

POPULATION DENSITY OF CERTAIN EARLY COTTON SEASON INSECTS AND ASSOCIATED PREDATORS AS INFLUENCED BY SEED TREATMENTS

El-Naggar, Jehan B.

Plant Protection Res. Inst., ARC, Dokki, Giza

ABSTRACT

Field experiments were conducted during 2004 and 2005 cotton growing seasons at Sakha Agricultural Research Station Farm to evaluate the effect of Gaucho and Cruiser as seed treatments at recommended and half rate as well as their mixtures with the fungicide; Rizolex-T against the thrips, *Thrips tabaci* (Lind.) and the cotton aphid, *Aphis gossypii* (Glov.) at early cotton season.

The obtained results revealed that Gaucho and Cruiser at recommended rate were effective against both thrips and aphids for 7 weeks after planting. The reduction percentage in thrips population was 78.4 and 72.1% , respectively in the first season and 69.5 and 63.4% ,respectively in the second one, while the effect on aphids was 77.8 and 60.1% reduction ,respectively in the first season and 71.8 and 58.7% reduction, respectively in the second one.. The effect of the two tested insecticides decreased with the decline of their rates and / or mixing with the fungicide; Rizolex-T. The data also, indicated that the tested insecticides had low toxic effect on the population density of associated predators. On the other hand, the fungicide; Rizolex-T alone had significantly the lowest effect on the population of the two insects as well as the predators .

Thus, it should not mixed the two insecticides (Gaucho and Cruiser) with the fungicide Rizolex-T as cotton seed treatments against the two sucking pests at early cotton season.

INTRODUCTION

Cotton is the most important economic crop in Egypt. In recent years, the plants are attacked at early growing season by many sucking insects , among of which are the thrips, *Thrips tabaci* (Lind.) and the cotton aphid, *Aphis gossypii* (Glov.). These insects cause severe damage that may necessary require re-sowing (Salama *et al.*,2006). The beneficial pests play an important role in the integrated pest mangement program on cotton , as there are one of the most limiting factors that regulate and balance their host pests However, the foliar applied insecticides rarely reach all insects in addition to its bad effects on the environment. Consequently, the insect infestation might be re-occurred and this requires another insecticidal application. The selection , use and targeting of an insecticide will be influenced by the pest insect and an understanding of its behavior. The systemic insecticides are most effective against insects that live on inaccessible parts of the plant or those that feed on the plant sap (Dent , 1991). Therefore, seed treatment with systemic insecticides is applicable for integrated pest management as it has low effect on the population of the natural enemies in cotton fields (Abd-El-Meguid *et al.*, 1999 , Vadodaria *et al.*, 2001 and Hamid *et al.*, 2003). Also, the cotton seeds should mixed with the recommended fungicides to control

the pathogens found in the soil that causing dumpling-off and root-rot disease of cotton seedlings (Lisker and Meiri, 1992).

So, the present work was carried out to evaluate the insecticidal activity of Gaucho and Cruiser at recommended and half rate and their mixtures with the fungicide; Rizolex-T as cotton seed treatments against the population density of *A. gossypii* and *T. tabaci* as well as associated predators at early growing season .

MATERIALS AND METHODS

The experiment was carried out at Sakha Agricultural Research Station Farm during 2004 and 2005 cotton growing seasons.

The pesticides used were as follows:

1- Insecticides :

- a- Gaucho 70 % WS (imidacloprid) : 1- (6-chloro-3-pyridinylmethyl)-N-nitroimidazolidinimin- 2- ylideneamine..
- b- Cruiser 70 % WS (thiamethoxam) : 3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene (nitro) amine.

2 -Fungicide :

- a- Rizolex-T 50 %WP (toclofos-methyl 20% + thiram 30%).

The two mentioned insecticides were applied as seed treatment at recommended and half recommended rate and their mixtures with the fungicide; Rizolex-T (at recommended rate) as shown in Table (1)

Table (1): The tested pesticides and their rates as cotton seed treatments.

