RESULTS ON THE EFFECTIVENESS OF NEW INSECTICIDES IN MAJOR PESTS OF APPLE

REZULTATE PRIVIND EFICACITATEA UNOR NOI INSECTICIDE ÎN COMBATEREA PRINCIPALILOR DĂUNĂTORI AI MĂRULUI

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Abstract. *In 2010, the SCDP Iasi were carried aut research on testing the effectiveness of plant protection protection products. The experiment was conducted in experimental polygon, in an apple orchard, the variety Idared. Pests on witch observations were made were: Cydia pomonella L., Adoxophyes reticulana, Panonychus ulmi, Phyllonorycter spp, and the products tested were: Affirm SG 095 and Voliam Targo SC 063.*
Key words: *control, effectiveness, insecticides, pests, biology*

Rezumat. *În anul 2010, la SCDP Iaşi s-au efectuat cercetări cu privire la testarea eficacităţii unor produse de protecţia plantelor. Experienţa s-a desfăşurat în poligonul experimental, pe o plantaţie de măr, la soiul Idared. Dăunătorii asupra cărora s-au efectuat observaţii au fost: Cydia pomonella L., Adoxophyes reticulana, Panonychus ulmi, Phyllonorycter spp. , iar produsele testate: Affirm SG 095 şi Voliam Targo SC 063.*
Cuvinte cheie: *combatere, eficacitate, insecticide,dăunători, biologie*

INTRODUCTION

In all areas of apple fruit production is affected by many factors, including pests that have a special role. The main pests dominant, causing extensive damage in apple orchard are: apple worm (*Cydia pomonella* L.*),* peel fruit moth (*Adoxophyes reticulana),* mites (*Panonychus ulmi*) şi mined (*Phyllonorycter* spp.*)*.

Reducing losses caused by these pests is achieved by a complex of integrated control measures, among them remains the most important chemical control. (Beşleagă Ramona, 2009; Cîrdei E.,2005)

In 2010, at Research and Development Station for Fruit Growing Iasi, have experienced tow new insecticides, to determine effectiveness in combating major pests of apple.

MATERIAL AND METHOD

The research was conducted in an experimental polygon of apple plantation, the distance between trees being 3X1 m, arranged in the form of palmettes.

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The aim of the experience was to test the effectiveness of plant protection products, to combat the major pests of apple. The used products were: Affirm SC 095 şi Voliam Targo SC 063.

Affirm insecticide has been tested to combat skin fruit moth and apple worms, but Voliam Targo to combat mites, mined and apple worms.

Insects biology and treatment efficacy was influenced by the climatic conditions (table 1).

Table 1

The main climatic elements in 2010 at RDSFG Iaşi

Month	Temperature °C			Rainfall	Number of rainy days	Humidity
	Average	Maximum	Minimum			
I	-6,4	-10,4	-26,0	35,6	11	91
II	-1,1	12,6	-12,6	22,6	12	85
III	4,5	22,6	-7,5	16,2	8	65
IV	12,6	23,3	2,0	28,0	10	61
V	17,3	28,1	6,5	77,2	15	63
VI	19,8	35,0	8,2	153,8	15	63
VII	21,8	33,7	11,4	25,6	15	79
VIII	23,1	37,0	9,4	45,2	6	69
Total	-	-	-	404,2	92	-

Between Aprilie and August average temperatures were 12,6°C-23,1°C (with maximum of 37,0°C), and rainfall in May – June 2010 recorded an amount of 231,0 l/m^2 (77,2 l/m^2 in May and 153,8 l/m^2 June), thus very favorable. Also the number of days with rain per month is 15 in all three months (15 days in May, 15 days in June şi 15 days in July).

The Affirm and Voliam Targo products were variants chosen for experience, as follows:

V1 – Affirm SG 095 – 3 kg /ha

V2 - Affirm SG 095 – 4 kg/ha;

V3 – Voliam Targo SC 063 – 0,75 l/ha

V4 - Voliam Targo SC 063 – 1,1 l/ha

V5 – untreated control

Coragen insecticide was used as a standard product comparation (dose of 0,15 l/ha for apple worm and mined), and Vertimec 0,75 l/ha for mites.

