

SUMMARY & CONCLUSION

This study was carried out during 1996 and 1997 seasons on "Cannino" apricot trees in a private orchard, khatatba region Menofia Governorate. The treated trees were planted at 4x5 m apart (210 trees/fed) and trained open vase shape system. Drip irrigation system was used where one line for each raw (9 trees of about 36m) and each tree has two drippers with a discharge of 8l/h for every one.

All experimental plots received usual cultural practices in this respect. Three levels of irrigation based on multiplying. The evaporation from the open pan-class A time 0.6, 0.8 and 1.0. Also polyethylene glycol as antitranspiration material was sprayed at 1 and 2% concentration. The total treatments were 9 treatments X 4 replicates arranged in a complete randomized block design. The effect on vegetative growth, flowering, fruiting, yield and fruit quality was recorded. The obtained data were statistically analysed.

The obtained data could be summarized as follows:

I. Vegetative growth parameters:

1- Average leaf area (cm²):

As irrigation level was increased, average leaf area increased whereas negative effect was obtained with polyethylene glycol spraying. Interaction between the two studied factors was significant in most cases. The percent of increase was parallell with data obtained in the end of growing season.

2- Average shoot thickness (cm):

This character is considered one of the most measurements for tree response to irrigation. An evident increase in stem thickness was found with

increase irrigation water. Slight effect was noticed on average shoot thickness with spraying polyethylene glycol.

3- Average shoot length:

The same trend of results was also found in average shoot length. The increase in average shoot length was parallel with increasing irrigation water level. The antitranspiration material has a great effect on increasing shoot length. Interaction was significant in most cases.

II. Flowering, fruiting and yield:

1- Flowering %:

No clear effect to irrigation level or PEG spraying was noticed in flowering %, whereas interaction was significant in most cases (Data of first season). However, an evident decrease in flowering % with increasing irrigation water level or antitranspiration material spraying (in the second season).

2- Fruit set %:

As irrigation level was increased fruit set % was decreased whereas using antitranspiration material increased fruit set % interaction between the two studied factors was significant in most cases.

3- Fruit abscission %:

The increase in added water to the trees reduced fruit abscission % whereas no clear effect to spraying PEG material on fruit abscission.

4- Fruit number per tree:

As irrigation level was increased from 0.6 to 1.0 the fruit number per tree was decreased whereas an opposite trend was found with spraying polyethylene glycol.

5- Average fruit weight (g):

The increase in irrigation water added to the tree produced fruits with high weights than low irrigation level. Spraying PEG material 1% or 2% has great effect on increasing average fruit weight.

6- Total yield (kg/tree):

The total yield was considerably increased with increasing irrigation water level where total yield was 21.6, 23.2 and 24.9 kg/tree (Data of first season) for low, medium and high irrigation level respectively. Spraying PEG increased total yield than untreated trees.

III. Fruit quality:

Slight effect to irrigation level or PEG spraying on fruit firmness, pulp %, T.S.S%, titratable acidity, L. Ascorbic acid content. Regarding to shelf life (in days) the fruits produced from trees irrigated with low irrigation level has high shelf life than those irrigated with high level of irrigation.

IV. Total yield (kg/fed), water use and water use efficiency:

The increase in irrigation water level has great effect on increasing total yield (kg/fed.).

Total yield reached to 5236, 4872 and 4529 kg/fed for high, medium or low irrigation level, respectively. Total yield was also increased with spraying antitranspiration material.

Regarding to water use efficiency, the high value was 5.06 (with low irrigation level), 3.93 (medium) and 3.38 (high). Antitranspiration material spraying improved water use efficiency either at 1% or 2% concentration compared with unsprayed trees.

Interaction between the two factors showing that low irrigation level could be used with spraying PEG material for producing high yield and good fruit quality of “Canino” apricot under Khatatba region.

V. Leaf proline, boron and chlorophyll content:

The increase in irrigation water regime decreased proline content and increased chlorophyll content in the leaves of “Canino” apricot. No clear effect could be noticed with spraying PEG material under different irrigation level. Boron content fluctuated with irrigation water level or spraying PEG.

Recommendation:

Spraying PEG at 1% or 2% is good tool for improving water use efficiency especially under low irrigation level for “Canino” apricot trees under Khatatba region. It could be concluded that spraying PEG 3-4 times on apricot trees beginning from April monthly period could be used to minimize the water use.