CONTENTS

SUMMARY

Studied were carried out to estimate the population abundance of major pests of common bean plants i.e., *Liriomyza trifolii, Bemisia tabaci , Empousca discipiens, Thrips tabaci, Aphis craccivora, Tetranychus urticae, Tetranychus cucurbitacearum, Tarsonemus smithi and Tydeus (Tydeus) californicus*. The predators, *Coccinella undecimpunctata, Scymnus syriacus , Orius albidibennis and Euseius scutalis.* The parasitoid**,** *Diglyphus isaea* Effect of some weather factors and predators on the population fluctuations of Common bean plant pests .

Study of population fluctuation of major pests and predators associated with different varieties of Common bean plant. Effect of different planting dates on the population fluctuation of some pests on Common bean plant. Effect of fertilized on some pests plant**.** Biological control of *T. urticae* movable stages and eggs on Common bean plants by releasing two predaceous mites, *Pytoseiulus persimils* Athias- Henriot and *Neoseilus californicus* MeGrgor. Evaluates the efficiency of some new control methods i.e., the compound, Cored 72%EC. (Profenofos), Crater(Afrasa).1.8EC, Baioca 36%, Clove oil and the insect growth regulator,. (Trigard.) against some pests. Experiments were carried out at Plant Protection Institute Experimental Station at Kaha, Qalyubia Governorate during the two successive summer plantation seasons of (2005 and 2006) and nili plantation seasons (2005/2006 and 2006/2007).**1-The population fluctuation of some pests and predators on Common bean plants (summer plantation):-**

A- The broad bean leaf miner, *Liriomyza trifolii* (Burg.) Population:

Results indicated that, the mean number of *L. trifolii* (larvae and pupae stages) population reached its maximum on April 1st week during the two seasons(2005 and 2006).

B- **The whitefly, *Bemisia tabaci* (Genn.).**

Data revealed that, the population of both adults and immature stages reached its maximum on April 4th week during season 2005 , while during season 2006 the mean number achieved its maximum in the first inspection, Marth4thweek .

C- The jassid, *Empousca discipeiens*

Results indicated that, the mean number of *E. discipeiens* (adults and immature stages) reached its maximum on April 4th and 2nd week during seasons 2005 and 2006 ,respectively.

D- Onion thrips, *Thrips tabaci* (Lind.):

During 2005 season, the mean of thrips population reached its maximum on May1st week, While during season 2006 the maximum level occurred on April 3rd Week.

E- legume aphid, *Aphis craccivora* Koch:

Results showed that, the mean number of *Aphis craccivora* (adults and immature stages) reached its maximum on May1st week during the two seasons (2005 and 2006) .

F-The population of predator, *Coccinella undecimpunctata* L. and *Scymnus syriacus*

Data revealed that, the population of both adults and immature stages reached its maximum on April 4th Week during 2005 season While during season 2006 the maximum level occurred on May 5th Week (last inspection).

G- The population of predator *Orius albidipennis* Reut.-

Results showed that, the mean population of Orius (adults and immature stages) reached its maximum on May4th week during2005season. The maximum level during 2006 season occurred on April1st week .

H- The population of predator ***Euseius scutalis.***

Data indicated that, the population of both adults and immature stages reached its maximum on May 2nd week during season 2005 , while during season 2006 the maximum level occurred on May 5th week .

I- ***Tetranychus urticae and Tetranychus cucurbita***

I-1. Movable stages (adults and immature)

Results revealed that, the mean number of the tow phytophagous mites reached its maximum on May2nd week during the two seasons (2005 and 2006) .

I-2. Eggs.

During 2005 season, the number of *T. urticae and T. cucurbitacearum* eggs population reached its maximum on May1st week, While during season 2006, the maximum level occurred on May2ndWeek.

J- ***Tarsonemus smithi***

Data indicated that, the population of *Tarsonemus smithi* (adults and immature stages) reached its maximum on May 4thweek during season 2005 , while during season 2006 the maximum level occurred on April 1st week .

K- ***Tydeus (Tydeus) californicus.***

Results showed that, the mean number of *T. (Tydeus) californicus* (adults and immature stages) achieved its maximum on May1st week during season 2005, while during season 2006 the maximum level occurred on March 4th week (first inspection)

2- Population distribution of some pests and predators on Common bean plant (summer plantation)

A- *Liriomyza trifolii*.

Data indicated that, the upper part of Common bean plants harboured the highest ***L. trifolii* immature,** on the other hand, **immatur**e not appeared on middle and the lower level during 2005 season. During 2006 season the upper level had the highest ***L. trifolii* immature** stages followed by the lower and the middle level .

B- *Bemisia tabaci*.

adults

Data indicated that, the upper level of Common bean plants harboured the highest *B. tabaci* adults followed by the middle and the lower part, which showed the lowest population during 2005 season. While, the middle level had the highest *B. tabaci* adults followed by the upper and the lower level during 2006 season.

immature stages.

Data indicated that, the upper level of Common bean plants harboured the highest *B. tabaci* **immature stages** followed by the lower and the middle level which showed the lowest population during 2005 season. While, the lower level had the highest *B. tabaci* **immature stages** followed by the upper and the middle level during 2006 season.

C- *Empousca discipeiens*:

Results showed that, the upper level of Common bean plants harboured the highest population of ***E. discipeiens*** during the two seasons.

D- *Thrips tabaci*:

Data revealed that, the middle level of Common bean plants had shown the highest population of ***T. tabaci*** adults and immature stages followed by upper and lower level during 2005 season, while the lower level had the highest population followed by middle and upper level which showed the lowest one during 2006 season.

E- ***Aphis craccivora*****:**

Results showed that, the middle level of Common bean plants harboured the highest population of *A. craccivora* during the first season, while, the upper level had the highest population during the second season .

F- **The population distribution of predator,** ***Coccinella undecimpunctata*** **and** ***Scymnus syriacus***

Data revealed that, the upper level of Common bean plants had shown the highest population of *C. undecimpunctata* and *S. syriacus* adults and immature stages during the two seasons.

G- ***Orius albidipennis*****:**

Data indicated that, the middle level of Common bean plants harboured the highest population of *O. albidipennis* followed by the lower and the upper level which showed the lowest population during 2005 season. While, the lower level had the highest population during 2006 season**.**

H - ***Euseius scutalis*****:**

Data indicated that, the middle level of Common bean plants harboured the highest *E. Scutalis* **adults and immature stages** followed by the upper and the lower level which showed the lowest population during 2005 season. While, the upper level had the highest population followed by the middle and the lower level during 2006 season**.**

I- ***T. urticae and T. cucurbitacearum*****:**

I-1. Movable stages (adults and immature)

Data revealed that, the middle level of Common bean plants had shown the highest population of *T. urticae and T. cucurbitacearum* immature stages followed by upper and lower level during 2005 season, while the lower level had the highest population followed by the middle and the upper level during 2006 season**.**

I-2. Eggs.

