



## **Pruning Mango Trees**

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### **Two Main Precautions Before You Begin Working**

1. Mango peel and sap contain urushiol, the chemical in poison ivy and poison sumac that can cause urushiol-induced contact dermatitis in susceptible people. Cross-reactions between mango contact allergens and urushiol have been observed. Those with a history of poison ivy or poison oak allergic reaction may be most at risk. Urushiol is also present in mango leaves and vines. During mango's primary season, it is the most common source of plant dermatitis in Hawaii.
2. Once mango trees become 30 ft (9 m) or taller, extreme caution should be used in pruning the trees. Climbing trees to prune them is dangerous and not recommended. Pruning of large mango trees should be done by a trained professional (arborist) who is licensed and insured.

### **Objectives of Pruning**

Moderate pruning (removal of 25 to 30% of the canopy) is often done to reduce the canopy height or width of large mango trees. Moderate and even severe pruning does not injure mango trees, but reduces production for one to several seasons. Pruning of mango trees is usually carried out to shape trees and open up the centers, allowing free movement of air and sunlight into the tree. The ability of sunlight to penetrate the tree enhances the color of the fruit and improves quality. The ideal tree should have three and not more than four main trunks, be open inside, low-set, and 12 to 15 feet tall. Over this height harvesting becomes difficult.

Trees must be pruned after harvesting. The objectives of pruning are:

1. to remove dead or diseased wood
2. to remove additional growth flushes to allow more light penetration into the leaf canopy
3. to control tree height to facilitate cultural management practices.

Erect branches are less fruitful compared to spreading branches and these must be removed. At the same time, lower branches are pruned to about 4 feet from ground level to facilitate cultivation practices such as weed control, fertilizer application and irrigation.

## Pruning Your Mango Trees

Pruning young plants stimulates vegetative growth and delays the production of flowers and fruits. Mangoes (and other fruit trees such as lychees and longan) bear fruit on terminals, or in other words, on the ends of branches. Therefore, the more terminals you have, the more fruit you will potentially get.

After several years of production, it is desirable to cut back the tops of trees allowed to grow to 12 to 15 feet (3.7-4.6 m). However, through judicious pruning mango trees may be limited to 6 to 15 ft in height. Selective removal of a few upper limbs back to their origins (crotches) each year will help prevent the loss of the lower tree canopy, reduce the work and time to spray and harvest the fruit and greatly reduce possible storm damage. Pruning should be done soon after harvest.

### How Pruning is Done

All pruning begins with two basic approaches, heading or thinning.

**Heading** or *heading back*, is cutting off a portion of a stem or branch. Since heading eliminates the terminal bud, it forces new growth close beneath the cut. The more stem you remove, the more vigorous the new growth on the portion that's remaining. If you want to invigorate a plant, to encourage branching and bushiness, heading back shoots and limbs is the way to do it.

Heading back, which is also known as *tipping*, is most effective with young stems. When heading, make your cuts above a node—the point on the stem where buds, leaves, or stems are attached. Now the bud or buds just below the cut become the stem's new growing point, or terminal.

Heading also affects flowering and fruiting because it alters the balance between above- and below-ground growth. The more stems and leaves you remove, the harder the plant tries to replace them—at the expense of flowers and fruits.

So heading a young plant, especially, delays the development of flowers and fruits. This is very often necessary to allow the plant to grow to an adequate height where it will be able to accommodate fruits without affecting the health of its young roots and branches.

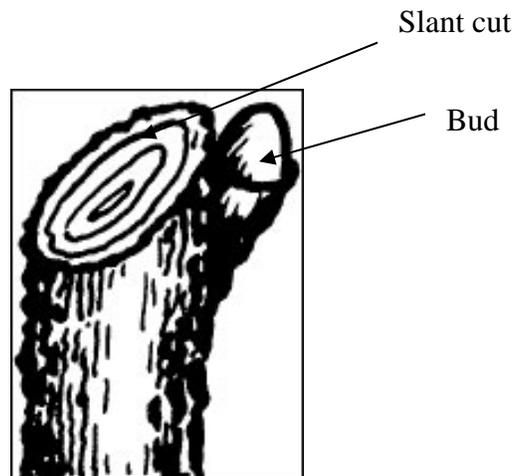
If you prune a mature plant lightly, blooms will be plentiful, but each fruit will be smaller. If you prune severely, flowers and fruits will be larger but fewer in number.

**Thinning** is removing an entire shoot, stem, or branch back to its point of origin, the main stem, a lateral stem, or even to the ground. Thinning opens woody

plants, promoting good health by reducing foliage and allowing more air and light to reach their interiors. It is less invigorating than heading, produces less re-growth, and better allows plants to retain their natural forms.

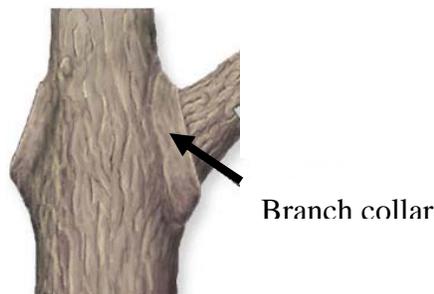
Thinning cuts are also used on fruit trees to establish strong frameworks and to direct and shape growth. For jobs that can be done easily with pruning shears—cutting shoots, stems, and branches less than one inch in diameter—you have two choices.

If you're heading, cut back to a bud that is pointing in the direction you want the new growth to go. Cut about a quarter inch above the bud, and slant the cut away from the bud.



Big thinning cuts—those made with a saw—are harder on plants. Big wounds close up more slowly, leaving plants open to infection. Always cut back to a branch with a diameter that is at least half as great as that of the limb you're removing.

