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Citrus Pruning in Pakistan

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Introduction

The aim of pruning is to increase the amount of A grade fruit by reducing fruit blemish and increase average yield. Pruning is the selective removal of branches of a tree. As a tree gets older it produces dead wood that harbors diseases and old branches produce irregular crops of poor quality fruit. The core principle of pruning is to annually remove a portion of old unproductive branches to allow young branches to grow. These young branches produce consistent better quality fruit.

Figure 1: Deadwood is one of the major courses of wind and disease blemish that downgrades the value of fruit.

The benefits of pruning include:

- Reduce alternate bearing by reducing crop load in heavy years and encouraging young branches that producer regular crops of fruit
- Reduced wind damage by removing dead branches that scratch fruit
- Reduce insect damage by allowing better penetration of sprays
- Reduce disease by removing dead wood and improving spray penetration
- Improve fruit size by encouraging new branches to grow that produce the best fruit
- Reduce harvest damage by making it easier for pickers to pick the fruit

A common misunderstanding of pruning is that it will reduce the yield and income. Research has demonstrated that annually pruning about 20% of the unproductive canopy will slightly decrease yield in the first year, but increase average yield and income in the following years.

When to prune and frequency

Pruning is best done straight after harvest. Light pruning can also be done after fruit set if the crop is excessive (see thinning factsheet).

Pruning should be conducted annually to maintain the growth of new branches. The key to pruning is continually rejuvenating the canopy, when the canopy is not rejuvenated the canopy will age and slowly decline in fruit quality and productivity.

What trees

Trees more than 4 years can begin to be lightly trimmed to remove lower branches in contact with the soil (skirting). **Do not prune the upper canopy of young trees**, let the tree grow!

When trees are about 1.8 m tall commence to prune the limb structure (Step 2) .

Figure 2:- Diseased or unthrifty trees should not be pruned.

Pruning does not cure diseases or help trees that are not being managed correctly (e.g. not properly irrigated or fertilised). Trees that have a sparse canopy should only have deadwood removed, no live canopy should be removed. If you can see another person standing on the other side of a tree, this tree does not require canopy pruning. Only prune trees that are healthy with a vigorous canopy.

Intensity

Each year remove about 15-25% of the canopy. This ensures that the whole canopy is rejuvenated every 5 years. In light cropping years very little or no pruning occurs whilst in heavy cropping years more intensive pruning can occur. The overall aim is to rejuvenate the whole tree in 5 years (i.e. 20% of the canopy removed each year).

Step 1: Skirting

Skirting is to remove the lower branches and/or limbs to prevent fruit touching the ground and becoming infected by soil born diseases (i.e. phytophthora). These fruit can infect other fruit higher in the canopy. Skirting also helps to remove the small poor quality fruit that are generally found on the lower parts of the canopy

Figure 3: A Kinnow tree before (left) and after skirting (right). Notice how the base of the trunk is visible in the skirted tree.

To avoid sunburn skirt trees in the cool of winter and early spring straight after harvest and about 50cm to 80 cm in height. Trees skirted for the first time in summer might suffer sunburn on direct sunlight exposed part of the trunk. Painting the trunk with lime will prevent sunburn on limbs that are excessively exposed. A tree that has been skirted every year develops a greater tolerance to sunlight and experiences less sunburn.

During skirting the height might look excessive, but when the fruit matures the weight of the tree will bring the canopy down.

Step 2: Structural pruning

A desired framework has evenly spaced limbs extending to all directions of the canopy. A good limb structure will make it easier to produce well spaced branches and make it easier to prune the trees in future years. Most trees will not grow in the “perfect” structure, compromise and common sense must be used to prune the tree to its best potential.