Results showed that, the middle level of Common bean plants harboured the highest population of ***T****. urticae and T. cucurbitacearum* eggs followed by the upper and lower level during 2005 season. During 2006 season the middle level harboured the highest population followed by lower and upper level which showed the lowest one.

J- ***Tarsonemus smithi*****:**

Results showed that, the upper level of Common bean plants harboured the highest population of **–** *T. smithi* followed by middle and lower level which showed the lowest one,

during the first season, while, the lower level had the highest population during the second season followed by middle and upper level**.**

K- ***Tydeus (Tydeus) californicus*****:**

Data revealed that, the upper level of Common bean plants had shown the highest population of *T. (Tydeus) californicus* (adults and immature stages) followed by middle and lower level during 2005 season, while the lower level had the highest population followed by middle and upper level during 2006 season**.**

3- Effect of some predators and weather factors on the population fluctuation of some pests on Common bean plants.

Results indicated that, the combined effect of of the predators (*Coccinella undecimpunctata, Scymnus syriacus , Orius albidibennis and Euseius*

scutalis.) and some **weather** factors (daily mean maximum temperature, daily mean minimum temperature and daily mean relative humidity) was responsible for 90.8%, 62.5%, 59.0%, 63.5%, 81.6%, 59.5%, 67.9%, and 82.6% of changes in the population(*L. trifolii, B. tabaci , E. discipiens, T. tabaci, A. craccivora,(T. urticae&, T.cucurbitacearum) , T.smithi and T. (Tydeus) californicus*.) respectively during 2005 season, while it recorded 89.8%, 77.0%, 61.4%, 81.8%, 83.4%, 67.0%, 78.5%,and 81.3%, respectively in the second season (2006). Such results are important in lightening integrated control of these pestes.

4- **The population fluctuation of some pests and predators on Common bean plants (nili plantation):-**

A-*Liriomyza trifolii*:

During 2005/2006 season, the mean number of *L. trifolii* population reached its maximum on October 4th week, While during season 2006/2007the maximum level occurred on December 2ndWeek.

B- *Bemisia tabaci* :

adults

Data revealed that, the population of adults and reached its maximum on Novemper 1st Week during 2005/2006 season. While during season 2006/2007 the maximum level occurred on November 3rd Week.

immature stages

Results showed that, the mean number achieved its maximum on October4th week during season 2005/2006, while during season 2006/2007 the maximum level occurred on December 2ndWeek.

C-*Empousca discipeiens*:

Data revealed that, the population of both adults and immature stages reached its maximum on November 4th week during season 2005/2006, while during season 2006/2007 the mean number achieved its maximum on the November3rd .

***Thrips tabaci* :**

Data revealed that, the population of both adults and immature stages reached its maximum on December 2nd and 5thWeek during 2005/2006 and 2006/2007 seasons, respectively.

E- ***Aphis craccivora* :**

Results showed that, the mean number of *Aphis craccivora* (adults and immature stages) reached its maximum on November4th and December 1st week during the two seasons 2005/2006 and 2006/2007 , respectively.

F- ***Coccinella undecimpunctata*** **and** *Scymnus syriacus*

Data revealed that, the population of both adults and immature stages reached its maximum on December 1st and November 2nd Week during the two seasons 2005/2006 and 2006/2007 , respectively.

G- ***Orius albidipennis*:**

Data indicated that, the population of *O. albidipennis* (adults and immature stages) reached its maximum on December 1st and November 2nd Week during the two seasons 2005/2006 and 2006/2007 , respecti

H- ***Euseius scutalis:***

Results showed that, the mean number of *E.scutalis* (adults and immature stages) reached its maximum on December5th and(November 2nd &

December 4th) week during the two seasons 2005/2006 and 2006/2007 , respectively.

I- *T. urticae and T. cucurbitacearum*I-1. Movable stages (adults and immature)

Data revealed that, the population of both adults and immature stages reached its maximum on December 1st and 5th Week during the two seasons 2005/2006 and 2006/2007 , respectively.

I-2. Eggs.

Results showed that, the mean number of *T. urticae and T. cucurbitacearum* eggs reached its maximum on December 2nd and 5th week during the two seasons 2005/2006 and 2006/2007 , respectively.

J- *Tarsonemus smithi*:

Data indicated that, the population of *T. smithi* (adults and immature stages) reached its maximum on November 2nd and December 5th Week during the two seasons 2005/2006 and 2006/2007 , respectively.

K- *Tydeus (Tydeus) californicus*:

Data revealed that, the population of both adults and immature stages reached its maximum on December 4th and 1st Week during the two seasons 2005/2006 and 2006/2007 , respectively.

5- **Population distribution of some pests and predators on Common bean plant**(nili plantation)

A-*Liriomyza trifolii*:

Data revealed that, the lower level of Common bean plants had shown the highest population of *L. trifolii* immature stages during the two

seasons. followed by the middle and the upper level which showed the lowest one.

B- *Bemisia tabaci*.

adults

Data indicated that, the upper level of Common bean plants harboured the highest *B. tabaci* adults followed by the middle and the lower level, which showed the lowest population during the the two seasons.

immature stages.

Data indicated that, the lower level of Common bean plants harboured the highest *B. tabaci* **immature stages** followed by the middle and upper level which showed the lowest population during the two seasons.

C- *Empousca discipeiens*

Data revealed that, the middle level of Common bean plants had shown the highest population of *E. discipeiens* adults and immature stages followed by upper and lower level during the two seasons.

D- *Thrips tabaci*:

Data indicated that, the middle level of Common bean plants harboured the highest *T. tabaci* **adults and immature stages** followed by the upper and the lower level which showed the lowest population during 2005/2006 season. While, the middle level had the highest population followed by the lower and the upper level during 2006/2007 season**.**

E- *Aphis craccivora*:

Data indicated that, the middle level of Common bean plants harboured the highest *A. craccivora* followed by the upper and lower level which showed the lowest population during 2005/2006. season. While, the upper level had the highest population followed by the middle and the lower level during 2006/2007 season**.**

***F-Coccinella undecimpunctata* and *Scymnus syriacus*:**

Data revealed that, the upper level of Common bean plants had shown the highest population of *C. undecimpunctata* and *S. syriacus* adults and immature stages followed by the middle and the lower level during the two seasons.

