



**ROOTMAKER<sup>®</sup>**  
PRODUCTS COMPANY

newsletter

SUMMER 2002

### RootMaker® News

The winter shows were great and thanks to the many growers that visited our booth. We had the opportunity to visit with many customers, both new and old.

We have two terrific announcements to make in this newsletter. First, we have three new products lines that are now available. Second, we have our first Grower-Dealer.

The three new product lines are **Rootrapper™\*** containers, **Rootskirt™\*** wraps to lower temperatures in above ground black containers, and **Chaps™\*** tree trunk shields to protect young trees in the field. (See enclosed fliers) In addition, we will offer the Rootrapper™ in 3 and 4 foot widths for use under RootBuilder® for those plants that growers do not want roots growing into the soil.

The Grower-Dealer is A & S Horticulture in Deland, Florida. The owner is Steve Brown and he can be reached by phone at (321)436-7313. A & S Horticulture sales territory is for the state of Florida south of the Georgia-Florida line and east of a north-south line through Tallahassee. They warehouse all the products that RootMaker® offers.

The new products will be on display at the upcoming trade shows. We encourage all to visit if possible. These products will greatly increase the potential for producing superior plants.

Interest in the *Certified Grower Program* continues to increase. Remember, plants germinated in any container (plug trays) other than a RootMaker® will disqualify those plants as RootMaker® Certified Plants, no matter how short the duration. We now have a CD with all the RootMaker® artwork that can be used in advertising. This is available to all Certified Growers upon request.

We get a number of calls from nurseries requesting liner growers that use RootMaker® propagation containers. We are in the process of establishing a database of these growers and the category

of plants that each produces. We are not going to keep up with all the species that a nursery grows, just the category of plants. If you are interested, please send the following information to us by letter, fax, or email. (See last page for address.)

Nursery Name and contact

Address – mail and physical

City, State, Zip code

Phone, Fax, Email address

Plant category and size range, i.e.

Trees, propagation to 5-gallon, or

Perennials, propagation to 1-gallon or

Woody ornamentals, propagation to 3-gallon.

The summer shows are not far off, so make your plans to visit. Some people that I have talked with this year have not taken the time in the past to go to one of the major summer shows. Others are new in the industry. This year, plan to go! There is always something new to see.

PANTS trade show in July has been added to the schedule. I will be at all of the shows. Dr. Whitcomb will be at SNA and the Nursery/Landscape Expo in Houston. I will be visiting the Far West and the MTNA 2002 trade shows. We are not going to have a booth at the Western Expo in Las Vegas this year.

### July Show

PANTS, Ft. Washington, Jul 8 - 10 Booth # 2620

### August Shows

SNA, Atlanta, Aug 2 - 4, Booth # 541-542  
The Nursery/Landscape Expo, Houston, Aug 16-19,  
Booth # 2149-2151

### September Show

FNATS, Orlando, Sep 19-21, Booth # 776

Additional information about the trade shows can be found through our web site, [www.rootmaker.com](http://www.rootmaker.com). We have links to most of the shows above.

We will also be at the Great Southern Tree Conference in Orlando December 6-7 again this year. A number of people from Florida and the Southeast attended last year. It was labeled as a success by all that I have talked with and hopefully that will continue. If you are interested in attending, the phone number for information is 407-295-7994 or on line at [www.fnqa.org](http://www.fnqa.org), or by writing Great Southern Tree Conference, 1533 Park Center Drive, Orlando, Florida 32835.

The American Forests, an urban conservation group, made a study of urban tree canopy and determined that there is a National Tree Deficit. They are recommending that to provide the appropriate urban forest cover, 634,407,719 trees need to be planted to make up for trees removed to make room for urban growth and suburban development. American Forests is recommending a 15% increase in commercial areas, a 25% increase in urban areas, and a 60% increase in suburban areas. That is very large number of trees by any standard. Additional information concerning their recommendations can be obtained at the American

Forest® web site, [americanforest.org](http://americanforest.org).

In addition, an article in *Wall Street Journal* recently predicted good times for landscape companies, especially upscale firms. This is good news for RootMaker® growers.

#### **Grower Tips: (Repeat from last issue.)**

Plants are easier to remove from RMI-1P and RMII-32 propagation cells if the roots are slightly dry.

**Do NOT** use any pre-emergent herbicide that has a water solubility greater than 1 PPM. Avoid herbicides that are ALS inhibitors and sulfonylureas. These are slow but subtle disrupters of the growth and flowering and root development of nearly all woody plants. Be aware that a number of these compounds are being sold under a variety of new and very benign names. Some of the active ingredients to look for are rimsulfuron, chlorsulfuron, and metsulfuron. **CHECK THE LABEL!\_**

---

### **Lacebark, Inc News**

The first grandson for Carl and LaJean, Luke Bryan Whitcomb, arrived May 1, 2002 weighing in at 7 pounds 14 ounces and is good looking, talented, and energetic. (What else would you expect from a first time grandfather.)