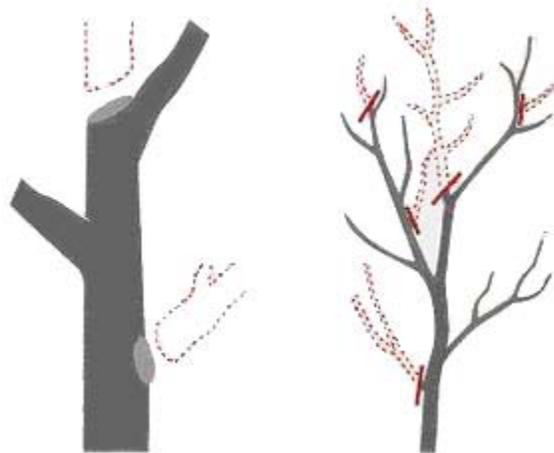
When taking off large limbs, either dead or living, be sure to cut to—but not into—the *branch collar*, the swollen area surrounding the base of a limb. The branch collar helps the plant to form a chemical barrier against pathogens that may attempt to enter through the open wound. It gives the plant protection while it closes up the cut surface with woundwood.



## Rejuvenating Old Trees

Old trees are often difficult to harvest due to their size, and can have a build up of pests and disease, as it is difficult to reach the whole tree when spraying to control them. It is possible to cut these trees back to a more manageable size, but depending on the severity of the pruning you may lose as many as three crops. On the plus side fruit production should improve together with fruit size and quality, once trees have recovered.

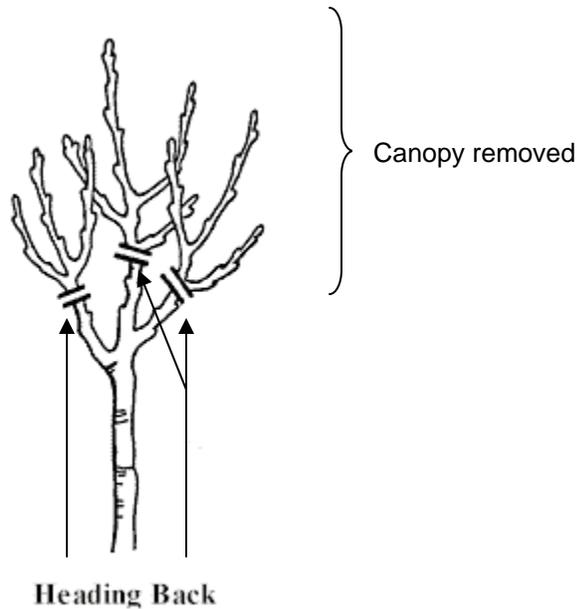
In vigorous cultivars, even with close attention to proper pruning, trees will develop large, structural limbs which divert energy from fruit production. "Thinning cuts" can be used annually to remove a portion of this wood. Remember, thinning cuts are made by removing an entire limb. These cuts affect the vigor of the tree less, allowing the homeowner to maintain a "calm" tree, one with adequate, but not excessive vegetative growth. Typically, one major limb is removed per year, renewing the canopy every four to five years.



Thinning cuts

With large vigorous trees which are too high, the cutting back should be done in two stages.

**Stage 1:** The tall central trunks are cut back to a height of about 12 – 15 feet. The actual site to cut back should be at a point where there are side branches. Cut back one half of the tree, the remaining trunks and leaves will help protect the stump from sunburn. Any trunks and branches freshly exposed to the sun should be painted (remember, trunks, not the cuts you made!) with white water-based paint diluted three or four times. This is to prevent sunburn, which could bring on a borer attack to the damaged bark.



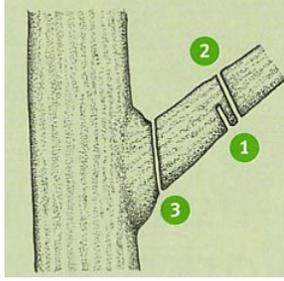
**Stage 2:** Within a short time numerous shoots will develop; select the most vigorous of these, spaced evenly around the stump, and if possible, at differing heights. Remove all the other shoots. This process should be repeated as often as necessary until the selected shoots begin to dominate and take over. Then the rest of the tree can be cut back and the operation repeated.

Old, unthrifty trees can often be rejuvenated by severe pruning. This is done by cutting back the branches of the tree until only the basic frame is left. The whole trunk and remaining branches should be painted with diluted paint to prevent sunburn and insect attack. A proliferation of sucker growth will result from this measure, and these should be treated as mentioned above.

### The Three-Cut Technique

When removing large limbs it will be necessary to use a three-cut technique to avoid damage. If you'd rather be safe than sorry, use this technique every time you work with a saw.

- **Step 1:** Notch under the limb upward, 6 to 12 inches from the trunk or branch, stopping before the saw binds.
- **Step 2:** Cut through the limb from the top, 1 to 3 inches beyond the underneath notch until the limb falls.
- **Step 3:** Remove the remaining stub, cutting just outside the branch collar and bark ridge.



The three-cut technique illustrated

Large upright branches and trunks should be cut on a slight angle to prevent water sitting on the cut surface with the potential to cause rotting.

Large branches and main trunks should be cut off in sections, rather than in one cut where they could fall onto branches below and damage them.

### **Should Tree Wounds Be Dressed?**

Tree wound dressings, a.k.a. pruning paints, once were standard treatment for cuts larger than one or two inches. The theory was that they prevented disease and insect damage to (and through) the wound.

More recently, researchers have established that bituminous paints and other wound dressings not only don't prevent damage, they may do damage by slowing the formation of woundwood.

### *References*

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