

THE DYNAMIC OF SUBMISSION AND HATCHING EGGS TO THE COLORADO BEETLE AFTER TREATMENTS WITH BIOPESTICIDE

DINAMICA DEPUNERILOR DE OUĂ ȘI A PROCESULUI DE ECLOZARE LA GÂNDACUL DIN COLORADO ÎN URMA TRATAMENTELOR CU BIOINSECTICIDE

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Abstract. *The Dynamic of eggs submission treated with Neem Azal T/S variants, at the three doses used (0,33%, 0,41% și 0,50%) gradually decreases, goes that after about a week the number of egg / potato bush to be practically zero. The other biological product, Laser 240 SC, or efficacy was very good on the clutch meaning that eggs come in direct contact with dried immediately, and while there was a radical reduction of eggs deposits treated variants.*

Key words: *eggs, consumption, repellent, mortality*

Rezumat. *Dinamica depunerilor de ouă la variantele tratate cu NeemAzal T/S la cele trei doze folosite (0,33%, 0,41% și 0,50%) scade treptat, ajungându-se ca după circa o săptămână numărul de ouă/tufa de cartof să fie practic zero. Celălalt produs biologic, respectiv Laser 240 SC a avut eficacitate foarte bună asupra pontelor în sensul că ouăle care au venit în contact direct cu produsul său uscat imediat, iar în timp s-a observat o diminuare radicală a depunerilor de ponte la variantele tratate.*

Cuvinte cheie: *pontă, eclozare, consum, repelență, mortalitate*

INTRODUCTION

Colorado potato beetle (*Leptinotarsa decemlineata* Say) is one of the most dangerous pests in potato. Control of this pest population is developed with chemical insecticides, which diminishes the economic damage (Dubis *et al.*, 1995).

A big drawback of long-standing use of insecticides to the emergence of pest resistance to these substances. It was noted that this resistance to insects occurs after continuous treatment with the same compound for 15-20 generations, against the same pest species.

Organic food market is booming especially in industrialized countries. Requests increasing quantities of potatoes produced with low levels pesticide, causes many farmers who produced the conventional system to turn to organic potato culture (Bruda *et al.*, 2008).

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MATERIAL AND METHOD

This paper aims to determine the influence of bioinsecticides products Laser 240 SC and NeemAzal SC 240 T / S on Colorado potato beetle eggs. The experiments were carried out both in the laboratory and in the field, using conventional technology for culture of potatoes.

Leaves potato with eggs were collected from experimental field without pesticides and were analyzed in a laboratory to determine the number of eggs.

Subsequently, the leaves were immersed for three seconds in the solution prepared bioinsecticides, then placed in Petri dishes at a temperature close to the field. It followed the dynamics of hatching process by ovicidal action.

At variants of the experimental field, the treatment was done bioinsecticide same as in laboratory, after previously determined number of eggs on potato bushes.

RESULTS AND DISCUSSION

a) The dynamics of deposits eggs in genotype cultivated and product

To Santé variety, the variants treated with NeemAzal T / S regardless of the dosage used is a decrease of egg laying, reaching that after about a week the number of eggs / bush potato is practically zero. This was observed during the entire period of 17 days was monitored as experience.

Similarly, the product Laser 240 SC had strong efficacy on clutch that came in contact with bioinsecticide, meaning that they practically dried, and while there was a decrease radically laying eggs (tab. 1).

In comparison to the untreated solution and subsequently the number of eggs hatching percentage remained within the normal range.

As Santé the other two varieties, Claudiu and Magic were shown the same tendencies to halt the laying eggs on treated bioinsecticide versions, no significant differences between them.

Table 1

Dinamycs of the average number of eggs available on a bush

Var.	Product	Conc. (%)	Number of days after treatment				
			1	4	7	14	17
Santé							
1.	NeemAzal T/S	0,33	29	4	0	0	0
2.	NeemAzal T/S	0,41	21	9	0	0	0
3.	NeemAzal T/S	0,5	16	0	6	0	0
4.	Laser 240 SC	0,033	33	0	5	0	0
5.	Untreated	-	43	40	27	25	12
6.	Calypso 480 SC	0,4	7	0	17	0	0
Claudiu							
1.	NeemAzal T/S	0,33	10	0	0	0	0
2.	NeemAzal T/S	0,41	13	0	1	0	0
3.	NeemAzal T/S 0,	0,5	8	0	0	0	0
4.	Laser 240 SC	0,033	16	0	0	0	0
5.	Untreated	-	21	0	20	15	0
6.	Calypso 480 SC	0,4	14	0	27	0	0
Magic							