No.	Treatment	Rate/Kg cotton seed
1	Gaucho	7 gm (recommended rate)
2	Cruiser	2 gm (recommended rate)
3	Rizolex-T	3 gm (recommended rate)
4	Gaucho	3.5 gm (half recommended rate)
5	Cruiser	1 gm (half recommended rate)
6	Gaucho + Rizolex-T	7 gm + 3 gm
7	Cruiser + Rizolex-T	2 gm + 3 gm
8	Gaucho + Rizolex-T	3.5 gm + 3 gm
9	Cruiser + Rizolex-T	1 gm + 3 gm
10	untreated	

The experimental area was divided into equal plots each of 42 m² . Seeds of cotton variety Giza 86 removed lints were spread on clean plastic sheets moistened, then mixed thoroughly with the tested pesticides alone and in combinations as shown in Table (1). The treated seeds were left to dry , then directly planted in the soil. Every treatment as well as untreated check was replicated four times in a complete randomized block design . The planting was carried out in the first week of May and the last week of April during 2004 and 2005 seasons, respectively. All normal agricultural practices were followed without any pesticidal treatments during the experimental period extending about 7 weeks after planting.

To evaluate the effect of the different treatments against *Thrips tabaci* (Lind.), *Aphis gossypii* (Glov.) and the common associated predators,

weekly samples of 25 seedlings were chosen at random from each replicate early in the morning at 2,3,4,5,6 and 7 weeks after planting. The number of thrips (nymphs and adults) were counted according to Shoeib and Hosny (1972). As for aphid as well as associated predators , the samples were examined directly in the field and the numbers were recorded . The common predators were *Coccinella* spp., *Scymnus* spp. , *Chrysoperla carnea* (Steph.) , *Paederus alferii* (Koch), *Orius* spp. and the true spiders. The reduction percentage in the insect population was calculated according to Abbott's formula (1925). Duncan's multiple range test (1955) at 5% level was used to evaluate significant differences of efficiency between the different treatments.

RESULTS AND DISCUSSION

The effect of Gaucho and Cruiser applied as cotton seed treatments (at recommended and half rate) and their mixtures with the fungicide ; Rizolex-T were evaluated against the population density of *Thrips tabaci* (Lind.) and *Aphis gossypii* (Glov.) as well as the common associated predators at early growing stage during 2004 and 2005 seasons.

1- Effect on *Thrips tabaci* (Lind.):-

The data presented in Table (2) showed the mean number of *T. tabaci* on cotton seedlings and percentage of reduction as influenced by Gaucho and Cruiser at recommended or half recommended rate and their mixtures with Rizolex-T during 2004 season. It was apparent that Gaucho and Cruiser at recommended rate induced fast initial effect where the reduction in the population was 96.3 % and 94.2 %, respectively. The effect decreased gradually to reach 56.3 and 50.0 % reduction after 7 weeks. When using the half recommended rate of the two insecticides , the reduction in the insect population ranged between 79.2 % (after 2 weeks) to 43.8 % (after 7 weeks) for Gaucho and between 77.5 to 31.3 % for Cruiser. On the other hand, the fungicide , Rizolex-T induced the lowest effect on the insect population as, it recorded 31.3 % reduction in population after two weeks of treatment and the effect declined gradually to disappear completely at 7 weeks of treatment.

Combination of Gaucho (at recommended rate) with Rizolex-T induced initial reduction in population of 70.8 % (after 2 weeks of treatment) and this decreased gradually to reach 37.5 % after 7 weeks of treatment. Also, Cruiser mixed with Rizolex-T had the same trend ,where its effect ranged from 65.8 to 25.0 % reduction in the population. On the other hand, combination of half rate of Gaucho with Rizolex-T caused reduction of 56.7 % after two weeks ,then the effect gradually declined to record 18.8 % after 7 weeks of treatment. Also, Cruiser (at half rate) mixed with Rizolex-T caused initial effect of 53.3 % reduction ,then decreased to record 12.5 % reduction after 7 weeks.

