RPG Times

Spring 2007

A Publication of the Roots Plus Field-Growers Association of Florida

Wire Baskets: Why leave them intact?

By Michael Marshall, Marshall Tree Farm

As members of the Roots Plus Field-growers Association of Florida (RPG) we are often asked questions about various tree related issues. One commonly asked question is; "Should wire baskets be removed from trees at planting?" As members of the field-grown tree industry we depend on wire baskets because they provide the best system of handling, planting, and establishing newly planted trees while maintaining a high quality, tight root system. Wire baskets have been used for at least 40 years in our industry and millions of trees have been planted with wire baskets during that time. We believe that wire baskets are not detrimental to trees after planting and that recent hurricanes and storms have in fact proven that trees planted in wire baskets are superior performers in the landscape. While we do draw upon years of experience, the following response to questions about wire baskets is also based on scientific evidence and recent research into whether or not leaving wire baskets intact is detrimental to tree health.

First we would like to address the function of a wire basket on a field-grown tree. Wire baskets were designed to support a root ball on the top and sides. The top and side wires support the root ball during loading, shipping, and transplanting, insuring the root ball arrives at its planting site intact. They also provide support to the tree during the time it is establishing in the landscape. This support provided by the basket, along with the weight of the root ball, is the reason field-grown trees rarely need to be staked. When wire baskets are removed entirely or the top tiers of wire are removed, the advantage of the weight of the root ball helping to hold the tree in the ground is lost. After removal of the wire the trees will need to be staked (like most container trees are) and will be subject to blowing over during significant storm events. Not only does staking add significant cost to a tree planting project, it can also add liability with guy

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Establishment, Irrigation & Water Restrictions

Establishment

Tree establishment refers to the point a newly transplanted tree has grown roots into the surrounding soil a distance equal to approximately 3 times the distance from the trunk to the branch tips. During the establishment period, shoots and trunk grow slower than they did before transplanting. When their growth rates become more or less consistent from one year to the next, the tree is considered established. It is important to consider establishment time when planting trees in any landscape.

In moist climates, by the end of the establishment period a tree has regenerated enough roots to keep it alive without supplemental irrigation. Trees provided with regular irrigation through the first growing season after transplanting require approximately 3 months (hardiness zones 9-11) per inch of trunk diameter to fully establish roots in the landscape soil. Trees that are underirrigated during this establishment period are likely to require additional time to establish because roots grow more slowly. Most trees are underirrigated during the establishment period. Because roots are not fully established, be prepared to irrigate through the entire establishment period, especially in drought. Since most root growth occurs in summer, be sure soil moisture is appropriate during this crucial season.

Irrigation

Irrigation capabilities at the planting site should be considered before selecting trees. It is virtually impossible to plant and establish a thriving tree in our climate without an irrigation system in place. Regular irrigation after planting encourages rapid root growth that is essential for tree establishment. Irrigation helps maintain and encourage the desirable dominant leader in the tree canopy on large-maturing trees. Instead of a dominant leader, trees that are underirrigated during the establishment

Establishment, continued page 5

10th Annual Roots Plus Growers Workshop

Pruning, Producing and Planting Quality Trees

May 10, 2007 / Stewart's Tree Service, Brooksville, FL

-Florida Nursery Grades & Standards
-Root system manipulation techniques
-Oak gall management
-Nursery production pruning
-Nursery industry updates and trends
-Planting and establishment techniques

more workshop information on page 2

10th Annual Roots Plus Growers Workshop

Pruning, Producing and Planting Quality Trees

Stewart's Tree Service, Brooksville, FL
May 10, 2007

This demonstration style hands-on seminar is designed specifically for urban foresters, municipal tree inspectors, landscape architects, landscape contractors, and others in Florida's green industry. You are sure to come away from this workshop with a new understanding of quality trees and how to grow, select and plant them quickly and efficiently. Learn how to teach these simple techniques to your crews so they will never forget. This could be the best time your employees ever spend on learning new techniques.

Come learn how to select quality, recognize quality and grow quality trees. Learning the most up-to-date planting recommendations will help ensure these quality trees remain a sustainable part of the landscape for a long time.

