

The Tree Shortage is Now

By Timothee Sallin, Director of Sales, Cherry Lake Tree Farm

The tree market is changing fast. After six years of crisis, low demand and over supply, the market for ornamental trees appears to have turned the corner. Nursery growers report that sales and pricing have been increasing rapidly since the last quarter of 2013. As we move into 2014, nursery sales are expected to continue to increase and prices along with them. Availability of core items is becoming a major concern as we are beginning to see shortages in 2, 3 and 4 inch material.

The shift in the market has been dramatic. Items that

were oversupplied and deeply discounted less than one year ago are now very scarce and selling at high premiums. This has many scrambling to adjust, causing serious disruptions to both buyers and sellers. Growers, landscape contractors and distributors find themselves having to raise prices while fulfilling existing contracts and managing inventory availability.

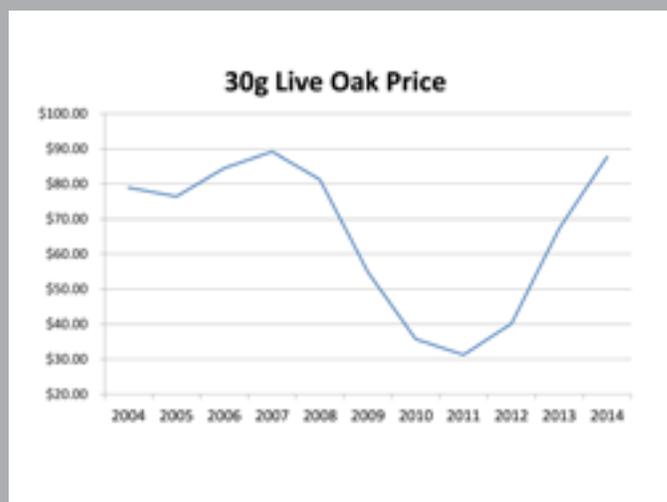
The evolution of the 30 gallon Live Oak price is an excellent example of what is happening on a larger scale across the entire tree inventory. Price of the 30g Live oak peaked in 2007 at \$89 and then proceeded to fall all

the way to \$31 in 2011. The price climbed steadily since 2011 and has reached \$87 in the first quarter of 2014. This price is expected to continue to rise and could realistically exceed \$100 by the end of the second quarter.

Sudden as the shift in supply may seem, it had been forecast and foreseen. As early as 2011 John Barbour of Bold Spring published his open letter to the industry "Why Tree Prices Will Rise". Landscape Architecture Magazine published their article ▶

2014 RPG Workshop

The Annual Roots Plus Growers (RPG) Workshop cosponsored by RPG, Florida Chapter ISA, and University of Florida IFAS will return to Fish Branch Tree Farm in Zolfo Springs, Florida on October 30th, 2014. This workshop is designed for Arborists, Landscape Contractors, Landscape Architects, Urban Foresters, and Municipal Managers. This year's workshop will include updates and training on the new editions of the tree and palm sections of the Florida Grades and Standards, new pruning & branch aspect research from Dr. Ed Gilman, introduction of a new national planting standard, production and landscape pruning with hands-on demonstrations, and much more. Speakers will include Dr. Ed Gilman, John Conroy, Lloyd Morgan, Michael Marshall and more. ISA, FNGLA, LIAF and Landscape Architect CEU's are available. Registration brochures are available at www.rootsplusgrowers.org or www.floridaisa.org, or you can call us at 352-528-3880 for more information.



◀ Figure 2.

30-gallon live oak pricing peaked in 2007 at \$89 before plunging to \$31 in 2011. A steady increase since 2012 has helped the 30-gallon price reach \$87 in the first quarter of 2014.

The Structural Approach to Pruning

By Edward F. Gilman, professor,
Environmental Horticulture Department,
University of Florida

WHY PRUNE FOR STRUCTURE?

Structural pruning has one primary objective: to develop and maintain structurally stable trees. Structural pruning performed on most tree species that become large at maturity:

- promotes longevity by reducing tree failure;
- can decrease future maintenance costs;
- reduces conditions that could place people or property at risk; and
- sustains environmental benefits to the community.

Much of the pruning that is performed today focuses on creating clearance and improving aesthetics. The approach presented here adds risk reduction to those customer desires. It is common to see correctable structural problems, such as codominant stems, remaining in young and medium-aged trees after they have been pruned. This is a missed opportunity to reduce future pruning needs, reduce tree failure, and increase life span.

