

RESEARCH ON MONITORING AND COMBATING THE PEST *RHAGOLETIS CERASI* L. IN CHERRY PLANTATIONS IN THE NORTH- EAST AREA OF ROMANIA

Cristina Ionela TURCU¹, Simona Mihaela CHELARU^{1*}, Mădălina Iuliana GHERGHEL¹,
Ionel PERJU¹, Sorina SIRBU¹, Elena IUREA¹

¹Research Station for Fruit Growing Iasi, Miroslava, Iasi, Romania



Abstract

Cherry plantations are attacked by the pest, *Rhagoletis cerasi* L., causing significant damage to production, especially in late-maturing varieties.

Climate change has favored the appearance of the pest in the plantation much earlier, thus causing damage to both late-maturing and early-maturing varieties.

Research on monitoring and combating the pest *Rhagoletis cerasi* L. was conducted at RSFG IAȘI during 2023-2024. During the 2 years of study, Decis Trap traps were used, placed when the trees at BBCH 81, the earliest appearance of the pest was on 17.05.2023, and the latest appeared on 05.07.2023. The pest was controlled both with the help of Decis Trap traps, (80 per/ha) but also with the help of specific insecticides, recording an attack rate between 6.5% in 2023 and 4.5% in 2024.

Keywords: attack rate, cherry fruit fly, traps.

1. INTRODUCTION

The pest *Rhagoletis cerasi* L., known as the cherry fruit fly, represents one of the most significant threats to cherry crops in Europe, including Romania. It has a very wide distribution across Europe, as well as in Asia and North America (CABI, 2024).

A comprehensive perspective on integrated pest management methods and monitoring of the pest in orchards helps us manage the level of infestation and control the cherry fruit fly, which causes significant damage to cherry plantations. Chromatic and pheromone traps are very important tools for monitoring the *Rhagoletis cerasi* L. pest (Daniel, C., & Gründer, J. 2012).

This pest attacks cherry fruits starting from the fruit swelling stage (May), causing considerable economic losses and affecting production (Chelaru et al., 2021). Especially in the northeastern region of Romania, characterized by varied pedoclimatic conditions, effective monitoring and control of this pest are essential to ensure sustainable production.

2. MATERIALS AND METHODS

During the years 2023–2024, one of the studies on cherry plantations involved monitoring the pest *Rhagoletis cerasi* L. Under the climatic conditions of the study years, monitored through the

Imeteos 3.3 weather station via the FIELD CLIMATE program, and through the application of phytosanitary treatments with products specific to cherry plantations.

Table 1. Climatic situation 2023

MONTHS	TEMPERATURE (°C)			PRECIPITATIONS L/MP	HUMIDITY AVERAGE MM
	AVERAGE	MAX	MIN		
JANUARY	3.12	17.86	-6.77	7.4	96.14
FEBRUARY	1.96	18.05	-16.41	23	83.41
MARCH	6.71	23.09	-6.04	5.6	72.82
APRIL	8.33	20.68	-1.48	88.6	75.53
MAY	15.79	28.28	1.24	18.4	31.21
JUNE	20.29	34.25	4.69	29.6	41.07
JULY	23.23	36.88	11.47	136.8	1.08
AUGUST	24.17	38.8	10.7	16.4	0.58
SEPTEMBER	19.55	32.59	7.48	10.6	0
OCTOBER	14.31	32.7	-2.1	19.4	2.6
NOVEMBER	6.78	21.05	-7.14	95.6	0.69
DECEMBER	1.3	14.65	-8.03	7.4	3.89
MEDIA/MAX/MIN	12.12	38.8	-16.41	458.8	34.08

Table 2. Climatic situation 2024

MONTHS	TEMPERATURE (°C)			PRECIPITATIONS L/MP	HUMIDITY AVERAGE
	AVERAGE	MAX	MIN		
JANUARY	-0.7	14.24	-21.28	23	83.92
FEBRUARY	6.24	18.62	-7.97	10.6	82.73
MARCH	6.97	28.52	-7.92	39.2	80.93
APRIL	13.54	30.54	0	35.8	73.09
MAY	16.17	30.15	1.74	89.8	67.44
JUNE	22.088	34.39	10.6	65.8	79.77
JULY	25.54	44.6	11.8	81	69.73
AUGUST	25.17	41.9	10.9	12	-
SEPTEMBER	19.74	39.1	5.3	137	-
OCTOBER	10.32	25.85	-3.99	37.4	92.44
NOVEMBER	3.47	21.02	-5	33.8	91.56
DECEMBER	2.21	13.93	-14.25	45.8	96.90
MEDIA/MAX/MIN	12.56	44.6	-21.28	611.2	81.85