2007 Topics and Speakers include:

Purchasing and planting quality liners- Jim Marshall Sr.

Root system management during field production- Jimmy Stewart & Jim Marshall Jr.

Production pruning in the first three years- Michael Marshall

Production pruning in years four to six- Dr. Ed Gilman

Leading the way by changing an industry- Dr. Ed Gilman & Brian Kempf

Controlling gall on live oak- Dr. Ilene Buss

Grading Shade Trees: Practical use of the Grades and Standards- Michael Marshall

Pruning Large Caliper Trees in the Landscape- Scott Shultz

Planting field and container trees- Ed Gilman & Bruce McClendon

Pruning the first ten years after planting in the landscape: funding and executing an urban tree pruning program- Brian Kempf

To receive a workshop brochure call 352-528-3880 or visit www.rootsplusgrowers.org. To register visit www.floridaisa.org or call 941-342-0153.

RPG Notes for Growth

by Jack Siebenthaler

As this is being written, just after the beginning of the 2007 major league baseball season, the Cleveland Indians were pressed into playing their first home series in Milwaukee, Wisconsin. The reason? Too much snow at Jacobs Field in Cleveland.

Games were also "snowed out" in Chicago and Boston!

Was Al Gore in the ranks of the disappointed fans? We're sure he wasn't even though we don't know too much about his appreciation for our national pastime.

With so much concern being voiced about the pending disaster of global warming, perhaps we'd be better to give up right now instead of making plans for our future!

One of the doom and gloom "experts" has predicted that much of Manhattan, and elsewhere along the Eastern coastline, would be under water by as soon as 2015. This is the most discouraging of the many predictions of disaster being fed to us on a daily basis by the news media and a "consensus" of scientists.

What should we be doing in the face of all these predictions? Our suggestion is that we don't "push panic buttons" and that we go about our strong and successful business practices. Politics has its place in the everyday language of news and human interest features. That's a given! But we need to be able to separate politics from business interests if we are going to keep going forward.

As we enter another hurricane season, let's be thankful for last year's relatively "immune" season and hope for another successful weather free experience like last year's. In the meantime, don't neglect the well known preparations for the possibilities of damaging storms which come as seasonal threats each and every year.

Roots Plus News

RPG Welcomes New Members for 2007

The Roots Plus Growers Association is still growing! We welcome four new Grower Members: Nealy Farm, LLC, Quality Trees & Shrubs, Spectrum Tree Farms, Inc., and Tiger Lake Tree Farm, Inc. RPG is now 25 grower members and 10 associate members strong. If you are interested in membership or in learning more about the Roots Plus Growers Association, please give us a call at 352-528-3880. For member locations and phone numbers please see page 6.

Cue Cards Coming Soon in Spanish

The very popular RPG Tree Grading and Tree Planting Cue Card are coming soon in Spanish. RPG has translated both cue cards and will be making them available sometime this summer. Please contact RPG if you would like copies of the Spanish cue cards so we can get a better estimate of our printing needs. As always if you would like copies of any of our cue cards just call 352-528-3880 and we would be happy to get some in the mail to you.

RPG Busy in 2007 with Conferences and Trade Shows

Roots Plus Growers continues a strong showing around the state and southeast with a busy Trade Show and Conference schedule in 2007. We begin this June visiting with over 400 attendees at the Trees Florida Conference in Palm Harbor. In July we will visit the Florida Chapter ASLA conference in Miami. September brings the Society of Municipal Arborists 43rd Annual Meeting in Hollywood, FL. FNATS: The Landscape Show is in October this year in Orlando. We will finish out the year with the Great Southern Tree Conference in Gainesville in November. Please come visit us at the RPG booth at any of these shows or conferences in the future. For dates and more information on these events and more see the RPG Timesline on page 7.

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 from Florida to Italy 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 (need to be watered less), establish faster after planting (start growing in your landscape faster), 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.