G- *Orius albidipennis*:

Data revealed that, the middle level of Common bean plants had shown the highest population of *O. albidipennis* adults and immature stages followed by upper and lower level during the two seasons**.**

H - *Euseius scutalis*:

. Data indicated that, the lower level of Common bean plants harboured the highest *E. scutalis* **adults and immature stages** followed by the middle and the upper level which showed the lowest population during the two seasons.

I- *T. urticae and T. cucurbitacearum*:

I-1. Movable stages (adults and immature)

Data revealed that, the lower level of Common bean plants had shown the highest population of *T. urticae and T. cucurbitacearum* immature stages followed by middle and upper level during the two seasons**.**

I-2. Eggs.

The population distribution indicated the same trend as shown by the movable stages .

J- *Tarsonemus smithi*:

Data revealed that, the upper level of Common bean plants had shown the highest population of *T. smithi* adults and immature stages followed by middle and lower level during the first season**,** While, the lower level had the

highest population followed by the upper and the middle level during 2006/2007 season**.**

K- ***Tydeus (Tydeus) californicus*****:**

Data indicated that, the lower level of Common bean plants harboured the highest *T. (Tydeus) californicus* **adults and immature stages** followed by the middle and upper level which showed the lowest population during the first seasons. While, the lower level had the highest population followed by the upper and the middle level during 2006/2007 season**.**

6-Effect of some predators and weather factors on the population fluctuation of some pests on Common bean plants.

Results indicated that, the combined effect of of the predators (*Coccinella undecimpunctata, Scymnus syriacus , Orius albidibennis and Euseius scutalis.*) and some **weather** factors (daily mean maximum temperature, daily mean minimum temperature and daily mean relative humidity) was responsible for 93.2%, 84.5%, 67.0%, 53.1%, 83.6%, 68.4%, 81.3%, and 84.1% of changes in the population(*L. trifolii, B. tabaci , E. discipiens, T. tabaci, A. craccivora,(T. urticae&, T.cucurbitacearum) , T.smithi and T. (Tydeus) californicus.*) respectively during 2005/2006 season, while it recorded 74.9%, 62.4%, 71.8%, 71.8%, 89.4%, 77.0%, 88.2%, and 91.6%, respectively in the second season (2006/2007).

7- Population fluctuation of the parasitoid, ***Diglyphus isaea*** **(Walker):**

The mean number of parasitized larvae during 2006/2007 season that were higher than those of 2005/2006 season .

Regarding the seasonal parasitism by *D. isaea,* the previous results revealed that percent parasitism all over 2005/2006 and 2006/2007 season was varied (3.8 and 9.5 %, respectively), this could be due to the abundance of the host

insect or the neighboring plantations of the host plant, also the dominant weather factors could be effect on the parasitoid efficiency.

8-Susceptibility of some Common bean plant cultivars to some pests infestation and some predators population

Nili season:

***A-Liromyzq trifolii*:**

The highest mean number of *L. trifolii* infestation was occurred on Contender cultivar, followed by Bronco cultivar .On the other hand the lowest infestation was recorded on Bolesta cultivar during 2005/2006 and 2006/2007 seasons.

B- ***Bemisia tabaci*.**

1-immature stages.

The highest mean number of *B. tabaci* infestation was occurred on Contender followed by Bronco cultivar .On the other hand the lowest infestation was recorded on Bolesta cultivar during 2005/2006,while in the second season 2006/2007**,** the highest mean number occurred on Bronco cultivar followed by Contender. On the other hand the lowest level of infestation related with Bolesta cultivar

2- **adults:**

The highest mean number of infestation was occurred on Bronco cultivar during 2005/2006 and 2006/2007 seasons

C- ***Empousca discipeiens*:**

The highest mean number of *E.discipeiens* infestation was ovserved on Bronco cultivar during 2005/2006 and 2006/2007 seasons

D- *Thrips tabaci*:

The obtained data indicated that,the highest mean number infestation was occurred on Bolesta and Bronco cultivar during 2005/2006 and 2006/2007 seasons.

E- *Aphis craccivora*:

The obtained data indicated that, Bolesta and Contender cultivars gave highest level of infestation during 2005/2006 season. On the other hand the highest infestation was recorded on Bronco cultivar during 2006/2007 season.

***F-Coccinella undecimpunctata* and *Scymnus syriacus*:**

Data revealed that, the highest level of population was occurred on Bolesta cultivar during 2005/2006 and 2006/2007 seasons.

G- *Orius albidipennis*:

The highest mean number of *O. albidipennis* population related with Bronco followed by Bolesta cultivar .On the other hand the lowest population was recorded on Contender cultivar during the first studied season. During the second season the Bolesta cultivar recorded the highest mean number of the predator.

H - *Euseius scutalis*:

The highest mean number of *E. scutalis* population related with Bolesta and Bronco cultivars during 2005/2006 and 2006/2007 seasons, respectively.

I- *T. urticae and T. cucurbitacearum*:

I-1. Movable stages (adults and immature)

The highest mean number of *T. urticae and T. cucurbitacearum* infestation was occurred on Contender followed by Bronco cultivar .On the other hand the lowest infestation was recorded on Bolesta cultivar during 2005/2006 season,while in the second season 2006/2007**,** the highest mean number occurred on Bronco cultivar followed by Contender. On the other hand the lowest level of infestation related with Bolesta cultivar.

I-2.Eggs:

The population distribution of *T. urticae and T. cucurbitacearum*(Eggs) indicated the same trend as shown by the movable stages .

J- *Tarsonemus smithi*:

Results showed that, the Bolesta cultivar. harboured the highest population of *T. smithi* followed by Bronco and Contender cultivar which showed the lowest one, during the first season. While, the Bronco cultivar had the highest population followed by Contender and Bolesta cultivars during the second season .

K- *Tydeus (Tydeus) californicus*:

The highest mean number of *T. (Tydeus) californicus* population related with Contender and Bronco cultivars during 2005/2006 and 2006/2007 seasons, respectively**.**

9-Effect of planting dates on the infestation by some common bean plant pest during nili seasons (Boletsa cultivar):

A-*Liriomyza trifolii*:

The highest mean number of *L.trifolii* was recorded on first planting date (September 14th) . On the contrary, the latest date (October 14th) recorded

the lowest seasonal mean number,. Sowing on September 29th led to intermediate level of infestation during 2005/2006&2006/2007 seasons.

B- *Bemisia tabaci*.

1-immature stages.

Season 2005/2006

The heaviest infestation occurred on leaves from planting at the latest date (Oct. 14th) followed by first planting date (Sep.14th). On the other extreme, the lightest infestation with *B. tabaci* immature was recorded on second planting date (Sep.29th).