Table 3. Treatment programme, 2023-2024 at RSFG IASI

NO TREATMENT	PRODUCTS APPLIEDS IN 2023	DOSSAGE HA	PRODUCTS APPLIEDS IN 2024	DOSSAGE HA
T1-BBCH 07-10	B. Bordelaise	0.5% - 4 kg/ha	B. Bordelaise	0.5% - 4 kg/ha
	Mospilan 20 SG	0.03% 0.45 kg/ha	Mospilan 20 SG	0.03%0.45 kg/ha
	Ovipron	5l/ha		
T2- BBCH 65	Polyactiv B	2 l/ha		
	Signum	0.05% - 0.6 kg/ha	Folicur Solo	0.075%- 0.75 l/ha
	Decis 25 WG	0.03%- 0.3 kg/ha	Decis 25 WG	0.03%- 0.3 kg/ha
T3-BBCH 74-78	Polyactiv B	2 L/ha	Algobor	0.1%-1 L/ha
	Folicur	0.75/ha	Signum	0.05% - 0.6 kg/ha
	Karate Zeon	0.02% - 0.2 l/ha	Karate Zeon	0.02% - 0.2 l/ha
T4- 7 DAYS BEFORE HARVEST	Rezistevo	0.3%-3 kg/ha	Rezistevo	0.3%-3 kg/ha
	Signum	0.05% - 0.6 kg/ha	Exirel	0.08%
	Exirel	0.08%-0.8L/ha	Revyona	0.01%- 1.2 l/ha
	Rezistevo	0.3%-3 kg/ha	Kerafol	0.3%- 3 l/ha

3. RESULTS AND DISCUSSIONS

The data on captures of *Rhagoletis cerasi* L. in 2023 and 2024 were recorded on various dates in May, June, and July. These data are essential for monitoring and managing this species, which is a major pest of cherry crops.

Upon examining these records, it can be observed that the number of captures was higher in 2023 compared to 2024, suggesting a higher population density of *R. cerasi* in 2023. Additionally, there is a noticeable declining trend in captures as the season progresses, which is characteristic of this species, given that adults have a lifespan of approximately 2–4 weeks and only one generation per year.

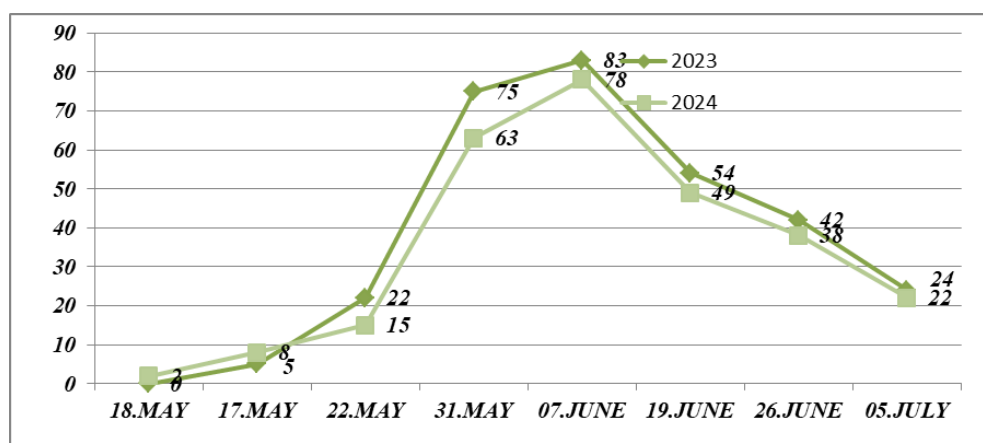


Figure 3. Monitoring the flight of the *Rhagoletis cerasi* L. cherry pest through DECIS Trap, RSFG IASI

It is recommended that control measures be applied during the peak period of adult activity, which coincides with the fruit ripening period. The use of yellow sticky traps, careful monitoring of Decis

trap captures, and the application of selective phytosanitary treatments can contribute to the effective management of this harmful species.

4. CONCLUSIONS

In both periods, the activity of the *Rhagoletis cerasi* L. fly began around May 17 and gradually declined until early July.

The number of captures was higher in 2023 compared to 2024, indicating a higher population density in 2023.

The peak capture period was around June 7, in both 2023 and 2024.

Most products and dosages were kept constant between 2023 and 2024, indicating a stable control strategy. Products such as Folicur Solo, Algobor, Revyona, and Kerafol were added in 2024 to respond to seasonal challenges and optimize crop protection.

Depending on the capture level and weather forecast, chemical or biological treatments are applied during the peak adult activity period (around June 7), and fruit harvesting before full maturity is performed to prevent infestation.

5. REFERENCES

- CABI (2024). Crop Protection Compendium. (CABI). (Last accessed November2024.)
- Daniel, C., & Grunder, J. (2012). Integrated management of European cherry fruit fly *Rhagoletis cerasi* (L.): Situation in Switzerland and Europe. *Insects*, 3(4), 956–988.
- EPPO Global Database – *Rhagoletis cerasi*
- László, M. (2010). Efficacy of traps for monitoring *Rhagoletis cerasi* L. in sweet cherry orchards. *International Journal of Horticultural Science*, 16(1), 45-50.
- Nitzsche, P., et al. (2008). Attract and kill strategies against *Rhagoletis cerasi* L.: Effectiveness of new bait formulations. *Bulletin of Insectology*, 61(1), 151-156.
- Vogt, H., & Hoffmann, C. (2011). Biological control of *Rhagoletis cerasi* L. using entomopathogenic fungi. *Journal of Pest Science*, 84(4), 487-493.