South Florida Facing Critical Drought Conditions

Water levels in Lake Okeechobee are dropping at an alarming rate and the Water Conservation Areas (WCAs) are at their minimum elevations. As a result, no water is being delivered out of the WCAs into the coastal areas. Due to the recent and severe increase in the rate of recession of regional water levels, the South Florida Water Management District (SFWMD) has called several emergency meetings. The purpose was to warn each district of imminent SFWMD actions and to coordinate operations to deliver water to priority areas. As a result of the emergency meeting, Phase II water restrictions may come as early as April 4th for users on the Lower East Coast due to the rapid drop in water levels in the Water Conservation Areas (WCA). Unfortunately, this has the potential to create severe problems for nursery growers and other agricultural producers throughout SFWMD and specifically within the Water Control Districts that also serve urban areas. For more information visit www.fngla.org.

Wire Baskets, continued from page 1

wires becoming tripping and mowing hazards. Also, we have all seen staking materials not removed in a timely manner that eventually can girdle and destroy a tree.

The wire basket also serves one other very important purpose; it provides a means for lifting the tree by the root ball so that the tree is not lifted by strapping on the trunk. The significance of this advantage to using wire baskets cannot be overstated. In fact, some of the largest container nurseries in the state have looked into using a type of wire basket inside of the container to help provide a safe way of handling larger container trees. A wire basket is designed to support the tree by distributing the weight over the entire root ball. Professionals agree this is the preferred method of lifting trees; lifting the entire weight of a tree by strapping directly around trunk can cause damage to the trunk and cambium. Sometimes this damage may not be noticed immediately and symptoms of this unseen damage can appear years later as the tree declines or dies in the landscape.

A concern frequently expressed about wire baskets is how the basket may or may not interfere with the tree's root system. The question is, does the wire girdle the tree's root system or trunk and cause the tree to decline? The simple answer to this question is NO. Research has shown that a root growing near the wire will eventually grow into the wire. It will initially be indented by the wire and, as it continues to grow, will grow around the wire completely. The root then grows new tissues on the other side of the wire and the xylem vessels reconnect. Researchers considered several factors to determine if this was damaging to the tree. The researchers did not assume that because the root grew completely around the wire it was still a functioning root. They compared xylem vessels in roots that grew around wire to roots that did not grow around wire and found them to be nearly similar. They also used dye flow tests to show that water movement through these roots was not impeded.

Dr. Glen Lumis published the results of his research into root growth around wire baskets, as well as the results of similar root research, in an article titled "Wire Baskets: A Further Look, Research sheds new light on the wire-basket controversy" which was published in American Nurseryman magazine. The following is an excerpt from this article:

After several years of field and laboratory study, I have made the following conclusions about wire baskets and their effects on root growth.

Roots grow around basket wire, forming a complete union of bark and wood tissue; roots are not permanently girdled.

Root tissue formed after growing over wire permits translocation.

There appears to be no injury to, or break in, the root periderm that would allow pathogens to enter a tree.

Basket wire remains intact in soil for many years, and wire strength diminishes slowly.

Removing wire baskets at planting time is not necessary to assure growth and survival of large tree roots. However, you should remove any rope across the top of the ball, and bend back or remove basket loops.

Using a correctly sized basket for each root ball is imperative. The top horizontal wire should be at least several inches above the top of the soil ball.

RPG members agree completely with Dr. Lumis's research and further believe the more than 40 years of successful tree planting and establishment in wire baskets throughout the world further backs up his conclusions. We also agree that removing any rope from the top of the root ball and bending back of the loops on the top of the basket are appropriate measures to take after the tree is established in the landscape to avoid possible girdling at a future date. Once again it is important to leave the rope intact during establishment to gain all of the stability advantages a field grown tree can provide.

Another article titled "Should wire baskets be removed from trees?" was published in the FNLGA Greenline in September of 1995. This article addressed many of the same topics as well as mentioning a survey done by Dr. Edward Gilman of the University of Florida. The articles states that Dr. Gilman looked at 14 inch caliper trees that had been planted 12 years previous as 4 in caliper trees in 44 inch wire baskets. This survey found that welds holding the wire together were mostly broken but that the wire itself was strong and mostly intact. Dr. Gilman found in this survey that "the spacing of the wire in the baskets appeared to provide ample room for roots to expand with no interference or restriction of roots." The article goes on to say that " there was no evidence the wire was affecting the root system or the tree." The following excerpt is from "Should wire baskets be removed from trees?":

When a tree declines or dies, look at all possible causes. There are an estimated 40 million trees transplanted within the last 35 years in wire baskets. There are few confirmed reports of trees declining from damage or restrictions of roots caused by the use of wire baskets. Root tissue appears to grow around the wire and reconnect.

