

## Pruning mature trees

The aim of canopy management is to develop and maintain a productive fruit-bearing face. An ideal mature mango tree has an open canopy, is small enough to pick easily and has many fruiting terminals. Mature mango trees are pruned for a variety of reasons:

- Control tree size
- Maximise fruiting terminals
- Improve spray penetration
- Improve fruit colour
- Synchronise and encourage flushing
- Remove dead and diseased wood
- Improve access

### Control tree size

Mango trees are vigorous and if growth is not managed can reach heights of over 10 metres at maturity. Trees of this size result in inefficient fruit harvesting and poor pest and disease management. This means poorer quality fruit and lower yield per unit area.



### Maximise fruiting terminals

Mangoes are apical flowerers, meaning they flower from their tips. Pruning encourages branching, and the more branches the tree has, the greater the bearing potential. If tips are pruned off in winter, mangoes can also produce flowers from leaf buds (axillary flowering) just below the tips.

### Improve spray penetration

Better spray penetration reduces the impacts of pests and diseases, meaning better quality fruit. Better quality fruit receives higher prices resulting in improved profitability.



### Improve fruit colour

Removing internal branches that are causing over-crowding leads to greater light penetration. Improved light penetration results in better blush on fruit, particular fruit growing

in the internal parts of the tree. Greater light interception and utilisation by the tree may also improve yields.

## Synchronise and encourage flushing

Mangoes are notorious for asynchronous flushing, flowering and fruiting. These and other traits are a consequence of the evolutionary adaptations developed in response to the tropical, highly seasonal environment in which the mango evolved. Pruning after harvest can help to synchronise shoot growth to achieve more uniform flowering, bringing trees into a regular, predictable cycle that is better suited to commercial production.



## Remove dead and diseased wood

As with all fruit-tree crops, pruning forms an essential component of good farm hygiene by removing the dead or diseased wood that could compromise the health and productivity of your orchard.

## Improve access

Weed control, irrigation, fertiliser application, harvesting and pest & disease control all require good access between rows to be efficient and effective.

## Equipment required

To hand prune mature mango trees, you will need a good pair of secateurs for cutting smaller branches and suckers. For larger branches up to 50mm diameter, lopping shears are recommended. The use of a pruning saw is recommended for large branches and trunks up to 150mm in diameter. A chainsaw may also be used for very large branches and trunks, being sure to adhere to workplace health and safety guidelines.

## When to prune

The main prune is conducted immediately after harvest. This is usually completed using a combination of mechanical pruning with a hedging machine (pictured) and hand pruning. Many growers perform a secondary prune at the beginning of the winter dormancy period to remove any internal branches and sucker growth.



## Regional pruning practices

In Northern NSW where trees often only crop every second year, they are mechanically and hand pruned heavily on the year they won't crop and only hand pruned the year they will bear a crop.

In Kununurra where it is very hot and harsh and where the air is dry, growth rates are low and branches/fruit are highly susceptible to sunburn. Large canopies are maintained to cope with the severe conditions, particularly over the summer/wet season.

Gingin has cold winds and mild summers with heat waves so there is limited growth/flush on trees compared to other growing regions.

Carnarvon presents similarities to both Kununurra and Gingin.

## How to prune: hand pruning

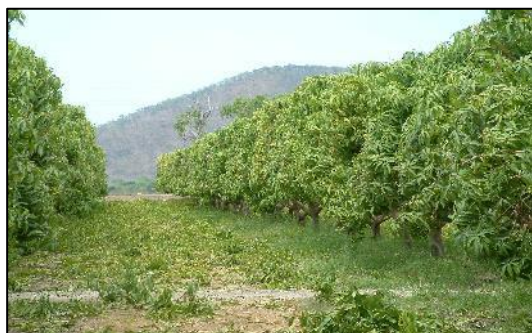
Hand pruning techniques will vary, depending on the variety grown and the tree's condition. Pruning is best done each year immediately after harvest. This involves the following steps:

1. Cut back branch terminals to behind a growth node. Remove all but two or three well-spaced shoots from branch tips. Keep the trees to a diameter that allows machinery to travel between the rows and allows trees to just touch within the rows.
2. Cut upward growing branches roughly 30-50cm below the height you want the tree to be at harvest. Depending on variety, mango trees will grow vertically 30 to 50 cm from hedging to harvest time.
3. Remove any low growing branches that are likely to interfere with under-tree access for irrigation or weed control
4. Open up the interior of the tree by removing some of the branches where growth is crowded. Remove shoots that are not exposed to sunlight. Thin out canopy in dense trees to allow spray penetration and to improve light penetration and air circulation.
5. To maintain tree size and encourage a well branched canopy, branches should be cut back behind the node. This is particularly important for varieties that have strong

apical dominance such as Keitt. The branches on these varieties must be cut back regularly to improve tree shape.

6. Remove dead or diseased branches and dead inflorescences.
7. Paint the top side of all exposed branches with white water-based or plastic paint to prevent sunburn.

## How to prune: mechanical pruning



Pruning costs can be greatly reduced with the use of mechanical saws. Most growers utilise pruning contractors that have specialised hedging machines to undertake annual hedging immediately after harvest. Usually only the tip growth is removed. Trees that are mechanically pruned have a square or rectangular shape, with the four sides and top trimmed flat.

Some hand pruning is still necessary after machine pruning, particularly on the inside of the tree.

It is important to ensure adequate water and nutrition is available to the tree to support the post-harvest flush following hedging. Discuss a nutrition program with your agronomist and/or refer to the factsheet '[Understanding mango crop nutrition: A guide for Australian mango growers](#)' available on the Australian Mangoes [Best Practice Resources website](#).



## Factors impacting plant response to pruning

Leaf nitrogen levels above 1.4% at the time of pruning, combined with adequate water availability is likely to result in two or three post-harvest vegetative flushes. If a late flush does occur, this reduces the likelihood of a good flowering event following the winter dormancy period, even with a foliar application of potassium nitrate. It is therefore important to monitor leaf nitrogen levels to ensure they are between 1.1 and 1.4% before pruning.

Removing branches larger than 1cm in diameter is also likely to result in two or more vegetative flushes. If the aim is to rejuvenate an aging orchard, it may be necessary to undertake severe pruning. The decision to undertake this type of pruning should be weighed against the potential negative productivity impacts. Some growers opt for a staged approach, severely pruning one side of the tree one season and the other side the following season.

## Key references

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