J. Plant Prot. and Path., Mansoura Univ., Vol.6 (10): 1427- 1437, 2015

SELECTIVITY OF CERTAIN INSECTICIDES FOR CONTROLLING THE CABBAGE APHID *Brevicoryne brassicae* (L.) And Their Effect On Some Predatory Insects On CAULIFLOWER FIELDS IN EL-MINIA REGION-UPPER EGYPT.

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ABSTRACT

The relative toxicity of Thiamethoxam, lambda-cyhalothrin, dimethoit, chlorpyrifos and (lambda-cyhalothrin + chlorpyrifos) were tested against the Cabbage aphid, *Brevicoryne brassicae* (L.) on Cauliflower in EL-Minia regon during 2015 season. The population of Cabbage aphid on Cauliflower plants was nearly the same in all the treat plants before application with insecticides in 2015 season. The population density of Cabbage aphid was strongly decreased in all treated plots after 3 days from insecticides application compared with control. The average reduction of all compounds during experiment were 86.8 and 76.1for Thiamethoxam and (Chlorpyriphos + lambda-cyhalothrin), respectively. Also, the results revealed that all compounds differed significantly in their toxicity except Lambda-cyhalothrin , Dimethoit and Chlorpyrifos (no significant difference between for their toxicity, which were 64.3, 66.5 and 62.3 percent reduction, respectively). In general, data showed that superiority of Thiamethoxam as systemic insecticides activities than non-systemic insecticides in their toxicity after 3,7 and 15 days. On the other hand, the average reduction of all compounds during experiment to *Coccinella undeciumpunctata* L. were 45, 38.3, 38, 37.3 and 30.7, for (Chlorpyriphos + lambda-cyhalothrin), Chlorpyriphos , Lambda-cyhalothrin, Dimethoit and Thiamethoxam, respectively. The degree of selectivity to all compounds was selectivity but Thiamethoxam was the highest. Also, Thiamethoxam was good selectivity on *Scymuns* spp. and all compounds were selectivity and the average reduction to all compounds during experiment to *Scymuns* spp were 41.7, 35, 31.4, 31 and 16 percent reduction for (Chlorpyriphos + lambda-cyhalothrin), Lambda-cyhalothrin, Dimethoit , Chlorpyriphos and Thiamethoxam, respectively. In general, data showed the tested compounds did not completely eliminate the beneficial arthropods. The superiority of Thiamethoxam as systemic insecticides activities than non-systemic.

INTRODUCTION

Cabbage has traditionally been used for its medicinal properties as well as for food. It has anti-inflammatory property and contains chemicals which can prevent cancer. Allen (2009). Cabbage has high nutritive value, supplying essential vitamins, proteins, carbohydrates and vital minerals Norman (1992). To reduce damages caused by insect pests, various synthetic insecticides are applied at different stages of growth of the plant. These synthetic insecticides have some toxicological and environmental consequences which include toxic residue in food, soil, water, adverse effects on non- target insects and other beneficial organisms as well as the development of

resistant strain of insects. Ninsin (1997), Cabbage Aphid, *Brevicoryne brassicae* (L.) is one of the serious pests of pointed-head Chinese cabbage and round-head cabbage. Adults and nymphs feed by sucking plant juices, causing yellowing and curling of leaves, and wilting and stunting of plants. In case of severe infestation yield may decrease up to 80%. Due to its high reproduction capacity, notably a birth rate of three to eight aphids per day and generation times of 7_10 d, aphid populations can double in 2_3 d when conditions are favorable Ragsdale *et al.* (2004). Atwal (1976), Cabbage aphids also transmit a number of viruses of brassica crops like cauliflower and turnip mosaic viruses, which can be managed by effective control of aphid Chowfla and Baruah(1990). Aphids may have up to forty five generations per year. Due to high reproductive capacity of aphids and as a result of extensive insecticide application, it has developed resistance against certain insecticides Sweeden and McLeod (1997), which forced the researchers to find out new and effective insecticides for its better control. Freuler *et al.*(2001). Application of pesticides in IPM programs could lead to problem of the insect resistance, environmental and food contamination and reduced populations of natural enemies which may result in secondary pest outbreaks or pest resurgences (Garratt and Kennedy, 2006). Insecticides have both lethal and sub lethal effects on arthropods, thus in addition to death, they can adversely affect life parameters such as developmental rate, longevity, fecundity, oviposition, sex ratio, behavior, mobility, weight, feeding, and so on (Galvan *et al*., 2005). Therefore, it is necessary to evaluate effects of insecticides on the natural enemies as well as on pest itself in order to have a better understanding of the effect of the chemicals on the biological components of the system. Recently, an increasing number of researches have been focused on the effects of pesticides on beneficial arthropods (Araya *et al.,* 2010). The objective of this study was to compare the efficacy of some insecticides against cabbage aphid infesting pointed-head Chinese cabbage at flowering stage and on leaves of round-head cabbage.

