OBSERVATIONS ON THE FLIGHT DYNAMICS OF ADULTS OF THE SPECIES "*CYDIA POMONELLA* L." UNDER THE CONDITIONS OF 2021 AT RSFG IAȘI

OBSERVAȚII PRIVIND DINAMICA ZBORULUI ADULȚILOR SPECIEI „*CYDIA POMONELLA* L." ÎN CONDIȚIILE ANULUI 2021 LA SCDP IAȘI

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Abstract. *The researches regarding the flight dynamics of the pest Cydia Pomonella L. were carried out on the territory of Iași county in Miroslava locality, in an intensive apple plantation and the varieties studied being Florina, Idared and Jonagold. The appearance of the pest Cydia Pomonella L. was followed with the help of pheromone traps of atraPom type, produced by the Institute of Chemical Research, "Raluca Ripan" from Cluj-Napoca. During the year, the pest had 2 complete generations, the first occurrence being reported on May 7. The maximum flight curve of the first generations was reached on May 24, with a flight staggered throughout the vegetation period of the culture, the flight of butterflies being recorded during a number of 123 calendar days. Pest biology has been heavily influenced by climatic conditions.*
Keywords: apple, apple worm, traps, atraPOM.

INTRODUCTION

The pest *Cydia pomonella* L., is spread and causes damage in all the countries where the apple is grown (CABI 2021), the damage suffered by the fruit growers being significant (Jones and Wiman, 2008).

In recent years the pest *Cydia pomonella* L. due to climate change attacks the apple culture for a much longer period, hence the concerns of plant protection professionals are directed to ensure that the crop protection is as effective as possible. Knowledge of the biology of the species is necessary to achieve effective control, which is very important to determine the period of activity of the pest and the optimal times of treatment.

MATERIALS AND METHODS

Research on the flight dynamics of the pest *Cydia pomonella* L. was carried out on the territory of Iasi county in Miroslava, in an intensive apple tree, the varieties studied being Florina, Idared and Jonagold. The appearance of the pest *Cydia*

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pomonella L. was sought by the help of ferromonal traps of the type atraPom, produced by the Institute of chemical Research, "Raluca Ripan", in Cluj-Napoca. Climate data recording was performed using the Adcon Telemetry addVANTAGE A840. The climatic data from the study period (January to September 2021) were used to calculate the period of activity of the species according to the sum of temperature degrees (Σ(tn-t0)/cumulative) the activity of the species being influenced by the thermal constant of the species (K to 624ºC) and the lower development threshold of 9ºC (Roșca et al., 2011).

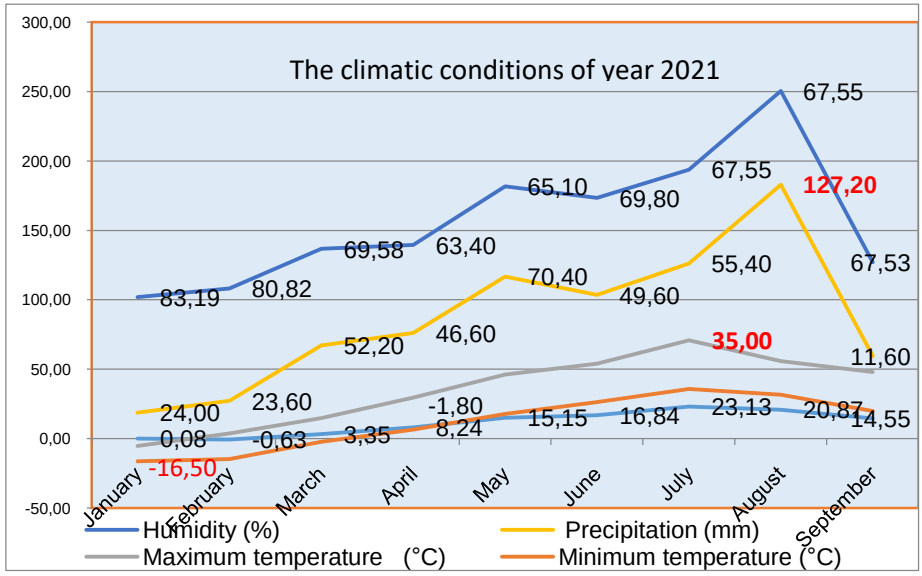

Fig. 1 Climatic situation during the studied period

RESULTS AND DISCUSSIONS

In 2021 the lower development threshold (9ºC) was met at the beginning of May (tab. 1), the thermal constant having been met in July, the actual temperature sum in 2021 being 1383ºC, thus it appears that two complete generations were developed, totaling 1248ºC and a third incomplete, developed in the last days of august to the last catches recorded on 14.09.