Concern with wire baskets should focus on their real function, that being a proper method of lifting the tree and the support the top wire gives to the root ball during windy conditions and the establishment of the tree. It has been observed that improper removal of the wire can result in serious damage to the root system which outweighs any benefit received by removal of wire. Proper staking and guying can usually prevent this. It is also understood why most growers and landscape contractors have refused warranties when baskets are removed or cut away.

Dr Gilman has had 12 years experience looking at trees since the 1995 article. In Gainesville at the GSTC demonstration site he showed us more than 40 trees he planted in 1992 in 32" baskets. All trees are now more than 2 feet in trunk diameter and growing vigorously with no signs of stress from wire baskets. In fact you can not find any sign of the baskets when digging into the soil around the root flare because the roots have completely engulfed and grown around the wire.

As members of RPG we believe that years of evidence, both scientific and observational, show that wire baskets provide a superior system for transplanting and establishing trees. We hope this information has helped to clarify the issue and always welcome your input or observations about how our product is working for you in your landscapes. We also welcome the opportunity to speak to your local industry groups, municipalities or landscape architects about this or any other issue related to tree production.

Transplanting Tips - Irrigation Requirements

Size of nursery stock	Irrigation schedule for vigor see notes 1,3	Irrigation schedule for survival see notes 2,3,4
< 2 inch caliper	Daily for 2 weeks; every other day for 2 months; weekly until established.	Twice weekly for 2-3 months
2-4 inch caliper	Daily for 1 month; every other day for 3 months; weekly until established.	Twice weekly for 3-4 months
> 4 inch caliper	Daily for 6 weeks; every other day for 5 months; weekly until established.	Twice weekly for 4-5 months

1. Delete daily irrigation when planting in winter. Irrigation frequency can be reduced slightly (e.g. 2-3 times each week instead of every other day) when planting hardened-off, field-grown trees that were root-pruned during production. Establishment takes 3 (hardiness zones 10-11) to 4 (hardiness zones 8-9) months per inch trunk caliper.

2. Irrigation frequency can be reduced slightly (e.g. to once or twice each week) when planting hardened-off, field-grown trees that were root-pruned during production.

3. At each irrigation, apply 2-3 gallons per inch trunk caliper to the root ball. Apply it in a manner so all water soaks into the root ball. Do not water if root ball is wet/saturated on the irrigation day.

4. Trees take much longer to establish than 3-4 months per inch trunk caliper. Irrigate in drought the following summer.

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period often develop undesirable, low, codominant stems and double leaders. Since most root growth occurs in the summer months, irrigation during this time is crucial. You could loose almost an entire year's root growth if you under-irrigate the first summer.

Unlike established plants, research clearly shows that recently transplanted trees and shrubs establish quickest with light and frequent irrigation. For trees planted in spring or summer, provide one (cooler hardiness zones) to three irrigations (warmer hardiness zones) each week during the first few months after planting. Daily irrigation in the warmest hardiness zones provides the quickest establishment.

Following the initial few months of frequent irrigation, provide weekly irrigation until plants are fully established. At each irrigation, apply about one (cool climates) to two (warm climates) gallons of water per inch trunk diameter (e.g. 2 to 4 gallons for a 2-inch tree) over the root ball only.

In most landscapes that receive more than 30 inches of rain or irrigation annually, if the mulch area is maintained weed-free, irrigation does not need to be applied outside of the root ball. Never add irrigation if the root ball is saturated.