MATERIALS AND METHODS

Field experiments were carried out in EL-Minia Government. The experimental area was divided into small plots each plot was separated from each other by 1 meter of bare ground. Randomized compete block design was followed in the whole experimentation area, and each treatment was 4 replicated. The experimental unit10.5 square meters held five rows 3.5m length and 60 cm inter rows. Usual agriculture practices were done according to Ministry of Agriculture recommended. Samples as 10 plants were investigation weakly from each replicate. The collected samples from each replicate were taken to the laboratory in polyethylene bags for further investigation of the aphid and its associated predatory insect.

Toxicological studied in filed

Spraying technique

The amount of water required to provide sufficient spray liquid was found to be 200liters/fed. The insecticide Thiamethoxam,lambda-cyhalothrin

dimethoit, chlorpyrifos and (lambda-cyhalothrin+ chlorpyrifos) were sprayed with knapsack sprayer. One sprays were applied during experiment (in 2015 season) when the infestation percent was start economic.

Reduction % in Cabbage aphid *Brevicoryne brassicae* (L.) infestation after application insecticides in Minia region field, during (2015) Seasons.

Samples of ten plants were investigations at two random from both diagonals of each plot to assess the efficient of Thiamethoxam, lambda-cyhalothrin dimethoit, chlorpyrifos and (lambda-cyhalothrin+ chlorpyrifos) the Caulifower plant infestation and the numbers of aphid, predators *Coccinella undeciumpunctata* and *Scymnus cyrius* Mars. A total of 30 plant / treatment were externally and internally examined. The sampling procedure was conducted on the pretreatment and 3, 7 and 15 day after insecticides treatments. Percentage reduction in infestation was made according to Henderson and Telton formula (1955), as follows:-

$$\% \text{ Reduction} = \left(1 - \frac{Ta \times Cb}{Tb \times Ca}\right) \times 100$$

where:-

Cb = Aveg. % of infestation in control before spray.
Ta = Aveg. % of infestation in treatment plots after spray.
Tb = Aveg. % of infestation in treatment plots before spray.
Ca = Aveg. % of infestation in control after spray.

In order to determine the selective effect of different pesticides in the field against useful arthropods complex Metcalf Scheme (1973) was adopted as follows

% Reduction	Degree of selectivity
25	Good selective
25-49	Selective
50-79	Medium selective
80-89	Slap selective
90-100	Non selective

RESULTS AND DISCUSSION

Reduction % in Cabbage aphid *Brevicoryne brassicae* (L.) infestation after application insecticides in Minia region field, during (2015) Seasons.

The population of the Cabbage aphid *Brevicoryne brassicae* (L.) on Cauliflower plants was nearly the same in all the treat plants before application with insecticides in 2015season.

Table(1) Reduction percentage in Cabbage aphid *Brevicoryne brassicae* (L.) after 3,7 and 15 days from application insecticides in Minia region field, during 2015 Season.

Insecticides	Rat/fed	Reduction percentage after			Average reduction
		3 days	7 days	15 days	
Thiamethoxam(SP)	160 gm	93.6%	89.3%	77.6%	86.8%
Chlorpyriphos25%Ec+Lambda- cyhalothrin 3%Ec	500 ml	89.3%	75.7%	63.2%	76.1%
Lambda-cyhalothrin 2.5%Ec	140 ml	82.1%	69.9%	40.9%	64.3%
Dimethoit 40%Ec	200 ml	77.1%	66.4%	55.9%	66.5%
Chlorpyriphos 48%Ec	20 ml	72. %	64.3%	50.6%	62.3%