Based on the general mean of reduction in insect population throughout the scouting period, Gaucho and Cruiser applied at recommended rate induced significantly the highest reduction (78.4 and 72.1 %, respectively) ,while Rizolex-T caused the lowest effect (15.7 % reduction). The effect of the other treatments can be arranged descendingly as follows:

Gaucho at half rate (63.5% reduction), Cruiser at half rate (57.0 %), Gaucho at recommended rate + Rizolex-T (55.8%),Cruiser at recommended rate +Rizolex-T(49.9 %), Gaucho at half rate = Rizolex-T (37.8 %)and Cruiser at half rate + Rizolex –T(31.8%).

As for 2005 season , data presented in Table (3) showed the same trend of results as in 2004 season ,but the effect of the two insecticides on the insect population was relatively less than in the first season. Based on the general mean of reduction, Gaucho and Cruiser at recommended rate caused significantly the highest reduction (69.5 % and 63.4 % , respectively), while the lowest reduction occurred in case of Gaucho at half rate + Rrizolex-T(24.8%),Cruiser at half rate + Rizolex-T (20.9%) and Rizolex-T(15.3%). Effect of the rest treatments can be arranged descendingly as follows: Gaucho at half rate (42.2%), Cruiser at half rate (39.5%), Gaucho at half rate + Rizolex-T(33.3%) and Cruiser at half rate + Rizolex-T (27.4 %).

These results agreed with those of El-Hamady and Abo-Sholooa (1999) who reported that Gaucho was rather efficient in suppressing the population of thrips on cotton seedlings and the residual effect lasted 7 weeks after application. Also, Hamid *et al.* (2003) and El-Dewy (2006) revealed that Gaucho and Cruiser as seed treatment had a relatively fast initial effects against thrips on cotton and the residual efficiency lasted for 7 weeks after planting.

2.Effect on *Aphid gossypii* (Glov.):-

The data presented in Table (4) showed the mean number of *A. gossypii* on cotton seedlings and percentage of reduction as affected by Gaucho and cruiser at the recommended and half rates and their mixtures with rizolex-T during 2004 season. It was cleared that Gaucho and cruiser at recommended rate induced high decrease in the population after 2 weeks of treatment recording 100 and 81.3% reduction ,respectively. The effect decreased gradually to reach 53.1 and 41.3% reduction after 7 weeks. When using the half recommended rate of the tested insecticides, the reduction in the insect population ranged between 68.8% (after 2 weeks) to 28.1% (after 7 weeks) for Gaucho and between 62.5% to 21.% for Cruiser. On the other hand, the fungicide, Rizolex-T caused slight effect recording 37.5% reduction in population after 2 weeks of treatment and declined gradually to reach 9.4% reduction after 7 weeks of treatment.

Combination the recommended rate of Gaucho with Rizolex-T induced initial reduction in population of 81.3% (after 2 weeks of treatment) and started to decrease gradually to reach 31.3 after 7 weeks of treatment. Also, Cruiser mixed with Rizolex-T gave reduction in the insect population ranged between 75% (after 2 weeks) to 28.1% (after 7 weeks). On the other hand, combination of Gaucho (at half recommended rate) with Rizolex-T caused reduction of 62.5% after two weeks, and the effect decreased gradually to record 25% reduction after 7 weeks of treatment. Also, Cruiser (at half rate) mixed with Rizolex-T induced initial effect of 56.3% reduction, then decreased to record 15.6% reduction after 7 weeks.

Table (2): Mean number (M.N.) and percentage of reduction (%R) in *Thrips tabaci* (Lind.) population following seed treatments during 2004 cotton season.

