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# Pruning Avocado Trees:
## Science, Art or Mysticism?

Ventura County Avocado Farm Advisor Ben Faber recently spoke about pruning avocado trees at a Pine Tree Ranch field day. To say pruning is a hot topic is an understatement. Just about everyone has a different opinion on how to prune. Additionally, pruning is a mix of science and art — the science tells you if you make a certain cut what you can expect, the art tells you how to compose those cuts. Some may even say pruning is a bit of mysticism.

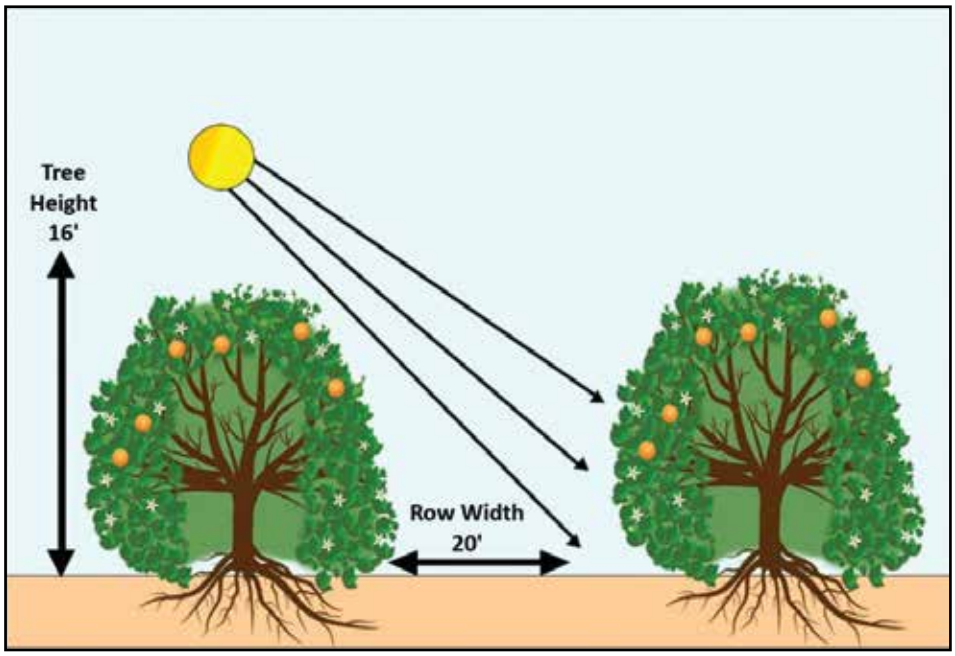
It's important to understand that there is no physiological requirement for pruning trees, including avocados. Trees survive quite well in the natural environment without any pruning or other forms of canopy management. Thus, when we discuss canopy management in an orchard setting, we must start by understanding why we are pruning since it is not because the trees require pruning.

In an orchard setting, our goal is to achieve as much fruit production as possible within a given area. To reach this goal frequently requires canopy management through pruning to maximize light interception, maintain row clearance for various tasks (e.g., harvesting, spraying, irrigation maintenance), control tree height to reduce harvest costs, and remove dead, diseased or damaged limbs.

### Canopy Height

In California, avocados were traditionally very large trees, up to 30 feet or more. Today, the trend is to keep trees shorter — generally no more than 15 to 16 feet — to reduce harvest costs and improve the overall quality of the grove. This is more in line with how other orchard fruit trees are managed; however, the challenge in avocados is that the trees are vigorous and want to grow tall.

For maximum canopy light interception, the rule of thumb is that tree height should not exceed 80% of the between-row spacing. For a grove with 20-foot row spacing, tree height should be kept to no more than 16 feet. This ratio ensures that light can reach the grove floor, and the tree canopy can be maintained to the ground by preventing the lower limbs from being lost to shading.




*A cartoon illustration showing the relationship between row spacing and tree height to maintain sunlight exposure all the way to the ground on the sides of trees. (Adapted from University of Florida 2024–2025 Florida Citrus Production Guide: Canopy Management.)*