Results in table (1) revealed that, the aphid population was strongly decreased in all treated plots after 3 days from insecticides application compared with control. Treatment with Thiamethoxam, (Chlorpyriphos + lambda-cyhalothrin) and Lambda-cyhalothrin proved to be more effective against *Brevicoryne brassicae* (L.) as they caused average reduction percent 93.6, 89.3 and 82.1 percent reduction, respectively. Dimethoit and Chlorpyrifos were less effectiveness presenting only 77.1 and 72 %, percent reduction, respectively. But the efficacy of all tested insecticides after 7 days from spraying insecticides in reducing aphids were 89.3, 75.7, 69.9, 66.4 and 64.3 percent reduction for Thiamethoxam, (Chlorpyriphos + lambda-cyhalothrin) , Lambda-cyhalothrin, Dimethoit and Chlorpyrifos respectively. The arrangement of this insecticide according to high percent reduction after 15 days was 77.6, 63.2, 40.9, 55.9 and 50.6 for Thiamethoxam, (Chlorpyriphos + lambda-cyhalothrin), Lambda-cyhalothrin, Dimethoit and Chlorpyrifos as results in Table (1) respectively. The average reduction percentage to all compounds during experiment were 86.8 and 76.1for Thiamethoxam and (Chlorpyriphos + lambda-cyhalothrin), respectively, Also, the results revealed that all compounds differed significantly in their toxicity except Dimethoit, Lambda-cyhalothrin and Chlorpyrifos (no significant difference between for their toxicity, which were 66.5, 64.3and 62.3 % reduction, respectively). In general, data showed the superiority of Thiamethoxam as systemic insecticides activities than non-systemic insecticides in their toxicity after 3,7 and 15 days. These results are in agreement with those of Lal *et al.,* (2002) found that Thiamethoxam was most effective among five insecticides tested against mustard aphid *Lipaphis erysimi* cabbage. Sahoo (2012) reported Imidacloprid and Thiamethoxam was most effective against mustard aphid in field. Daniels *et al*., (2009) reported that aphids feeding on wheat treated with Thiamethoxam were reduced weight, body plan area and food consumption than aphids feeding on wheat treated with distilled water.Sinha *et al*., (2001) observed the relative toxicity of insecticides against mustard aphid in laboratory test and found that phosphamidon was most toxic insecticide follower by Dimethoate, Lindane,Thiometon and Chlorpyriphos; phosphamidon remainedmost up to 14 days followed by Dimethoate, Lindane, Thiometon, Carbaryl, Malathion, Chlorpyrifos, Endosulfan and Quinalphos. Meena and Lal (2004) observed that the bio-efficacy of different synthetic insecticides against mustard aphid, *L. erysimi* Kalt., on cabbage in a descending order of imidacloprid (0.01%)

>endosulfan (0.07%) >ethofenprox (0.1%) > lambdacyhalothrin(0.01%) >cartap hydrochloride (0.05%) > beta cyfluthrin (0.00125%) >imidacloprid, proved most effective against *L. erysimi*. Dubey *et al.* (2001) reported that Dimethoate was moderately toxic to aphid in laboratory condition. Aphids suck sap from leaves, stems and pods, which diverts photosynthates needed for plant growth and seed production, and transmit viruses such as the soybean mosaic and bean yellow mosaic viruses during feeding.

Reduction percentage in on the population of *Coccinella undeciumpunctata* on Cauliflower plants after application.

The population of predator *Coccinella undeciumpunctata* was studied at experimental farm of the Government Minia region. The data was recorded by counting of predators from upper, middle and lower leaves of ten different plants, selected randomly in each locality.

Table (2) Reduction percentage of *C. undeciumpunctata* on Cauliflower plants after 3,7 and 15 days from application of the tested insecticides.

Insecticides	Rat/fed	Reduction percentage after			Average reduction and degree of selectivity
		3 days	7 days	15 days	
Thiamethoxam(SP)	160 gm	38%	30%	24%	30.7 Selectivity
Chlorpyriphos25%Ec+Lambda-cyhalothrin 3%Ec	500 ml	61%	45%	29%	45 Selectivity
Lambda-cyhalothrin 2.5%Ec	140 ml	55%	32%	27%	38 Selectivity
Dimethoit 40%Ec	200 ml	51%	34%	27%	37.3 Selectivity
Chlorpyriphos 48%Ec	20 ml	48%	38%	29%	38.3 Selectivity

