

Overview of Citrus Orchards Pruning

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Background

Pruning considered a kind of art of removed excessive and unwanted growth of the tree in a scientific aspect. Citrus tree is an evergreen require moderate and regular pruning annually for sustained productivity and fruit quality, but citrus pruning requirement less than other fruit trees. Pruning plays an important role for improving tree health through a strong tree structure, increasing light penetration and air circulation in the canopy, also, pruning out water sprouts (gourmands) may improve yields and reduce infection by pests.

There are various benefits for regular pruning of citrus trees such as enhance harvesting, reducing labor costs, as well as facilitates weeding, and other cultural practices, also, proper pruning reduce pests and pathogen infection. Removing of lateral, leaders, dry and tangled branches through trimmed after harvesting implements fruit productivity in the next seasons.

Keywords: Pruning; Citrus Trees; Tree Height; Tree Canopy; Fruit Productivity

Time of pruning

Pruning must be done as time allows, preferable after harvesting directly, and before new flushing to avoiding damage tree bark, however, in late citrus varieties like Valencia orange pruning time could be in Late May or after June drop to avoid negative effects on the new crop. Trimming blades should be sharp to cut cleanly without harming remaining branches. Too early pruned trees produce new flush in cold time which is susceptible to damage by cold weather, therefore, pruning in winter should be to remove small branches $\frac{1}{2}$ " (0.5 cm) or thinner branches.

Pruning Mistakes in Citrus orchards

1. Very height trees.
2. Dense and over-crowded canopy.
3. Excessive growth of laterals and leaders branches.
4. Spreading of Main branches near the soil surface.

The most important factors for pruning in citrus:

1. Tree age.
2. Planting spaces.
3. Type of cultivation (Figure 1)



Figure 1: Field image hedges cultivation in Egypt.

Pruning benefits

1. Improving tree health through forming a strong tree structure.
2. Increasing light penetration and air circulation in the canopy.
3. Enhance harvesting and reducing labor costs.
4. Facilitates weeding and other cultural practices.
5. Regular pruning reduce infection by pests and diseases.

Types of Pruning

There are various factors determine proper types of pruning for citrus trees such as:

Young trees pruning

At planting seedlings should be trimmed if they are tall and spindly, to encourage new flushes which will grow into a lower level, the shorter trees remain easier to maintain.

Mature trees pruning

Mature trees require different types of pruning as follow:

1. **General maintenance Pruning:** it is a regular pruning to remove dead, infected wood, water sprouts, and cut of crossing branches from trees as necessary throughout the year. It is including canopy thinning, reducing tree height trough removing only a third of the height before new flushing
2. **Suckering:** remove growing shoots from the rootstock below grafting union, preferable remove this shoots regularly during growing season.
3. **Skirting up pruning:** skirting pruning used in citrus varieties that tend to has pendulous branches that droop to the ground with heavy crop loads, trees must be skirted up to 75 cm (18-24") above the soil surface every two years.
4. **Pruning to Mitigate Alternate Bearing:** there are some citrus varieties has the alternate bearing phenomenon occurs in some citrus varieties like mandarin and some sweet orange, therefore after off year (low crop year), trees need to pruning heavily to decrease potential crop load, this type of pruning help to a more balanced bearing.
5. **Pruning for Pest Management:** dense canopy and high humidity provide proper conditions for spreading pests and pathogens, particularly young flushes which attacked by different pests and pathogens like citrus thrips, aphids, and *Pseudomonas* spp., therefore, canopy thinning reduce pests, and pathogens and encourage natural enemies like parasitoids and predators to decrease insect population and reduce disease spreading into other branches.
6. **Reducing tree height:** in high-density orchard, the tree grows up without proper pruning (Figure 2), so, higher branches shading out fruits on lower branches, ultimately productive area move up, which increases time and costs of harvest, decrease fruit quality (3), and reduce tree yield. Therefore, trees required pruning to reduce height by cutting major branches back to the base, but this processing need 2-3 year to avoid destroying the trees, only no more than a third of the height should be removed each year.

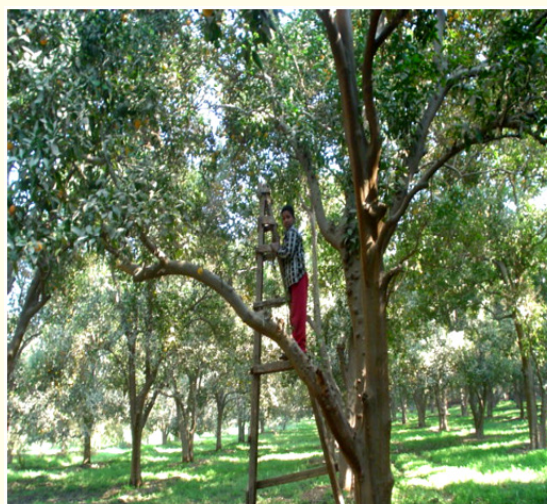


Figure 2: Field images for very high trees.

Rejuvenation of old orchards:

This type of pruning used in old orchards which tree is still healthy, it aims to renovation of old orchards and low productivity one (3), through reinvigorated the tree to enhancement productivity, in this case, all branches less than 5 cm diameter are removed to push replacement with new branches, preferable pruning on one side, meanwhile the other side could be pruned after two years, or pruned alternate rows, all trees could be rejuvenation over a period of two or three years [1-3].

Conclusion

Citrus trees need proper and annual pruning after reaching the maturity stage, to sustained productivity and enhancing fruit quality, also, pruning plays an essential role in implement tree health, increasing air ventilation and light penetration into the canopy, also, pruning gourmands could improve yields and reduce infection by pests, trimming lateral, leaders, dry and tangled branches after harvesting implement fruit productivity in the next seasons and reduce pests and pathogen infection.

In mature citrus orchards preferable pruning after harvesting in late winter before new flushing, except late varieties like Valencia orange.

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