



# Optimize fresh fruit results with selective pruning

By Christopher Vincent and Mark Ritenour

**P**lanting fresh citrus varieties has increased in popularity. With these potentially high-value crops come questions about management practices, including pruning. This article discusses pruning practices that can improve the health and productivity of citrus trees.

The principles of pruning are the same for any citrus plant. However, quality affects value of fresh fruit even more than it does fruit for processing, because fresh fruit are considered individually, while processing fruit are evaluated by the load. Additionally,

the high value of each fruit means a higher incentive to improve productivity of each grove. Pruning is an important tool for fresh fruit because it can bring both higher productivity and higher quality.

## WHY PRUNE?

Pruning can affect water and nutrient use, photosynthesis, flowering, and disease severity. Managing the canopy to optimize all these factors can bring higher yield per acre and better marketable quality. The greatest long-term benefits come from

pruning cuts that allow light penetration deep into the canopy.

## SIZE-CONTROL PRUNING

Size-control pruning is the type of pruning that is most familiar to Florida citrus growers because it is the only pruning type that has been used in the typical Florida grove. Hedging and topping are pruning practices used for size control.

Trees should be pruned to reduce size when they get so large that they impede the movement of tractors or become difficult to harvest. Typically, this is done by mechanized hedgers and topplers. Side hedging will make room for tractors to pass, and topping will reduce tree height to help pickers access fruit at the top of the canopy. Topping also allows better light penetration to promote flowering and photosynthesis of new leaves flushing in response to the side hedging.

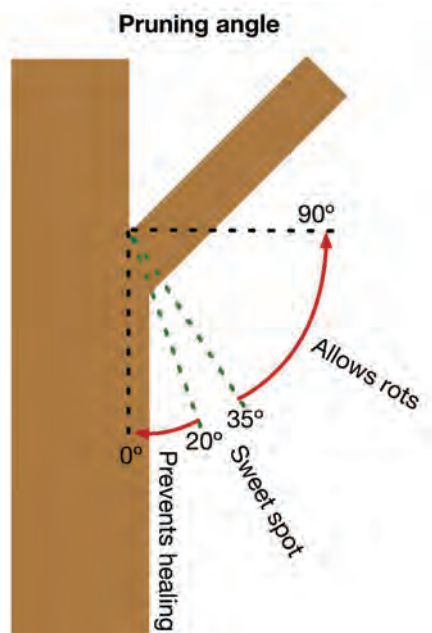
Size-control pruning should be done after harvest but before flowering budbreak, if the variety allows; this will prevent the loss of too much

fruit for the next harvest. Hedging and topping every year or two in vigorous plantings that have achieved canopy closure will help growers avoid having to prune off major limbs or large amounts of fruiting wood.

## SELECTIVE PRUNING

The remaining types of pruning are all applications of selective pruning. Selective pruning is more costly because it requires trained manual labor to decide which branches to remove and which to leave in the canopy. Removal can be done with hydraulic or manual pruners, sometimes called “loppers.”

Although selective cuts can be made any time in the year, the period between harvest and bloom is ideal, if the variety permits it. Selective pruning will be more efficient and effective if it is carried out every year.



**Figure 1.** Aim for the correct angle when making pruning cuts.

## A PROPER PRUNING CUT

Pruning cuts should be made close to the collar, where the pruned branch arises from the trunk or the main branch. Be careful to not cut into the bark of the main branch. The cut should go out from the inside or crux of the collar at about a 30-degree angle (Figure 1). A sharper angle can create a bench that can rot and damage the wood of the trunk. A lesser angle can damage the bark of the trunk and

# UF/CRDF Path Forward Reached



By Rick Dantzler, CRDF chief operating officer

Last month, this column discussed a dispute the Citrus Research and Development Foundation (CRDF) was having with the University of Florida (UF) over CRDF's status as a direct support organization (DSO). Two issues drove the conflict: whether CRDF would be required to spend all of its research money with the Institute of Food and Agricultural Sciences (IFAS), and what level of review the university would have over CRDF contracts.

I am pleased to report that a path forward to resolve the conflict has been reached in principle.

UF had taken a narrower view of the statute and postulated that all spending had to be with IFAS. CRDF respected this interpretation, but concluded it had no choice but to fund the best research projects, regardless of origin, in order to get research answers as quickly as possible. The agreement would allow CRDF to continue funding the most meritorious proposals. If the parties agree later that it is necessary to seek legislative clarification on this point, they will, jointly, approach legislators regarding changes in the statute that would be necessary to make this clear.

Because of liability concerns, UF wanted greater oversight of CRDF research contracts. CRDF did not oppose greater oversight but could not agree to allow the university to substitute its scientific judgment for the CRDF board's judgment — something which would have made the CRDF board, essentially, advisory. The agreement would allow greater university oversight for regulatory compliance matters but not for scientific judgment.

CRDF would accept a bylaw stating it is compliant with UF governance standards, many of which CRDF is already following. The others are reasonable.

UF had suggested it have greater representation on the CRDF board. By law, there are two persons from IFAS on the board. This same statute pins the board at 13 members, which we currently have. To add another would affect the balance on the board and potentially cause someone currently serving to have to step down. CRDF is willing to work with the university on its concerns regarding board membership, but there are laws that are prescriptive.

The parties are hopeful that talk of decertification will cease, but if decertification should happen, the university would provide CRDF with a reasonable wind-down period. If decertification should occur, research funds under the control of CRDF would remain with CRDF.

