Annals of Agric. Sci., Moshtohor **ISSN 1110-0419**
Vol. 54(3) (2016), 659–668 **http://annagricmoshj.com**

Effect of certain bio and chemical insecticides on *Sesamia cretica* Led. and *Ostrinia nubilalis* Hub. in maize field in Qaliubiya Governorate, Egypt.

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Abstract

Field experiments were conducted to determine the comparative efficacies of different bio and chemical insecticides against two lepidopterous species *Sesamia cretica* Led. (Noctuidae) and *Ostrinia nubilalis* Hub. (pyraustidae) in Qaliubiya Governorate, Egypt. All treatments were found effective in reducing the infestation rates by *Sesamia cretica* and *Ostrinia nubilalis* and increasing the yield compared with control. The chemical insecticide Neomyl was found the best against *Sesamia cretica* as it led to minimum percentage of infestation, followed by Bestban and Tempo Xl, respectively. While, Dipel 2X resulted the lowest reduction % of infestation compared with control. As for *O. nubilalis* **Hub.** infestation, Tempo Xl was the highest effective in reducing number of both infested plants and number of holes while, Bestban and Neomyl were of moderate efficacy, leading to moderate infestation rates compared to control. Dipel 2X treatment resulted lower infestation percentage than control.

Key words: Bio- insecticides, chemical insecticide, *Sesamia cretica* Led., *Ostrinia*. *nubilalis* Hub., control

Introduction

Maize is one of the most important cereal crops in Egypt. It is mixed with wheat flour in bread industry. It is also, used in several industries which have economic importance to Egypt. Maize plants are attacked by many insect species such as the two corn borers, *Sesamia cretica* Led and *Ostrinia nubilalis* Hub. (Abd El- Gawad *et al*., 2002). These two pest species are regarded among the major factors affecting the productivity of growing maize plants and causing great damage and yield losses.

The pink stem borer, *S. cretica* is one of the main corn stem borer in Egypt. The female moths prefer laying most of eggs on plant leaves about 20 to 30 days after sowing. Due to larval feeding and boring after hatching, the seedling leaves are perforated and dead hearts consequently occur causing death of seedlings and leading to great reduction in the final yield. Larvae of European corn borer, *O. nubilalis* may cause damage to corn ears that begins before or during the silk stage. It may begin development in the whorl or tassel. The larvae may hatch during silking and move directly into ears from the oviposition site on flag leaves to the ear or on silk. It enter ears through the silk channel, or by tunneling through their husk from the side or base them (Adams and Clark, 1995).

The present study aimed to assay the efficacy of certain bio and chemical insecticides applied in maize fields, against *S. cretica* and *O. nubilalis*, in addition to assess the effect of the tested treatments on corn grain yield.

Material & Methods

1- Insecticides used:

A- Neomyl 90%SP; Methyl N- {{(methylamino) carbonyl oxy}ethanimidothioate.
Rate of application: 300 gm / feddan
B- Tempo-XL 30% EC; O, O-diethyl O- (3, 5, 6-trichlro=2-pyridinyl) phosphorothioate.
Rate of application : 500 ml / feddan
C- Bestban 48% EC; O,O-diethylO-3,5,6-trichloro-

2-pyridyl phosphorothioate
Rate of application: one liter/feddan.
D- Dipel 2x, 6.4%WP, a selective bacterial insecticide contains $32x10^6$ I.U *Bacillus thuringiensis kurstaki.*
Rate of application: 300 gm / feddan.

2- Achieved tests:

1 – *Sesamia cretica* Led.

Two experiments were carried out at the Experimental Farm of the Faculty of Agriculture at Moshtohor, Qaliubiya Governorate. An area of about half feddan approximately was chosen and divided into experimental plots (1/400 feddan). Each plot was separated from the adjacent one by a half meter belt (barrier) to minimize the interference of spray drift from one treatment to another. Each of the tested insecticides was applied on 4 replicates / every treatment.

Three varieties of maize sown were (Hytic 2031, United 128 and Early American) were cultivated, 40 plots for each variety. All plots received 4 treatments and control of 4 replicate of each variety. Plots were distributed in randomized complete block design. Maize seeds were sown during May 7th 2015 season at a rate of 2 seeds / hill. All plots received the normally recommended agriculture practices.