When trees are structurally pruned regularly from a young age by suppressing growth on the largest branches, the need to remove or prune large branches as the tree matures is minimized. When done correctly, fewer (if any) large branches require removal in the mature tree crown. This has the added benefit of minimizing costs associated with debris removal and disposal.

CONSEQUENCES OF NOT PRUNING FOR STRUCTURE

Poor tree structure and improper pruning practices can lead to failure and possibly personal injury or property damage (Figure 1). During storms, trees with poor structure are usually the first to fail, knocking out power lines, increasing the costs for clean-up, and sometimes interfering with emergency operations. The lost canopy reduces the benefits provided by urban forests.

As described above, trees that do not receive structural pruning when young can be more expensive to maintain as they mature because problems that were ignored become significant weaknesses when trees are bigger and support larger loads. Often those weaknesses which could have easily been corrected when the tree was small must be mitigated through pruning and high-maintenance strategies that include cabling, bracing, or propping. In addition, many poorly-structured or failed trees in urban landscapes must be removed and replaced at high cost.

Poor pruning of all types - whether cutting the wrong branches or applying it incorrectly - can cause structural and health problems for trees. Examples are trees that have been excessively thinned, lions-tailed (Figure 1), raised, or topped.

HOW STRUCTURAL PRUNING IS DIFFERENT THAN OTHER PRUNING

Pruning for structure differs than other pruning objectives because it focuses on directing growth and



▲ Figure 1.

This tree was topped several years ago at about 20 feet from the ground. It was pruned again recently to remove all low branches. Redistributing most of the foliage to the top of the crown makes the tree weak by causing an imbalance in mass distribution. Trees pruned in this manner are less able to counteract motion in a wind storm, and they grow very tall and wide with poor branch taper. This makes them weak and susceptible to breakage.

developing the framework of the tree to enable it to withstand future loads. The primary focus is on pruning the parts of the crown that contribute to weakness. Rather than a one-time event, structural pruning should be thought of as a training process that improves tree structure over a period of time.

In most cases structural pruning uses two primary strategies: develop and maintain a single, dominant trunk with smaller branches distributed horizontally and vertically around it; and reduce the likelihood of tree failure caused by defects in structure and poor weight distribution. Structural pruning slows branch growth rate of large, aggressive or long branches, and thins uncharacteristically dense clumps of branches.

Structural pruning is accomplished using removal, reduction, and heading cuts (where appropriate) to direct and manage future growth. Remov-



ing or slowing growth of the pruned branches encourages other parts to grow larger. This treatment is called subordination, and it is one of the most important techniques used in structural pruning. By using subordination treatments, branch size remains small, thus cuts are small if the pruned branches are removed in the future. Once structural pruning is completed and while the arborist is still in the tree, additional pruning can be accomplished if needed for aesthetics and clearance.

SHOULD ALL TREES BE STRUCTURALLY PRUNED?

The short answer is yes. There are, however, variations in how structural pruning is applied depending on the mature size of the tree, tree age, its normal and current architecture, species characteristics and location in the landscape. The ideal condition of one dominant trunk with smaller branches distributed horizontally and vertically around it is particularly important for trees that become medium-size to large at maturity. Trees must support heavy loads that include the branches, foliage, and in some cases vines as well as hold up under external forces such as wind, rain, and in some locations, ice and snow.

STRUCTURAL PRUNING AT AND SOON AFTER PLANTING

The ideal form of nursery trees that are capable of growing to a large size is shown in Figure 2. The goal in managing most young, large-maturing shade trees is to create a structure at planting that comes

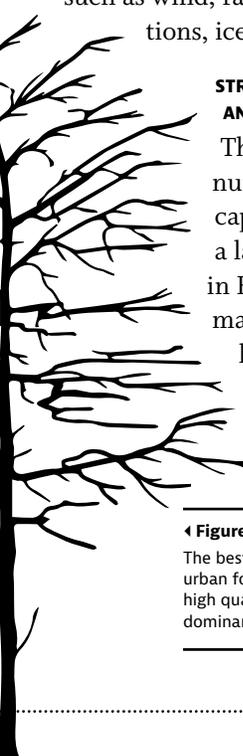
as close to this ideal form as possible. Pruning at planting usually is necessary when trees arrive from the nursery with multiple leaders and clustered branches (Figure 3). Consideration should be given to contracting the grower to perform this pruning prior to shipping trees to the landscape, or specifying trees with a dominant leader to the top of the crown.