Season 2006/2007

The highest mean number of *B. tabaci* was recorded on second planting date (September 29th). On the contrary, the first date (September 14th) recorded the lowest seasonal mean number,. Sowing on October 14th led to intermediate level of infestation.

***Bemisia tabaci*, adults**

Season 2005/ 2006 .

The highest mean number of *B. tabaci* adults occurred on leaves of Common bean plant which were planted in the first date (Sep.14th. On the other hand, the lowest level of infestation was recorded on second planting date (Sep. 29th). The intermediate mean number occurred on plants planted in the third date (14th Oct.).

Season 2006/2007

The highest mean number of *B. tabaci* was recorded on second planting date (September 29th) . On the contrary, the first date (September 14th)

recorded the lowest seasonal mean number,. Sowing on October 14th led to intermediate level of infestation.

***C- Empoasca discipiens*:**

Season 2005/2006:

The heaviest infestation level by *E.discipiens* was recorded associated with planting on Sep.14th (first date).on the other extreme the lowest level of infestation occurred on plants sown on the latest planting date(Oct.14th) .The second planting date (Sep.29th) was recoded moderate level of infestation during 2005/2006&2006/2007 seasons.

D-Thrips tabaci

Season 2005/2006:

The highest mean number of *T. tabci* occurred on leaves of Common bean plant which were planted in the third date (Oct.14 th). The lowest level of infestation was recorded on second planting date (Sep. 29th). The intermediate mean number occurred on plants planted in the first date (Sep.14 th.) during 2005/2006 season.

Season 2006/2007:

The highest mean number of *T. tabaci* occurred on leaves of Common bean plant which were planted in the first date (Sep.14th). On the other hand, the lowest level of infestation was recorded on third planting date (Oct. 14th) . The intermediate mean number occurred on plants planted in the second date (Sep. 29th) .

E-Aphis craccivora:

The highest mean number of aphid occurred on early planting date (Sep.14th),while the lowest one was observed on the latest date(Oct.14th

).Common bean plants of the second planting date(Sep.29th)showed moderate infestation ,during 2005/2006 and 2006/2007 season.

***F-Tetranychus* spp. (moving stages)**

Season 2005/2006

The highest mean number was of *T.urtica* and *T.cucurbitacearum* moving stages of both species on the first planting date (Sep.14th). On the other hand, the lowest mean number was related with second planting date (Sep.29th),.Sowing on Oct.14th led to intermediate level of infestation

Season 2006/2007

The heaviest infestation occurred on first planting date (Sep. 14th), followed by the second (Sep.29th) and third (Oct. 14th) planting dates .

Eggs

The highest number was recorded on first planting date (Sep.14th), while the lowest one was occurred during the third planting date (Oct.14th).Sowing on second planting date Sep.29th caused moderate level of infestation of *T.urtica* and *T.cucurbitacearum* eggs during 2005/2006&2006/2007 seasons.

G-*Tarsonemus smithi* :

The highest number was recorded on first planting date (Sep.14th), while the lowest one was occurred during the third planting date (Oct.14th). Sowing on second planting date Sep.29th caused moderate level of infestation during 2005/2006 and 2006/2007.

***H -Tydeus (Tydeus) californicus* (Banks)**

Season 2005/2006

The highest number was recorded on first planting date (Sep.14th), while the lowest one was occurred during second planting date Sep.29th . Sowing on the third planting date (Oct.14th)caused moderate level of infestation .

Season2006/2007

The highest number was recorded on first planting date (Sep.14th), while the lowest one was occurred during the third planting date (Oct.14th). Sowing on second planting date Sep.29th caused moderate level of infestation.

10-Effect of different levels of (NPk) combinations on infestation by some pests on Common bean plant:

Results on the effect of three mixtures fertilizer (N_2 , P_2O_5 and K_2O) on the infestation rate of *L.trifolii*; *B. tabci; T. tabci* ; *A. craccivora*; *T. urticae* & *T. cucurbitacearum*; and *T. smithi* .

The rate of fertilizers which caused the highest infestation was 120 unites N_2 +30 unites P_2O_5 +48 K_2O unites. This value was significantly higher than the others two treatments.

On the other hand, Common bean plants which received P_2O_5 fertilizers at its highest rate (60 units) mixed with N_2 (60 unites) + K_2O (48 unites) while the rate which caused the lowest infestation was N_2 (60 unites)+ P_2O_5 (30 unites) mixed with K_2O (96 units) .

11-Biological control of *T. urticae* movable stages and eggs on Common bean plants by releasing two predaceous mites, *Pytoseiulus persimils* Athias- Henriot and *Neoseilus californicus* MeGrgor:

Data indicated that releasing of *P. persimilis* and *N. californicus* at level 10:1 predatores/bit, the best results of biocontrol of *T. urticae* infesting Common bean plants in greenhouse. So that we can recommend for using one of these predaceous mites in controlling this mite pest instead of using the traditional acaricides aiming for producing clean product accepted for

exportation and local consumption, on the other hand, avoiding the pollution of the biotic and abiotic factor in the ecosystem.

Pytoseiulus persimils :

movable stages:

The mean reduction percentage for the three different levels was 89.10, 92.38 and 82.38% for the levels 15.10 and 5 predator /bit, respectively.

Eggs

General mean of reduction percentages were 76.66, 83.84 and 73.91% for the levels15, 10 and 5 predator /bit, respectively.

Neoseilus californicus:

movable stages:

The mean reduction percentage for the three different levels was 87.90, 90.37 and 76.49% for the levels 15.10 and 5 predator /bit, respectively.

Eggs:

General mean of reduction percentages were 83.10, 85.11 and 74.6% for the levels 10.15and 5 predator /bit, respectively.

12-Efficiency of the tested compounds:

Generally, results indicated that, all treatments caused suppression in the tested pests' population. Consequently, regarding the reduction in population of tested pests during the two seasons, the previous materials (high application rate) arranged descending, as follows:

A-*Liriomyza trifolii* (**Burg**.):

Cored . (87.8%) > Crater (72.5%)> Clove oil (70.4%) > Trigard. (67.1%) > Baioca (53.6%) for 2005/2006season, respectively.

Cored . (83.6%) > Crater (77.3%)> Trigard. (71.2%)> Clove oil (70.4%) > Baioca (57.2%) for 2006/2007season, respectively.

***B-Bemisia tabaci* (Genn.):**

Cored. (98.2%) > Trigard. (87.7%)> Crater (84.0%) > Clove oil (83.0%) > Baioca (75.6%) 2005/2006& season, respectively.