Data in Table (2) indicated that, the population larvae and adults of *C. undeciumpunctata* on Cauliflower plants were none varied from plants in all the treatments before application of the tested insecticides in 2015 season. The tested compounds did not completely eliminate with the beneficial arthropods. The larvae and adults population were strongly decreased in all treated plots after 3 days of application with the tested insecticides compared with control. The activity of the tested pesticides were arranged in a descending order as, (Chlorpyriphos + lambda-cyhalothrin), Lambda-cyhalothrin, Dimethoit, Chlorpyrifos and Thiamethoxam , respectively after 3 day from treatment. The reduction percent resulted from application with the previous insecticide were 61, 55, 51, 48 and 38 percent, respectively. While the reduction percent in *C. undeciumpunctata* of all the insecticides after 7 days from spraying were 45, 38, 34, 32 and 30 reduction percent for (Chlorpyriphos + Lambda-cyhalothrin), Chlorpyriphos, Dimethoit, Lambda-cyhalothrin and Thiamethoxam, respectively. The larvae and adults population were strongly increased in all treated plots after 15 days of application with the tested insecticides compared with control. Treatment with, (Chlorpyriphos + lambda-cyhalothrin), Chlorpyriphos, Lambda-cyhalothrin and Dimethoit proved to be more effective against *C. undeciumpunctata* as they caused average reduction percent 29, 29, 27 and

27 percent reduction, respectively. Thiamethoxam was less reduction presenting only 24 reduction percent.

Effect of the tested insecticides on the population density of *Scymuns* on Cauliflower plants in 2015 season.

Results in table (3) revealed that, the population was strongly decreased in all treated plots after 3 days from insecticides application compared with control. Treatment with (Chlorpyriphos + lambda-cyhalothrin), Lambda-cyhalothrin, Dimethoit and Chlorpyrifos proved to be more percent reduction against *Scymuns* as they caused average reduction percent 53.5, 48,8, 37.2 and 35 percent reduction, respectively. Thiamethoxam was less percent reduction presenting only 25.9 percent reductions, respectively. But the reduction percent of all tested insecticides after 7 days from spraying in *Scymuns* were 41.7, 34.7,31.9,30 and 12.5 percent reduction for (Chlorpyriphos + lambda-cyhalothrin) , Lambda-cyhalothrin, Dimethoit, Chlorpyrifos and Thiamethoxam, respectively. While the arrangement of this insecticide according to high percent reduction after 15 days were 30, 28.1, 25.2, 21.4 and 9.7 for, (Chlorpyriphos + lambda-cyhalothrin), Chlorpyrifos, Dimethoit, Lambda-cyhalothrin and Thiamethoxam, respectively

Table (3) Reduction percentage in *Scymuns* after 3,7 and 15 days from application insecticides in Minia region on Cauliflower plants during 2015 Season.

Insecticides	Rat/fed	Reduction percentage after			Average reduction and degree of selectivity
		3 days	7 days	15 days	
Thiamethoxam(SP)	160 gm	25.9%	12.5%	9.7%	16 Good selective
Chlorpyriphos 25%Ec +Lambda-cyhalothrin 3%Ec	500 ml	53.5%	41.7%	30%	41.7 Selective
Lambda-cyhalothrin 2.5%Ec	140 ml	48.8%	34.7%	21.4%	35 Selective
Dimethoit 40%Ec	200 ml	37.2%	31.9%	25.2%	31.4 Selective
Chlorpyriphos 48%Ec	20 ml	35%	30%	28.1%	31 Selective

In table (2 and 3), the average reduction to all compounds during experiment to *C. undeciumpunctata* were 45, 38.3, 38, 37.3 and 30.7, for (Chlorpyriphos + lambda-cyhalothrin), Chlorpyriphos , Lambda-cyhalothrin, Dimethoit and Thiamethoxam respectively. The dgree of selectivity to all compounds were selectivity but Thiamethoxam was the highest. On the other hand, Thiamethoxam was good selectivity on *Scymuns* spp and all compounds were selectivity and the average reduction to all compounds during experiment to *Scymuns* spp were 41.7, 35, 31.4, 31 and 16 percent reduction for (Chlorpyriphos + Lambda-cyhalothrin), Lambda-cyhalothrin, Dimethoit, Chlorpyriphos and Thiamethoxam, respectively. In general, data showed that, the tested compounds did not completely eliminate the beneficial arthropods. The superiority of Thiamethoxam as systemic insecticides activities than non-systemic insecticides in their selectivity to *C. undeciumpunctata* and and Scymuns spp after 3,7 and 15 days in Cauliflower field. According to scheme (Metacalf ,1973), this results agreement with Sun *et al.,*(2007) tested nine common used insecticides of cypermethrin 4.5% EC, omethoate 40% EC, chlorpyrifos 40%EC, acetamiprid 3% EC, imidacloprid