Treatments:

1- Treatment (a): plots received one application of insecticides after 15 days of sowing.
2- Treatment (b): plots received one application of insecticides after 25 days of sowing.
3- Treatment (c): plots received two applications of insecticides; the first was done after 15 days of sowing, followed by second at 25 days.
4- Four (d): plots left free of any insecticidal treatments and served as control.

2- *Ostrinia nubilalis* Hub.

To investigate the effect of different treatments on infestation rates by the European corn borer, *Ostrinia nubilalis* Hub. The same design mentioned above was also repeated. Two varieties of maize seeds (Hytic 2031 and Early American) were sown on July 5th 2015. All plots received the normally routine recommended agricultural practices. Treatments were carried out as follows:

1- Treatment (a); plots received one application of insecticides after 45 days of sowing.
2- Treatment (b); plots received one application of insecticides after 55 days of sowing.
3- Four (c) plots left free of any treatments and served as control.

In the two experimental treatments were applied by means of a 20 L- knapsack sprayer using a total volume of 200 L/ feddan.

For estimating the average number of infested plants by *S. cretica*, 10 maize plants were chosen randomly after 45 days from sowing from each replicate, perforated leaves and of dead hearts of plants were counted and recorded.

At harvest time, samples of 10 stalks were randomly selected from each replicate and inspected carefully to estimate the number of joints infested with *O. nubilalis*. Also, 10 ears from each replicate of all experiments were randomly selected and left to dry, shelled and weighed and the reduction percentages in grain yield than control were estimated.

Statistical analysis:

The obtained data were corrected by Abbott's formula (1926) and subjected to the statistical analysis of variance for the randomized complete block design and "F" tests were used to compare between the three varieties of maize and treatments under infestation with *S. cretica* .Statistical analysis of data was carried out also by using a computer software package, "Costat", a product of Cohort Software Inc., Barkeley, California, USA. Duncan's multiple range test (Duncan, 1955) was used to differentiate between means.

Results and Discussion

A – Effect of different treatments on the infestation by the pink corn borer *Sesamia cretica* Led.

1- Early American variety:

Data presented in Table (1) revealed that all treatments were, significantly, superior over the control in reducing the infestation by *S. cretica*. Damage on the untreated maize plants (perforated leaves and the dead hearts) began to appear after 15 days of sowing. The numbers of damaged plants increased gradually as the season advanced. Recorded average numbers of infested seedlings ranged between (12.4 to 13.42 plants). These data indicated that, the untreated maize plants had significantly the highest number of perforated leaves and dead hearts by *S. cretica* larvae (Table, 1).

It could be deduced from Table (1) that the plants which were sprayed by Neomyl insecticide after 15,25 and 15&25 days had the lowest means in number of perforated leaves and dead hearts (2.08, 0.99 and 0.96, respectively) than those recorded from the three other treatments. This number of infested plants represented 83.25, 92.61 and 92.84% reduction in the infestation rate than control, indicating the highest % reduction compared with the other three treatments.

On contrary, Dipel 2X treatment resulted the highest mean numbers of infested plants, being 5.18, 6.2 and 4.12 for the applied treatment after 15, 25 and 15&25 days. Also, lowest % reduction in the infestation than control was recorded from this treatment indicating 58.25, 53.81 and 69.28 for the three treatments of 15, 25 and 15&25 days, respectively.

Bestban and Tempo Xl treatments came in the moderate order in infestation and % reduction in the infestation than control. As for Bestban treatment, the recorded data of average numbers of infested plants were 3.1, 1.02 and 0.99 and those of % reduction in infestation than control were 75, 92.38 and 92.61%, for treatments after 15, 25 and (15&25) day treatments, respectively The corresponding values of Tempo Xl treatment were 3.13, 2.08 and 2.05 infested plants on average leading to 74.75, 84.53 and 84.76 % reduction in the infestation rate than control, respectively.

Concerning the efficiency of these treatments on the average weight of dry maize / 10 ears, data in Table (2) and illustrated in Fig. (1) Indicated that Neomyl treatment recorded the highest average yield 3.27 represented 10.47% increase in ears yield than control. The corresponding value of Bestban and Tempo Xl were 3.25 and 3.21for average yield and 9.8 and 8.45 % increase in yield than control, respectively. Lowest % increase in the yield (4.1%) and average yield (3.08) was recorded in Dipel 2X treatment. These data of average yield /10 ears indicated significant difference between the three chemical insecticides and one bio- insecticide.