Cored. (98.3%) > Trigard. (92.6%)> Crater (90.9%) > Baioca (83.8%) >Clove oil (83.7%) 2006/2007& season, respectively.

C-T. urticae* and *T.cucurbitacearum

Cored (81.4%) > Trigard. (75.3%)> Clove oil (73.9%) >Crater (70.2%) > Baioca (58.0%) 2005/2006& season, respectively.

Cored. (87.0%) > Crater (81.4%) > Trigard. (77.3%)> Clove oil (71.8%) > Baioca (56.0%) 2006/2007& season, respectively.

The results showed clearly that, Cored was the most effective compound against common bean pests, the botanical insecticides or I.G.R. and/or the bioinsecticide could be used for controlling these pests since they are more safe for environment.

13-Effect of various treatments on some yield components during nili plantation:

Although, Cored was the most effective compound for controlling Common bean and gave the highest yield; other compounds under study could be used effectively in controlling Common bean pests because they were less toxic on natural enemies and the environment.

10-*Tydeus (Tydeus) californicus* (Banks)

Season 2005/2006

The heaviest infestation occurred on first planting date (Sep.29th) was 3.39 individuals /3 leaves, on the other hand, the second (Sep.29th) and third (Oct. 14th) planting dates were recorded 1.3 and 1.38 individuals /3 leaves, respectively.

Season 2006/2007:

The first planting date (Sep.29th) recorded 1.79 individuals /3 leaves, on the other hand, the second (Sep.29th) and third (Oct. 14th) planting dates were recorded 1.62 and 1.5 individuals /3 leaves, respectively.

Statistical analysis of the data indicated that there were significant differences between the different planting dates on the infestation by *T. (Tydeus) californicus* (Banks) during 2005/2006, while there were no significant differences between the different planting dates on the infestation by *T. (Tydeus) californicus* (Banks) during 2006/2007.

Such results are important in lightening integrated control of these insects.

season, while it recorded 82.8%, 76.3%, 73.8% and 82.8% respectively in the second season (2000).

Such results are important in lightening integrated control of these insects.

population followed by middle and upper level which showed the lowest one during 2006 season.

adults followed by the middle and the lower part, which showed the lowest population during the two seasons. While, the middle part had the highest *B. tabaci* immature stages followed by the lower and the upper part during the two seasons.

The population the predaceous mites *Euseius scutalis*, peak was occurred at the 3, 4 week of May 2005 and 2006 to record 3.4, 0.8 individuals / leaf; after that decreased in the last of inspection with average 0.8,0.2 individuals / leaf on May 1,5 week.

Results of two season of 2005 and 2006, demonstrated that the two mites *T. urticae* and *T. cucurbitacearum* (immature and adults) were detected in the first inspection an average 3.2and 51.4 individuals /3 leaf. The following weeks the population vibrated until reached its peak with 1147.3 and 2504.6 individuals /3 leaf at the second week of May thereafter the population aging until the end of season to record 23.6 and 116.4 individuals / 3 leaf respectively.

The population of *T. simithi* appearance during March 4 week, the mean was 2.8 individuals /3 leaf .Afterwards the population of mites increased recorded mean 19.4 individuals /3 leaf . Throughout the following three inspections, then the population observed at 3 week of May 0.2 individuals /3leaf.

The population of *Tydeus (Tydeus) californicus* appearance during March. 4 week, the mean was 8.4 individuals /3 leaf .Afterwards the population of mites increased recorded mean 3.6 individuals /3 leaf . Throughout the following three inspections, then the population observed at 5 week of May 0.4 individuals /3leaf.

Effect of some weather factors and predators on the population fluctuations of Common bean plant (Bolesta) pests during 2005 and 2006seasons:-

The obtained results revealed significant effect for the combined effect of the tested plant age, and weather factors on the insect activity during the two seasons, where the calculated "f" values were 14.51& 14.88 during 2005 and 2006seasons, respectively.

The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *L. trifolii* population was 90.8and 98.8 during 2005 and 2006 seasons, respectively,

The results revealed that the combined effect of some predators and weather factors was significant on the insect population during the both tested seasons, where the calculated "f" values were 17.86 and 20.72 for the 1st and 2nd seasons (2005 and 2006), respectively.

The amount of variability that could be attributed to the combined effect of some predators and some weather factors on *B. tabaci* population was 62.5 and 77.8% for the 2 seasons (2005 and 2006), respectively.

The results in Tables**,** 2,3&20,21 revealed that the combined effect of some predators and weather factors was significant on the insect population during the both tested seasons, where the calculated "f" values were 21.32 and 19.45 for the 1st and 2nd seasons (2005 and 2006), respectively.

The amount of variability that could be attributed to the combined effect of some predators and some weather factors on *Euseius scutalis* population was 59.0 and 61.4% for the two seasons (2005 and 2006), respectively.

The results indicated significant positive correlation between the predator (*C. undecimpunctata,)* with pray *T. tabaci* population during the two seasons. The calculated “r” values were (0.737 and 0.588). The predators *O. albidipennis* and *Euseius scutalis*) with pray *T. tabaci i* population during the two seasons insignificant negative correlation, the calculated “r” values were 0.176,0.188 and 0.241,0.458 during 2005 and 2006 seasons, respectively. The partial regression analysis revealed significant effect (b.reg = 5.776,1.939& 7.89) for the three species of predators, respectively) and (b.reg = 2.171, 3.542& 7.507) during 2005 and 2006 seasons, respectively,

The obtained results revealed that the combined effect of the biotic and abiotic factors was significant on the insect population during the two seasons, where the calculated “f” values were 7.09 and 9.45 during 2005 and 2006 seasons, respectively.

The amount of variability, that could be attributed to the combined effect of the tested plant age, biotic and abiotic factors on *Aphis craccivora* population was 81.6 and 83.4% during 2005 and 2006 seasons, respectively,

The population was during the two seasons. The calculated “r” values were (0.608 & 0.465 for (daily mean maximum temperature and daily mean relative humidity, respectively), (0.447 & 0.315) during 2005 and 2006 seasons, respectively. Also a significant positive relation between the daily mean minimum temperature and the predator *C. undecimpunctata* and *Scymnus syriacus* population was found, where the calculated “r” values were 0.637 and 0.497

during 2005 and 2006 seasons, respectively.