10% EC provided excellent control for wheat aphids in fields. The control effects were over 90% at 7 days after spraying. The 9 insecticides had bad effects on aphidius and coccinellidae (lady beetles) in three days after spraying and the number of two natural enemies decreased rapidly. But on the 7th day, the number of the two natural enemies increased and there were difference between those treated with imidacloprid, acetamiprid and abamectin and CK.BT had no evident difference compared to the control. Because population of Coccinellidae was small and decreasing in this time, the increasing of coccinellidae was not evident. El-Fakharanya *et al*., (2012) the most harmful insecticide on *Coccinella undecimpunctata* L., *Chrysoperla carnea* , Step. and *Orius albidipennis* Reut. was malathion which significantly reduced the numbers of predators especially in plots treated three times on squash plants. also fenitrothion was the most harmful on predators;Scymmus spp.,C. undecimpunctata, Orius sp., S. corolla and true spiders. Sur and Stork (2003) the distribution of the systemic insecticide active ingredient into flower parts (petals and sepals) may indirectly impact natural enemies that feed on plant pollen or nectar as a nutritional food source including several species of predators such as minute pirate bug, Orius spp., which may feed on plants sometime during their life cycle and certain Parasitoids. In addition, the metabolites of certain systemic insecticides, which in general, may be more water soluble and toxic to arthropod pests, could be more concentrated in pollen and nectar than the actual active ingredient Liu *et al.*, (2010) from indirect effects of systemic insecticides on natural enemies was a decrease in the ability of the parasitoid to perceive host-plant volatiles after being exposed to various concentrations of a systemic insecticide. In addition, applications of certain systemic insecticides have been demonstrated to reduce reproduction of vedalia beetle, *Rodolia cardinalis* females and inhibit development from larvae to adult Bernard *et al.,* (2004) another potential issue to be considered is that any indirect effects of pesticides on natural enemies may not necessarily be affiliated with the active ingredient but due to inert ingredients in the commercial formulation. It is possible that formulations such as emulsifiable concentrates (EC) and soluble powders (SP) may contain additives such as adjuvants, surfactants, solvents and/or carriers that are indirectly harmful to natural enemies. Studies associated with how inert ingredients affect natural enemies are necessary in order to better understand the actual indirect impact of pesticides on natural enemies. Abdelrahman(2007) study the side effect of chlorpyrifos, profenofos, gammacyhalothrin, lambdacyhalothrin, esfenvalerate and deltamethrin were evaluated in 2006 cotton growing season against the beneficial arthropods included *Coccinella undecimpunctata*; *Scymnus* sp.; *Chrysoperla carnea* ; *Paederus alfierii* ; *Orius* spp. and many species of true spiders.He found that lambda-cyhalothrin, esfenvalerate and deltamethrin treatments were associated with the greatest reduction in the population of the predators. The highest reduction in mean number of predators was achieved in lambda-cyhalothrin, esfenvalerate, deltamethrin and chlorpyrifos treatments in the previous treatments reduction percent ranged from 41 to 65 %. Armenta *et al.,* (2003) studied the impact of commonly used organophosphate

(chlorpyrifos, methamidophos), carbamate (carbaryl), and pyrethroid (cypermethrin) insecticides on insect natural enemies in maize grown in southern Mexico. Analyses of the selective and Koppert Side Effects (IOBC) databases on the impact of synthetic insecticides on arthropod natural enemies were used to predict ≈75-90% natural enemy mortality after application. Grafton and Gu (2003) demonstrated that synthetic pyrethroids had a significant negative impact on the predatory vedalia beetles larvae and adults. Cho *et al.,* (2002) the susceptibility of different organisms is varied due to differences in target-site sensitivity as well as quality and quantity of enzyme activities of the individual organisms. Shima, (2013) Results showed that thiamethoxam didn't have any significant effects on the developmental time of third instars, adult longevity and fecundity. However, the developmental time of fourth instars, pupae, the total preoviposition period and the adult pre oviposition period were affected significantly. Also, the results achieved in this study showed that thiamethoxam at sublethal concentrations have potential to affect the predatory lady bird adversely. Thus more care should be taken when this insecticide is used in IPM programmes. Hua et al.,(2004) indicated that the numbers of predacious Propylea japonica larvae treated with beta-cypermethrin decreased by 15.6-25 %.