Several years ago, UF began charging 12 percent on contracts to recoup its costs of providing administrative services. While this amount is lower than that charged by other states and the federal government, CRDF was told in 2009 by university administrators that such a charge would not be assessed. Consequently, talks are revolving around locking in the rate at 12 percent as a reasonable compromise.

The parties will sign a memorandum of understanding (MOU) documenting this arrangement. I am happy with the framework of this agreement and appreciate UF's willingness to work it out. I hope we can institutionalize at least an annual meeting between the CRDF board and senior-level university officials to help prevent future dustups.



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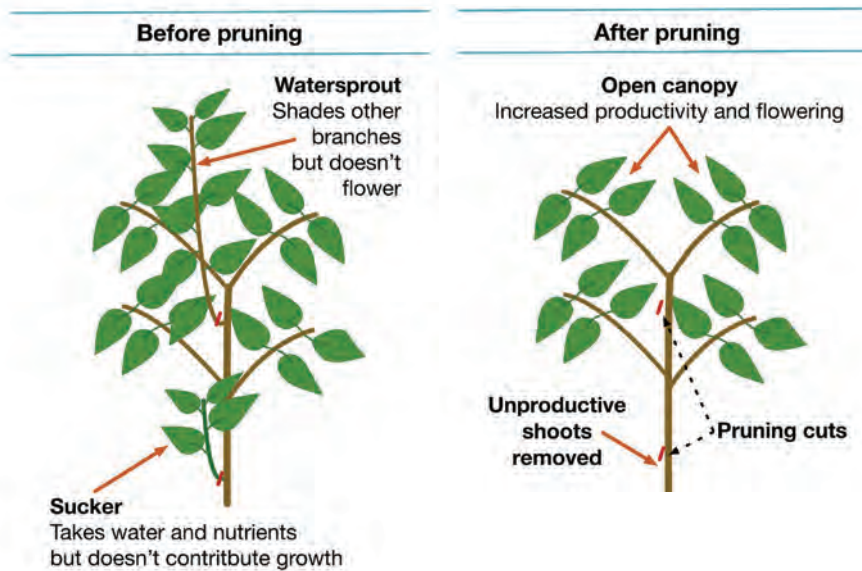


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**Figure 2.** Removing water sprouts and suckers will increase light penetration and flowering.

prevent it from healing. Cutting this way will allow the tree to heal over even very large cuts.

## REMOVE SUCKERS AND WATER SPROUTS

"Suckers" get their name because they suck up water and nutrients, but don't give much back to the plant. A sucker is any branch that arises below the skirt and grows into the canopy, usually vertically. These often come from below the graft union, but even suckers that emerge from the scion will be shaded and can only reduce plant health. Thus, all suckers should be removed.

Water sprouts are long shoots, growing mostly vertically. Technically there is no real difference between a sucker and a water sprout. They both tend to grow vertically and to not flower. Suckers arise from the lower portion of the trunk and use water and nutrients. Meanwhile, water sprouts can come from anywhere in the interior of the canopy and tend to shade other branches, which further reduces flowering and photosynthesis.

All obvious water sprouts should be removed. In general, branches that completely shade many other branches should be removed or thinned to allow the greatest number of branches to receive moderate sunlight. This often means removing branches growing in the middle of the canopy to allow light penetration. There is no clear rule on how much

canopy or how many branches should remain. However, removing water sprouts as well as other branches that shade the interior of the canopy will open up the center of the canopy and increase flowering without removing too much foliage (Figure 2).

The above pruning practices not only increase light penetration and flowering, but also improve fruit set and fruit quality, including peel color, texture and fruit shape. Heavily shaded fruit within the tree canopy have a lower soluble solids content than those in the exterior canopy because fruit mainly receive sugars from their nearest leaves. Shaded leaves photosynthesize less, resulting in less sugar to export.

## PRUNING AND ALTERNATE BEARING

For varieties that exhibit pronounced alternate bearing, keep pruning to a minimum during and after heavy crop seasons. Pruning trees after a heavy crop tends to stimulate vegetative growth at the expense of flowering, yield and fruit quality the following season, which can result in light fruit set. Conversely, pruning after a light crop season can increase fruit size next season and help dampen the magnitude of alternate bearing.

## DISEASE MANAGEMENT

The spores of several important citrus fruit diseases such as melanose, diplodia stem-end rot and anthracnose



are produced in dead wood within the tree canopy and can be carried onto fruit during summer rains. Thus, removing dead wood within the canopy through effective pruning can reduce fruit blemishes and postharvest decays while improving shelf life.

*Overall, proactive pruning will help maintain a manageable sized canopy that allows for adequate light penetration, as well as improving both yield and quality.*

Other decay organisms such as *Phytophthora* spp., which cause brown rot, live in the soil and can be splashed up onto low-hanging fruit. Pruning low canopy branches within about 30 inches of the ground (called skirting) reduces fruit decay by reducing the number of fruit exposed to soil splash and is a good practice for fresh fruit production. Skirting has the added benefits of allowing herbicide application without endangering the tree and preventing fruit contact with the soil, which makes the fruit unsellable for the fresh market.

### SUMMARY OF BENEFITS

Overall, proactive pruning will help maintain a manageable sized canopy that allows for adequate light penetration, as well as improving both yield and quality. Pruning will prevent fruit losses to disease and promote flowering and fruit development. Although selective pruning can be costly, the benefits will continue to be reaped for several years after pruning. 🍊

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