DYNAMICS OF POPULATIONS OF APPLE MINING MOTHS CORRELATED WITH THEIR NATURAL ENEMIES IN DIFFERENT CONDITIONS OF PHYTO-SANITARY PROTECTION

DINAMICA POPULAŢIILOR DE MOLII MINIERE CORELATĂ CU DUŞMANII LOR NATURALI ÎN CONDIŢII DIFERITE DE PROTECŢIE FITOSANITARĂ A MĂRULUI LA SCDP IAŞI

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Abstract. *Observations were effectuated comparatively in 2007 on two surfaces of intensive apple culture from SCDP Iaşi, farm no. 6 Sârca, one being treated conventionally (blank test) and another one without treatments with chemical insecticides (ecologically). On both surfaces predominated the species Phyllonorycter blancardella F., Phyllonorycter corylifoliella Hbn., but we also noticed sporadically the species Stigmella malella and Leucoptera malifoliella.*

Rezumat. *Observaţiile s-au efectuat în cursul anului 2007, în mod comparativ pe două loturi de măr intensiv din cadrul SCDP Iaşi, ferma nr. 6 Sârca, unul fiind tratat convenţional (martor) şi altul fără tratamente cu insecticide chimice (ecologic). Pe ambele suprafeţe au predominat speciile Phyllonorycter blancardella F., Phyllonorycter corylifoliella Hbn., sporadic fiind semnalate şi speciile Stigmella malella şi Leucoptera malifoliella .*

In Romanian we know as pests in the tree plantations a number of 21 species of mining micro-Lepidoptera belonging to the order Lepidoptera.

On the apple plantations from SCDP Iaşi we encountered the following species: *Phyllonorycter corylifoliella, Phyllonorycter blancardella, Stigmella malella* and *Leucoptera scitella.* Among these, predominant were the species *Phyllonorycter corylifoliella* and *Phyllonorycter blancardella.*

MATERIAL AND METHOD

The researches on the dynamics of populations of mining moths were effectuated in 2007 on an intensive apple tree plantation situated at SCDP Iaşi.

We made observations on the predominant species *Phyllonorycter corylifoliella* Hbn. and *Phyllonorycter blancardella* F.

For both species, we pursued the dynamics of evolution of attack correlated with their natural enemies and the average density of mines on leaves in conditions of chemical and biologic fighting.

RESULTS AND DISCUTIONS

According to the researches made by Baggiolini (1960), Pătrăşcanu Elena (1963), Drosu Sonica (1996), Frasin Loredana (2005), both the plated miner and the marbled moth have 3 generations /year.

In ecologic conditions, in 2007 the first adults appeared in the interval June 8^{th} -11^{th}.

In tables no. 1 and 2 we present the dynamics of evolution of attack for *Phyllonorycter corylifoliella* Hbn and *Phyllonorycter blancardella* F. correlated with their natural enemies in conditions of chemical and biologic fighting.

Thus, the biologic fighting was made by launching trichogramma, wasps obtained at the Institute for Biologic Researches Iasi whereas the chemical fighting was made by means of insecticides.

From table no. 1 it results that for the ecologic variant from a total of 291 leaves analyzed, 236 leaves were attacked, namely 81%. From these 181 (76,7%) were mined by *Phyllonorycter corylifoliella* Hbn., 16 (11.4%) by *Phyllonorycter blancardella* F and 41 (17,4%) leaves were mined by both species.

For the chemical variant we analyzed 174 leaves out of which only 5 (29,3%) were attacked.

From table no. 2 it results that for the ecologic variant from a total of 111 leaves analyzed, 55 leaves presented mines with larvae unattacked (larvae, pupae or live pupal exuviae), 32 leaves (28,8%) contained mines with ravaged larvae (dead) and 24 (21,6%) contained parasitized larvae.

For the chemical variant we analyzed 92 leaves out of which 39(42,3%) presented mines with unattacked larvae, 20(21,7%) larvae with unattacked mines, 20 (21,7%) with ravaged larvae 33 (354,8%) parasitized larvae.

Both variants had on the surface of their leaves one mine, 2 or even 3 with *Phyllonorycter corylifoliella* Hbn., *Phyllonorycter blancardella* F. and with both species (tab. 3).

For example, for the ecologic variant the highest density was 9 mines / leaf both with *Phyllonorycter corylifoliella* Hbn. and *Phyllonorycter blancardella* F.

Table 1

Dynamics of evolution of attack of the mining moths (*Phyllonorycter corylifoliella* and *Phyllonorycter blancardella*) correlated with their natural enemies in conditions of chemical and biologic fighting

Variant	Leaves analyzed	Out of witch followed species:							
		Total Leaves attacked		Phyllonorycter corylifoliella Hbn		Phyllonorycter blancardella F.		Phyllonorycter corylifoliella Hbn + Phyllonorycter blancardella F.	
		Number	%	Number	%	Number	%	Number	%
ECOLOGIC	291	236	81	181	76,7	16	11,4	41	17,4
CHIMIC	174	51	29,3	34	66,7	7	13,7	10	19,6

Table 2

Effect of enthomophagous (predators and parasites) on the mining larvae depending on the fighting system

Variant	Larvaes analyzed	Larvaes unattacked		Larvaes ravaged		Larvaes parasitized	
		Number	%	Number	%	Number	%
ECOLOGIC	111	55	49,5	32	28,8	24	21,6
CHIMIC	92	39	42,3	20	21,7	33	35,8

CONCLUSIONS

- In 2007, on the apple tree plantations from SCDP Iaşi, *Phyllonorycter balncardella* F. and *Phyllonorycter corylifoliella* Hbn. predominated as mining species.
- For the ecologic variant, the species *Phyllonorycter corylifoliella* Hbn registered a damaging attack of 76,7%, and for the chemical variant a damaging attack of 66,7%.
- For the species *Phyllonorycter blancardella F*., the percentage of mined leaves was 11,4% for the ecologic variant whereas for the chemical variant it was 13,7%.
- The highest density of mines on leaves was registered for the species *Phyllonorycter corylifoliella* Hbn (102 leaves with more than 3 mines).

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