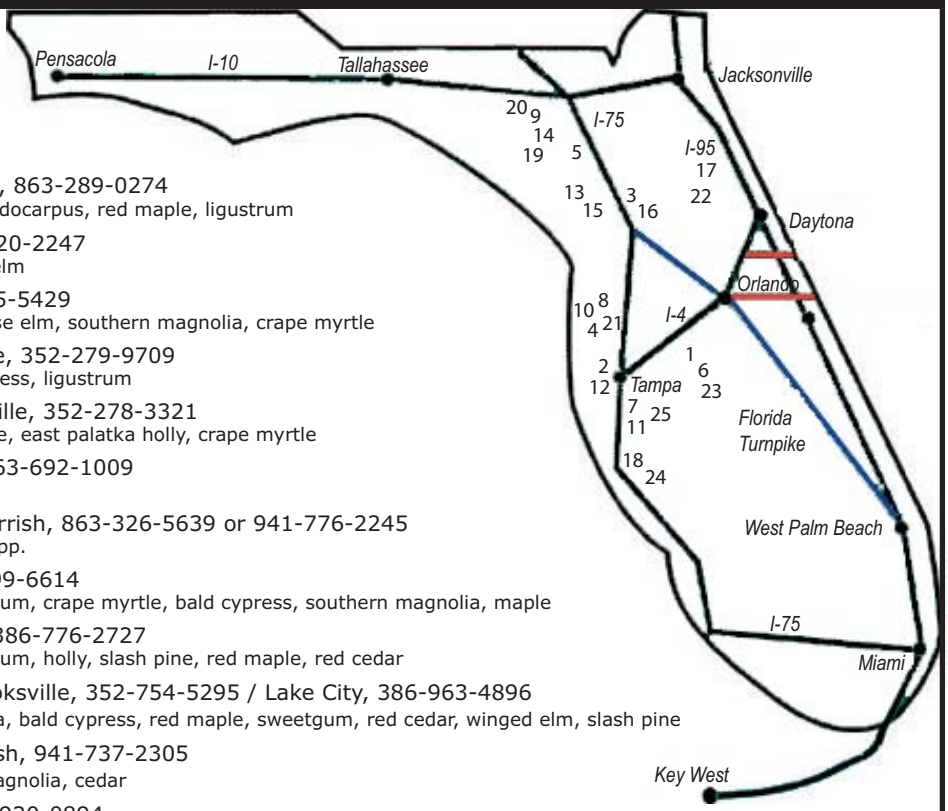
Water twice per month in warm weather in spring, summer, and fall and once or twice per month in winter in the first three to five years. Between years five and seven, water once every three weeks in warm weather and once every six weeks in winter.

Water Restrictions and Drought

Water restrictions are often implemented throughout Florida during times of decreased rainfall or drought. A common restriction during this time is to give a 30 day grace period for newly planted landscapes. This usually means that a new landscape can be irrigated daily during this time period with the irrigation system. As the establishment information above indicated, this 30 day period is not enough time to establish a tree in Florida. While most restrictions allow for hand watering with a hose as much as needed the large size and scope of many landscape jobs does not make this a realistic option. Low volume irrigation systems with drip or bubbler heads are often exempt from watering restrictions as well. This is because low volume systems enable trees to be watered on separate zones without the need to water surrounding shrubs or turf. Experience has shown that the minimal investment required to install a low volume system is far outweighed by the transplanting success of trees planted with a drip or bubbler irrigation system.

Some of the information in this article is from Dr. Ed Gilman's website at //hort.ifas.ufl.edu/woody/planting.html