Table 1. Reduction in the infestation rate by *Sesamia cretica* rate than control in the three maize varieties after treated with different bio and chemical insecticides.

Variety	Early American						Hytic 2031						United 128					
Days	15 days		25 days		15 then 25 days		15 days		25 days		15 then 25 days		15 days		25 days		15 then 25 days	
Treatments	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control	Average No. of infested plants	Reduction than control
Neomyl	2.08c	83.25	0.99c	92.61	0.96c	92.84	7.16	61.5	5.18	66.7	3.10c	84.20	1.02c	84.2	0.99	87.97	1.02	87.64
Bestban	3.1c	75.0	1.02c	92.38	0.99c	92.61	7.22	61.17	7.22	53.4	7.16b	63.51	2.08b	63.51	2.05	75.19	2.02	75.66
Tempo Xl	3.13c	74.75	2.08c	84.53	2.05c	84.76	10.32	44.50	8.28	46.6	7.22b	63.19	2.08b	63.19	2.08	74.81	2.05	75.28
Dipel 2X	5.18b	58.25	6.20b	53.81	4.12b	69.28	12.40	33.33	10.32	33.4	9.30b	52.61	3.1b	52.61	5.15	37.59	3.10	62.55
Control	12.4a	-	13.42a	-	13.42a	-	18.6a	-	15.50	-	19.62a	-	7.22a	-	8.25	-	8.28	-
F	10.31		6.92		11.68	-	2.63		1.25		4.29		3.93		2.44		2.96	
P	0.0014 **		0.0061 **		0.0009 **		0.0972 ns		0.3512 ns		0.0282 *		0.0361 *		0.1151 ns		0.0746 ns	
LSD at 5%	1.33		2.05		1.56						3.04		1.24					

Source	F values	P values	L.S.D at 5%
Treatments	36.89	0.0001**	0.61
Varieties	43.99	0.0001**	0.48
Dates	0.76	0.4698 ns	0.48

Table 2. Average weight of dry maize / 10 ears from the treatments against *Sesamia cretica*:

Insecticides	Early American		Hytic 2031	
	Average yield /10 ears (kg)	% Increase	Average yield /10 ears (kg)	% Increase
Neomyl	3.27 a	10.47	3.77 a	13.2
Bestban	3.25 a	9.8	3.68 a	10.5
Tempo Xl	3.21 a	8.45	3.67 a	10.2
Dipel 2X	3.08 ab	4.1	3.38 b	1.5
Control	2.96 b	-	3.33 b	-
F	4.67		11.09	
P	0.0219 *		0.0011 **	
LSD at 5%	0.19		0.189	

Source	F values	P values	L.S.D at 5%
Treatments	12.38	0.0000 **	0.1317
Varieties	96.44	0.0000 **	0.0833

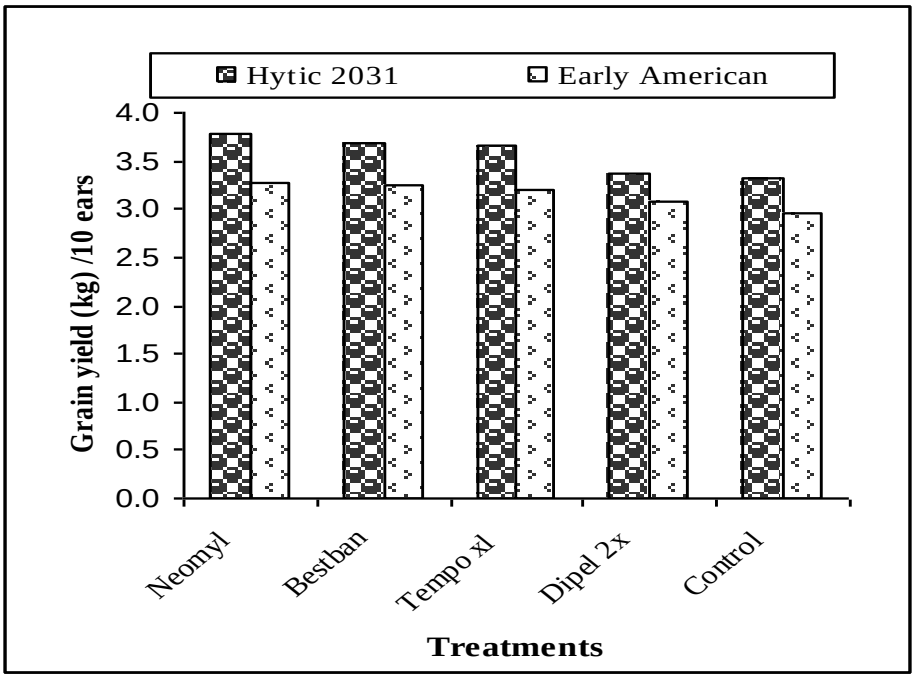

Fig (1): Average of dry maize ears weight (kg) / 10 ears from different treatments against *Sesamia cretica*