Experimentation insecticides was conducte don a variety of Idared, each one being of 15 trees.

RESULTS AND DISCUSSIONS

During the growing season of 2010 there have been a very favorable conditions for development and pests attack studied.

Results on the density and the four pest attack are presented in tables 2 and 3.

Affirm product was tested for control of two insects: *Adoxophyes reticulana* and *Cydia pomonella* L., Coragen insecticide was used as a standard product, in dose of 0,15 l/ha. There have been two treatments for each generation, and the volume of used solution was 1500l/ha.

As a result of treatment, the product Affirm SG 095 has a satisfactory efficacy for apple worm and very good for skin fruit moth, with a sensitivity advantage for the version with 4 kg/ha, compared with untreated control (table 2).

Table 2

Affirm SG 095 product effectiveness in combating species *Adoxophyes reticulana* and *Cydia pomonella L.* at SCDP Iaşi

Variant	Dose	*Adoxophyes reticulana*		*Cydia pomonella L.*	
		% dead larvae	% contested fruits	% attacked apple	
				G I	G II
V1 – Affirm SG 095	3,0	91	4,8	6,4	4,5
V2 – Affirm SG 095	4,0	91	4,5	5,2	3,8
V3 – Coragen	0,15	95	1,0	1,0	0,5
V4 – untreated control	-	-	60,5	33,4	54,5

Coragen standard product had a significantly better efficacy for both insects, compared to Affirm.

Voliam Targo SC 063 insecticide was tested for three pest control: mites, mined and worm apples. Results on the density and attack of these pests are presented in table 3.

Table 3

Voliam Targo SC 063 product efficacy in combating major pests of apple at SCDP Iaşi

Variant	Dose l/ha	Mites / leaf				Mined		*Cydia* - % contested fruits	
		Before treatment	3 days	7 days	% mobile larva	% attacked leaves	nr. mines/ leaf	G I	G II
Vm –untreated control		394	412	510	-	20,1	4,5	35,5	57,6
V1- Voliam	0,75	312	230	147	47,1	1,7	1,2	1,1	1,4
V 2- Voliam	1,1	356	269	123	34,5	1,1	0,9	0,5	0,7
V3- Vertimec	0,75	425	210	54	12,7				
V4 -Coragen	0,18					0,5	0,3	0,7	0,8

If mites, Voliam Targo product had acaricide efect, but does not approach the effectiveness of standard Vermitec that after 7 days of treatment were still 54 alive of 425 mites before treatment (12.7%) and Voliam in dose of 0,75 l/ha – 147 alive of 312 initially (47.1%) and 123 alive of 356 initially (34,5%) for Voliam in dose of 1,1 l/ha.

Regarding mined, Voliam Targo insecticide had a good efficancy compared to the untreated control, values from 1,1 – 1,7% of which is satisfactory compared with 0,5% in Coragen.

Also, the insecticide had a very good efficacy in combating worm apples, which applied in dose of 1,1 l/ha, percentage of attacked fruits was 0,5 – 0,7 %, lower than Coragen.

Both products tested had satisfactory to good efficacy in apple pest, compared to Coragen product which showed a higher efficacy to combat worm apples.

CONCLUSIONS

1. Climatic conditions of 2010 were very favorable for the development and apple pests attack, for which they have been testing new insecticides for the control;

2. Affirm SG 095 insecticide, had a satisfactory efficancy for control of insects, *Adoxophyes reticulana* şi *Cydia pomonella* L.*,* compared with Coragen product, which showed a much better efficacy.

3. Voliam Targo insecticide applied at a dose of 1,1 l/ha was very effective in combating species *Cydia pomonella* L., with inconclusive effect against mining larvae compared with the Coragen product;

4. Affirm SG 095 şi Voliam Targo SC 063 insecticides had a good efficacy in comparison with untreated control.

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