When analyzing figure 2, in 2021 the pest had two complete generations and a third incomplete occurrence was reported on 07 May. The peak of the first generation flight curve was reached on 24 May in the Idared variety (79 catches), the trap set on the Florina variety - 36 catches and 25 catches recorded on the Jonagold variety. The second generation recorded a peak of the flight curve on 29.06 for the Idared variety with 61 catches. The maximum catch was recorded in August when 81 catches were recorded in the Jonagold variety. With a flight spread over the entire growing season of the crop, the flight of the pest was recorded over 123 calendar days. The latest entries were on 14.09.

Table 1

Effective temperature in 2021 for Research Station for Fruit Growing

Month	No. of days	Temperature (tn)2021	tn-t0	xn(tn-t0) partial	Σ(tn-t0)/cumulated
January	31	0.08			
February	28	-0.63			
March	31	3.35	-5.65	-5.65	
April	30	8.24	-0.76	-9.16	-14.81
May	31	15.15	6.15	190.60	175.79
June	30	16.84	7.84	235.20	410.99
July	31	23.13	14.13	438.03	849.02
August	31	20.87	11.87	367.97	1216.99
September	30	14.55	5.55	166.50	1383.49

*) = values of this column rezult from **(t_n-t0)** × no. of days of each month, where:
-t_n = monthly average temperature
-t_0 = biological threshold (9^0C).

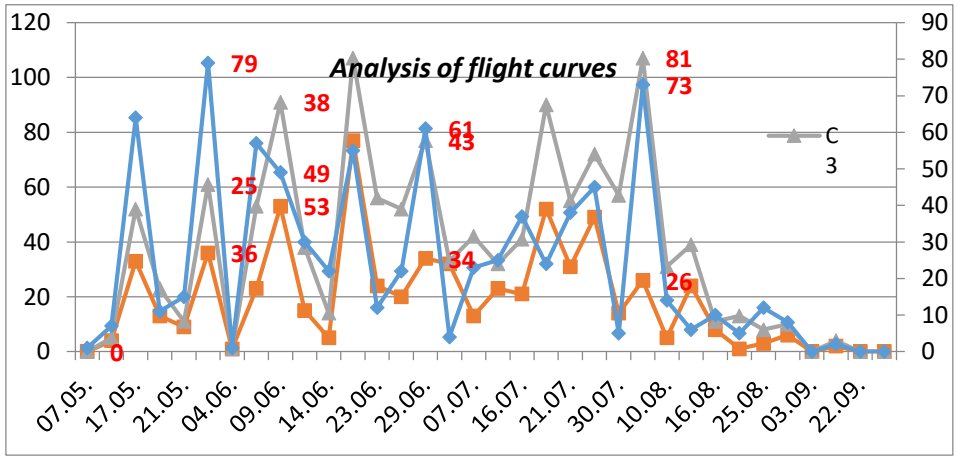

Fig. 2 Monitoring of the flight of the pest *Cydia pomonella* L. by means of traps atraPOM at RSFG IAȘI

CONCLUSIONS

During the period of activity of the worm (May-September) according to the thermal constancy, two complete generations were developed and an incomplete third generation started, which can cause damage.

Throughout the year, the economic pest threshold has been exceeded which leads to the use of insecticides for the control of the species. *Cydia pomonella* L. throughout the period of activity.

Another conclusion from the analysis of the species biology is that although the year was rich in rainfall the species experienced an active flight during these periods too. The biology of the pest has been greatly influenced by climatic conditions.

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