2 - Hytic 2031 variety:

The four treatments showed similar trend of efficacy of infestation and reduction % in infestation rate than control, as Neomyl was the highest effective treatment. Maize plants treated with this chemical insecticide showed means of 7.16, 5.18 and 3.1 infested plants and % reduction in infestations than control by 61.5, 66.7 and 84.2% for treatments after 15, 25 and 15&25 days of applied treatments, respectively.

These data varied insignificantly from those recorded from maize treated with Bestban (7.22, 7.22 and 7.16), Tempo Xl (10.32, 8.28 and 7.22) and Dipel 2x treatment (12.4, 10.32and 9.3) for 15, 25 and 15&25 days after treatments, respectively.

Regarding the data of average yield /10 ears, Dipel 2X treatment showed 3.38 kg indicating, significantly, lower yield than those of the other three chemical treatments (3.77, 3.68 and 3.67 kg) after Neomyl, Bestban and Tempo X treatments, respectively. Statistical analysis of data indicated highly significant difference between all tested compounds on average yield/10 ears. (Table, 2 and Fig.1).

3 – United 128 variety:

Regarding the means of infested plants recorded among United 128 variety that received the three chemical insecticides and biocide, it is clear from Table (1) that Neomyl treatment was the highest effective as plants showed 84.2, 87.97 and 87.64%

reductions in the number of infested plants after 15, 25 and 15&25 days treatments, respectively. While, on contrary, plants treated with Dipel 2 X had the lowest reduction percentages in infestation than control (52.61, 37.59 and 62.55%, respectively). Regarding the reduction percentages in the infestation than control, it is clear from Table (1) that Bestban and Tempo Xl treatments caused moderate reductions in the rate of infestation.

Highly significant differences were recorded between all treatments concerning the rate of *S. cretica* infestation, while insignificant difference was evident between the time of application and the rate of infestation by *S. cretica*.

Un fortunately, for united 128 variety, all planting were harvested early before maturity stage of ears.

B– Effect of different treatments on infestation by the European corn borer *Ostrinia nubilalis:*

1- Early American variety:

Data presented in Table (3) indicated that the plants of Early American variety which were treated with Tempo Xl insecticide after 45 and 55 days of sowing had the lowest number of infested plants and subsequent number of holes, were 4.7 and 5.0 infested plants, respectively, while the average no. of holes were 9.3 and 19.0 holes, respectively, being lower than those recorded from the other three treatments. The number of infested plants represented 46.0 % reduction in the infestation rate than control, indicating the highest reduction percentage compared with other three treatments, for average number of holes which were 9.3 and 19.0 with 71.6 and 41.9% as reductions in average number percentages than control.

On contrary, Dipel 2X treatment resulted the highest mean infestation rates of infested plants, being 7.7 and 8.7 plants for the applied treatments after 45 and 55 days, respectively. Also, lowest reduction % in the infestation than control was recorded from this treatment indicating 11.5 and 6.5% for the two treatments, respectively.

Bestban and Neomyl insecticides came in moderate order in numbers of infested plants and reduction percentages in the infestation rates than control. For Bestban treatment, the recorded data of mean average no. of infested plants were 5.0 and 5.7 plants with 42.5 and 38.7 % reduction in infestation than control for 45 and 55 days treatment, respectively. While, the corresponding values of Neomyl treatment were 6.0 and 6.7 plants with 31.0 and 28.0% reductions in the infestation rate than control, respectively.

The obtained data of average number of infested plants indicated highly significant difference between the three applied chemical insecticides and those of bio insecticides, (Table, 3).

2- Hytic 2031 variety:

All treatments showed similar trend of efficacy as those recorded for Early American variety concerning the average no. of infested plants, average no. of holes and reduction percentages than control, where tempo Xl treatment was the highest effective than others. It showed means of 2.3 and 3.7 infested plants and reduction % in the infestation rate than control by 74.4 and 60.2% for insecticidal application after 45 and 55 days of sowing, respectively.