RPG Grower Members
locator map and available species



1. **Alturas Native Nursery** - Alturas, 863-289-0274
   bald cypress, live oak, holly, cedar, podocarpus, red maple, ligustrum
2. **BE-MAC Farms** - Odessa, 813-920-2247
   live oak, pine, sycamore, sweetgum, elm
3. **Bent Oak Farm** - Ocala, 352-245-5429
   live oak, willow oak, red maple, chinese elm, southern magnolia, crape myrtle
4. **Cannon Trees, Inc.** - Brooksville, 352-279-9709
   live oak, southern magnolia, bald cypress, ligustrum
5. **Champion Tree Farm** - Gainesville, 352-278-3321
   live oak, southern magnolia, red maple, east palatka holly, crape myrtle
6. **D.H. Keen, Inc.** - Lake Wales, 863-692-1009
   live oak, laurel oak
7. **Ellenton Nursery Growers** - Parrish, 863-326-5639 or 941-776-2245
   ligsutrum, red maple, live oak, palm spp.
8. **FMT Farms** - Brooksville, 352-799-6614
   live oak, laurel oak, sycamore, sweetgum, crape myrtle, bald cypress, southern magnolia, maple
9. **Fort Drum Growers** - McAlpin, 386-776-2727
   live oak, laurel oak, sycamore, sweetgum, holly, slash pine, red maple, red cedar
10. **Huntsman Tree Supplier** - Brooksville, 352-754-5295 / Lake City, 386-963-4896
    live oak, laurel oak, southern magnolia, bald cypress, red maple, sweetgum, red cedar, winged elm, slash pine
11. **John Deere Landscapes** - Parrish, 941-737-2305
    live oak, laurel oak, holly, southern magnolia, cedar
12. **Keystone Farms** - Odessa, 813-920-0894
    live oak, ligustrum
13. **Marshall Tree Farm** - Morriston, 800-786-1422
    live oak, southern magnolia, sweetbay magnolia, holly, chinese elm, winged elm, crape myrtle, slash pine, bald cypress, sweetgum
14. **Nature Coast Tree Corp.** - Bell, 386-935-9349
    live oak, ligustrum, holly, southern magnolia
15. **Nealy Farm, LLC** - Dunnellon, 352-817-1391
    live oak, ligustrum, holly, maple, chinese elm
16. **Quality Trees & Shrubs** - Leesburg, 352-257-2080
    live oak, southern magnolia
17. **Skinner Nurseries** - Bunnell, 800-741-2020
    live oak, ligustrum, holly, crape myrtle
18. **SMR Farms** - Bradenton, 941-708-3322
    large specimen live oak
19. **Southern Pride Tree Farm** - Bell, 386-935-3636
    live oak, ligustrum, holly
20. **Spectrum Tree Farms, Inc.** - Live Oak, 800-753-1379
    live oak, ligustrum, holly, crape myrtle, slash pine, bald cypress, southern magnolia
21. **Stewart's Tree Service** - Brooksville, 352-796-3426
    live oak, laurel oak, southern magnolia, holly, ligustrum
22. **The Magnolia Company** - Barberville, 800-880-4662
    southern magnolia
23. **Tiger Lake Tree Farm** - Lake Wales, 352-516-0509
    live oak
24. **Turner Tree & Landscape** - Bradenton, 941-721-3597
    live oak #1 and naturals
25. **Walsh Brokerage** - Parrish, 863-326-5639
    palm spp., live oak, laurel oak, sycamore, pine spp. holly, magnolia

Associate Members

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Grass Roots Nurseries

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Jack Siebenthaler

Sunrise Landscape

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RPG TIMESline

May 10th, 2007 - Pruning, Producing, & Planting Quality Trees: 10th Annual RPG Field Day, Brooksville, FL
For more information contact RPG at www.rootsplusgrowers.org or call 352.528.3880

June 9-12th, 2007 - Trees Florida Conference and Trade Show, Tarpon Springs, FL
For more information visit www.treesflorida.com

July 26-28th, 2007 - Florida Chapter ASLA 2007 Annual Conference and EXPO, Miami, FL
For more information contact FC/ASLA at www.flasla.org

August 9-11th, 2007 - Southern Nursery Association (SNA) Forum 2007 Trade Show, Atlanta, GA
For more information contact SNA at www.sna.org

August 17-19th, 2007 - Nursery/Landscape EXPO 2007, Dallas, TX
For more information visit www.txnla.org

September 15-19th, 2007 - Society of Municipal Arborists 43rd Annual Conference, Hollywood, FL
For more information visit www.urban-forestry.com

October 4-6th, 2007 - FNATS: The Landscape Show, Orlando, FL
For more information visit www.fngla.org or call 800.375.3642

