

A decorative border with a repeating geometric pattern of stylized leaves and triangles, surrounding a central rectangular frame.

SUMMARY

VI- SUMMARY AND CONCLUSION

This study was carried out during two successive seasons 1997 – 1998 and 1998 – 1999 to recognize the best soil management system for weed control in Anna farms grown up in new reclaimed soils and to study the effect of each treatment on vegetative growth, yield and fruit quality of Anna apple trees. A field experiment was established on Anna apple trees grafted on M. 106 rootstock and planted at apart 4 × 3m and growing on Noubaria region Behara governorate (Private farm).

The treatments of weed control were amanged as follows: -

- 1- without weed control (control).
- 2- Hand hoeing three times during year.
- 3- Herbicides applications such as: -
 - 3-1 Round up 2% in May and Aug.
 - 3-2 Diuron 2% in May and Aug.
 - 3-3 Gesaperm 2% in May and Aug.
- 4- Mulching by black polyethylene in December after removing all weeds.

-The results of this present investigation could be summarized in the following points: -

I – weeds: -

Mulching by black polyethylene was more effective in decreasing weed growth. Moreover, herbicides and Hand hoeing treatments were less effective than mulching treatments in descending order. Diuron 2% treatments was

more effective than Gesaperem 2 % and Round up 2% in decreasing dry weight of broad weeds in 1998 and 1999 season. On the other hand, Round up 2% herbicides was more and effective than Diuron 2% and Gesaprem 2% herbicides in decreasing dry weight of Grassy weeds.

II – vegetative growth: -

II –1 No, of shoots per branch :-

Mulching by black polyethylene gave the highest values (16.48, 16.42) following by Diuron 2 % (15.03 , 14.79) while control gave the lowest values (10.47, 10.42) in the two seasons of this study respectively .

II –2 Shoot length increase (cm) :-

Mulching by black polyethylene gave the highest values (22.97) in the first season but Round up 2% gave the same results (21.40) in the second season. Moreover control gave the lowest values (15. 89. 14.75) in the two seasons of this study respectively .

II –3 Leaf area (cm)² :

Mulching by black polyethylene gave the highest values (32.4, 31.90) followed by Gesaprem 2% (31.50 , 31.90) while control gave the lowest values (26.00, 26.42) in the two seasons respectively .

III – Leaf nutrient content of Anna apple trees:

III-1- Macro – nutrient content (percentage) .

III –1-1- Nitrogen leaf content:

Round up 2% increased nitrogen leaf content in the first season (1.6%) while mulching by black polyethylene gave the same trend in)

III –1-2 -P leaf content :-

Diuron 2% application gave the highest values of P leaf content followed by mulching by black polyethylene and Round up 2% application .

III –1-3- K leaf content: -

Gesaprem 2% application increased K . leaf content , where gave the highest values in two seasons followed by Round Up 2% application . .

III –1-4- Mg leaf content :

Mulching by black polyethylene increased Mg leaf content which gave the highest values followed by Gesaprem 2% and Round up 2% application in the two seasons of this study respectively .

III –1-5- Ca leaf content :-

Mulching by black polyethylene increased Ca leaf content followed by Gesaprem 2% application .

III -2- Micro – nutrients content (P. P. m) :-

III -2-1- Fe leaf content :-

Mulching by black polyethylene increased the Fe leaf content followed by Gesaprem 2% application in the second season only but followed by Diuron 2% application in the two season of study compared with the control .

III -2- Zn leaf content: -

Round up 2% application increased Zn leaf content in the two seasons of the study followed by Diuron 2% application in the second season only and Geaspem 2% application in the first season only .

III -2-3- Mn leaf content:-

Round up 2% application gave the highest values from Mn leaf content followed by Gesaprem 2% application in the two season of study .

IV- yield: -

IV- 1- Fruit set percentage: - Diuron 2% application gave the highest Anna apple fruit set percentage followed by mulching by black polyethylene in the second season only.

IV-2- Fruit drop percentage.

Mulching by black polyethylene gave lowest values in fruit drop in the first season followed by Diuron 2% application in the same season but the highest values in fruit drop was

obtained from control trees followed by hand hoeing and Round up 2% application.

IV-3- Fruit yield (Kg / tree) :-

Diuron 2% application gave the highest fruit yield followed by mulching by black polyethylene and Gesaprem 2% application . While the control gave the lowest values in this respect.

IV-4- No of fruits per tree: -

Diuron 2% application gave the highest No of fruits per tree followed by Round up 2% application, Mulching by black polyethylene, Hand hoeing and control in the first season. While, in the second season, the highest No , of fruits per tree was from Diuron 2% application , mulching by black polyethylene , Round up 2% application , Hand hoeing and control .

VI – Fruit quality: -

VI-1- Physical properties: -

VI-1-1- Fruit size (cm³): -

Control trees gave the highest values from fruit size followed by Gesaprem 2% application, Diuron 2% application , Hand hoeing , Mulching by black polyethylene and Round up 2% application in the first season. While, in the second season mulching by black polyethylene gave the highest fruit size and control gave the lowest fruit size .

VI-1-2 Fruit weight (gm): -

Hand hoeing gave the highest fruit weight followed by mulching, control, Round up 2% application, Diuron 2% application and Gesaprem 2% application in the first season .but in the second season Gesaprem 2% gave highest fruit weight followed by mulching. While, the control gave lowest fruit weight.

VI-1-3 fruit length: -

No significant differences were observed between all treatments on fruit length in the first season but in the second season Round up 2% application gave the highest values in this respect while, Diuron 2% application gave the lowest values and non significant between the other treatments .

VI-1-4- Fruit diameter(cm): -

Hand hoeing gave the highest values of fruit diameter followed by Round up 2% in the first season but, in the second season Round up 2% gave the highest values followed by mulching and non significant differences were observed . between other treatments in the two seasons of study .

VI-1-5- Fruit shape index (L/D) :-

No significant differences were observed between all treatments in the two seasons of this study.

VI -2- Chemical properties: -

VI-2- Total sugars:-

Mulching by black polyethylene , Diuron 2% application and Hand hoeing gave the highest percentage of total sugars while, control gave the lowest percentage in the two seasons of this study .

VI-2-2 T. S.S Percentage: -

Mulching by black polyethylene gave the highest of T.S.S percentage while, Round up 2% application and control gave the lowest percentage in the two season of study, respectively.

VI-2-3- Acidity percentage: -

Mulching by black polyethylene gave the highest percentage of total acidity while Round up 2% application and control gave the lowest percentage in the two seasons of study.

VI-2-4- T . S . S / Acidity percentage: -

The highest values were obtained from control trees while, the lowest ones were obtained from mulching by black polyethylene on the other hand no significant difference were observed between the other treatments in the two seasons of study, receptively.

- Herbicidal residuals :-

Round up 2% and Gesaprem 2% did not leave residues in fruits of Anna apple on the contrary, in the trees treated of them a detectable amount of Diuron 2% herbicide existed in fruits (0.013, 0.022 P.P.m) during 1998 and 1999 seasons.

- Cost of different soil management systems of Anna apple trees:

Hand hoeing gave high cost compared with Gesaprem (200 and 300 Egyptian pound) during two season on the other hand Round up herbicide gave high cost compared with the other herbicides, meanwhile, mulching by black polyethylene gave intermediate cost compared with Hand hoeing and herbicides, but on the long term mulching by black polyethylene gave lowest cost than hand hoeing or herbicides.