When pruning is needed to correct trunk or branch structural defects on a recently planted tree, and the tree will not be pruned for several years, the pruning should be done at planting to develop a leader for future branches to grow from. If the tree is not pruned for structure at planting and has codominance, the situation will only worsen with time and the tree will require more drastic pruning in the future to correct the problems.

Young upright 1- or 2-year-old branches, with the same diameter as the leader (aspect ratio = 1), can sometimes be found in the top half

of the crown on high-quality nursery stock. These often develop into a group of codominant stems and branches if they are not pruned at planting or soon after to create only one dominant leader.

It is important to avoid applying too strong a pruning dose to branches growing from the leader in the upper crown. Removing too much foliage from the leader can slow its growth and potentially cause it to lose dominance. If left unpruned, branches in the lower half of the crown may grow too fast in comparison and overtake the leader. Although reduction and removal cuts are preferable, they are not always practical on small diameter branches of certain species because there may be few lateral branches to cut back to. Heading cuts back to a bud pointed away from the leader are sometimes necessary when lateral branches are absent. Be prepared to return to the tree in a year or two to correct codominant sprouts in cases where the leader requires heading. ▶



◀ **Figure 2.** The best way to begin a sustainable urban forestry program is to choose high quality nursery stock with a dominant central leader.

▲ **Figure 3.** Pruning at planting to remove or shorten all upright stems except one will set this tree on its way to good structure. Some branches were removed back to the trunk; some were shortened with reduction cuts and some with heading cuts. The retained single stem is more likely to produce lateral branches now that stems growing close and parallel to it are gone.



► **Figure 4.**

The leader on trees with main branches clustered together sometimes declines from lack of a vascular connection to the roots. Resources from the roots and lower trunk are directed into main branches because there is inadequate wood growing around the branches to connect with the leader above the cluster. Wood on the trunk below the cluster cannot connect with the leader above because there are too many adjacent branches, and because of a relatively low photosynthesis rate compared to competing branches. Removing two and subordinating two of the branches will allow wood to grow over the pruning wound to connect with the leader above.

Larger nursery stock and young trees in the landscape will have a more developed branching structure so there will be more opportunity to use reduction cuts to direct growth into the leader.

STRUCTURAL PRUNING OF YOUNG TREES

The primary strategy on young establishing trees is to prune to one dominant trunk by reducing upright competing branches, and to set the ultimate clearance requirement for the site. This is accomplished by subordinating or removing branches with a large aspect ratio. On trees less than about 4 inches in caliper, lower branches should be shortened instead of removed. This avoids removing too many branches and foliage, which would slow trunk diameter and root growth. Reducing the length of the upright portion of the lowest branches is most effective in subordinating and redirecting growth into a dominant leader because it removes foliage blocking sunlight to the leader.

On young trees, all branches on the trees are below the ultimate clearance height so all should be shortened. The largest ones can be removed. Efforts should focus on branches with a large aspect ratio;

those with a small aspect ratio should be left intact, even those on the lower trunk. These protect the trunk, add to the trunk caliper and encourage root growth. The removal of temporary branches depends on tree age, rate of growth, and usage in the landscape. Retaining them in a reduced suppressed state for a long time has no drawbacks as long as they remain small.

Repeated structural pruning when trees are young is the best strategy for training trees to grow with a dominant central leader because only small pruning cuts of 1 to 3 inches in diameter will be necessary. Timing and consistency are important to the training efforts, regardless of the age at which the training process begins. Making small-diameter cuts when a tree is young promotes the fastest crown development and helps to minimize decay that might develop behind the larger pruning cuts that would be necessary if the pruning were delayed. Dramatic improvements in structure can be made in a few short years if pruning begins at this early age.

Where structural pruning is delayed, more aggressive (larger) cuts may be required to make a meaning-

ful change in structure when most branches occur at one point on the trunk (Figure 4). Despite the size of the cuts, postponing pruning will allow structural defects to become more severe. As a result, the required pruning cuts will be even larger when the tree is eventually pruned, or the tree may fail from poor structure in the meantime.

Many trees develop a form similar to that shown in Figure 4 with several branches originating from nearly the same position on the trunk. This pattern of branches directs most resources away from the leader and into the cluster of branches. Removing some branches from the cluster allows pruning wounds to close, gradually providing a vascular reconnection from the lower trunk to the leader above the pruning wounds. Enhancing access to resources from roots allows the leader to dominate. ■

This article is excerpted from *Structural Pruning: A Guide for the Green Industry* by Edward F. Gilman, Brian Kempf, Nelda Matheny and Jim Clark, 84 pgs, color, illustrated; available from the International Society of Arboriculture, Champaign, IL.

