

OBSERVATIONS REGARDING THE PESTS REPORTED IN THE APPLE PLANTATIONS UNDER THE RSFG IAȘI AND THEIR PHYTOSANITARY PROTECTION

OBSERVAȚII PRIVIND DĂUNĂTORII SEMNALAȚI ÎN PLANTAȚIILE DE MĂR DIN CADRUL SCDP IAȘI ȘI PROTECȚIA FITOSANITARĂ A ACESTORA

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Abstract. The observations took place in 2021 in the apple plantations of Research Station for Fruit Growing Iași, (Northeast of Romania), where a complex program of phytosanitary treatments was applied, taking into account the biology and ecology of the pests found in the apple plantations. Varieties on which observations have been made regarding the application and effectiveness of phytosanitary treatments were Idared and Jonagold varieties grafted on rootstock MM106. The climatic conditions of 2021 favored the development of pathogens and pests. Under the conditions of withdrawal of a large number of active substances, the pest control is becoming increasingly difficult, so that in 2021 a number of 11 phytosanitary treatments were applied, the degree of attack of the pest *Cydia Pomonella* L. being between 2% for the treated variant and 45% for the untreated variant.

Keywords: apple, control, treatments, apple worm.

INTRODUCTION

Apple, an intensely grown species in our country, requires extreme care and requires among the most phytosanitary treatments to obtain quantitative and qualitative yields. Thus, the cost of safekeeping represents the care of all the fruit-growers. When a pest control complex is not applied, losses can be as high as 80%.

The pests which cause serious damage and require particular attention are: *Aphis pomi* (de Geer), *Eriosoma lanigerum* (Hansm), *Quadraspidius perniciosus* (Comst), *Adoxophyes reticulana* (HB) and *Cydia pomonella* (L.), (Balonium and Mitrea, 2017).

The comments were focused on the damage caused by *Adoxophyes reticulana* (HB) and *Cydia pomonella* (L.).

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MATERIAL AND METHOD

Observations on the pests of apple plantations were carried out in 2021 in an intensive orchard of the Idared and Jonagold varieties of the RSFG Iași. In 2021, 11 plant protection treatments were applied, depending on the phenophase of trees, the first treatment being applied to BBCH 01-51 (tab. 1) each time a plant health treatment was applied and both insecticides and fungicides were applied to limit the number of passes, in this way, integrated control of pathogens and pests in apple plantations is carried out 12 insecticides with various active substances were used during the year to control insects of the order lepidoptera as well as insects of the order Homoptera (*Aphis* spp., *Quadraspidiotus perniciosus* COMST., *Eriosoma lanigerum* HANSM.), Coleoptera (*Anthonomus pomorum* L.), Acari- Tetranychidae (*Panonychus ulmi* KOCK.).

Ferromonal traps of the type atraPOM and atraRET have been used to warn treatments.

In September when the pest flight was zero, field determinations on the percentage of attacked fruit (BBCH 80) were carried out in the case of both *Adoxophyes reticulana* (HB) and *Cydia pomonella* (L.) pests, thus an evaluation of the entire treatment program applied in 2021.

Table 1

Phytosanitary treatments applied in apple plantation at RSFG Iași, in 2021

No	Fungicide/Insecticide	Dose / ha	Crop phenophase	Pathogen/Pest
1.	BouillieBordelaise WDG Mospilan 20 SG	5.0 kg 0.45 kg	BBCH 01-51 Dormancy- Inflorescence emergence	<i>Venturia inaequalis</i> , <i>Podosphaera leucotricha</i> , <i>Erwinia amylovora</i> <i>Aphis</i> spp., <i>Adoxophyes reticulana</i> , <i>Quadraspidiotus perniciosus</i>
2.	Topsin 500 SC Mavrik 2 F Polyactiv B	1.5 l 0.75 l 1.0 l	BBCH 57 Pink bud stage	<i>V. inaequalis</i> , <i>P. leucotricha</i> , <i>Aphis</i> spp, <i>A. pomorum</i> , Physiological and nutritional diseases
3.	Chorus Vantex 60 CS Kumulus DF	0.75 kg 0.2 l 4.0kg	BBCH 59 Most flowers with petals forming a hollow ball	<i>V. inaequalis</i> , <i>P. leucotricha</i> . <i>Hoplocampa testudinea</i> , <i>Aphis</i> spp., <i>Panonychus ulmi</i>
4.	Folicur Solo Coragen Manfil 80 WP	0.6 l 0.15 l 2.0 kg	BBCH 71 Fruit size up to 10 mm	<i>V. inaequalis</i> , <i>P. leucotricha</i> , <i>Monilinia fructigena</i> <i>Cydia pomonella</i> , <i>Aphis</i> spp.
5.	Score Manfil 80 WP Nissorun WP Decis 25 WG	0.2 l 2.0 kg 0.5 kg 0.004 5kg	BBCH 71-72 Fruit size up to 10 mm -Fruit size up to 20 mm	<i>V. inaequalis</i> , <i>P. leucotricha</i> , <i>M. fructigena</i> , <i>C. pomonella</i> , <i>Q. perniciosus</i>
6.	Folicur Solo Manfil 80 WP Mospilan 20 SG	0.3 l 2.0 kg 0.4 kg	BBCH 72 Fruit size up to 20 mm	<i>V. inaequalis</i> , <i>P. leucotricha</i> , <i>M. fructigena</i> , <i>Aphis</i> spp, <i>C. pomonella</i> , <i>Q. perniciosus</i>
7.	Luna experience Vantex 60 CS	0.75 l 0.2 l	BBCH 73 Second fruit fall	<i>V. inaequalis</i> , <i>P. leucotricha</i> , <i>M. fructigena</i> , <i>C. pomonella</i>