Treatment	Rate/kg seed	Mean number of <i>T. tabaci</i> / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment														General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.		
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.		
Gaucha	7 gm	9	96.3	17	93.2	33	83.2	12	75.0	9	65.4	7	56.3	14.5	78.4		
Cruiser	2 gm	14	94.2	21	91.6	46	76.7	18	62.3	11	57.7	8	50.0	19.7	72.1		
Rizolex-T	3 gm	165	31.3	190	23.7	160	18.8	42	12.5	24	7.7	16	0.0	99.5	15.7		
Gaucha	3.5 gm	50	79.2	58	76.7	65	67.0	19	60.4	12	53.8	9	43.8	35.5	63.5		
Cruiser	1 gm	54	77.5	69	72.3	74	62.4	21	56.4	15	42.3	11	31.3	40.7	57.0		
Gaucha + Rizolex-T	7gm+3gm	70	70.8	85	65.9	74	62.4	23	52.1	14	46.2	10	37.5	46.0	55.8		
Cruiser + Rizolex-T	2gm+3gm	82	65.8	90	63.8	82	58.4	25	47.9	16	38.5	12	25.0	51.2	49.9		
Gaucha + Rizolex-T	3.5gm+3gm	104	56.7	125	49.8	114	42.1	32	33.3	19	26.9	13	18.8	67.8	37.8		
Cruiser + Rizolex-T	1gm+3gm	112	53.3	142	42.9	127	35.5	35	27.1	21	19.2	14	12.5	75.8	31.8		
Control	-----	240	---	249	---	197	---	48	---	26	---	16	---	129.3	---		

% reductions with the same letter are not significantly different at 5% level by DMRT

Table (3): Mean number (M.N.) and percentage of reduction (%R) in *Thrips tabaci* (Lind.) population following seed treatments during 2005 cotton season.

Treatment	Rate/kg seed	Mean number of <i>T. Tabaci</i> / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment														General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.		
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.		
Gaucha	7 gm	3	83.3	6	80.0	29	75.8	62	69.0	62	58.7	95	50.0	42.8	69.5		
Cruiser	2 gm	4	77.8	8	73.3	37	69.2	78	61.0	69	54.0	104	45.0	50.0	63.4		
Rizolex-T	3 gm	12	33.3	22	26.7	100	16.7	180	10.0	145	5.0	190	0.0	108.2	15.3		
Gaucha	3.5 gm	6	66.7	13	56.7	64	46.7	130	35.0	108	28.0	152	20.0	78.8	42.2		
Cruiser	1 gm	7	61.1	14	53.3	70	41.7	125	37.5	110	26.7	158	16.8	79.9	39.5		
Gaucha + Rizolex	7gm+3gm	9	50.0	17	43.3	75	37.5	140	30.0	115	23.3	160	15.8	86.0	33.3		
Cruiser + Rizolex	2gm+3gm	10	44.4	19	36.7	85	29.2	150	25.0	122	18.7	170	10.5	92.7	27.4		
Gaucha + Rizolex	3.5gm+3gm	11	38.9	20	33.3	87	27.5	155	22.5	124	17.3	172	9.5	94.8	24.8		
Cruiser + Rizolex	1gm+3gm	11	38.9	22	26.7	95	20.8	165	17.5	130	13.3	175	7.9	99.7	20.9		
Control	-----	18	---	30	---	120	---	200	---	150	---	190	---	118.0	---		

% reductions with the same letter are not significantly different at 5% level by DMRT

Table (4): Mean number (M.N.) and percentage of reduction (%R) in *Aphis gossypii* (Glov.) population following seed treatment during 2004 cotton season.

Treatment	Rate/Kg seed	Mean number of <i>Aphis gossypii</i> / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment																		General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.						
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.								
Gaicho	7gm	0	100.	1	93.3	1	88.8	3	72.7	16	58.9	15	53.1	6.0	77.8 a						
Cruiser	2gm	3	81.3	4	73.3	3	66.6	6	54.5	22	43.6	22	41.3	1.0	60.1 b						
Rizolex-T	3gm	10	37.5	10	33.3	7	22.2	9	18.2	33	15.4	29	9.4	16.3	22.6 e						
Gaicho	3.5gm	5	68.8	6	60.0	4	55.5	6	45.5	25	35.9	23	28.1	11.5	48.9 bc						
Cruiser	1gm	6	62.5	7	53.3	5	44.4	7	36.4	28	28.2	25	21.9	13.0	41.1 cd						
Gaicho+Rizolex-T	7gm+3gm	3	81.3	4	73.3	3	66.7	5	54.5	23	41.0	22	31.3	10.0	58.2 b						
Cruiser+Rizolex-T	2gm+3gm	4	75.0	5	66.7	4	55.5	6	45.5	26	33.3	23	28.1	11.3	50.7 bc						
Gaicho+Rizolex-T	3.5gm+3gm	6	62.5	8	53.3	5	44.4	6	36.4	27	30.8	24	25.0	12.5	42.1 cd						
Cruiser+Rizolex-T	1gm+3gm	7	56.3	7	46.6	6	33.3	8	27.3	30	23.1	27	15.6	14.3	33.7 d						
Control		16	---	15	---	9	---	11	---	39	---	32	---	20.3	---						