Progress often goes in 'spurts'. The growing season of 2001 was one of those 'spurts'. For several years I had been trying various material or combinations of materials to create a container that would be cooler. Years ago I tried white plastic alone and the temperature was lowered, but the green algal slime on the inside was a severe competitor with roots. Then, I got a firm near Chicago to make some white on black laminated plastic bags. The plants grew great, there was no algal slime and the temperature was 15 degrees or more cooler compared to black plastic pots – but the white coating was mostly gone by the end of one growing season. Then I tried other fabrics around various types of containers. Root zone temperatures were cooler, but they were cumbersome and impractical. Then I found a way to laminate a clear plastic coating onto a spun bonded fabric. Then came the bonding of a thin white coating with good UV light tolerance onto black spun bonded fabric. The results on a variety of studies during the 2001 growing season, led to patents being filed for three new products.

- **Rootrapper™\*** containers are 15 degrees

or more cooler, stops root circling, conserves water, plus are tough and easy to handle and economical.

- **Rootskirt™\*** cover the outside of black plastic containers and lower the temperature in the root zone by 20 degrees or more in summer and will provide some temperature moderation during the winter.
- **Chaps™\*** are white stem protectors for young trees grown in the field. Chaps™ allow safely spraying Roundup® or other contact herbicides around tree stems without stem damage and stunting.

Plant patents have been applied for on two new crepemyrtle. G-15-1-A has burgundy / wine new foliage, then lots of white flowers, plus good vigor, eventually reaching a small tree form plus cold tolerance and mildew resistance.

E-8-99 has crimson new growth that quickly changes to dark green but the flowers are Ox Blood Red (distinctly darker red than Dynamite® or Red Rocket®, plus moderate vigor, with ultimate height estimated at six to eight feet plus cold tolerance and mildew resistance. Trademarked names will be announced only after they have been approved. Anyone interested in growing these new plants should contact me at Lacebark, Inc. (405-377-3539) if you are not already licensed and on the list to receive liners.

The crepemyrtle seedling crop for 2002 looks exciting. Most seedlings are only one or two inches tall, but lots of burgundy to near black foliage can be found. With over 10,000 seedlings from 64 different parents, another breakthrough is possible. Great Fun!

Our web site is under construction and should be completed soon. All of the plants available will be featured. It will be found at [www.lacebarkinc.com](http://www.lacebarkinc.com). Our email address will stay the same, [lacebarkinc@juno.com](mailto:lacebarkinc@juno.com).

---

## TIPS OR REMINDERS for KNIT FABRIC IN-GROUND CONTAINERS

BY Carl Whitcomb Ph.D.

1. When you harvest, you see a reflection of how well you handled instillation. In March 2002 we harvested a number of shumard oak and Chinese pistache trees that had been in the field in 12 inch diameter knit fabric containers for two + growing seasons and ranged from 1.75 to 2.75 inch stem diameters. The trees had been grown from seed in RootMaker® propagation containers and shifted to square one gallon RootMaker® in June, then planted into the 12 inch knit fabric containers in the field in October. I had planted part of the trees and two students that were assisting me planted others a few days later. When the trees were harvested by pulling using a nylon strap, there were distinct differences. Those planted by the students had several with circling roots at the bottom whereas those planted by me had none. [This is also a good lesson /reminder about keeping good records.] Before replanting, all circling roots at the bottom were cut. All of the knit fabric containers had been installed to the same depth as a result of having a control leg on the tractor auger that limits depth to 12 inches. When I planted trees I consistently removed the ring of soil at the outside bottom of the hole. The ring of soil may only be \_ to one inch tall and results from soil falling back in as the auger is being removed. Removal of the ring can be as simple as spreading the loose soil equally over the bottom or moving it to the center to fill in the pilot hole left by the auger or just rotating the unfilled container with filler sleeve back and forth so as to reduce or eliminate the doughnut ridge of soil.

If the ring of soil remains, the root impermeable bottom gets turned up and can act the same as a smooth bottom plastic above ground container and encourages any vigorous roots that reach the bottom to circle. On the other hand, if the bottom of the planting hole is flat, any vigorous roots that hit the bottom are deflected to the side where they contact the knit fabric and are constriction pruned.

2. Another error in instillation that I observed while harvesting these trees reflected the time and

attention paid (or actually not paid) to getting the filler sleeve fully expanded against the vertical knit fabric sidewall before or during the filling process. In some cases the root impermeable bottom was 1 to 1.5 inches up on one side of the harvested root ball.

The way to prevent this problem is to place a few inches of soil in the bottom of the knit fabric container and press this soil out against the filler sleeve either using the foot or hand or other instrument. The soil pressing against the filler sleeve, in turn stretches the knit fabric sidewall out and removes wrinkles and flattens the bottom.