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إختياريه بعض المبيدات الحشرية فى مكافحه منّ الكرنب وتأثيرها على بعض المفترسات فى حقول القرنبيط بمنطقه المنيا - صعيد مصر

ربيـــع عـلى إمام عـلى وأسامه عبدالفتاح عبدالشافى زيدان
قسم وقاية النبات - كلية الزراعة جامعة الأزهر بأسيوط

أجريت هذه الدراسة بهدف قياس فعالية هذه المبيدات على خفض نسبة كثافة التعداد بحشره منّ الكرنب على نباتات القرنبيط من خلال تطبيقها في منطقة المنيا أثناء موسم٢٠١٥ وهى الديمثويت و (لمباداسيهالوثرين+ الكلوروبيرفوس) ولمباداسيهالوثرين و الكلوروبيرفوس وكذلك مبيد جهازي واحد فقط وهو (ثيامثوكسام)

ولقد أظهرت المبيدات المستخدمة فعالية في تقليل نسبة كثافة التعداد بحشره منّ الكرنب على نباتات القرنبيط حيث أعطى مركب ثيامثوكسام متوسط نسبة خفض فى التعداد ٨٦.٨ % خلال موسم الدراسة يليه (لمباداسيهالوثرين+ الكلوروبيرفوس) حيث كان متوسط نسبة الخفض في مجموع الإصابة ٧٦.١% يليه الديمثويت بمتوسط نسبة الخفض ٦٦.٥% ثم لمباداسيهالوثرين٦٤.٣% وكان اقلها تأثيرا في نسبة الخفض مركب الكلوروبيرفوس حيث كان متوسط نسبة الخفض ٦٢.٣% في عام ٢٠١٥ على التوالي.

ثانيا. اختيارية المبيدات في الحقل:

٢.اختيارية هذه المبيدات على الحشرات الكاملة للمفترس أبو العيد ذو الأحد عشر نقطة تحت الظروف الحقليه.

المبيدات المستخدمه جميعها لها تاثير مباشر اوغيرمباشرعلى حشره ابو العيد ذو الأحد عشر نقطة وأظهرت نتائج نسبة الخفض لحشرة أبو العيد ذو الأحد عشر في حقول القرنبيط أن مبيد ثيامثوكسام اقل المبيدات المختبرة في نسبة الخفض ٣٠.٧% يليه الديمثويت ٣٧.٣% ثم لمباداسيهالوثرين ٣٨ ثم (لمباداسيهالوثرين+ الكلوروبيرفوس) ٤٥% وبتطبيق طريقة ميتكاف لإختبار وتقدير درجة الأختيارية أظهرت النتائج أن المبيدات المستخدمه حصلت علي درجة اختيارية ولكن ثيامثوكسام كان اعلى هذه المبيدات

٣.اختيارية هذه المبيدات هذه المبيدات على الحشرات الكاملة للمفترس الاسكمنس تحت الظروف الحقليه

المبيدات المستخدمه جميعها لها تاثير مباشر اوغيرمباشرعلى حشره الاسكمنس وابو العيد ايضا وكان ترتيب هذه المبيدات تصاعديا بالنسبه لدرجه الخفض كالتالى ثيامثوكسام ثم الكلوروبيرفوس يلية الديمثويت ثم لمباداسيهالوثرين واخيرا (لمباداسيهالوثرين+ الكلوروبيرفوس) وكانت نسب الخفض كالتالى ١٦و٣١و٣١.٤و٣٥واخيرا ٤١.٧ على التوالى

وخلصت النتائج الحقلية إلى:

أن مبيد ثيامثوكسام أفضل المبيدات وأكثرها فاعلية في خفض نسبة الإصابة بمنّ الكرنب وأكثر المبيدات اختيارية في الحقل وذلك بالمقارنة بالمبيدات محل الدراسة.