% reductions with the same letter are not significantly different at 5% level by DMRT

Based on the general mean of reduction in insect population throughout the scouting period, Gaucho caused significantly the highest reduction in the population (77.8 %) followed by Cruiser (60.1%), while Rizolex-T induced the lowest reduction (22.6%). The other treatments can be descendingly arranged as follows: Gaucho at recommended rate + Rizolex-T(58.2%), Cruiser at recommended rate + Rizolex-T 950.7%),Gaucho at half rate (48.9%), Gaucho at half rate + Rizolex- T (42.1%), Cruiser at half rate (41.1%) and Cruiser at half rate + Rizolex-T (33.7 %).

As for 2005 season, data of Table (5) showed similar trend of results as in 2004 season. According to the general mean of reduction, it appears that Gaucho at recommended rate induced significantly the highest reduction (71.8 %) followed closely by Gaucho at recommended rate + Rizolex-T(63.5%),while rizolex-T caused the lowest effect by 22.7 % reduction. However, the effect of the remainder treatments ranged from 58.7 % reduction for Cruiser at recommended rate to 37.8 % for Cruiser at half rate + Rizolex-T.

Our results agreed fully with the findings of many investigators who evaluated the efficiency of both imidacloprid (Gaucho) and thiamethoxan (Cruiser) on early cotton sucking pests. Shalaby *et al.* (1991) found that imidacloprid treatment succeeded to protect cotton plants from aphid for minimum 9 weeks after treatment. Mathirajan and Regupathy (2001) mentioned that thiamethoxan and imidacloprid were equally effective in reducing population of aphids on cotton. Aioub *et al.*(2002) reported that imidacloprid protected cotton seedlings from aphid for at least 10weeks from the onset of seed planting. Dhandapani *et al.* (2002) mentioned that imidacloprid controlled aphids on cotton up to 8 weeks after sowing.

3 - Effect on the predators :-

It is an important to mention that , because of low population densities of the predators during the two study seasons; 2004 and 2005, this study took into consideration the total number of the common predators on cotton plants. The abundant common predators were *Coccinella* spp., *Scymnus* spp. ,*Chrysoperla carnea* (Steph.), *Paederus alferii* (Koch.), *Orius* spp. and the true spiders. Also, the first appearance of the predators during the two seasons occurred after 4 weeks from planting. In general, the results in Table (6) indicated that all the treatments had low toxic effect on the population density of the predators during 2004 season. Based on the general mean of reduction throughout the scouting period , the reduction ranged from 3.3 % to 19.7 % . During 2005 season, the data in Table (7) indicated the same trend of results as in 2004 season, where the reduction in population varied from 6.7 % to 18.9 % .

These results agreed with the findings of Abdel- Meguid *et al.*(1999) and Aioub *et al.*(2002) who found that Gaucho had low effect on the population density of the beneficial insects. Also, Hamid *et al.* (2003) and El-Dewy (2006) who reported that Gaucho and Cruiser had no significant effect on the population density of different predators on cotton plants.

Table (5): Mean number (M.N.) and percentage of reduction (%R) in *Aphis gossypii* (Glov.) population following seed treatment during 2005 cotton season.