The lowest effect was recorded from Dipel 2X treatment where, average no. of infested plants and average no. of holes were 7.3 and 26.0 infested plants and 1.9 and 52.7% reductions than control, for spraying 45 days after sowing, respectively. While in case spraying after 55 days treatment, the recorded values were 8.0 and 33.3 for the average number of infested plants and holes with 14.0 and 39.5%, reductions than control, respectively.

Bestban and Neomyl insecticides took intermediate order in infestation and reduction infestation than control. For Bestban treatment, the recorded data of average number of infested plants and average number of holes were 4.7 and 9.7 with reduction percentages than control of 47.8 and 82.4 %, respectively among plants treated after 45 days of sowing. While, for 55 days treatments, the correspondent values of Bestban treatments were averages of 5.3 and 21.0 infested plants and average no. of holes with reduction than control by 43.0 and 61.8%, respectively.

The correspondent values of Neomyl treatments were 5.3 and 13.0 as average no. of infested plants and average no. of holes with the reduction than control by 4.11 and 76.4%, respectively by spraying after 45 days of sowing. On the other hand, for 55 days treatments, the average number of infested plants and average number of holes were 6.0 and 31.3 with reductions than control by 35.5 and 43.1%, respectively.

Highly significant differences were recorded between all treatments for the numbers of infested plants and numbers of holes. Also, highly significant differences were detected between the time of application and number of infested plants and number of holes.

Table 3. Rates of infestation and averages in number of holes /10 maize plants infested by *Ostrinia nubilalis* after treatment with different bio and chemical **insecticides.**

Treatments	Early American								Hytic 2031							
	Spraying				Spraying				Spraying				Spraying			
	after 45 days of sowing				after 55 days of sowing				after 45 days of sowing				after 55 days of sowing			
	Average No. of infested plants	Reduction % than control	Average no. of holes	Reduction % than control	Average no. of infested plants	Reduction % than control	Average no. of holes	Reduction % than control	Average no. of infested plants	Reduction % than % control	Average no. of holes	Reduction % than control	Average no. of infested plants	Reduction% than control	Average no. of holes	Reduction% than control
Tempo Xl	4.7b	46.0	9.3b	71.6	5.0c	46.0	19.0	41.9	2.3c	74.4	2.3c	95.8	3.7c	60.2	5.3c	90.4
Bestban	5.0 b	42.5	13.0b	60.2	5.7c	38.7	21.3	34.9	4.7b	47.8	9.7c	82.4	5.3bc	43.0	21.0b	61.8
Neomyl	6.0 b	31.0	17.3b	47.1	6.7bc	28.0	25.7	21.4	5.3b	4.11	13.0c	76.4	6.0bc	35.5	31.3b	43.1
Dipel 2X	7.7a	11.5	17.7b	45.9	8.7ab	6.5	27.3	16.5	7.3a	1.9	26.0b	52.7	8.0ab	14.0	33.3b	39.5
Control	8.7a	-	32.7a	-	9.3a	-	32.7	-	9.0 a	-	55.0a	-	9.3a	-	55.0a	-
F	14.8	-	7.34	-	11.35	-	1.73	-	18.34	-	28.36	-	9.33	-	16.78	-
P	0.0003 **		0 .0050 **		0 .0010 **		0.2187 ns		0.0001 **		0.0000 **		0.0021 **		0.0002 **	
LSD at 5%	1.41		10.33		1.69		12.77		1.878		12.28		2.3		13.99	

Average no. of infested plants

Source	F values	P values	L.S.D at 5%
Treatments	59.39	0.0001**	0.763
Varieties	6.25	0.0158*	0.482
Dates	7.72	0.0077**	0.482

Average no. of. Holes.

Comparisons	F values	P values	L.S.D at 5%
Treatments	44.29	0.0000 **	5.29
Varieties	4.19	0.0426 ns	3.54
Dates	18.65	0.0000 **	3.54

Data in Table (4) and illustrated in Fig. (2) Showed that all tested insecticides increased the grain yield of maize. The resultant yield was 3.69 and 3.46 kg /10 ears with 7.58 and 11.3 % increase than control for Hytic 2031 and Early American varieties treated with Neomyl, respectively. Maize plants treated by Bestban gave 3.52 and 3.38 kg /10 ears indicating 2.62 and 8.7% increases than control for Hytic 2031 and Early American, respectively. However, Tempo Xl ranked the third in increase than control being 1.7 and 7.7 % for Hytic 2031 and Early American varieties, respectively. On contrary, Dipel 2X was the lowest effective in increase of ears yield 3.45 and 3.32 Kg./10 ears, (Table, 4 and Fig. 2).