3. During this harvest / transplanting process of trees in the 12 inch knit fabric containers, I was also reminded of the various techniques I have tried during removal of the fabric. The shumard oaks had modest root growth through the knit fabric (very good by oak standards) and by cutting an X across the bottom of the root ball and once up the side, the knit fabric was removed without undue difficulties. The X cut across the bottom releases four pie shaped pieces for pulling.

On the other hand, the Chinese pistache have a much more fibrous root system and I estimated that there were at least one small root growing through each square inch of the fabric sidewall. With such a proliferation of roots (nearly all of them \_ inch or less in diameter), when the trees were pulled, a layer of soil 2 to 4 inches thick was retained around the 12 inch knit container. Until this soil was removed, the knit fabric could not be removed. In some cases the soil outside the knit container could be removed by dropping the root ball or with the foot. In other cases, and where roots were especially dense, a heavy-duty spatula four inches wide and that had been sharpened on the edge, worked well. Another technique that worked well was to go around the root ball with a machete. It matters little if the machete cuts the knit fabric, as it will soon be removed. I preferred the four-inch spatula, while my assistant preferred the machete. \_

---

**THE 4-INCH RULE**  
Or  
How to Maximize Root Branching in  
Containers

By Carl Whitcomb, Ph.D.

Anyone that has ever pruned shrubs or trees to make a hedge has experienced the '4-inch rule'. It has long been known that when a twig or branch is cut in the pruning process branching occurs, but did you notice where? Typically from the point of the pruning cut and extending back about **4 inches**. Allow the numerous branches produced as a result of the first pruning to grow out 4 to 6 inches then prune again, and more branching occurs. **Branching occurs as a result of removing the terminal bud,** ( also known as apical dominance) **which produces hormones that suppress branching.** What has been known for only a few years is the fact that the 4-inch rule applies to root as well. This is especially dramatic with young roots that are the below ground counterparts to the twigs pruned to create a hedge. As Roots grow older they become less responsive to pruning just as occurs with larger limbs and branches.

Root tips have an apical dominance just like twigs. With roots, the white tip is most responsive and when air-root-pruning occurs at the proper location, secondary roots typically begin to form quickly and within 3 to 5 days the 4-inch rule is obvious. By contrast, in nature the tip of a taproot extends downward until conditions become unfavorable (rocks, hard subsoil, lack of oxygen, water table, etc.). Only when the tip of the taproot stops growing or dies does secondary branching occur, but by then the tissues just beneath the soil have matured and few branch roots are produced. As a result, only a fraction of the secondary roots form in nature compared to when the tip of the young taproot is pruned at a point about 4 inches below the seed. Horizontal roots respond to the 4-inch rule as well.

Have you ever noticed that when a plant is shifted from a small container to an overly large container that the root system is slow to develop to the point where the root ball is firm and you can no longer see the root system 'flex' when the wind blows? This is

because the up-sizing exceeded the 4-inch rule, and substantial 'extra' time in production is required. I have both observed and have been able to create the extreme, where the plant had grown to market size, yet was not salable because of the 'flex' in the root system.

It is important to note that the 4-inch rule applies primarily to plants grown in containers. Why? Because root tips can extend aimlessly through the porous container growth medium with little resistance and as a result, little natural branching occurs. By contrast, root tips growing through most field soils experience much more resistance to root extension and as a result, root branching is much greater (the exception would be extremely sandy soils).

Therefore, to develop the most fibrous root system the depth of the propagation container should be about 4 inches deep and 2 to 4 inches wide as the practical optimum. When transplanting from the RootMaker® propagation container, respect the 4-inch rule in order to maximize root branching. This means that RootMaker® liners should not be planted into containers larger than approximately 10 to 12 inches diameter (2.5" to 4" on either side).

**It is important to note that the 4-inch rule DOES NOT compensate or overcome the problem of leaving plants in a given container size too long.** Benefits from RootMaker® air-root-pruning containers is roughly a bell curve – that is, root branching increases and increases, reaching a maximum, then, if transplanting does not occur, root branching and benefits begin to **DECLINE**. This occurs because there is a limited amount of space in any container and as that space is filled with roots there is little space for new root development. The plant becomes 'root-bound', even though there is no root circling. The only solution is to transplant in a timely fashion and when the plant needs to be transplanted, not when you get around to it.

By utilizing the 4-inch rule, root branching is maximized throughout the growth medium, which in turn stimulates top growth and improves plant quality. Combine the 4-inch rule with alert and timely transplanting and plant growth and quality of both tops and roots takes a giant step forward. \_

**RootMaker® Products Company**  
PO Box 14335  
Huntsville, Alabama 35815  
800-824-3941 Fax 256-882-0423  
sales@rootmaker.com

\* Patent Pending.

RootMaker®, RootBuilder®, Rootrapper™, Rootskirt™, Chaps™, and Dynamite® are registered trademarks of Lacebark, Inc. , an Oklahoma Corporation.