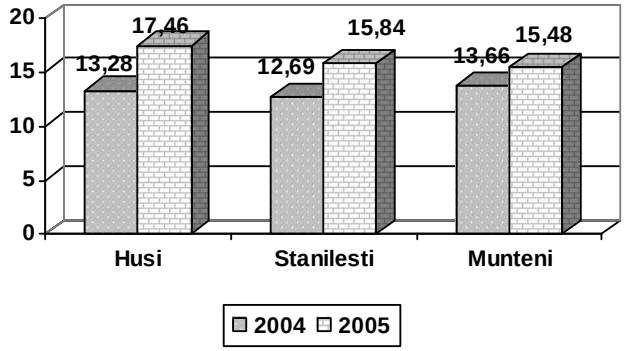

Diagram 1. The frequence of the attack (F%) of the species *Lyonetia clerckella* L., in different localities from Husi-Vaslui research area, in 2004 and 2005

2. The dynamics adults fly of *Leucoptera scitella* Zell., in the apple orchards from the locality Husi in year 2004 and 2005

For pursuit dynamics adults of *Leucoptera scitella* Zell., the using of the traps with specific sexual ferromones ATRA –SCIT. Using on the traps with specific sexual ferromones/ha, and replace ferromones be made monthly, from April feather in September, in 2004 and 2005. Pursuit curves the adults fly species *Leucoptera scitella* Zell., to one 3 generation in the year 2004 and 2005, in the locality Husi, the forerank in as the a measure of control through the big number of butterflies which drove to the diminution pest populations.

Same in the same time established the period whereat be registered the maximum of flight of butterflies, to each generation and in each every year of observation in view launch warning for application chemical treatments and the opportuneness.

Thus, in the year 2004 to G_1 the maximum of flight he registered on presented of 2.V and warning, were launch for period 2.V-4.V. 2004; for G_2, maximum curves of flight he registered the in the day of 10.VII., and the warning he gave for period 10.VII-16.VII.2004. for G_3, maximum curves of were to comed on 16.VIII., and were launch for period from 16.VIII-20.VIII.2004 (Table 4).

In the year 2005 to G_1 the maximum of flight to date of 2.V, and warning were launch for period 2.V-4.V.; for G_2, maximum curves of flight he registered in the day of 10.VII., and the warning he gave for period 10.VII-13.VII.; for G_3, maximum curves of were to comed on 16.VIII., and were launch for period from 16.VIII-18.VIII.2005 (Table 5).

Table 4

The dynamics adults of *Leucoptera scitella* Zell.,
to traps with ferromones ATRA-SCIT , in the year 2004

G_1		G_2		G_3	
Appearance adults	**Adults capture**	**Appearance adults**	**Adults capture**	**Appearance adults**	**Adults capture**
18.IV	3	27.VI	6	4.VIII	7
20IV	6	29.VI	15	6.VIII	3
22.IV	8	1.VI	22	9.VIII	9
24.IV	4	3.VII	30	11.VIII	16
26.IV	6	6.VII	40	13.VIII	20
28.IV	18	9.VII	35	15.VIII	23
30.IV	22	10.VII	20	16.VIII	32
2.V	26	11.VII	8	19.VIII	20
4.V	19	12.VII	7	22.VIII	17
6.V	17	14.VII	3	23.VIII	8
9.V	12			25.VIII	4
15.V	5				

Table 5

The dynamics adults of *Leucoptera scitella* Zell.,
to traps with ferromones ATRA-SCIT , in the year 2005

G_1		G_2		G_3	
Appearance adults	**Adults capture**	**Appearance adults**	**Adults capture**	**Appearance adults**	**Adults capture**
16.IV	1	26.VI	8	4.VIII	5
20IV	4	28.VI	20	7.VIII	11
23.IV	5	4.VII	24	9.VIII	20
25.IV	7	6.VII	30	12.VIII	28
28.IV	9	8.VII	32	15.VIII	30
2.V	12	10.VII	42	16.VIII	35
5.V	15	13.VII	20	18.VIII	28
11.V	28	16.VII	18	20.VIII	24
12.V	10	18.VII	10	22.VIII	8
17.V	8	22.VII	4	24.VIII	1
21.V	2			29.VIII	1

The frequence of the attack (F%) of the species *Leucoptera scitella Zell*. in different localities from Husi-Vaslui research area, in 2004-2005

The researches they effectuated in the plantations of apple to type golden Delicios, in 3 localities from zone Husi -Vaslui: Husi, Stalinesti and Munteni, how much in parcela, of how much 4 rows, on how much 10 trees, from each row, sample of leaf be prelevate from each tree

from all one 4 cardinal point the si from different floor, the registered number from each attacked leaf.

The frequence of the attack of *Leucoptera scitella Zell.* in Husi city was of 15,04% in 2004 and of 17,72% in 2005, and in Stanilesti in 2004 it was of 11,03% and of 14,16%. Also, in Munteni, the attack frequence was of 9,26% in 2004 and of 12,13% in 2005.

The frequence of the attack of species *Leucoptera scitella* Zell., followed to one 3 generation, in year 2004 and 2005, and from date obtained remarked (Table 6, Diagram 2):

The frequence of the attack on G_1 of *Leucoptera scitella Zell.* in Husi city was of 22,92 % in 2004 was of 19,15 % in 2005; and G_2 was of 30,50 % in 2004 and was of 35,22 % in 2005; iar la G_3 was of 26,75 % in 2004 and was of 25,17 % in 2005. The frequence most big attacks was of 30,50 % in 2004 and was of 35,22% in 2005.

