SUMMARY AND CONCLUSION

4.1- Nematological studies :

All experiments of this study were achieved under green-house conditions and aimed to explain the effect of soil textures and some cowpea varieties on the development of the root-knot nematoade Meloidogyne incognita and plant growth. The efficiency of organic and inorganic fertilizers and nematicides in the developement of M. incognita population and their effect on plant growth and nutrition status were also investigated.

The obtained results can be summarized as following :

1- The three tested cultivars Balady, Azmerly and Fitria were reacted in general as suscepitible hosts and the differences in the reproduction capabilities of the root-knot nematode were due to the soil type.

2- The data on plant growth indicate that the damage caused to the cowpea plant by nematode penetration was considerable and similar in the three tested varieties.

3- The high nematode numbers in the three cowpea varieties irrespective of soil texture factors, were found in Balady var, followed by Fitriat and then Azmerly.

4- Taking soil texture in consideration and comparing the mean population in the three soil types irrespective of variety differences, the developement of M. incognita was the highest in sandy clay followed by the loamy and clay loamy soils.

5- Both Ethoprop and Terbofus improved plant growth expressed in shoot length, root length and weight compared with the check plants.

6- Both systemic nematicides namely Ethoprop and Terbofus when used at the different levels on cowpea plants infected with M. incognita resulted in a potent effect in reducing nematode developement.

7- A remarkable change in the contents, of N P K in the leaves of infested cowpea plants was observed when the nematicides were used, these changes responsed with the nematicidal level.

8- Terbofus at the high level (0.5 gr/plant) gave t highest increase in the N content, while the same leve of Ethoprop gave a reduction in N content compared with untreated plants.

9- Terbofus at all levels increased the percentage of P contents in the leaves compared with the untreated plants.

10- The triple treatment application of Ethoprop gave the best improvement in shoot and root length and shoot fresh and dry weight, while the highest improvement in root fresh and dry weights were obtained with the double application.

11- The single application of Terbofus at 0.5 gr per plant gave the best nematode control in soil (82. 66%) followed by the double application (78.86%).

12- The best nematode reduction in root (91.34%) was achieved by the double applicaton of Ethoprop treatment at the rate of 0.250 gr/plant followed by the triple application (89.31 %).

13- The application of Ethoprop three times at rate of 0.166 gr per plant with ten days intervals reduced nematode population in root to a very low level.

14- Applying poultry dung at the high level (200gr/pot) increased the nematode number in soil and root.

15- The increase of superphosphate level from 2.33 up to 4.66 gr per pot increased the nematode number in soil and root.

16- By increasing the superphosphate level, there was a corresponding increase in the plant growth.

17- The increase of ammonium nitrate level to 1.75 gr/pot reduced the nematode number in soil and in root, compared with the low level 0.875 gr/pot

18- The high level of potassium sulphate stimulated good nematode reduction in soil and root.

19- Increasing superphosphate level, increased P and K contents and also improved the nematode reduction and this effect the N contents.

4. 2- Acarological studies:

The investigation was basically designed to emphasize the following items:

1- The economic injury effect of Tetranychu cucurbitacearum as phytophagous mite on the two vegetabl species, namely cowpea (Vigna sinensis) var.Balady and pea (pisum sativum) var Littel marvel.

2- The influence of tetranychid mite infestation on plant growth and final yield of the aformentioned two vegetable crops.

3-The effect of protective as well as remedial treatments with two acaricides (kelthene 18.5 % and tedifol 24.5% W.P) on saving plants from mite infestation. represented in the following alterenated combinations.

a- The effect of protective treatments to the uninfested plants with the above mentioned two acaricides, independently applied at the recommended dose (2.50 gr/l) on preservating plants from natural infestation.

b- The effect of remedial treatments to the artificially infested plants with both acaricides, independently applied at various levels of dosages. on the standard of recovery of such infestation.

c- The combined relative efficiency of the two acaricides used at various three doses, namely the half recommended (1.25 gr./l) and the one and half recommended (3.75 gr. /l) on plant measurments and final yield of the two, previously mentioned vegetable species

4- The relative efficiency and presistancy level of the two

acaricides tested, on the reduction of population density of the tetranychids mite T. cucurbitacearum artificially infested.

Results obtained, indicate the following :

1- Generally, cowpea, was much more affected by tetranychids infestation than pea.

2- Plant measurments (Shoot & root lenghths, shoot fresh and dry weights, final yield for the two vegetable crops, and leaflets numbers for only cowpea, were considered as indicators of the standard of mite infestation as shown below :

A- The infested untreated cowpea and pea plants exhibit highly significant decrease in shoot length than both the uninfested untreated and the uninfested,protectively treated with kelthene or tedifol consequently, it could be observed that shoot length attained considerable sensitivity to T. cucurbitacearun infestation, in contrast with root length which showed weak, response to such infestation.

B- Both shoot fresh and dry weights were influenced by mite infestation

C- T. cucurbitacearum infestation highly reduced leaflets numbers per plant of cowpea. The uninfested protectively treated or untreated plants, had highly significantly more numbers of leaflets , compared with the infested untreated ones.

D- Mite infestation caused significant reduction in the total pods weight and total pods number in the both tested vegetable crops.

3- Remedial acaricide treatments with kelthene and tedifol at recommended level of dosage, in most cases, could recover significantly plants from mite infestation as following:

A- The two acaricides used, could efficiently, reduce mite population to a level, resulted in having significantly more values of cowpea plant shoot length shoot fresh and dry weight, leaflets number and total pods weight.

For pea crop only shoot length and pods number of treated plants surpassed significantly those of the infested untreated ones.

B- The two vegetable crops showed only slight variants in root lenght than the infested untreated ones because of the observed slight effect of mite infestation on such measurments. However, shoot fresh weight of pea crop rather exhibited only slight improvement of top fresh and dry weights due to acaricidal tretments.

C- The remedial acaricide treatment, at the recommended dose of kelethene and tedifol can efficiently reduce mite infestation to a standard seeming under economic injury level.

D- Relative efficieny of the two acaricides used at the

above mentioned 3 levels of dosages proved that kelthene and tedifol have about similar effect on recovering plants from T. cucurbitacearum infestation resulted in improvements of plants measurements and final yield of both cowpea and pea crops. The recommended dose of both miticides used, seemed to be, economically the optimal one, on cowpea as a summer crop, while the half recommended one gave adequate results in recovering pea plants from infestation as a winter one.

4- Concerning relative efficiency and persistancy level of the two acaricides tested at three standards of dosages on reducing population densities of T. cucurbitacearum results indicated the following :

A- Both acaricides tested proved to have disciplinary effect in combating appreciably such tetranychid pest They also seemed to act as adulticides as ovicides as well where sudden reduction in both moving and eggs was observed from the first count of mite stage.

B- Tedifol seemed to be, slightly more toxic than kelthene at the three dosage levels.

C- Relative reduction of mite population denisities as closely, related to the level of dosage of the two acaricdes tested.

D- Both the acaricides, investigated proved to have presistancy effect over two weeks, since the curve of population reduction at the fourth counts on the 15 th day from application, was still, downwardly, continous.