Fall / Winter

THE LANDSCAPE SHOW AND KNOWLEDGE COLLEGE WORKSHOPS

This annual showcase of the Florida Landscape Industry and the latest industry education features over 400 exhibitors and 7,500 attendees each year in late September and/or early October at the Orange County Convention Center in Orlando. For more information visit www.fngla.org or call 800.375.3642

ASLA ANNUAL MEETING + EXPO

This annual meeting of Landscape Architects from around the country features the latest and greatest of Landscape Architecture. The event rotates around the county in September or October each year. For more information contact ASLA at www.asla.org

FNGLA EDUCATION ON THE GO TOURS

Three one-day tours are set to begin in the fall of 2015, and will be offered on back-to-back days highlighting Greenhouse production, Landscape design & development, and Nursery production. These tours will highlight Central Florida in 2015, North Florida in 2016 and South Florida in 2017. For more information visit www.fngla.org or call 1-800-375-3642.

GULF STATES HORTICULTURAL EXPO

This annual showcase of the Landscape industry from around the Southeastern us brings hundreds of exhibitors to Mobile, Alabama each year in January. Visit www.gshe.org for more information.

Spring / Summer

ROOTS PLUS GROWERS FIELD DAY

Annual workshop showcasing the latest tree planting, installation & maintenance techniques for the Green Industry. For more information contact RPG at www.rootsplusgrowers.org or call 352.528.3880

TREES FLORIDA CONFERENCE + TRADE SHOW

Held annually in June The Florida Chapter ISA Conference features the latest in Arboriculture and speakers from around the country. For more information: www.treesflorida.com

FL CHAPTER ASLA ANNUAL CONFERENCE + EXPO

Held each year in June or July, Landscape Architects from around the state gather to learn and network with the best in the business. For more information contact FC/ASLA at www.flasla.org

ISA ANNUAL CONFERENCE AND TRADE SHOW

This worldwide gathering of Arborists features the latest in arboriculture and urban forestry in July or August of each year. For more information visit www.isa-arbor.com

NURSERY + LANDSCAPE EXPO

The biggest and the best landscape show in Texas rotates between Dallas, Houston and San Antonio each August. For more information visit www.txnla.org

Tree Shortage continued from cover “Sold Out” in June 2013 and Nursery Management Magazine published the article “Missing” in January 2014.

In these articles, the authors draw attention to the upcoming shortage which will be the legacy of the past 6 years of oversupply and deflation in the nursery industry.

Now that the shortage is upon us, what can we expect? While no one can know exactly the status of inventories and future demand, we are advising our customers and partners to expect a 5 year cycle of shortages. The long production time for producing trees means that very little can be done in the short term to increase availability. The price increases and shortages that we have seen in the past three months are likely just the beginning of a five year pattern.

Our expectation is that prices will continue to rise and will likely exceed the peak levels reached in 2007. These price increases will be driven by supply and demand as buyers outbid one another for access to an increasingly scarce inventory.

Higher prices are ultimately good for the industry and they are desperately needed to restore producers to profitability. The challenge lies in managing these price increases and the expectations of our customers and end users. More communication on the shortage is needed across the board in order to help all parties increase prices in their proformas, proposals and contracts. ■

We would like to thank Cherry Lake Tree Farm for sharing their market outlook information with the RPG Times newsletter. To learn more about the current trees shortage impacting the nation and to view the articles referenced above please visit www.cherrylake.com/tree_shortage.pdf. Please contact Cherry Lake Tree Farm or a Roots Plus Grower member if you have any additional questions as we continue through this time of industry wide tree shortages.

Lichens

Lichens are flaky moss-like organisms that grow on the bark and branches of our landscape trees or shrubs. They do not attack and kill. They are a very natural part of landscapes and wooded areas on every continent of the world. Lichen may look like moss, but it is actually an algae and a fungus living together mutualistically, an association which is advantageous to both organisms.



The bulk of a lichen is comprised of fungal hyphae that attach the lichen to things like rocks, bark, and branches. Rhizoids also obtain minerals from rain water, plant leachates and organic debris, like bird excrement and wind blown particles. The alga gets water and nutrients from the fungus. The alga is a plant capable of manufacturing food (photosynthesis) for the fungus. The association with the alga is essential to the survival of the fungus. The

fungi of lichen are only found as a component of lichens; they do not exist independently.