In the locality Stalinesti, frequence of the attack of *Leucoptera scitella* Zell., on G_1 was of 22,45 % in 2004 and was of 19,74 % in 2005; on G_2 was of 24,32 % in 2004 and was of 33,52 % in 2005, and to G_3 was of 26,30 % in 2004 and was of 24,40 % in 2005. In the mean, frequence of the attack this in were of 24,35 % in 2004 and was of 25,89 % in 2005.

In the locality Munteni, frequence of the attack on G_1 was of 24,32 % in 2004 and was of 20,72 % in 2005; on G_2 was of 28,90 % in 2004 and was of 33,97 % in 2005; on G_3 was of 26,57 % in 2004 and was of 28,85 % in 2005. In mean, frequence of the attack this in were of 26,59 % in 2004 and 26, 84 % in 2005.

Table 6

The frequence of the attack (F%) of the species *Leucoptera scitella Zell*. in different localities from Husi-Vaslui research area, in 2004-2005

Localities	G_1		G_2		G_3		Mean %	
	2004	2005	2004	2005	2004	2005	2004	2005
Husi	22,92	19,15	30,50	35,22	26,75	25,17	26,72	26,51
Stalinesti	22,45	19,77	24,32	33,52	26,3	24,40	24,35	25,89
Munteni	24,32	20,72	28,9	33,97	26,57	25,85	26,59	26,84

The difference of the attack frequence in the 3 cities where the researches were made, explains itself especially by the ecological conditions, which are, in a way, different (temperature, moisture, precipitations), which have a very important role in the evolution of this species, which, in some propitious conditions, may exceed the economical pest level PED.

CONCLUSIONS

In the conditions from Husi-Vaslui area, *Lyonetia clerckella* L. and *Leucoptera Scitella* Zel. has 3 generations: G_1- June-August; G_2-June-August; G_3-August-September.

For pursuit dynamics adults of leafminer moths, the using of the traps with specific sexual ferromones ATRA-CLERK respectivle ATRA –SCIT.

The frequence of the attack of the species *Lyonetia clerckella* L. and *Leucoptera scitella* Zell., followed to one 3 generations, in year 2004 and 2005, in the conditions in from 3 locations: Husi, Stalinesti and Munteni.

The frequence of the attack of species *Lyonetia clerckella* L., from date obtained remarked: in 2004, in Husi the attack frequence was of 13,28% and of 17,46% in 2005; in Stanilesti, for 2004, the attack frequence was of 12,69% and of 15,84% in 2005; in Munteni, for 2004, the attack frequence was of 13,66% and of 15,48% in 2005.

The frequence of the attack of species *Leucoptera scitella* Zell., from date obtained remarked: in 2004, in Husi the attack frequence was of 26,72% and of 26,51% in 2005; in

Stanilesti, for 2004, the attack frequence was of 24,35% and of 25,89% in 2005; in Munteni, for 2004, the attack frequence was of 26,59% and of 26,84% in 2005.

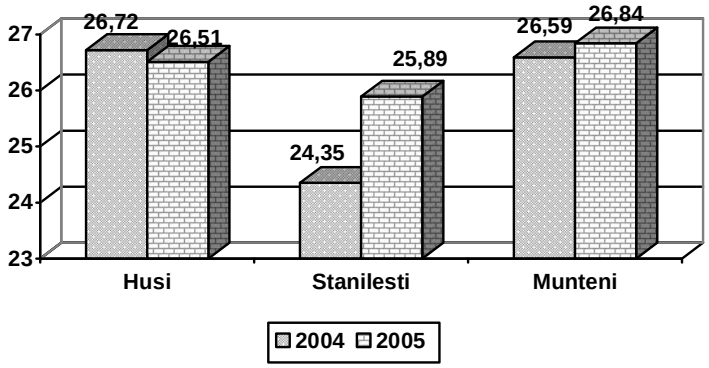

Diagram 2. The frequence of the attack (F%) of the species *Leucoptera scitella Zell*. in different cities from Husi-Vaslui research area, in 2004-2005

BIBLIOGRAPHY

ANDRIESCU I., MOGLAN VERONICA, MOGLAN I. & GAIDĂU GEORGETA. 1986 - Duşmanii naturali (Hymenoptera, Parasitica) ai fluturaşului minier al frunzelor de măr Stigmella malella Stnt. (Lep., Nepticulidae) In Romania (Nordul Moldovei). Lucr. a IV-a Conf. Naţionale de Entomol., Cluj-Napoca, 29-31 mai, 1986: 283-304.

DRĂGHIA I. 1986 - Lepidoptere miniere dăunătoare pomilor fructiferi din România. *Lucr. a III-a Conf. Entomol. Iaşi, 20-22 mai, 1983*: 373-378.

HERTUG MARIA, PATRAS C - 1981- Researches regarding the knowledge of the main ores in the fruit-growing tank in Falticeni and their control. Paper of the 7th National Conference prot.pl, 8th-10th of September, Cluj-Napoca

NICOLAE TOMITA, MITREA I., TALMACIU M., MATEI IULIA, MITREA RODI, NICOLAE G., 1996 - Contributii la studiul biologiei, ecologiei si combaterii moliei miniere a pomilor (*Leucoptera malifoliella*) in bazinul pomicol Strejesti. Lucrari stiintifice, vol.39, Seria Horticultura, Analele U.A.M.V. Iasi, pag.291-294.

MITREA I., MITREA RODI, TALMACIU M.,C. STAN 2000 - The apple fruit worm the main pest of the apple-trees orchards from the subcarpathian zone of Oltenia. Lucrări ştiinţifice, Analele Universităţii din Craiova, vol. 4(XL), , pag 284-288.

RAKOSY L., GOIA M. & KOVACS Z. 2003 - Catalogul Lepidopterelor României/Verzeichnis der Schmetterlinge Rumaniens. Soc. Lepid. Rom. Cluj-Napoca. 446 pp