

## CONTROL OF CODLING MOTH (*CYDIA POMONELLA* L.) USING PHEROMONE TRAPS AND NEW INSECTICIDES IN CONDITION OF VOINEȘTI FRUIT – GROWING AREA

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**Abstract:** Codling moth (*Cydia pomonella* L.) remains to be a very important pest in most apple orchards. This paper presents the results performed between 2010 – 2011 with home new insecticides and untreated check. The results were interpreted comparatively for biological products, chemical insecticides and untreated check. The main results obtained were the following:

- with two treatments/each generation, KASIO SORBIE 5WG conc. 0.01% and VOLIAM TARGO SC63 conc. 0.073% had the maximal efficacy in controlling all the stages of *Cydia pomonella* L.;
- the insecticide KARATE ZEON conc. 0.015% was very effective in controlling the pest;
- they are remarked the importance of the pheromone traps in establishing the spreading area of the pests, the appreciation of the opportunity of treatments applying according to population level and establishing the optimal time for treatment warning.

**Key words:** *Carpocapsa pomonella*, pheromone, insecticides, biological efficacy

### INTRODUCTION

In the period 2010 – 2011, in the majority of the apple orchards of the tree growing zone Voinești, a strong attack of *Cydia pomonella* (the fruit worm) was registered.

The main reason was the lack of winter time treatments and the accumulation of an important biological reserve.

So, in the period 2010 – 2011, at the untreated or inadequate treated trees (not respecting the warnings), the frequency of fruits with worms rise to values between 30 – 50%.

In the same period, the high pest density in the second part of the summer (generation II and III) determined the accumulation of an important biological reserve.

So it became important to adopt an efficient strategy, which together with the correct treatment warning had to lead to a significant attack limitation, reducing the pollution causing insecticide consumption and obtaining healthy crops.

The work presents the results obtained at S.C.D.P. Voinești in the conditions of the years 2010 – 2011, using the pheromone ATRAPOM as a means to monitor and to warn of the apple worm, the microbiological products and the “chemical standard” variant.

### MATERIAL AND METHOD

Table 1

Variant (product)	Conc. %	Year	Efficiency					
			Generation I			Generation II and III		
			Total fruits trees obs. + drop	Of which attacked		Total fruits trees obs. + drop	Of which attacked	
Nr.	%	Nr.		%				
Kasio Sorbie 5WG	0.01	2010	200	9	4.5	300	11	3.6
		2011	200	7	3.5	300	4	1.3
Voliam Targo SC063	0.073	2010	200	12	6	300	14	4.6
		2011	200	10	5	300	9	3
Karate Zeon (STD)	0.015	2010	200	26	13	300	38	12.6
		2011	200	24	12	300	33	11
MT. NTR.		2010	200	69	34.5	300	95	31.6
		2011	200	72	36	300	111	37

The researches have been organised on an experimental lot in the framework of the Farm nr. 1 at the S.C.D.P. Voinești, on the Jonathan breed, on M106 graft bearers.

The tree age = 12 years.

The crown form: palmate with slating arms; herbicide treated soil on the rows and with grass between the rows.

The lot was organised with 4 variants in the years 2010 – 2011.

The variant with 5 trees (a tree = one repetition) was the following:

V<sub>1</sub> – Kasio Sorbie 5WG conc. 0.01%

V<sub>2</sub> – Voliam Targo SC063 conc. 0.073%

V<sub>3</sub> – Karate Zeon conc. 0.015% (STD)

V<sub>4</sub> – MT. NTR.

The result evaluation was realised at the beginning of september, before harvesting the fruits.

100 fruits/variants were analyzed for the generation I, respectively 150 fruits for each of the generations II and III.

The fruits attacked and dropped in the grass were evaluated at each analyzed tree.

The results of the treated variants were interpreted as compared with the untreated variant (untreated witness), situated in a nearby lot.

The efficiency of the treated variants was expressed as the frequency of the attack – free fruits in the total of the observed fruits.

The pest biology was studied with the help of pheromone traps (Atrapom), with two weekly readings, with the pheromone exchange at 45 days.

The number of the captured butterflies was compared with the specific PED value (2.5 – 3.0 butterflies/trap/week).

The use of pheromones permitted to register the principal parameters of the yearly biological pest cycle: the apparition and the duration of each generation, the first flying maximum and the egg laying start, the numerical population density and the evaluation of the attack risk, the necessity and the optimal moments for applying the chemical treatments.

## RESULTS AND DISCUSSIONS

Control with new products:

V<sub>1</sub> – Kasio Sorbie 5WG conc. 0.01%

V<sub>2</sub> – Voliam Targo SC063 conc. 0.073%

V<sub>3</sub> – Karate Zeon conc. 0.015%

The treatment was applied at warning, with the spray pump Stihl400.

The amount of solution per hectare was 1500 liters (5 liters/tree).

The number of tree per variant: 5 (a tree = one repetition).

Before harvesting the fruits, the products: Kasio Sorbie 5WG conc. 0.01% and Voliam Targo SC063 conc. 0.073%, biological efficiency was evaluated, registering values comprised between 1.3 – 3.6% attacked fruits, respectively 3.0 – 4.0% attack – free apples, as compared with 31.6 – 37% fruit with worms at the “untreated witness”.

The products Karate Zeon conc. 0.015% were experimented.

At the end of june, after first generation of the apple worm, the frequency of attacked fruits with worms was comprised in this variant, between 1.3% and 3.0% were as at the “untreated witness” 31.6 – 37.0% apples with attack were registered.

## CONCLUSIONS

For the apple plantations of the tree growing zone Voinești – Valley of Dambovită, the fruit worm (*Carpocapsa pomonella* L.) represents one of the pest species with major incidence on the quality of the fruits and on their commercial value.

Among the new products studied at S.C.D.P. Voinesti in the period 2010 – 2011, with the best biological efficiency in limiting the attack, Kasio Sorbie 5WG conc. 0.01% (96.5 – 98.7%) and Voliam Targo SC063 conc. 0.073% (95.0 – 97.0% attack free fruits) was remarked.

At the chemically treated variants, the product Karate Zeon conc. 0.015% prove the best control action realising to 88.0 – 89.0% healthy fruits.

The use of specific pheromone attractors permits the correct monitoring of the pest population ant the establishing of the optimal warning ant treatment application periods.



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