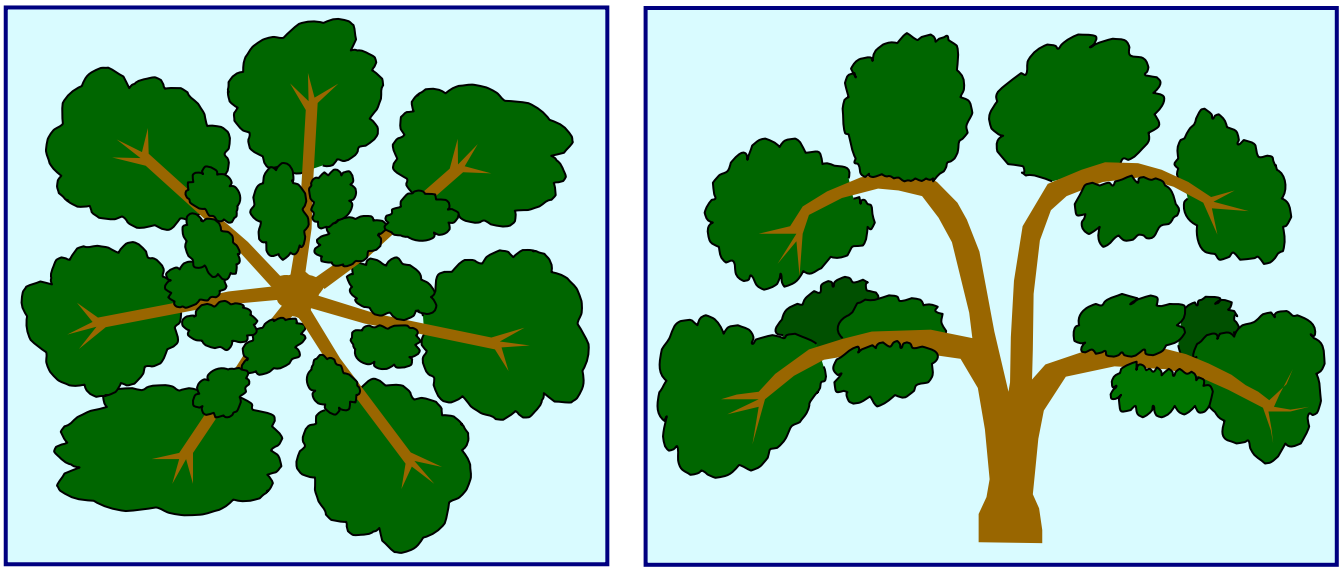

Figure 4: Top view and side view of a desired limb framework

Step 3: Deadwood removal

Dead wood is a major source of disease and wind blemish. Removal of deadwood is critical to increase the production of A grade fruit. There are two methods to remove deadwood (a) directly target the removal of deadwood by breaking it by hand (use gloves) or cutting it with secateurs and, (b) removing the whole branch that has an extensive amount of deadwood (window /chunk pruning: step 4). Method (a) is time consuming but is good way to quickly bring an unpruned tree into good conditions. Method (b) is less time consuming and can be used to maintain the tree in good condition.

Figure 5: An unthrifty branch mostly comprising of deadwood. This unproductive branch should be targeted for removal.

Step 4: Window and Chunk Pruning

There are two main strategies of maintain the canopy, window and chunk pruning. Window pruning is removing numerous tree branches throughout the tree. Chunk pruning is removing large branches or limbs. Both achieve the objective of annually removing and renewing about 20% of the canopy. Window pruning is more precise and targeted, removing 8- 20 small (i.e. up to 15 mm diameter) to medium (15-30mm diameter) branches. Chunk pruning is less targeted but quicker (i.e. removing 1 -4 limbs or large branches). The oldest branches or limbs (i.e. high levels of dead wood) are targeted for removal.

Figure 6: Before window pruning of a small branch (left), after window pruning (right). Notice the space made between the braches.

Each tree needs to be pruned differently; some may require many small cuts whilst other are better suited to a few larger cuts. Opening up the canopy to allow light & spray penetration into the canopy.

Figure 7: A small branch is pruned (held in right hand) to produce a small window or hole (red circle) in the canopy. Many of these types of cuts are required around the tree to remove about 20% of the canopy. Less cuts are required if larger braches are pruned.

Step 4: Upper canopy pruning

Fruit high in the canopy are prone to wind damage, are difficult to spray with insecticides or fungicides and make the tree difficult to harvest. Removing the upper portions of the canopy help to promote more growth on the lower parts. Lower parts of the canopy can produce more high quality fruit. A year or a week uploaded in

Figure 8: A large upright limb (red arrow) was removed the upper portions of the canopy (red circle).

Reducing tree height often involves removing large upright limbs. Since this is a form of chunk pruning removing one of these limbs could result in at least 10% of canopy removal. It is recommended to only make one cut in the upper canopy in a year so a small to medium size gap is present (up to 1 m). Very large gaps in the upper canopy can let in too much light and cause sunburn.