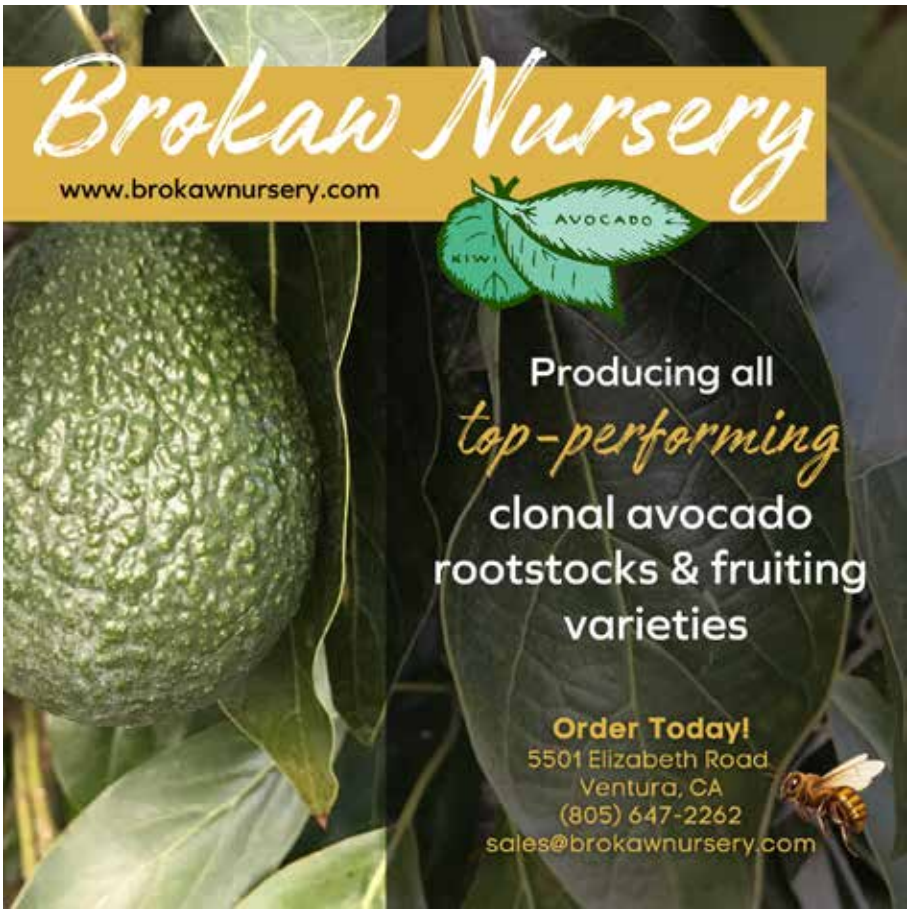
*An avocado tree that needs skirt pruning (left) and one that has been properly skirt pruned (right).*

## Skirt Pruning

Skirting is pruning lower branches, from the ground to about knee high, to maintain an open space between the lowest branches and the ground. This space is necessary so that low hanging branches and leaves don't interfere with microsprinkler irrigation patterns. It's also important to keep fruit from touching the ground and creating a potential food safety risk. In wind prone areas, skirts should be kept as low as possible so there's less chance of wind blowing leaf litter and mulch out from under trees.

## When to Prune

In California, the challenge to pruning avocados is determining when to prune. Since the crop stays on the tree for more than 12 months there is never an opportunity to prune without crop loss. Thus, the decision becomes partly psychological: is it easier to see



the fruit lost when they are small or large? Of course, the decision also partly depends on your pruning method.

Usually in an environment such as California, pruning after harvest removes both flowers and developing fruit (depending on harvest timing) and may expose fruit to sunburn. Thus, many growers prune following the on-crop harvest when the trees are in an off year to minimize fruit loss. In citrus, where late varieties such as Valencia also carry two crops at the same time, research has shown that if pruning is carried out at the same time each year the trees naturally adjust and yields stabilize after a few seasons. Similar trials have not been conducted in avocados, but it would be logical that they would respond similarly.

Aside from late fall and winter, when pruning could stimulate new growth that is easily damaged by frost, there really is no wrong time of year to prune avocados in California. However, if pruning later than about mid-May, areas exposed after pruning will need to be whitewashed to prevent sunburn of branches that were previously shaded. Whitewashing can be done with a thinned (50:50 paint:water) interior latex paint or, if organic, using a kaolin clay product such as Surround®. Also, pruning later than about mid-May will likely result in an additional year until the new growth flowers and sets fruit since new growth needs to be physiologically mature by late-August/early-September to receive the environmental signals necessary to flower the next spring.

## What to Prune

There is no prescriptive pruning program that can be applied to every tree. Rather, each tree needs to be looked at as an individual with a pruning strategy devised for that individual tree. This is easier than it sounds if you have a goal in mind, follow a few basic principles and know how the tree will respond to different types of pruning cuts.

*An example of a very low limb growing toward the ground that should have been removed when the tree was young.*

Heading cuts are cuts that are made somewhere along the length of a branch between its tip and where it joins another branch. Heading cuts typically result in the stimulation of dormant buds below where the cut is made.