The obtained results agree with El- Sappagh (1997) who found that Lannate 90% at recommended concentration reduced the infestation percent by corn borers. Also, Fediere *et. al* (1997) stated that both treatments (microbial and chemical insecticides) noticeably reduced numbers of *S. cretica* larvae; regarding yield, the mean weight of seeds was higher for the plants which were treated with either virus or insecticides than for untreated ones. Ebieda *et al* (1998) found that Carbofuran and Methomyl were generally the most effective against *Sesamia cretica*, whereas Chlorpyrifos were the most effective against simultaneous infestation by *Sesamia cretica*. Muresan, *et al* (2000) found that Dipel 2X from *B. thurngiensis kurstak,i* significantly, reduced the attack of the corn borer and increased the yield of maize. Also, Awadallah et al (1993) found that the maize yield unit area increased significantly when insecticides were used.

Table 4. Average weight of dry maize / 10 ears from the treatments against *Ostrinia nubilalis*

Treatments	Hytic 2031		Early American	
	average yield on 10/ears (kg)	increase % than control	average yield on 10/ears (kg)	Increase % than control
Neomyl	3.69	7.58	3.46a	11.3
Bestban	3.52	2.62	3.38a	8.7
Tempo xl	3.49	1.7	3.35a	7.7
Dipel 2x	3.45	0.9	3.32a	6.8
Control	3.43	-	3.11b	-
F value	2.55	-	8.17	-
P value	0.1045	-	0.0034	-
L.S.D at 5%	0.21 ns	-	0.14	-

Source	F values	P value	L.S.D at 5%
Treatments	7.59	0.0004**	0.116
Variety	28.4	0.0000**	0.07

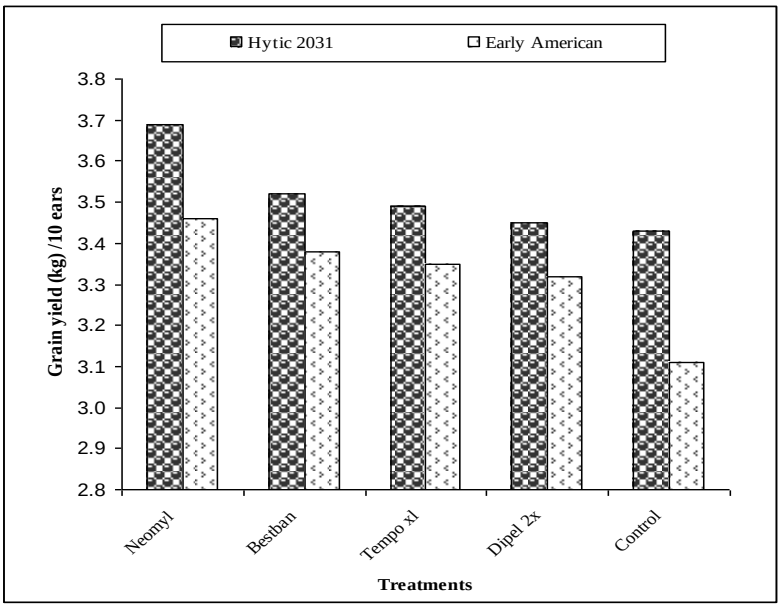

Fig (2): Average weight of dry maize / 10 ears from the treatments against of *Ostrinia nubilalis*.

Reference

Abbott, W. S. (1925). A method of computing the effectiveness of an insecticide. J. Econ. Entomol., 18: 265- 267.

Adams, R. G. and Clark, J. C. (1995): Northeast sweet corn production and Integrated Pest Management manual (University of Connecticut, Cooperative Extension System). Crees Special Project 87- EIPM-1-7033).

Abd El- Gawad, H. A. S.; El- Khawas, M. A. M. and El-Bishry, M. H. (2002): Combined effects of entomopathogenic nematodes and biofungicide on two corn borers, *Sesamia cretica* Led. (Lepidoptera: Noctuidae) and *Ostrinia nubilalis* (Hubn.) (Lepidoptera: Pyralidae).2nd International Conf., Plant Protection Research Institute , Cairo , Egypt , 21-24 December 2002.