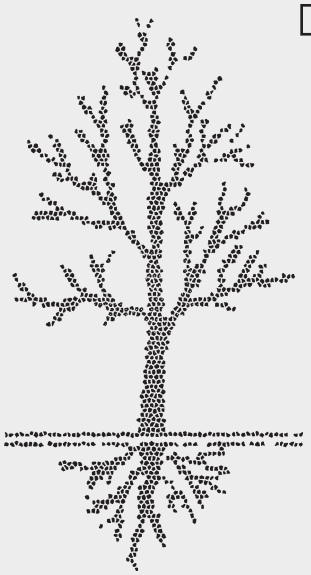
October 5-9th, 2007 - ASLA Annual Meeting & EXPO, San Francisco, CA
For more information contact ASLA at www.asla.org

November 29-30th, 2007 - Seventh Annual Great Southern Tree Conference, Gainesville, FL
For more information visit www.fngla.org or call 800.375.3642

RPG Information

If you would like more information about the Roots Plus Field-Growers Association of Florida please complete the following and return it to:

Roots Plus Growers
17350 SE 65th Street
Morriston, FL 32668



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Tree Planting Cue Cards ____
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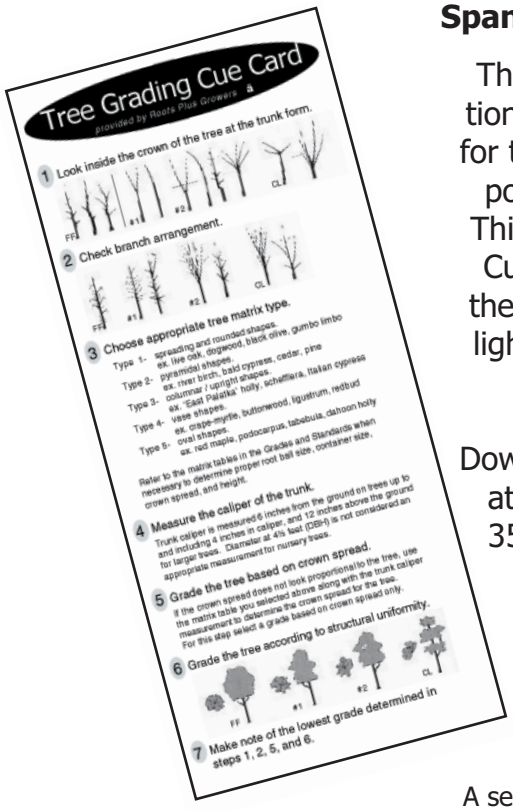
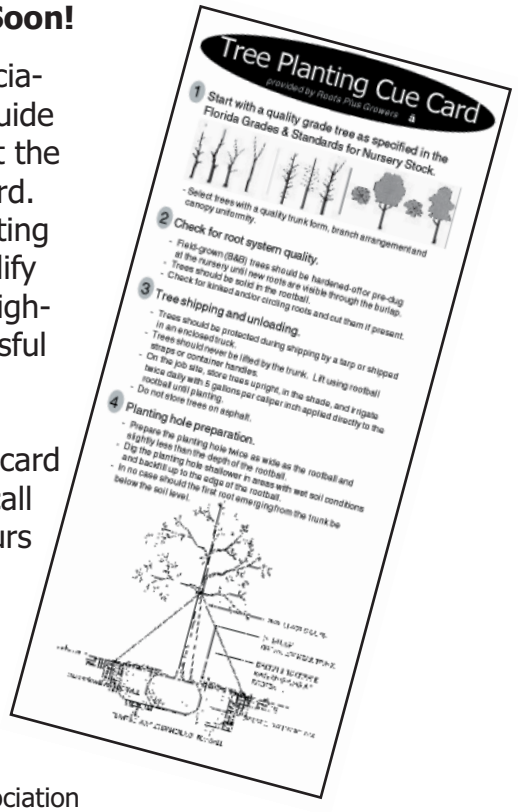
Phone _____ Fax _____



Spanish Cue Cards Coming Soon!

The Roots Plus Growers Association has developed a pocket guide for tree planting to supplement the popular Tree Grading Cue Card. This 3x7" laminated Tree Planting Cue Card is intended to simplify the tree planting process by highlighting eight steps for successful transplanting.

Download a copy of each cue card at rootsplusgrowers.org, or call 352-528-3880 to request yours today!



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