The partial regression analysis for the effect of insects preys on the predators *C. undecimpunctata* and *Scymnus syriacus* population. Revealed insignificant positive relation was noticed between the insect prey (*T. tabaci*) and predators *C. undecimpunctata* and *Scymnus syriacus* . The calculated "b.reg" values were 1.300 & 50.66 for the *T. tabaci* during 2005 and 2006 seasons, respectively**,** It was significant correlation between the insect prey (*Aphis craccivora*) and the predators *C. undecimpunctata* and *Scymnus syriacus*, where the calculated "b.reg" values 5.852 and 46.01 during 2005 and 2006 seasons, respectively.
The obtained results revealed significant effect for the combined effect of the tested plant age, and weather factors on the insect activity during the two seasons, where the calculated "f" values were 17.53 & 20.93 during 2005 and 2006seasons, respectively.

The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *T.urtica* population was 82.1 and 84.7 during 2005 and 2006 seasons, respectively.
The tested factors, , predators and weather factors showed and tested were significantly responsible for about 85.3 and 82.8% of the changing of population density or insect catch during the both investigated years of 2005 and 2006, respectively.
The obtained results revealed significant effect for the combined effect of the tested plant age, and weather factors on the insect activity during the two seasons, where the calculated "f" values were 17.53 & 20.93 during 2005 and 2006seasons, respectively.
The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *Tydeus (Tydeus) californicu*

population was 82.1 and 84.7 during 2005 and 2006 seasons, respectively,

The population fluctuation of some pests, predators infesting Common bean plants (nili plantation):-

Results seasons 2005 /2006& 2006/ 2007 showed that, the mean number of *L. trifolli* was recorded 27.9 &4.4 indiv./3leaves on the first inspection at October 2nd week; then fluctuated in increase e way to reached it maximum level (52.2 &12.6 indiv./3leaves) at second week of December. After wards the infestation decreased gradually to reach 3.6 indiv./3leaves at the end of season.

Results of seasons 2005 /2006& 2006/2007 revealed that, the population of *B. tabaci* adult was recorded 19.2 &14.8 indiv./3leaves at the first inspection on October 2nd week ;then fluctuated in increase way by the time lapses to reached the maximum level of infestation on November 3rd week with mean 93.9 &33.1 indiv./3leaves. After that, the population decreased at the end of season recording 5.4 &4.4 indiv./3leaves on the first week of January

Generally, data revealed the same trend as achieved during 2005/2006 season for the three plant levels, where the total average numbers were 2.33,3.32 and 1.6 individuals/leaf for upper, middle and lower level, respectively

In the same previously mentioned in season 2006/2007, the population fluctuation of jassid took the same trend as indicated during this season. The population of jassid was absent on Common bean plants during first inspection. The infestation began at low level in second inspection with mean 0.6 indiv./3leaves on 3rd week of October. The population peak

was observed on 3rd week of November, the mean number was averaged 13.3 indiv./3 leaves. Another decline in population was occurred thereafter and continued until the jassid population was absent at the end of season.

The infestation by *Thrips tabaci* not appears in the first two inspection date .The first appearance was occurred on October 4th week with mean number 11.3 indiv/3 leaves. Afterwards the population fluctuated and reached its peak on December 2nd week with mean 24.0 indiv/3leaf Another more obvious decline in population occurred and continued by the time lapses to record 0.6 indiv/3l leaves on first week of January at the last of inspection.

Results of second season 2006/2007 showed that, the *thrips tabaci* was appeared for the first time at the second inspection date on 3rd week of October (0.7 indiv/3leaf) then, fluctuated from one inspection to another by the time lapses to reach its maximum level of infestation on 5th week of December with average 21.0 indiv/3leaf. The mean number of population decreased to 16.2 indiv/3leaves at the end of season on first week of January.

The population density average of *Coccinella undecimpunctata* and *Scymnus syriacus*:predatores on the tested three plant levels, were upper and middle levels. On the other hand, (immature and adults) population of the upper levels revealed the highest values followed by the middle and lower level.

The population of two mention predaceous insects began high with mean number 6.2 indiv/3leaves in the first inspection on October 2nd week; then increase gradually to reach its maximum level of infestation (21.9 indiv/3leaves) on 2nd week of November. Afterwards the

population fluctuated in decrease way to reach 0.3 indiv/3leaves at the last inspection on first week of January.

The populations the three plant levels obtained. The population of *O. albidipennis* on different plant levels during 2006/2007 season indicated the same trend as achieved during the first season 2005/2006

Results of seasons 2005/2006 & 2006/2007 reveled that, the population of *Euseius scutalis* took the same trend as indicated, the maximum mean number was recorded 13.5 &5.7 indiv/3leaves at the end of the season on first week of January respectively.

Results of seasons 2005/ 2006 & 2006/2007demonstrated that, the phytophagous mites *T.urticae* and *T.cucurbitacearum* appeared for the first time of infestation period in first inspection with an average4.8 &3.2 indiv/3leaf . Throughout the following weeks of inspection the population increased gradually to reach its maximum level of infestation at the last week of December with mean 131.1 &542.2 indiv/3leaf, then decreased in last inspection date record 107.1 &273.0 indiv/3leaf on 1st week of January.

The data indicated that there are significant differences between the populations on the three plant levels, *i.e.,* the upper level had the highest population followed by middle level and the lower level had the lowest population of *T. simithi*.

The population of *Tydeus (Tydeus) californicus* (Banks) not appearance during November 1 week, the mean was 6.3 individuals /3 leaf .Afterwards the population of mites increased recorded mean 10.5individuals /3 leaf . Throughout the following three inspections, then the population observed at 4 week of December 8.4 individuals /3leaf. The population of *Tydeus (Tydeus) californicus* (Banks appearance

during December 5 week, the mean was 1.5 individuals /3 leaf .Afterwards the population of mites increased recorded mean 3.7 individuals /3 leaf .

Effect of some weather factors and predators on the population fluctuations of Common bean plant (Bolesta) pests during 2005 /2006 and 2006 / 2007 seasons:-

The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *L. trifolii* population was 90.8and 98.8 during 2005 / 2006 and 2006 / 2007 seasons, respectively.
The amount of variability that could be attributed to the combined effect of some predators and some weather factors on *B. tabaci* population was 62.5 and 77.8% for the two seasons (2005 and 2006), respectively.

The amount of variability that could be attributed to the combined effect of some predators and some weather factors on *Euseius scutalis* population was 59.0 and 61.4% for the two seasons (2005 and 2006), respectively,
The obtained results revealed significant effect for the combined effect of the weather factors on the insect activity during the two seasons.