Lichens may be flat, leafy, or hair-like. All three forms occur on tree bark as well as on rocks, soil, fence posts, etc. Colors may range from white to gray, red, green, yellow, or black. Lichens are long lived and well adapted to extremes of heat, cold, and drought. For example, masses of lichens, related to the reindeer "mosses" (not a true moss), cover the northern arctic and serve as pasturage of musk ox, caribou and domesticated reindeer.

We tend to notice lichens more in late winter when plants are bare, and we are beginning to set expectations for our landscape's spring explosion. This is all well and good you might say, but it looks ugly and it is killing my tree or shrub. Most people believe lichens are diseases which have killed or are killing their plants. However, they do not hurt the plant or tree, they are simply living on them.

Lichens do serve an important role in the ecological community. They initiate soil formation from bare rock by a mechanical breaking up of the rock surface. When the lichen is wet it adheres tightly to the rock. When it dries, the lichen contracts, breaking away tiny fragments of the rock surface. In addition, lichens have a number of economic uses. They serve as food for animals, they are used in tanning and dyeing processes and they are a common source of litmus in chemical laboratories.

Lichens and other epiphytes growing on living and dead trees are part of the image of the Florida landscape. Given the roles these plants play in the natural environment and the native beauty they impart, the best strategy is to leave these unique and harmless plants unmolested. ■

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With Florida's unique environment, extra attention must be paid to preserving our natural resources, especially our trees. By purchasing a TreesAreCool.com license plate you help underwrite programs that directly benefit the trees of Florida which help keep our state the uniquely beautiful place we all call home. Healthy trees benefit wildlife, increase property values and help cool and clean the air.

The Florida Chapter of the International Society of Arboriculture, a nonprofit organization, is committed to serving the needs of Florida's professional arborists and tree-care consumers. The TreesAreCool.com license plate revenues benefit our urban environment through tree research, the ongoing education of tree-care practitioners, and by providing public education programs about tree care and preservation.



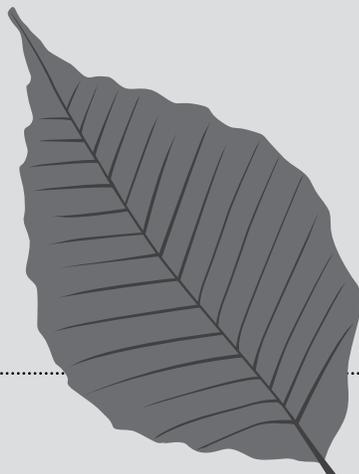
What Is Hardening-off?

Quality field-grown trees should be hardened-off, or cured, after harvesting. This hardening-off process lasts 3 to 4 weeks and it simply involves providing the tree with optimum irrigation during the few weeks after harvesting. After the tree is hardened off it is ready to ship to the landscape site. New roots that have begun to develop are ready to grow immediately into the landscape. This may sound

like a simple idea but research has shown that hardened-off field grown trees are a superior performer in the landscape. Research conducted continues to confirm that quality field grown trees outperform container grown trees in landscape settings. Research has shown that field grown trees use water more efficiently at planting, establish faster after planting, are more wind resistant than container grown trees, and when planted with container trees in a situation of limited water or irrigation will have dramatically higher survival rates. All of these results are from peer reviewed research that has been published in various trade journals.

Sleeve ≠ RPG

Regular buyers of field grown trees are most likely familiar with the black sleeve of weed-cloth like material over the root ball of each tree. This sleeve covers the wire basket after harvest and helps to prevent new roots from taking hold in the ground during the hardening-off period. Please note that though many growers ship trees with these sleeves over the root ball, that does not guarantee that the trees have been hardened off. Be sure to look for the RPG tag on the trees you buy as your guarantee of quality hardened off trees. Trees with a black sleeve does not necessarily mean the trees are RPG.



Florida Grades & Standards Update

The Florida Department of Agriculture–Division of Plant Industry (DPI) and the Florida Nursery Growers and Landscape Association (FNGLA) began the process of updating the 16 year-old Florida Grades and Standards for Nursery Plants in fall of 2013. Both groups recognized that there was a significant need to update and streamline the current Grades and Standards which was originally adopted in 1998.