Treatment	Rate/Kg seed	Mean number of <i>Aphis gossypii</i> / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment														General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.		
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.		
Gaucho	7gm	0	100	2	90.0	8	73.7	6	66.7	16	54.3	22	45.0	9.0	71.8 a		
Cruiser	2gm	4	73.3	6	70.0	11	63.3	8	55.4	18	48.6	26	35.0	11.5	58.7 b		
Rizolex-T	3gm	8	46.7	13	35.0	22	26.7	15	16.7	32	8.6	39	2.5	20.5	22.7 e		
Gaucho	3.5gm	4	73.3	8	60.0	15	50.0	10	44.4	23	34.3	31	22.5	14.5	47.4 cd		
Cruiser	1gm	6	60.0	9	55.0	17	43.3	12	33.3	25	28.6	32	20.0	15.8	40.1 d		
Gaucho+Rizolex-T	7gm+3gm	2	86.7	4	80.0	10	66.7	8	55.0	18	48.6	25	37.5	10.8	63.5 ab		
Cruiser+Rizolex-T	2gm+3gm	4	73.3	7	65.0	14	56.7	9	50.0	20	42.8	27	32.5	12.8	53.4 bc		
Gaucho+Rizolex-T	3.5gm+3gm	5	66.7	9	55.0	16	46.3	11	38.9	24	31.4	31	17.5	15.2	43.5 cd		
Cruiser+Rizolex-T	1gm+3gm	6	60.0	10	50.0	18	40.0	12	33.3	26	25.7	33	22.5	16.5	37.8 d		
Control	-----	15	---	20	---	30	---	18	---	35	---	40	---	23.8	---		

% reductions with the same letter are not significantly different at 5% level by DMRT

Table (6): Mean number (M.N.) and percentage of reduction (%R) in predators population following seed treatment during 2004 cotton season.

Treatment	Rate/Kg seed	Mean number of predators / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment														General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.		
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.				
Gaicho	7gm	0	0.0	0	0.0	4	20.0	4	0.0	4	20.0	4	0.0	3	0.0	2.5	6.7 bc
Cruiser	2gm	0	0.0	0	0.0	4	20.0	3	25.0	3	40.0	3	25.0	3	0.0	2.2	14.2 ab
Rizolex-T	3gm	0	0.0	0	0.0	3	40.0	3	25.0	4	20.0	4	20.0	2	33.3	2.0	19.7 a
Gaicho	3.5gm	0	0.0	0	0.0	4	20.0	4	0.0	5	0.0	5	0.0	3	0.0	2.7	3.3 c
Cruiser	1gm	0	0.0	0	0.0	4	20.0	4	25.0	4	20.0	4	25.0	3	0.0	2.5	10.8 abc
Gaicho+Rizolex-T	7gm+3gm	0	0.0	0	0.0	3	40.0	2	50.0	5	0.0	5	0.0	3	0.0	2.2	15.0 ab
Cruiser+Rizolex-T	2gm+3gm	0	0.0	0	0.0	4	20.0	2	50.0	3	40.0	3	40.0	3	0.0	2.0	18.3 a
Gaicho+Rizolex-T	3.5gm+3gm	0	0.0	0	0.0	5	0.0	3	25.0	4	20.0	4	20.0	2	33.3	2.3	13.1 abc
Cruiser+Rizolex-T	1gm+3gm	0	0.0	0	0.0	5	0.0	4	0.0	3	40.0	3	40.0	3	0.0	2.5	6.7 bc
Control		0	---	0	---	5	---	4	---	5	---	5	---	3	---	2.8	---

% reductions with the same letter are not significantly different at 5% level by DMRT

Table (7): Mean number (M.N.) and percentage of reduction (%R) in predators population following seed treatment during 2005 cotton season.