The amount of variability, attributed to the combined effect of the three factors on *T. tabaci* population was 63.5 and 82.8.9% during 2005 and 2006 seasons, respectively,
The obtained results revealed that the combined effect of the biotic and abiotic factors was significant on the insect population during the two seasons, where the calculated “f” values were 7.09 and 9.45 during 2005/2006 and 2006/2007 seasons, respectively.
The amount of variability, that could be attributed to the combined effect of the tested plant age, biotic and abiotic factors on *Aphis craccivora*

population was 81.6 and 83.4% during 2005/2006 and 2006/2007 seasons, respectively,

The simple correlation coefficient “r” indicated difference significant correlation between the insects preys, (*Bemisia tabaci*, *Euseius scutalis*, *Thrips tabaci* and *Aphis craccivora*), with the predators *Coccinella undecimpunctata* and *Scymnus syriacus* population during the two seasons., The calculated “r” values were (0.619,0.713,0.737 and 0.353 for insects preys, respectively) and (0.323,0.17,0.346 and 0.316) during 2005/2006 and 2006/2007 seasons, respectively

The simple correlation coefficient “r” indicated difference significant correlation between the insects preys, (*Bemisia tabaci*, *Euseius scutalis*, *Thrips tabaci* and *Aphis craccivora*), with the predators *Coccinella undecimpunctata* and *Scymnus syriacus* population during the two seasons., The calculated “r” values were (0.0.619,0.713,0.737 and 0.353 for insects preys, respectively) and (0.323,0.17,0.346 and 0.316) during 2005/2006 and 2006/2007 seasons, respectively,

The population was during the two seasons. The calculated “r” values were (0.608 & 0.465 for daily mean maximum temperature and daily mean relative humidity, (0.447 & 0.315) during 2005/2006 and 2006/2007 seasons, respectively. In addition, a significant positive relation between the daily mean minimum temperature and the predator *C. undecimpunctata* and *Scymnus syriacus* population found where the calculated “r” values were 0.637 and 0.497 during 2005/2006 and 2006 /2007 seasons, respectively.

The tested factors, predators and weather factors showed and tested were significantly responsible for about 68.4 and 77.0. % of the changing

of population density or insect catch during the both investigated years of 2005/2006 and 2006/2007, respectively.

The obtained results revealed significant effect for the combined effect of the tested weather factors on the insect activity during the two seasons, where the calculated “f” values were 9.6 & 16.8 during 2005/2006 and 2006/2007seasons, respectively.

The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *Tarsonemus.smithi* population was 81.3 and 88.2during 2005/2006 and 2006/2007 seasons, respectively.

In other words, the tested factors, plant age, predators and weather factors showed and tested are significantly responsible for about 85.3 and 82.8% of the changing of population density or insect catch during the both investigated years of 2005 and 2006, respectively.

The obtained results revealed significant effect for the combined effect of the tested weather factors on the insect activity during the two seasons, where the calculated “f” values were 18.5 & 17.4 during 2005/2006 and 2006/ 2007 seasons, respectively.

The amount of variability, attributed to the combined effect of the tested plant age, and weather factors on *Tydeus (Tydeus) californicu* population was 84.1 and 91.6% during 2005/2006 and 2006/2007 seasons, respectively,

Population abundance of the parasitoid, *Diglyphus isaea* (Walker):

The mean number of parasitized larvae during 2006/2007 season that were higher than those of 2005/2006 season .

Regarding the seasonal parasitism by *D. isaea,* the previous results revealed that percent parasitism all over 2005/2006 and 2006/2007 season was varied (3.8 and 9.5 %, respectively), this could be due to the abundance of the host insect or the neighboring plantations of the host plant, also the dominant climatic factors could be affect the parasitoid efficiency.

The common bean level of *Liromyzq trifolii* to The recorded mean numbers all over the season were 27.1, 33.0 and 32.2 indiv/3leaves for Bolesta, Contender and Bronco cultivars, respectively.

The obtained data revealed significant differences between the population of *Bemisia tabaci* on Bolesta and the two differences in the population between Contended and Bronco cultivars.

The obtained data during second season took the same trend as indicated during first season.

The obtained data indicated the same trend during the two tested seasons there were no significant differences between Bolesta and Contender cultivars, on the other hand, there were significant differences in Jassid population between Bolesta, Bronco cultivars and the two others.

The highest mean number of *Aphis carccivora* infestation was occurred on Bronco cultivar, followed by Contender cultivar .on the other hand the lowest infestation was recorded on Bolesta cultivar during 2005/2006 and 2006/2007 seasons.

The difference between means number of Cocc
were significant between Bolesta and (Contender). While there were no significant differences in population between Contender and Bronco cultivars.

The Result reveled that, there are no significant between the populations of *Orius albidipennis* on the three tested cultivars during 2005/2006 and 2006/2007 seasons.

The highest mean number of *Tetrancyus* movable stages recorded on Contender cultivar. Whiles the lowest recorded on Bolessta cultivar.

The obtained data indicated significant differences between the population on Bronco and the two others during 2005/2006 and 2006/2007 seasons.

The obtained data significant differences in the population of *T.smithi* between Bolesta and the two others cultivars, while there were no significant differences in the population between Contender and Bronco cultivars during 2005/2006 and 2006/2007 seasons.

Mean number of *Tydeus (Tydeus) californicus* adults and immature stages on different Common bean cultivars show that the Bronco cultivar gave highest level of infestation . On the other hand, the lowest levels of infestation related with Bolesta and Contender respectively.

Effect of planting dates on the infestation by some common bean plant pest during nili seasons (Boletsa cultivar):

The population mean of *L.trifolii* (larvae and pupae) on Common bean plant in different three planting dates.

The highest mean number of *L.trifolii* was recorded on first planting date (September 14th) . On the contrary, the latest date (October 14th) recorded the lowest seasonal mean number,. Sowing on September 29th led to intermediate level of infestation during 2005/2006&2006/2007 seasons.

Infestation by immature stages of *Bemisia tabaci* to Common bean leaves of plants planted at three dates (Seb.4th, Seb.29th and Oct.14th) are the heaviest infestation, during 2005/2006season.

The highest mean number of *B. tabaci* was recorded on second planting date (September 29th) . On the contrary, the first date (September 14th) recorded the lowest seasonal mean number,. Sowing on October 14th led to intermediate level of infestation, 2006/2007seasosn.

The heaviest infestation level by *E.discipiens* was recorded associated with planting on Sep.14th (first date).on the other extreme the lowest level of infestation occurred on plants sown on the latest planting date(Oct.14th) .The second planting date (Sep.29th) was recoded moderate level of infestation during 2005/2006&2006/2007 seasons.

The highest mean number of *T. tabci* occurred on leaves of Common bean plant which were planted in the first date (Sep.14th). The lowest level of infestation was recorded on third planting date (Oct. 14th). The intermediate mean number occurred on plants planted in the second date (September29th.) during 2005/2006 season.