1.	NeemAzal T/S	0,33	0	0	0	0	0
2.	NeemAzal T/S	0,41	0	0	0	0	0
3.	NeemAzal T/S 0,5%	0,5	0	0	2	0	0
4.	Laser 240 SC	0,033	0	0	0	0	0
5.	Untreated	-	0	0	53	0	0
6.	Calypso 480 SC	0,4	0	0	7	0	0

The variant treated with Calypso 480 SC is a decrease of laying eggs after 14 days in all varieties. Even if the product does not act ovicidal direct compensated by the number of larvae eradicated so that after 17 days of treatment, the average percentage of larvae from bush potato Santé and Claudiu was zero, except the variety Magic with an average load of a larva / bush.

The highest density of larvae cargo / plant (tab. 2), is in Santé, which is preferable to the other two, this observing and higher value of the attack: 17.0% (NeemAzal T / S 0.33%) and 11.0% of what was the second concentration used (fig. 1). At a concentration of 0.5%, the degree of attack in all three varieties was low, ranging between 6 and 7%. The lowest rate was recorded in Laser 240 SC and Calypso 480 SC (5%). NeemAzal T / S at 0.5% showed the lowest number of larvae and is recommended to be applied under production conditions.

Table 2

Dynamics of the average number of larvae existing on a bush

Var.	Product	Conc. (%)	Number of days after treatment				
			1	4	7	14	17
Santé							
1.	NeemAzal T/S	0,33	25	16	42	9	1
2.	NeemAzal T/S	0,41	27	18	27	6	3
3.	NeemAzal T/S	0,5	24	17	22	3	1
4.	Laser 240 SC	0,033	43	3	5	4	1
5.	Untreated	-	32	21	51	29	13
6.	Calypso 480 SC	0,4	13	5	25	5	0
Claidiu							
1.	NeemAzal T/S	0,33	18	9	18	5	2
2.	NeemAzal T/S	0,41	15	3	9	3	2
3.	NeemAzal T/S	0,5	21	3	8	3	1
4.	Laser 240 SC	0,033	18	1	1	1	0
5.	Untreated	-	21	29	38	26	10
6.	Calypso 480 SC	0,4	2	1	22	2	0
Magic							
1.	NeemAzal T/S	0,33	28	14	12	10	3
2.	NeemAzal T/S	0,41	33	12	7	9	1
3.	NeemAzal T/S	0,5	21	7	7	5	0
4.	Laser 240 SC	0,033	4	0	3	1	1
5.	Untreated	-	22	27	60	38	8
6.	Calypso 480 SC	0,4	3	1	8	2	1

b) The dynamic process of the Colorado beetle hatch after treatment with bioinsecticide

In laboratory conditions, the first larvae hatched (20%) the day of the execution of the treatment, were those treated with Laser 240 SC (13.06). These, after hatching the mobility is reduced and leaf consumption virtually nonexistent.

To NeemAzal T / S variants treated hatching process lasted two days.

After 2 days (16.09) mortality NeemAzal T / S ranged from 5.8 to 10.9 after a very low, surviving larvae were removed from potato leaves to the edge of the Petri dish, indicating this effect us repellent product.

The product Laser 240 SC percentage of mortality after two days after hatching was 100% (Fig. 2-b). The untreated variant, the percentage was 91.5% hatch, the larvae exhibiting at the outset a very intense feeding activity.

At variants of field treatment was executed on 06.09.2013 after previously determined number of eggs.

Compared to the untreated control larvae that hatch rate of 80% took place within two days, the plots treated with the products NeemAzal T / S, 60-70% hatching has been apparent for several days.

Of the two types of bioinsecticide product Laser 240 SC 0.033% has a remarkable capacity to reduce adult population that is in the period of copulation, with an estimated 80-85% of their mortality.

CONCLUSIONS

1. Regard to the dynamics of the deposition of eggs from all the three varieties (Santé, Claudius and Magic) in the variants treated with NeemAzal T / S at all the doses used, there is a reduction in the deposition of eggs, reaching that after about a week, number of egg by potato bush to be practically zero.

2. Laser 240 SC product was very good efficacy on clutch that came in contact with bioinsecticide, meaning that they were dry and there was a decrease in time deposits eggs radical variant treated.

3. In laboratory conditions the larvae hatch and mortality is extended to NeemAzal variants treated with T / S, compared to those treated with Laser 240 SC. This is verified in field conditions, where treatment with NeemAzal T / S, neeclozate clutch frequency was between 8 and 32% even after 7-8 days of the completion of hatching in the control plots.

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