Treatment	Rate/Kg seed	Mean number of predators / 25 cotton seedlings and percentage of reduction at indicated weeks after treatment																		General mean	
		2 weeks		3 weeks		4 weeks		5 weeks		6 weeks		7 weeks		M.N.	%R.						
		M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.	M.N.	%R.								
Gaicho	7gm	0	0.0	0	0.0	4	20.0	3	0.0	4	20.0	3	0.0	4	20.0	3	25.0	2.3	10.8 bc		
Cruiser	2gm	0	0.0	0	0.0	3	40.0	3	0.0	4	20.0	4	0.0	4	20.0	4	0.0	2.3	10.0 bc		
Rizolex-T	3gm	0	0.0	0	0.0	2	60.0	2	33.3	3	40.0	4	0.0	4	20.0	4	0.0	1.8	22.2 a		
Gaicho	3.5gm	0	0.0	0	0.0	4	20.0	3	0.0	4	20.0	3	0.0	4	20.0	3	25.0	2.3	10.8 bc		
Cruiser	1gm	0	0.0	0	0.0	4	20.0	3	0.0	4	20.0	4	0.0	4	20.0	4	0.0	2.5	6.7 c		
Gaicho+Rizolex-T	7gm+3gm	0	0.0	0	0.0	3	40.0	2	33.3	4	20.0	4	0.0	4	20.0	4	0.0	2.2	15.6 ab		
Cruiser+Rizolex-T	2gm+3gm	0	0.0	0	0.0	3	40.0	2	33.3	3	40.0	4	0.0	4	20.0	4	0.0	2.5	18.9 a		
Gaicho+Rizolex-T	3.5gm+3gm	0	0.0	0	0.0	5	0.0	3	0.0	3	0.0	3	0.0	4	20.0	4	0.0	2.5	6.7 c		
Cruiser+Rizolex-T	1gm+3gm	0	0.0	0	0.0	4	20.0	3	0.0	4	20.0	4	0.0	4	20.0	4	0.0	2.5	6.7 c		
Control		0	---	0	----	5	---	3	---	5	---	3	---	5	---	4	---	2.8	----		

% reductions with the same letter are not significantly different at 5% level by DMRT

From the mentioned results, it could be concluded that Gaucho and Cruiser at recommended rate were effective against both thrips and aphids in addition to their efficiency on the associated predators. Also, mixing Rizolex-T with both Gaucho and Cruiser decreased the efficiency of the two insecticides either at recommended or half recommended rate .

REFERENCES

- Abbott, W.S. (1925). A method of computing the effectiveness of an insecticide. *J. Econ. Ent.*, 18: 265-267.
- Abd El-Meguid, M.A.; M.A. Romellah and M.A. Rizk (1999). Studies on the effect of imidacloprid (Gaucho) (NTN 33893) insecticide in the changes of the population density of sap sucking insects, some mites and beneficial insects 2nd Int. Conf. of Pest Control, Mansoura, Egypt. Sept., 643-655.
- Aioub, A.A.A.; S.A.A. Raslan; E.A. Gomaa; W.M.H. Desuky and A.A. Zaki (2002). Management of sap sucking insect populations on cotton plants by imidacloprid application and NPK fertilization. *Zagazig J. Agric. Res.*, 29(1): 269-289.
- Dent, D. (1991). *Insect pests management* C.A.B. International Wallingford UK. 604 pp.
- Dhandapani, N.; P. Dhivahar; S. Palanisamy; B.S. Babu (ed.); K.S. Varaprasad (ed.); K. Anitha (ed.); R.D.V. J. Prasada-Rao (ed.); S.K. Chakrabarty (ed.) and P.S. Chandurkar (2002). Evaluation of new molecules, lothianidin (Poncho 600 FS) and imidacloprid (Gaucho 600 FS) as seed treatment against sucking pests of cotton. *Resources Management in Plant Protection during twenty first century, Hyderabad-India*, 11(14-15 November): 127-130.
- Duncan, D.B. (1955). Multiple range and multiple F-tests. *Biometrics*, 11: 1-42.
- El-Dewy, Madeha, E.S.H. (2006). Toxicological studies on some pests attacking cotton. Ph.D. Thesis, Fac. Agric. Kafr El-Sheikh Univ.
- El-Hamady, Sh E .E. and M.K.A. Abou-Sholoha (1999). Field evaluation of imidacloprid applied as seed treatment to control *Thrips tabaci* Lind. on cotton with regard to soil pollution. *Arab Univ. J. Agric. Sci., Ain-Shams Univ., Cairo*, 7(2): 561-574.
- Hamid, A.M.; Suzan A. El-Bassyouni; Fayza H. Sharf and A.A. Korkor (2003). Efficiency of Gaucho and Cruiser applied as cotton seed treatment on sucking pests and associated predators as long acting effect. *J. Agric. Sci. Mansoura Univ.*, 28(4): 3083-3091.
- Lisker, N. and A. Meiri (1992). Control of *Rhizoctonia solani* damping off in cotton by seed treatment with fungicides. *Crop Protection*, 11(4): 155-159.
- Mathirajan, V.G. and A. Regupathy (2001). Seed treatment with thiamethoxam (Cruiser (R)): an ecological selective method for the management of sucking pests of cotton. *Pest. Management and Econmic. Zoology*, 9 (2): 177-186.