The highest mean number of aphid occurred on early planting date (Sep.14th),while the lowest observed on the latest date(Oct.14th).Common bean plants of the second planting date(Sep.14th)showed moderate infestation ,during 2006/2007 season.

The highest mean number was of *T.urtica* and *T.cucurbitacearum* moving stages of both species on the first planting date (Sep.14th). on the other hand , the lowest mean number was related with third planting date(Oct.14th),.Sowing on Sep.29th led to intermediate level of infestation during 2005/2006 season.

The heaviest infestation occurred on first planting date (Sep. 14th) and, the second (Sep.29th) and third (Oct. 14th) planting dates during 2006/2007 season.

The highest number was recorded on first planting date (Sep.14th), while the lowest was occurred during the third planting date (Oct.14th).Sowing on second planting date Sep.29th caused moderate level of infestation of *T.urtica* and *T.cucurbitacearum* eggs during 2005/2006&2006/2007 seasons.

The data indicated that there were significant differences between the different planting dates on the infestation by *T. smithi* during 2005/2006, while there were no significant differences between the different planting dates on the infestation by *T. smithi* during 2006/2007. the data indicated that there were significant differences between the different planting dates on the infestation by *Tydeus (Tydeus) californicus* (Banks) during 2005/2006, while there were no significant differences between the different planting dates on the infestation by *Tydeus (Tydeus) californicus* (Banks) during 2006/2007.

Effect of different levels of (NPk) combinations on infestation by some pests on Common bean plant:

Effect on *Liromyza trifolli*:

The lowest recorded infestation level occurred on plants received NPK at 60+30+48 units , respectively, being insignificantly difference with mean was recorded from plants which were kept free from any fertilizer (control). on the other hand, the rate which caused the lowest infestation of *Liromyza trifolii* was 60 units N2 +30 units P2O5+ 96 units K2O .

The infestation level of *Bemisia tabaci* indicated that, the rate which caused the highest infestation level occurred at 120 units N2 + 30 units P2O5 +48 units K2O . Followed by the rate of N2 (60)+ P2O5(60) + K2O (48) units , . On the other hand , the lowest infestation was

obtained at rate 60 units N +30 units P2O5 + 96 units K2O with mean contly lower than those recorded from the two remaining treatments The obtained data indicated significant different between the rate of N 120 units P2O5 48 units+ K2O and the two others treatments and control while, there were no significant differences in *T.tabaci* population between the two treatment, N2 60 units associated with (60+48 and 30+96 units P2O5 + K2O , respectively) and control.

The highest infestation of aphid on common bean plants was obtained at the rate of 120 units N2 +30 units P2O5 + 48 units K2O .. This value was significantly higher than the two others were treatments. The two treatments which received the lowest level of N2 60 units/feddan) caused low infestation level of *Aphis craccivora*, the rate of P2O5 60 units+ K2O 48units. The rate of fertilizer which caused the lowest infestation of aphid was 30+96 units of P2O5 + K2O, respectively, with insignificant differences than control treatments 0.40 indiv./leaf.

Results on the effect of three mixtures fertilizer (N2 , P2O5 and K2O) on the infestation rate of *T. urticae* and *T.cucurbitacearum* adults and immature stages obtained ,

The rate of fertilizers which caused the highest infestation was 120 unites N2 +30 unites P2O5 +48 K2O .This value was significant higher than the others two treatments .

The highest infestation rate was observed on Common bean plant which received highest rate of N_2 + lowest rates of P_2O_5 and K_2O(120+30+48 units, respectively, followed by rate of (60 units of P_2O_5 mixed with 60+48 units $N_2 + K_2O$ which showed moderately infestation level between the three different fertilizer treatments . While the lower

infestation level was recorded at N_2 60 units + P_2O_5 30 units mixed with the highest rate of K_2O (96units) .

-Biological control of *T. urticae* movable stages and eggs on Common bean plants by releasing two predaceous mites, *Pytoseiulus persimils* Athias- Henriot and *Neoseilus californicus* MeGrgor:

These data proved that releasing of *P. persimilis* and *N. californicus* at level 1:10 gave the best results of biocontrol of *T. urticae* infesting cucumber plants in greenhouse. These two species could control the serious pest mite *T. urticae* on cucumber cultivation through the three treatments especially during the flowering and production time of the plants. So that we can recommend for using one of these predaceous mites in controlling this mite pest instead of using the traditional acaricides aiming for producing clean product accepted for exportation and local consumption, on the other hand, avoiding the pollution of the biotic and abiotic factor in the ecosystem.

Generally, results indicated that, all treatments caused suppression in the tested pests' population. Consequently, regarding the reduction in population of tested pests during the two seasons, the previous materials (high application rate) arranged descending, as follows:

A-*Liriomyza trifolii* (**Burg**.):

Cored 72% EC. (81.4%) & (87.0%) > Crater (70.2%) & (81.4%) > Trigard. (75.1%) & (77.3%) > Clove oil (73.9%) & (71.8%) > Baioca (58.0%) & (56.0%) for 2005/2006& 2006/2007 season, respectively.

Bemisia tabaci **(Genn.):**

Cored 72% EC. (100.0%) & (96.7%) > Crater (97.1%) & (91.7%) > Trigard. (95.4%) & (90.3%) > Clove oil (89.7%) & (86.0%) > Baioca (82.2%) & (74.9%) 2005/2006& 2006/2007 season, respectively.

T. urticae* and *T.cucurbitacearum

Cored 72% EC (88.3%) & (93.7%) and (90.5%) & (91.4%) > Clove oil. (78.2%) & (82.2%) and (80.7%) & (82.1%) > Crater. (73.5%) & (78.7%) and (83.7%) & (82.8%) > Trigard.. (73.6%) & (76.6%) and (80.9%) & (79.0%) > Baioca (71.4%) & (63.3%) and (70.0%) & (63.4%) for adults & immature stages during 2005/2006 and 2006/2007 season, respectively The results showed clearly that, Cored was the most effective compound against common bean pests, the botanical insecticides or I.G.R. and/or the bioinsecticide could be used for controlling these pests since they are more safe for environment.

Effect of various treatments on some yield components during nili plantation:

With reference to seed weight per plant, there was significant increase in seed weight/plant for all treatments as compared with the control with the exception of the lower application rate of Baioca and mixture of Bemistop plus Cored that produced lightest seeds/plant. In addition, mixture of Clove oil plus Cored gave the highest seed weight/plant (56.8% increase than control) followed by mixture of Crater plus Cored (46.5% increase than control), Clove oil (44.8% increase than control) and Cored (44.8% increase than control). Baioca as well took the last grade concerning the seed weight/plant (10.0% increases than control) at high application rate.