Awadallah, W. H.; Sherif, M. R.; Henna-Alla, M. H. and Lutfallah, A. F. (1993). Intensification of corn with onion to avoid infestation with the corn stem borer *Sesamia cretica* Led. in Egypt. Egyptian Journal of Agricultural Research, 71 (3):.731-737.

Duncan, D. B. (1955): Multiple range and multiple F tests . Biometrics 11:1-42.

Ebieda, A. M. M.; Badr, S. T. and Ali, M. K. (1998). Studies on sugarcane pests: I - Field evaluation of certain insecticides against the economical sugarcane insects alone and their concurrent infestations in Upper Egypt. Annals of Agricultural Science, Moshtohor 36 (3): 1889-1901.

El- Sappagh, I.A (1997): Effect of some agricultural treatments on certain insect pests which attack corn in Egypt. MSc. Thesis. Faculty of Agric.Moshtohor, Zag. Univ. Egypt

Fediere, G.; El-Sheikh, M. A. K.; Semeada, A. M.; El-Hefny, A.; Masri, M. and El-Sherif, S. (1997).Production and field evaluation of granulosis virus for control of *Sesamia cretica* Led. (Lep., Noctuidae) in maize fields in Egypt. Journal of Applied Entomology 121 (5): p.293-296.

Muresan, F.; Mustea, D. and Rosca, I. (2000). The possibility of reducing the environmental pollution using biological methods for controlling the European corn borer (*Ostrinia nubilalis*) Hub. In Pransylvania. Probleme de protectia Plantelor, 29:227-234.

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تجربتان حقليتان تم إجرائهما بالمزرعة التجريبية بكلية الزراعة بمشتهر بمحافظة القليوبية وذلك لتقييم بعض المبيدات البيولوجية والكيميائية ضد نوعان من ثاقبات الذرة (دودة القصب الكبيرة وحفار ساق الذرة الاوربى).

وقد وجد أن كل المبيدات محل الدراسة كان لها تاثير معنوى فى تقليل نسبة الإصابة بدودة القصب الكبيرة وكذلك حفار ساق الذرة الاوربى وبالتالى زيادة فى كمية المحصول مقارنة بالنباتات الغير معاملة.

وقد أظهرت النتائج ان مبيد نيوميل كان الأكثر تأثيرا فى تقليل نسبة الإصابة بدودة القصب الكبيرة حيث كانت متوسطات أعداد النباتات المصابة ٢.٠٨,٠.٩٩ و ٠.٩٦ / ٣٠ نبات للصنف امريكاتى بدرى ، بينما كانت متوسطات أعداد النباتات المصابة ٧.١٦، ٥.١٨ و ٣.١ للصنف هايتك ٢٠٣١، اما على الصنف يونايتد ١٢٨ كانت المتوسطات المسجلة للنباتات المصابة٠.٩٩ ١.٠٢، و ١.٠٢ عند المعاملة بعد ١٥، ٢٥ و (١٥& ٢٥) يوما من الزراعة على التوالى ، هذا بينما جاء المبيد الحشرى بستبان فى المرتبة الثانية وتمبو إكس ال فى المرتبة الثالثة بينما أظهر المبيد البيولوجى دايبل ٢ إكس تاثيرا أقل فى خفض نسبة الإصابة بدودة القصب الكبيرة.

هذا كما أظهرت النتائج ان المبيد تمبو إكس ال كان الأكثر فاعلية فى خفض عدد النباتات المصابة وكذلك عدد الثقوب حيث بلغ متوسط عدد النباتات المصابة ٤.٧ و ٥.٠ نباتا بعد معاملة نباتات الذرة بعد ٤٥ و ٥٥ يوما من الزراعة للصنف أمريكانى بدرى. بينما للصنف هايتك ٢٠٣١ بلغ متوسط عدد النباتات المصابة / ٣٠ نبات ٢.٣ و ٣.٧ عند معاملة تباتات الذرة بعد ٤٥ و ٥٥ يوم من الزراعة، على التوالى.

على الجانب الأخر جاء مبيد بستبان فى المرتبة الثانية ثم نيوميل فى المرتبة الثالثة بينما أظهرالمبيد البكتيري دايبل ٢ إكس تاثيرا أقل فى تقليل عدد النباتات المصابة وكذلك عدد الثقوب.