Summary

V. SUMMARY

5.1-Evaluation the effect of the tested insecticides on *A. gossypii* and its predators in cotton fields :

A- Field evaluation of the used insecticides against *A. gossypii*

The obtained results showed that the insecticides can be arranged in three groups based on their initial and residual efficiencies against *A. gossypii*.

1- Imidacloprid, azadirachtin and abamectin were highly effective with 87.92-88.03 %, 83.68-85.19 % and 80.11-80.94 % reduction in the aphid numbers, respectively.
2- Pyriproxyfen and buprofezin demonstrated good effect with 77.39-77.68 % and 67.27-71.86 % reduction, respectively.
3- Mineral oil, furathiocarb and cyanophos were low effective with 57.91-60.94 %, 53.39-55.48 % and 52.50- 53.11 % reduction, respectively.

B- Evaluation the used insecticides on predators :

Regarding the statistical analysis of the general mean reduction percentages in the predators population, the used insecticides can be arranged as follows :

1- Effect on *Chrysoperla carnea* :

1- Cyanophos was highly toxic (84.64-85.80 %).
2- Furathiocarb was moderately toxic (47.50-47.57 %).
3- Mineral oil (30.83-33.46 %), buprofezin (23.05-31.25 %), pyriproxyfen (28.29-30.41 %), imidacloprid (25.77-29.69 %), abamectin (23.07- 28.06 %) and azadirachtin (10.72-16.21 %) were low toxic.

2- Effect on *Coccinella undecimpunctata* :

1- Cyanophos was highly toxic (86.39-87.48 %).
2- Furathiocarb was moderately toxic (43.68-45.04 %).

3- Abamectin (30.87-37.29 %), imidacloprid (24.34- 32.59 %), pyriproxyfen (20.68-26.62 %), mineral oil (19.79-24.05 %), buprofezin (18.42-22.98 %) and azadirachtin (12.56-19.32 %) were low toxic.

3- Effect on *Orius albidipennis* :

1- Cyanophos (77.88-78.87 %) was highly toxic.
2- Furathiocarb (41.31-46.39 %) was moderately toxic.
3- Pyriproxyfen (29.68-34.32 %), abamectin (27.77-33.55 %), buprofezin (27.79-29.62 %), mineral oil (25.17- 28.99 %), azadirachtin (23.03-27.77 %) and imidacloprid (21.75-23.65 %) were low toxic.

4- Effect on *Paederus alfierii* :

1- Cyanophos (55.67-60.94 %) and furathiocarb (44.30- 56.52 %) were highly toxic.
2- Abamectin (32.37-39.44 %) and mineral oil (29.64- 30.46 %) were moderately toxic.
3- Buprofezin (24.69-29.45 %), pyriproxyfen (27.01- 28.53 %), imidacloprid (21.58-27.64 %) and azadirachtin (21.15-26.05 %) were low toxic.

5- Effect on *Scymnus interruptus* :

1- Cyanophos (68.59-73.14 %) and furathiocarb (64.58- 68.84 %) were highly toxic.
2- Mineral oil (42.91-45.00 %) was moderately toxic.
3- Abamectin (32.00-32.96 %), imidacloprid (31.12-37.57 %), buprofezin (29.59- 30.10 %), pyriproxyfen (28.86-35.42 %) and azadirachtin (27.67-34.12 %) were low toxic.

6- Effect on *Syrphus corollae* :

1- Cyanophos (52.90-54.77 %) and furathiocarb (41.01-44.63 %) were moderately toxic.

2- Azadirachtin (34.56-35.13 %), pyriproxyfen (28.00- 34.77 %), abamectin (27.39-29.18 %), buprofezin (26.95- 29.08 %), mineral oil (25.05-28.73 %) and imidacloprid (19.33-19.37 %) were low toxic.

C- Combined effect of the used insecticides on *A. gossypii* and its predators :

According to the effectiveness of the used insecticides against *A. gossypii* and their side-effects on the associated predators. It can be said that imidacloprid, azadirachtin, pyriproxyfen and buprofezin can serve as environmentally acceptable controlling tools for incorporation in integrated pest management programmes against this insect pest.

5.2- Efficiency of the tested insecticides on the population densities of *A. gossypii* and associated predators in cotton fields :

The natural product from neem plants (azadirachtin) and the nitromethylene analogue insecticide (imidacloprid) were the most effective insecticides in reducing the aphid populations in cotton fields and they demonstrated low toxic effects on the associated predators. Although, the juvenile hormone analogue (pyriproxyfen), the insect growth regulator (buprofezin), the natural product from the soil microorganisms (abamectin) showed a high effect in reducing the population densities of *A. gossypii*, but they were harmful to the associated predators. The mineral oil (KZ oil) was low effective on *A. gossypii* and had shown low toxic effect on associated predators. The organophosphate (cyanophos) and the carbamate (furathiocarb) were low effective in reducing the aphid populations, while they exhibited high toxic effect on the associated predators.

5.3- Effect of certain sequences of insecticides on the population densities of *A. gossypii* and certain predators in cotton fields :

The insecticidal sequences imidacloprid- azadirachtin, azadirachtin-imidacloprid were the most effective in reducing the

populations of *A. gossypii* infesting cotton and manifested the lowest toxic effect on associated predators.

5.4- Aphid-predators relationship in cotton fields influenced by the tested insecticides :

The applications of azadirachtin, imidacloprid, mineral oil and pyriproxyfen in cotton fields were the safest materials in their effects on the aphid- predators relationship. The best sequences in this respect were imidacloprid-azadirachtin, azadirachtin- imidacloprid and imidacloprid-pyriproxyfen.

From the aforementioned results, it can be recommended to use azadirachtin, imidacloprid and pyriproxyfen in integrated pest management programmes for this insect pest in cotton fields.