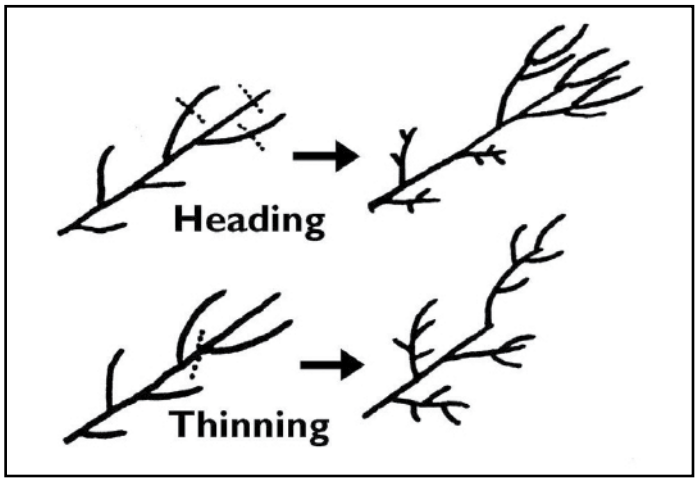
Thinning cuts are made at the base of a branch where it joins another branch. In other words, thinning cuts remove a branch in its entirety. Thinning cuts typically do not stimulate new growth.

All pruning will consist of a combination of heading and thinning cuts. If you are trying to reduce tree size, you will want to predominantly make thinning cuts. But if you are trying to develop new growth, say to replace a limb that broke off under a heavy crop load, you will want to make a heading cut to stimulate growth.

## Young Trees

Young avocado trees, less than 5 years old, typically don't require pruning, except to develop good tree structure. Typically, a young avocado tree will have been tipped in the nursery to stimulate lateral branching and won't need any pruning the first year in the ground. After the first year in the ground, I like to see young trees pruned for structure. Very low lateral branches that are growing at a downward angle should be removed. Branches that cross from one side of the tree to the other should be removed. Multiple branches all growing into the same space should be thinned leaving only one branch in a given space — ideally, lateral branches should be uniformly distributed around the tree. Competing leaders should be thinned to encourage one leader. Any rootstock sprouts also should be removed.

If properly trained to develop good tree structure, avocados will




*An illustration showing the difference between heading cuts and thinning cuts. Note the vigorous regrowth stimulated by the heading cuts compared with the response from the thinning cut. (Adapted form Virginia Cooperative Extension publication SPES-221P.)*

typically not need pruning again until they begin to fill their allocated space, i.e., they begin to encroach on one another, most likely between 6 to 8 years old depending on spacing.

## Maintenance Pruning of Teenage to Mature Trees

Assuming young trees have been well trained, and structural issues have been corrected early in the life of the tree, young bearing trees and mature trees can be easily maintained with annual or every other year pruning. Your goals for maintenance pruning should be to:

- Maintain each tree within its allocated space in the grove
- Maintain tree height
- Maintain light penetration all the way through the canopy and to the ground

The space allocated to each tree depends on your tree spacing. Generally, avocados do not perform well as a hedge row and each tree should be maintained as an individual. Thus, if your trees are spaced 15 feet apart, each tree should ideally be about 14 feet wide within the tree row. Between rows consider your grove layout and what activities need to occur throughout the year. Do you have wider rows periodically for harvest bins or will bins be placed in all the rows? Do you apply required sprays using ground-based equipment that you need to allow space for or do you only spray using aerial equipment?

Tree height will be determined by your row spacing. Remember, to allow light to reach the lowest part of the trees their height should be no more than 80% of the between row spacing.

Keep in mind when pruning to maintain tree height or width don't make your cuts and the final number what you're aiming for. You need to allow for regrowth. If you want to maintain your trees at 16 feet tall, you should probably be making cuts in the 12 to 13 feet range to allow for regrowth before you need to prune again.

To know if you have adequate light penetration through your trees, look at them. Do you see leaves all the way through the canopy or is the interior of the canopy a bunch of naked branches? If the answer is the latter, then you need to make some strategic cuts to get light into the canopy. If the interior of your trees' canopies have good leaf cover that's good, but make sure you are maintaining the light penetration so you don't lose those interior leaves. For a detailed discussion of the light environment within an avocado tree see "Optimize Productivity by Pruning for Maximum Light," Spring 2019 *From the Grove*.

## Pruning Sanitation

Although growers prune their groves with good intention, the results can be disastrous if some basic principles of sanitation are not followed. First and foremost is to avoid pruning when trees are wet. When the canopy is wet, any fungal pathogens that may be in the canopy will release spores — fungal reproductive bodies — that can enter fresh pruning wounds. Pruning only during dry conditions will reduce this risk.

To further reduce the risk of disease spread, pruning tools need to be sanitized often — it's best to sanitize after pruning each tree. This is easily done using a spray bottle with a 25% household bleach solution or 70% ethanol solution. If you are pruning a tree with known disease issues (e.g., avocado branch canker), remove the diseased material from the grove rather than leave it on the grove floor.

Also of importance in California is Avocado Sunblotch Viroid (ASBVd; see "Sunblotch Alert! New, Faster Ways to Spot This Avocado Sneak Thief" on page 30 of this issue of *From the Grove*). Pruning easily spreads this disease, and disinfecting pruning tools is not enough to prevent the viroid from spreading. For this reason, growers should familiarize themselves with ASBVd symptoms and remove infected trees to prevent the unintentional spread.