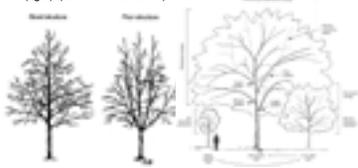
Relying on a manual that has remained static since 1998 can pose challenges for an industry which has undergone tremendous marketplace advances in growing quality nursery plants and trees. Subcommittee's representing the tree, palm and shrub segments of the industry were formed in fall of 2013. Their mandate is to update the document to current nursery specifications and practices and to streamline the document to make it better and easier to use. Each subcommittee is co-chaired by a grower and a DPI official and is made up of nursery and industry representatives. Subcommittees are on schedule to submit a draft revision that will then go out for public review and comment in late fall or winter of 2014. The current grades and standards published in 1998 is in full effect until the new revised grades and standards is finalized and published at the earliest in 2015. ■

Tree Pruning Cue Card

provided by **Roots Plus Growers™**

Trees with appropriately pruned crowns and roots become more stable and healthy. Here are some guidelines for executing these practices on young large-maturing shade trees.

- 1 Shade trees that will become large perform best in urban landscapes when grown with one trunk extending 30' or more into the crown. Large limbs should be spaced along this trunk, not clustered together at one point. Newly planted Florida #1 or better nursery trees have one trunk at least half way up the tree (left). Trees with more than one large upright trunk are considered lesser quality and more prone to failure in the landscape (right). (Below left illustration)

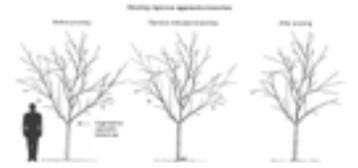


- 2 Trees with competing stems can be pruned so there is one trunk to the top of the crown (left). Pruning in this manner at planting and every few years results in a strong tree with one dominant trunk (center and right). (Above right illustration)

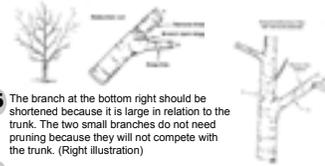
- 3 Removing or shortening competing upright stems back to lateral branches in the top half of the crown will encourage one trunk to dominate. The one trunk in the crown center should be more visible after pruning.



- 4 Shortening all large lower branches when the tree is young also forces more growth into one trunk which makes it strong. Trunk wounds will be small with little resulting decay when these shortened low branches are removed later.

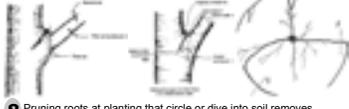


- 5 Reducing large stems and branches back to a live lateral branch slows growth on the pruned stem because foliage was removed. This shifts growth to the leader stem and encourages it to become the dominant trunk. (Below left illustration)



- 6 The branch at the bottom right should be shortened because it is large in relation to the trunk. The two small branches do not need pruning because they will not compete with the trunk. (Right illustration)

- 7 Branches are removed from the trunk and other branches by making 3 cuts to prevent bark tearing. Final cut is back to the branch collar. Cut as shown when the collar is not visible. (Below left and center illustration)



- 8 Pruning roots at planting that circle or dive into soil removes roots that could cause stability and health problems later. Cut at A not B. (Above right illustration)

Structural Pruning Checklist

- ☞ Develop and maintain a dominant leader
- ☞ Identify the lowest branch in the permanent crown
- ☞ Prevent branches below permanent crown from growing too large
- ☞ Space main branches along the dominant trunk
- ☞ Keep all branches less than 1/2 the trunk diameter by shortening or thinning them
- ☞ Suppress growth on poorly attached branches

PRUNING SAFETY

- ☞ Prune from the ground with proper tools and safety equipment
- ☞ Do not prune anywhere near powerlines
- ☞ Hire an ISA Certified Arborist for larger trees, if pruning cannot be done from the ground or if anywhere near powerlines
- ☞ Locate an ISA Certified Arborist at www.TreesAreGood.com



This tree pruning cue card provided to you courtesy of Roots Plus Growers & the Florida Chapter ISA visit them at rootsplusgrowers.org or floridaisa.org

RPG Cue Cards

The Roots Plus Growers Association has developed a pocket guide for tree pruning. This 3 x 7" laminated Tree Pruning Cue Card is intended to simplify the tree pruning process by highlighting eight steps for successful and safe pruning.

RPG also provides the Tree Grading and Tree Planting Cue cards in both English and Spanish. Download a copy of each cue card at rootsplusgrowers.org, or call 352-528-3880 to request yours today!

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