- Salama, A.E.; M.A. Salama; M.A. Abdel-Elbaky; A. Ismail; M.G. Abas and S.A. Aref (2006). Side effects of insecticidal treatments on six main predators commonly found in cotton fields. J. Agric. Sci. Mansoura Univ. 31(1): 429-439.
- Shalaby, A.A.; E.A. Gomaa; R.M. Sherif; M.A. El-Deeb and A.A. El-Fishawy (1991). Evaluation of pesticides on cotton insect pests. Zag. J. Agric. Res., 18(6): 2283-2300.
- Shoeb, A.M. and M.M. Hosny (1972). The distribution of *Thrips tabaci* Lind. with cotton field. Bull. Soc. ent. Egypte. 56: 167-174.
- Vadodaria, M.P.; C.J. Patel; R.B. Patel; T.M. Maisuria and U.G. Patel (2001). Imidacloprid (Gaucho) a new seed dresser against early sucking pests of cotton. Gujarat- Agricultural -University -Research- Journal, 26(2): 32-38.

تأثير معاملات البذرة على الكثافة العددية لبعض آفات بادرات القطن
والمفترسات المصاحبة لها
جيهان بدوى النجار
معهد بحوث وقاية النباتات - مركز البحوث الزراعية - الدقى - الجيزة

أجريت تجارب حقلية في مزرعة محطة البحوث الزراعية بسخا خلال موسمي ٢٠٠٤ و ٢٠٠٥ لدراسة تأثير كل من الجاشو والكرويزر كمعاملات بذرة بالجرعة الموصى بها ونصف الجرعة وكذلك مخاليطهما مع المبيد الفطري ريزولكس - ت ضد حشري التربس والمن على بادرات القطن . أوضحت النتائج المتحصل عليها أن كل من الجاشو والكرويزر بالمعدل الموصى به كانا لهما تأثير فعال ضد حشري التربس والمن لمدة سبعة أسابيع وكانت نسبة خفض كل منهما في تعداد التربس ٧٢,١ ، ٧٨,٤ % على التوالي في الموسم الأول. و ٦٩,٥ ، ٦٣,٤ % على التوالي في الموسم الثاني- بينما كانت نسبة الخفض في تعداد المن ٧٧,٨ ، ٦٠,١ % على التوالي في الموسم الأول ، ٧١,٨ ، ٥٨,٧ % على التوالي في الموسم الثاني - كما أوضحت النتائج انخفاض تأثير المبيدين الحشريين مع انخفاض معدل استخدامهما أو خلطهما مع المبيد الفطري وكانا لهما تأثير ضعيف على المفترسات المصاحبة . ومن ناحية أخرى كان المبيد الفطري ريزولكس-ت له تأثير منخفض المعنوية على الحشريتين والمفترسات المصاحبة .

وعلى ذلك لا يجب خلط المبيدات الحشرية المستخدمة (جاشو ، كرويزر) مع المبيد الفطري ريزولكس - ت عند معاملة بذرة القطن ضد هاتين الحشريتين في طور البادرة.