8.	Folpan 80 WDG Coragen Codicevo	2.0 kg 0.15 l 3.0 kg	BBCH 74 Fruit diameter up to 40 mm	<i>V. inaequalis</i> , <i>P. leucotrisha</i> , <i>C. pomonella</i> , <i>Aphis</i> spp, Physiological and nutritional diseases.
9.	Score Runner 2F	0.3 l 0.8 l	BBCH 75 Fruit about half final size	<i>V. inaequalis</i> , <i>P. leucotrisha</i> , <i>C. pomonella</i> , <i>Phyllonorycter blancardella</i>
10.	Merpan 80 WDG Mospilan 20 SG Kerafol	2.0 kg 0.45 kg 3 l	BBCH 78 Fruit about 80% final size	<i>V. inaequalis</i> , <i>P. leucotrisha</i> , <i>Q. perniciosus</i> , <i>Eriosoma lanigerum</i> Physiological and nutritional diseases
11.	Decis 25 WG Unical	0.045 kg 3 l	BBCH 81 Beginning of ripening: first appearance of specific cultivar colour	Physiological and nutritional diseases

From a climatic point of view, the period studied (October 2020 to September 2021) was characterized as rainfall, totaling 620 mm, the rainy month being August 2021 (127,2 mm) and the driest September 2021 (11.6 mm).

The minimum temperature was recorded in January (16.5°C), Maximum temperature in July (35 °C).

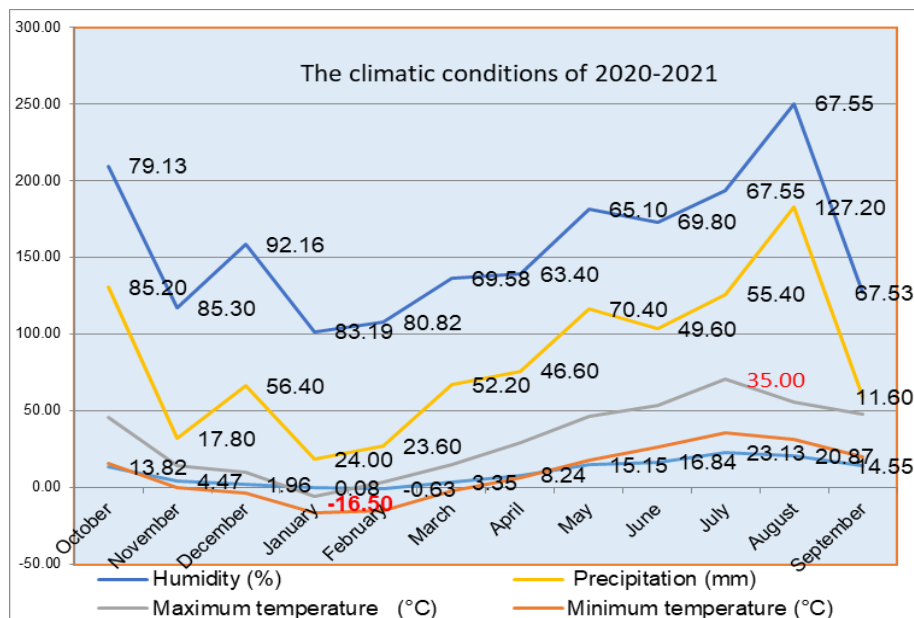


Fig. 1 Climatic characterization of the agricultural year 2020-2021, at RSFG Iași.

RESULTS AND DISCUSSIONS

The best results were obtained in the Idared variety by applying the treatment program, recording a 2% attack on the apple worm and 5% attack on the fruit skin moth in the treated batch, with an effectiveness of the insecticides used by 98%.

In the case of the untreated lot the highest losses were at the Jonagold variety of 43% at the apple worm attack and 33% at the Idared variety, an attack caused by the molia of the fruit skin.

Table 2

The results regarding the application of phytosanitary treatments in 2021 at RSFG Iași

Apple varieties	<i>Cydia pomonella</i> L. % attacked fruits	Effectiveness of treatments %	<i>Adoxophyes reticulana</i> HB. % attacked fruits	Effectiveness of treatments %
Variant I - treated				
Idared	2%	98%	5%	95%
Jonagold	3%	97%	4%	96%
Variant II - untreated				
Idared	40%		33%	
Jonagold	43%		28%	



Fig. 1 Attack by *Adoxophyes reticulana* HB.



Fig. 2 Attack by *Cydia pomonella* L.

CONCLUSIONS

In the year of study, the percentage of attack fruits was within normal limits 2% to 5%, so we can conclude that the program of plant protection treatments was effective.

The very large difference between the treated and the untreated lot clearly shows that it is absolutely necessary to use insecticides in the control of harmful agents.

It is very important to link the carrying out of plant health treatments with the biology of pests in order to determine the optimal time of treatment, thus limiting the irrational application of treatments, which is very important in integrated pest management.

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